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Biopower and Play:

Bodies, Spaces, and Nature in Digital Games

Stephanie Rutherford & Pablo S. Bose

Trent University & University of Vermont

Abstract

This paper takes up as its focus the ongoing fascination with narratives of nature and discourses of control in the worlds of digital games and gaming culture. In a range of gaming genres and franchises we see nature as plot device, as backdrop, as a menacing or chaotic environment in need of management and regulation, and as a rich set of malleable materials ripe for human manipulation. Our attention is on two titles and franchises in particular: *BioShock* and *Spore*. Both are representative of narrative tropes concerning nature that have become common to digital games across many genres, platforms and styles. We examine two different aspects of these games: the relationship between their discursive representations of nature and the affective dimensions of their gameplay. A close analysis of these two elements allow us to explore how the immersive qualities of these games offers a biopolitical simulation in which the gamer manages relationships between the human and nonhuman and scripts the conditions of possibility for encountering the natural world. We assert that these digital games offer therefore a unique insight into contemporary understandings of nature, where anxieties and desires about environmental crises are acted out, managed, and temporarily reconciled.

Introduction

"How will you create the universe?" This is the question that the developers of *Spore*, a PC game released in 2008, pose to the gamer. It is a potent question indeed. The gamer is invited to re-imagine the world, acting as architect, engineer, and god, managing their creature creation from single-celled organism to space-faring conqueror. The opportunity offered in the phrase "playing god" is one that resonates in the two game titles and franchises we examine in this article: *BioShock* and *Spore*. Of course, wielding power over life and lives is not new to the virtual world; we have become inundated with the chance to build empires (e.g. the *Civilization* and *Age of Empires* franchises), re-enact and re-engineer conquest (e.g. the *Total War*), and rehearse and manage the stuff of cities, theme parks, and even everyday life (e.g. *The Sims* and the *Zoo Tycoon* franchises). Nor is a fascination with the natural world in various forms and incarnations a new enterprise for gamers or the gaming industry. One can indeed argue that throughout its relatively recent history—from its infancy through the early boom years of the late 1970s and early 1980s, past its decline and into its current rebirth and expansion—there has been an ongoing fascination with creating facsimiles of the 'real world' through virtual means and of controlling the chaos of nature with human hands.

As technologies have improved at exponential rates in recent decades however, the gaming industry's ability to provide greater depth and realism to the experience of both encountering and manipulating nature has expanded and intensified. No longer do we simply spin a triangle representing a spaceship and fire a dash meant to simulate a missile in order to eliminate asteroids. It is no longer enough to move past simple boxes and lines or even across screens of text alone in order to conjure mythic worlds and magical adventures. Instead, we can now spend days and months exploring the hyper-real landscapes of deserts and oceans and mountains in just about every genre of the burgeoning gaming universe. We are able to kill animals, aliens and other humans in gruesome detail, the experience enhanced not only by the splattering of blood and guts, but equally by the small touches game designers utilize—street signs, shadows, wind-blown trees, twinkling stars—to make the environments we are situated in feel more authentic.

Being able to mimic some notion of 'the real' in the virtual is a central feature of many digital games, including self-contained fantasy and science-fiction titles like the *Elder Scrolls*, *Mass Effect*, *Halo*, and *Fable* franchises, massively multiplayer online role-playing games such as *World of Warcraft*, sports series such as *Madden NFL* and even musical rhythm series like *Guitar Hero*. Social networking sites are not immune to the same trend, whether flash-based games on Facebook, or the painstaking—some might say tedious—attention to detail of *Second Life*. We are drawn in such titles to the photorealism of natural environments, from grass and water, to sky and clouds, to the dirt and grime of city streets, the immediacy of spaces both familiar and fantastical, and to the apparently sensory appreciation of sounds and textures. Simultaneously and

perhaps more importantly, we are drawn in such titles to our ability to alter, control, subvert, manage, and reconstruct these virtual spaces. It is not enough that we participate in a digital reality but that we have a strong and often seemingly omniscient hand in the conditions of performance and indeed being within such spaces.

The question of 'reality' has long been a vexed one when it comes to the world of digital games however. For some, virtual environments can seem a 'safe' rendering of the biophysical world, quite literally a virtual sandbox in which to test boundaries, hone skills, and experience failure and loss without real-life consequences. Some researchers suggest, for example, that multiplayer games such as *World of Warcraft* and *Second Life* and even first person shooter titles such as *Half-Life 2* have something important to tell us about ourselves, that they can be "broadly useful for psychological research on real-world behavior" (Kozlov and Johannsen, 2010: 711). And certainly we have seen the longstanding use of digital games as explicit educational tools, teaching everything from learning to type to learning how to fly complex aircraft. Yet as Frostling-Henningsson (2009) points out, virtual environments are in important ways a manifestation of Baudrillard's notion of the 'hallucination of the real', a life-like shell of a world full of artifacts and props that signal places, times and people that feel familiar. In the *Assassin's Creed* series the player can walk (or leap, jump and crawl) around medieval Jerusalem, Renaissance Italy and Constantinople, and revolutionary America, wearing period clothing, interacting with historical figures and literally scaling famous buildings and monuments. Yet – perhaps obviously – the player cannot actually perform these improbable feats if they were even able to visit these places; it is a sleight of hand of the gaming experience that makes one feel that the impossible is now possible. In important ways then, the game is always a simulacra, an echo and a reconstitution of lived experience that is fundamentally without substance. There is nothing particularly unusual about this in one sense; as Schwartz (2006) points out, digital games mimic other forms of representation such as literature and films in the demand they place on their audience for a willing suspension of disbelief. The important distinction she notes, however, is in the ability to participate and actively shape these virtual environments:

> In video games, not only are game worlds rendered in a way unlike that of film or literature, but games also offer players some degree of control over environments that can be explored at will. Yet players interact with environments in forms foreseen and coded by game designers (Schwartz, 2009: 318).

Is it a sense of power then that lies at the heart of gamers' intense fascination with the 'real' world and its ordering? What is it that popular culture in general and this form of media in particular tell us about nature-culture interactions? A simple answer may be that the more realistic and 'natural' the surroundings within which a game is

situated, the more immersive and 'real' the game becomes, despite the caveats regarding the lure of 'reality' discussed above. Yet, this does not answer the broader appeal of controlling nature(s)—whether as background or as plot device—in contemporary digital games. What is the lure for gamers of engaging in seemingly prosaic activities, ones that force them to manage the minutiae of human and nonhuman virtual worlds? Why, for example, would a gamer be interested in making decisions about whether one's newly created species will be herbivores or carnivores, or determine the intricacies of genetically altering one's avatar body? What is the attraction in transforming the flora and fauna of undiscovered worlds, or shaping and reshaping oceans, mountain ranges, or the very DNA of our bodies, especially if such changes require deliberate, precise— some might even say boring—attention to mundane matters like shifting atmospheric pressures and calibrating a balance of enzymes and genes? What is the joy in playing god if such power emanates not from mere decree and whim but rather from the careful management of bedeviling details?

To understand these dynamics better, we have chosen to focus on two representative titles, each of which provides a different take on nature/culture interactions; *BioShock* blends a dystopian past with rampant genetic mutation while *Spore* allows the gamer to control and manipulate every aspect of evolution. The worlds provided by each of these games, in some sense, offer what seems to be an endless possibility space: the fictive opportunity 'to make live and to let die' (Foucault 2003, 241). More precisely, we argue that the games explored in this article— although in some ways congruent with previous iterations of nature found in the gaming world—also signal something somewhat different: a means to think through how a realm of fantasy can speak to an emerging biopolitical imaginary, where populations are managed, new ways of being in nature are made possible, and the optimization of human and nonhuman life is realized in complex ways. In a world where the roles, the actions, and even the physical configurations of the gamer—placed opposite a screen, interacting with digital others, processing and being processed as electronic data, confronting a plethora of sights and sounds—is reproduced increasingly in the workplace and in formal educational contexts, games that teach the user how to bring order to chaos are important to engage with. In fleshing out this point, we engage in a conversation about the productive character of games, generating discourse, affect, and subjectivity. Coulter, following Baudrillard, has suggested that games 'originate in a society that is increasingly ambivalent about its future' (Coulter 2007, 359). Taking this as a starting point, we suggest that some video games might provide a space through which anxieties and desires about environmental crisis are acted out, managed, and temporarily reconciled. As such, this article is animated by the following questions: How do games script the conditions of possibility for encountering both virtual and non-virtual worlds? What insights do these games offer for contemporary views of nature, both human and nonhuman? How might environmental ambivalence be assuaged as part of a game and to what effect?

Theorizing virtual games spaces

As Bogost (2007) suggests, video games are vehicles of representation; they offer a particular lens, proffered by designers and producers, to understand the world. They present versions of "war, urban planning, [and] sports," (Bogost 2007) but also of invention, conquest, time management, sexual engagement, moral conundrums, daily life, and environmental destruction. Indeed, much ink has been spilled recounting the possibility that what gamers rehearse through ludic engagement are dominant but simultaneously pernicious norms, such as violent adolescent masculinity,[1] stereotyping particular ethnic groups[2], or the inevitability of European colonization and conquest.[3] With the advent of games like the much discussed *Bully* and *Grand Theft Auto* series, (Kenyota 2007-2008; Chess 2005; Unger, Troutman & Hamilton 2005) this particular point of view has been bolstered both by the popular media and erstwhile cultural critics like Tipper Gore, who suggest that the real problems with society are generated at the end of an Xbox controller (Siegel 2005). Dyer-Witheford and De Peuter (2010, xi) argue that digital games are the 'exemplary media of Empire', drawing on Hardt and Negri's analysis of hypercapitalism to suggest that we need to examine simultaneously both the narratives and the real-world concerns of exploitation, militarism and globalization that characterize gaming and its material production.

Some video games are themselves more explicitly political than others, including games such as *Fable* that reward vegetarianism, as well as the anti-McDonald's *McCruelty: Super Chick Sisters* and the Sudanese conflict-based *Darfur is Dying*, both virtually unwinnable and meant to demonstrate the environmental destruction implicit to the affluent desire for beef, or the utter hopelessness of civil war respectively. In each of these cases, narrative becomes a tool through which gamers understand and interact with a particular lens; this is true whether the game is about building a theme park empire (rampant capitalism) or exploring the universe as a part of an elite military unit (American or even human exceptionalism). However, it is important to recognize that this is not simply a one-way process of representation, where the gamer encounters and consumes a pre-ordained path. Rather, the player *reads* the narrative put forward in video games, and in that reading, changes the meaning. And so, while the game designer may intend a particular understanding of the world, the player might have oppositional, subversive or rogue readings (Hall 1980). For example, game play in *Theme Park Tycoon* might take up free-form architectural play rather than the drive to extract more and more money out of unwitting families who visit your version of Disneyland. As Nitsche contends:

> The argument here is that game spaces evoke narratives because the player is making sense of them in order to engage with them. Through a comprehension of signs and interaction with them, the player generates new meaning. The elements that are implemented in the game world to assist in the comprehension will be called "evocative narrative elements," because they

do not contain a story themselves but trigger important parts of the narrative
process in the player (2009, 3).

This focus on process—on the meaning-making dimensions of play—is central to how
digital games generate narratives. It is not simply the telling of a story, but rather the
interaction, which generates meaning through the inducement of all manner of desires,
fears, hopes, proud moments, and anxieties, all of which may be encountered differently
by different gamers. Bogost (2007, 130) names this interaction, which is in some sense
specific to digital games, 'procedural rhetoric', where 'players unpack that argument
through play'. Our interest in this paper, however, is not on narrative in digital games
per se, but on the specific narratives rendered through the nature-culture encounter.

Playing at Biopolitics

Our analysis, therefore, looks beyond how play and pleasure are central to the gaming
experience, highlighting the importance of narrative, or looking at the manner in
which the games we examine are marketed and consumed. We suggest that this
learning and marketing operates on a *biopolitical* register not only through narrative,
but also by tapping into affect. Named 'the conduct of living and the living' (Foucault
1991), biopolitics has become increasingly prominent on the theoretical landscape
of geography and beyond, with the concept used to examine such diverse topics as
population and colonial urban geography (Legg 2005), census-taking (Brown &
Boyle 2000; Hannah 2000), biosecurity (Hinchcliffe & Bingham 2008), the 'obesity
epidemic' (Evans 2010), and the construction of nature (Braun 2007; Rutherford 2007
& 2011). For Foucault (1990, 2003, 2007 & 2010), biopolitics was a means to explore
the genealogy of the modern state. In contrast to disciplinary power, biopower takes
root through the regulatory controls of the population (rather than just the individual)
through the management of life—birth rates, life expectancy, health, and wellbeing—
all indicators of the population that began to increasingly matter to those who govern
beginning in the 16th century. Indeed, Foucault contends that biopower signals the
'entry of life into history', or as Rabinow (1984, 17) puts it, biopolitics, 'brought life and
its mechanisms into the realm of explicit calculations and made knowledge-power an
agent of the transformation of human life'. More succinctly, biopolitics is 'the politics of
life itself' (Rose 2006). However, it is important to recognize that even though there is
this distinction between disciplinary power and biopower, they work in tandem: one
individualizing and the other collectivizing, governing the conduct of each and all.

Given its preoccupation with the emergence of the modern state, as well as its
application to such phenomena as Nazi concentration camps (Esposito 2008) or 'states
of exception' (Agamben 2005), it might appear flippant to extend biopolitics to digital
games. However, there are some important dimensions to this theoretical strain that
offer the possibility of seeing gaming as a biopolitical domain. First, is the notion that

power is exercised not only within but also beyond the state. Of course, this idea is not limited to Foucault's work on biopolitics; it infuses his entire analytic of power. But it is significant with respect to biopolitics because it allows us to think about spaces of cultural production, like digital games, as sites of regulation and subversion.

Moreover, a focus on the biopolitical allows for an exploration of how power organizes the body (both the individual and social body), but how this is also linked to the freedom of the subject. Part of this biopolitical regulation works through the construction of the self and how one is situated within the broader population. It occurs through the techniques and practices which make a particular subject, and the manner in which subjects become part of a population that can be governed and normalized for the good of the whole—whether that population takes the form of the nation or the virtual space of a computer-generated world. However, subject formation doesn't necessarily equal domination, as a Marxian view might suggest; as Dean remarks, '[regimes] of government do not determine forms of subjectivity. They elicit, promote, facilitate, foster and attribute various capacities, qualities and statuses to particular agents' (1999: 32). Self-fashioning is, thus, a productive and iterative process. As Foucault reminds us, subject formation is about active engagement, where, "individuals are the vehicles of power, not its points of application" (1990, 98).

With these theoretical interventions in mind, we contend that the games explored in this article—and more generally, games which take aim at the nonhuman—are precisely this: a biopolitical domain in the virtual world. As such, we suggest that biopolitics operates not only through the calculations of the modern state, but also through fantasy and play, which indeed, might be something of a compelling new frontier for biopower. More precisely, we want to put forward the notion that video games offer a fictive space of rehearsal, where anxiety around environmental crises may be acted out, and desire for specific kinds of natures can be realized. In this vein, the god-like powers offered by this form of popular culture generate a 'possibility space' (Bogost 2007, 121) where life can be managed, controlled, and corrected. Indeed, as anxieties of all kinds increase, we may see more of these virtual spaces that impose order on a chaotic, unpredictable, and always-emergent nonhuman world.

Gee (2005) contends that these virtual spaces, and the trial and error involved with navigating through a particular digital game, offer multiple opportunities for the player to learn about how the world works and how it could work. He also suggests that part of this learning through repetition is about sensation, or perhaps more properly, the affective dimensions of play. Drawing on neuroscience, Gee (2008) further explains that learning in digital games occurs because play operates just outside the 'affective filter', which kicks in when an event or practice generates too much frustration or fear of failure. As such, gamers practice problem solving in a safe space. We draw on such insights to suggest that what players of *BioShock* and *Spore* learn are different though allied biopolitical frames for the management of human and nonhuman life.

Emotion, affect and the digital world

Following Shaw and Warf (2009), however, we suggest that this biopolitical rehearsal functions not only through the reading of game narrative but also through the elicitation of affect and emotion, or, more properly, in the relationship between the two. Examining a range of digital games, Shaw and Warf contend that narrative and affect can be complementary, feeding on one another in complex ways to produce a fulsome gaming experience. We take this insight on the relationship between narrative and affect and extend it, thinking about how each works in tandem to construct a particular idea and experience of digital nature, and how this might impact our relationship to the non-virtual world.

Like biopolitics, affect and emotion have received considerable attention in recent years, leading some to speak of "the affective turn" (Clough & Halley 2007) in the social sciences and humanities. Affect, as we deploy it here is pre-cognitive—the body and its relationship to the environment, with an oft-cited example as the blush of a body shamed. Emotion, then, is the thought expression of affect. In this sense, affect is autonomic, nonrepresentable, and transpersonal, whereas emotion is cognitive, represented, and personal or interpersonal (Pile 2010). However, although affect is pre-cognitive, it is also is still social; so, for example, the experience of shame is not the same across space and time. As Dittmer suggests, drawing on what is commonly understood as a 'natural' aversion to incest, the precognitive is still 'inflected by culture and society' (2010, 92). So while not emotion, *per se*, affect is felt as intensity, "accompanied by a feeling of the change in capacity" (Massumi in Zournazi 2002, 213). Thus, affects are sets of relational assemblages—pushes—that connect bodies to each other in the Deleuzian sense of becoming. Or as Lorimer puts it: 'properties, competencies, modalities, energies, attunements, arrangements and intensities of differing texture, temporality, velocity and spatiality, that act on bodies, are produced through bodies and transmitted by bodies' (2008, 552).

Interesting scholarship has emerged in geography and beyond that examines the interface between digital games and their affective dimensions. As Massumi has noted, there is '…a growing feeling within media, literary, and art theory that affect is central to an understanding of our information-and-image-based late capitalist culture" (2002: 27). Taking our cue from Massumi, we understand the invocation of affect as a central part of the gaming experience. As with Carter and McCormack's (2006) analysis of geopolitics in film, we see video games as affective assemblages where narrative, sound, visuals, and bodily movement engage the visceral senses. Power's (2007) work on *America's Army*, the digital game created by the US Army as a recruitment and training tool, contends that the game offers the possibility of relieving anxiety is a world scarred by September 11th. Ash (2010) makes similar kinds of arguments, suggesting that the digital games that become popular are those that generate both positive and negative affectivity. Anticipation, fear, frustration, victory, conquest, restlessness, tension, elation,

and even malice (Thrift 2007) are all affective dimension that can accompany digital play. These registers make games more engaging, immersive, and infinitely more real to those who play them.

In the games we examine we contend that through the innovation of affect, as well as the ability to administer and manipulate the virtual nature-cultures that one encounters, give the gamer a means to act upon the nonhuman in ways that are precluded in non-virtual worlds, but nevertheless shape our views of real nature. This argument, of course, relies on the notion that nature, to paraphrase Haraway (1992), does not exist prior to its construction. Indeed, there is a rich literature that examines the complicated and often conflicting ways that nature has been imagined over time and in different spaces (see, for example, Castree & Braun 2001, Cronon 1996, Demeritt 2002). These games offer yet another iteration in the quest of constructing particular notions of nature and the natural.

BioShock

When *BioShock* emerged in 2007, it was heralded by many within the digital gaming community as unprecedented in the experience that it offered players. An *LA Times* review gushes, for example, that the game altered the terrain of video-gaming forever: Then along comes a game like *Bioshock* that changes everything. Sure, it's fun to play, looks spectacular and is easy to control. But it also does something no other game has done to date: It really makes you feel" (Metzger 2007, E13).

Promoted by 2K Games via advance trailers, sneak peeks, and developer interviews, the marketing machine for *BioShock* was in full swing long before the game was finally released. And what a release it was. Within three years it had sold close to 4 million units and received universal critical acclaim (metacritic.com).4 The release of its sequel, *BioShock 2*, in 2010 has cemented the success of the franchise with both titles selling over 8 million units as of February 2011 (Take-Two). The third installment, the prequel *BioShock Infinite*, was released in March 2013 and sold over 4 million copies by July of that same year (Jackson 2013). Set in a late nineteenth-century dystopian city in the clouds, the latest offering draws on steampunk literature and themes of American exceptionalism to parallel the earlier games.

The *BioShock* titles are perhaps not as unique as the marketing might suggest, though they occupy the forefront of a sub-genre of video games called 'survival horror' along with other notable titles including the *Dead Space* and *Resident Evil* series. This increasingly popular sub-genre thrusts the gamer into a chaotic crisis situation with the potential for being overwhelmed by malevolent enemies and at least initially, with little ability to kill them. As the protagonist you are meant to develop the skill, experience, and armory to battle the ever-increasing hordes that come your way, often culminating in a final *battle royale* as you meet the 'big boss' in combat. *BioShock*, like others in this subset, crosses genre boundaries by drawing on elements of role-playing games with

its thick backstory, while principally functioning through the lens of the first-person shooter (FPS). In FPSs, the gamer experiences play from her own perspective, as if she were viewing the landscape with her own eyes. In this genre, the avatar for the gamer is most often the gun, the hand, the wrench, the drill—in other words the tool or weapon you need to survive what the virtual world you inhabit throws at you next.

FPSs have been fodder for the avalanche of debate on violence in video games (see, for example, Anderson 2000, Gentile 2003, Schneider 2006). However, it is not the linkage (or lack thereof) between virtual violence and real world aggression that we are interested in interrogating. Rather, we are concerned with how this genre, through the example of *BioShock*, works simultaneously though narrative and the bodily desire for immersion and movement. As Rehak notes, "FPSs address the player at the level of the body. In this sense they are like the 'body genres' of cinema – melodrama, horror, pornography, gross-out comedy" (2008, 187). He suggests that the FPS is "relentlessly aggressive" (2008, 188), and this is no less the case for *BioShock*, as we will see below. For now, it is important to signal that *BioShock* works on a visceral, immersive level, through both its narrative and its insistent engagement of affective states.

BioShock's backstory requires some elaboration, as there is a degree of narrative sophistication that is missing in many other games. Ken Levine, the creative director behind the game, contends that *BioShock* is about a failed utopian experiment: the desire to build a city that is free from both regulation and moral inhibition. Told through a sort of radio play where gamers can listen to pre-recorded audio diaries, one learns that former Soviet citizen Andrew Ryan constructed a city at the bottom of the Atlantic Ocean in 1946 as a response to both the regulatory intrusion of New Deal politics and the oppressiveness of Stalinist Russia. Naming this capitalist and individualistic paradise 'Rapture', Ryan peopled his underwater colony with artists, scientists, and industrialists: the "best examples of humanity" who could sign onto the libertarian or objectivist ideology.

As the narrative progresses, the gamer discovers that the city reached its height around the mid-1950s. What disrupts this eugenic promised land is the discovery of a sea slug that excretes stem cells, which in turn could be used to genetically enhance one's body, named ADAM. However, nature did not provide enough ADAM to power this genetic revolution. And so comes the scientific discovery crucial to the narrative of *BioShock*: little girls could act as a bodily host to the sea slug, and in doing so produce 30 times the normal yield of ADAM. As a result, a biopolitical industry is born. The use of these stem cells is quickly commodified, and the substance came to be the most sought after currency in Rapture. Contained within ADAM was the ability to reshape one's body as a weapon through the production of 'plasmids', granting the user skills like telekinesis and pyrokinesis. When you are called back to Rapture in 1960, the city has come to ruin, with the discovery that through rampant genetic modification, people may gain untold ability, but also become monsters, genetically spliced beyond the point of recognition

as human. Your quest becomes to navigate your way through Rapture, while engaging in a moral dilemma: either 'rescuing' or 'harvesting' the girls (named 'little sisters') who have been fused with the sea slug, thus freeing the city. If you rescue the girls, you receive less ADAM for your genetic enhancements, but the 'little sister' survives; if you choose to harvest them, you obtain maximum ADAM, but the host dies. Your decision to rescue or harvest changes the outcome of the game: save the ADAM gatherers and at the end, you emerge from the sea with a dozen or so girls who become like your family; harvest them (or at least more than three) and you emerge from Rapture equipped with a nuclear weapon to control or destroy the world.

But video games would be more like books if they only relied on backstory to tell their tales. As Bogost (2007) reminds us above, games are also about processes. What makes *BioShock* a compelling narrative encounter is less its focus on the pitfalls of objectivism, but rather its spectacular and persuasive visual landscape. *BioShock*

Figure 1 *Rapture*

Figure 2 *Harvest or Rescue?*

includes a great deal of interactive environments and player-driven choices, called *emergent gameplay* by the developers. And this sense of limitless possibility is housed within a particularly gripping visual and sensory experience. The *BioShock* universe is so immersive that the gamer often feels that she has been dropped into a movie that has already begun, with just her hand (and all its lethal potential) to guide her. One begins the game with a vague sense of confusion and, with the help of an intermittent guide, is required to navigate through the creepy, ruined city that Rapture has become—a vision in opulent decay. In many ways, *BioShock* is an atmospheric game, with the sounds (i.e. 1940s and 1950s score and radio plays) and visuals (i.e. art deco design and genetically spliced humanoids equipped with bunny ears and wrenches) that generate a sense of immediacy that many other games lack. This immediacy means that as with a few other immersive titles (i.e. *World of Warcraft*) some gamers may play the game to the point of ignoring bodily needs like sleep and food. Indeed, it is difficult to escape the penetrating nature of this game; so forceful is the environment it offers that the authors often found themselves victims to vivid nightmares after game play.

The ability of *BioShock* to enter the consciousness of the gamer speaks to not only the persuasive narrative and atmospheric universe, but also the affective dimensions of play that these elements generate. As Carr has noted, "avatars are capable of generating forms of uncanny resonance. All players, surely, have found themselves flinching when

Figure 3 *Nightmarish Scenes*

an avatar bangs its head, have felt themselves lean over a cliff" (2006, 68). Shaw and Warf (2009) echo this sentiment, naming it a synergy between machine and body. But in *BioShock*, the engagement of such affective assemblages is more fulsome. So, for example, when machine meets gamer, there is a continual openness to the possibilities and intensities of the game: a body tensed in anticipation of what seems to be actual (that is non-virtual) attack; a face wrinkled in disgust as virtual blood erupts from the head of an enemy; the quickened heart rate and restlessness of aggression; a warm sensation when one rescues a 'little sister'; even the faint whiff of the smell of sea water, dampness and decay as the gamer traverses the *BioShock* universe. Each of these moments enlarges our capacity to affect and to be affected. While each gamer might experience the affective assemblage of the game in different ways, that it generates bodily response and possibility is, we think, certain. As these precognitive moments are translated through the filters of emotion, pleasure, dread, anxiety, hostility, and hope are made manifest through bodily expressions—as the *LA Times* reporter noted, it makes you *feel*. And all of this is reinforced through the feedback mechanism linked to the controller, which literalizes these sensations: shoot yourself up with ADAM and the controller vibrates as your avatar writhes in pain with the mutation of your genetic code; kill a villain and you feel the kickback of your shotgun; rescue or harvest a 'little sister' and you sense her struggling against you. The fact that physicality is engaged makes the game seem all the more genuine, thus blurring the boundaries between real and virtual.

Figure 4 *Controlling Your Environment*

Through the inseparable elements of narrative, atmosphere, and affect, *BioShock* traffics in the imaginative possibilities of nonhuman and human nature. The virtual landscape the gamer navigates as part of the quest is a complex and sometimes ambivalent one. The visual tone is melancholic, shot through as it is with decay and ruin; there is an eerie feeling of abandonment, loss, and dread. The underwater environment seeps into Rapture, coloring its settings in shades of blue, green, and gray, adding to the despondency. It is a spectral landscape, haunted by the memory of inhabitation and activity. As the gamer traverses this virtual environ, her/his body can become tense with expectation, the muscles are poised for the inevitability of what is to come. Anxiety and anticipation are the affective registers that *BioShock's* relentless attention to the visual landscape of play attempts to invoke. This is no different from other games that geographers have studied; as Shaw and Warf show, anticipation is key to the affective gaming experience: "The three-dimensional landscape is unique precisely because of what the player cannot see. The perspective gained from three dimensions allows the game designer to hide affective events" (2009, 1339). And this anticipation is warranted, because, of course, what is coming is an assault, both in the sense of virtual attack by in-game bad guys and a battering of the gamer's senses. Every in-game movement leads the avatar inexorably closer to danger. The melancholic environment heightens this response, lending a creepy sense of unsettledness to every scene. It is, however, important to note that this is a complex reaction, not a one size fits all affective register.

As explored above, affect is not only about innate neurological drive or impulse, but is also necessarily social. Indeed, at least since the time of cultural reception theory, we have understood that media is not equally consumed in the same manner by each and all. For example, a seasoned FPS player may not encounter the enemy lurking around the corner in the same way as a novice. So, what *BioShock* does, through its attempt to construct an environment of both immediacy and anticipation, is generate a heightened sense of alertness through both a compelling narrative and reliance on affectivity. In the end, the way this is consumed must be recognized as variable.

In *BioShock*, the physical (albeit virtual) environment is not the only kind of nature that the game engages. Nature also serves as a weapon, a means to recuperate courage in a world overrun by fear. This mastery is enacted through the ability to remake that which nature has created—to play god. Given that each character you encounter in Rapture has been altered by ADAM, if you want to win the game you must also splice your genetic code with all manner of plasmids, making it so that you can dispatch you enemies with speed and a high degree of gratuitous violence. Interestingly, although your opponents have been rendered insane by the introduction of this genetic 'enhancement', you are able to maintain your equilibrium, incorporating the modifications to become a potent bodily weapon. What *BioShock* seems to offer us here is a critique of genetic modification, a commentary on what happens when science and capital combine to sell the very basis of human life. Invoking an anti-eugenicist fiction, *BioShock* asks the gamer to recognize the slippery slope of the quest for perfection. The game, then, narrates a cautionary tale, recounting just how wrong the world can go when we mess with Mother Nature—except, importantly, in the case of yourself as protagonist, dependent upon mutation to survive and thrive. Indeed, this Frankenstein narrative is complicated by the pleasure that one experiences in genetic enhancement. As the gamer receives another hard-won plasmid, there can be a feeling of power that is hard to deny. Depending on play, at some point in the game you can incinerate, freeze, hypnotize, or electrocute your enemies with a flick of your hand. These abilities, among others, grow stronger as game play proceeds. And so, while there is an incipient critique of genetic modification, there is also the thrill of becoming a god-like force in the environment of *BioShock*.

Simultaneous to this story is another plot line, one that addresses the nature of human nature. Each of the main characters that you encounter are poisoned by ideological fanaticism: a misguided commitment to libertarian utopia, an unwavering commitment to capitalism, or a passion for scientific investigation at any cost—interlocking beliefs that together gave birth to ADAM. Part of the tale creator Ken Levine was interested in telling was what happens when pure ideology is put into practice. Thus, *BioShock* not only works on corporeal but also human nature, combining body and mind, to tell a rather complicated and sometimes contradictory story of what happens when rapacious ideology meets the technological capacity to reimagine and reconfigure nature.

Pulling all these disparate elements together, we suggest that *BioShock* is about biopolitics, but of a particular kind operating on three levels. Initially, this may be

hard to see, because, of course, as an amalgam of FPS, survival horror, and role-playing strategy, the game seems to be more about Agamben's bare life; death, decay, and threat appear to be the game's most salient features. However, if one digs a little deeper, there is a biopolitical simulation at work in the gamer's attainment of ultimate power and the management of the individuals and populations she encounters. The exhortation 'make live and let die', so central to biopolitics, is pervasive in the gameplay offered in *BioShock*, summed up by the question 'harvest or rescue'? Of course, this question is one that might resonate more fully with sovereignty in Foucault's triad of governmentality than biopolitics. Indeed, it might be read as perhaps more about thanatopolitics, by which we mean the regulation of death, than the productive management of life. But, death is ever-present in Rapture to cleanse the social body. It operates as a kind of eugenics, weeding out infection, as it were, and recuperating the little sisters from their tragic existences in the realm of bare life.

The necessity to cleanse the social body is further evidenced in the narrative backstory that charts the emergence of Rapture itself. The city is a biopolitical experiment; Rapture is the embodiment of an objectivist effort to make life productive, fulfilling, and ultimately, perfect. As explored above, Andrew Ryan's vision for Rapture was a place of free enterprise, unbridled intellectualism, and aesthetic purity. That the experiment fails—or that it carries the heavy freight of a eugenic utopia—points to the argument of the game designers that such a biopolitical project may be essentially ungovernable. But nevertheless, it offers a fictional example of an authority's effort to govern the population and make life of a particular kind, in ways that produce power, knowledge, and subjectivities. And it also speaks to the kind of biological exclusion (or state racism, to use Foucault's phrase) that is inherent in such projects—some must live, while others must die.

But perhaps *BioShock's* most interesting nod to biopolitics is through the generation of the cyborg self, or the emergent fascination the title shows with the idea of posthumanism. Now, there are different brands of posthuman thought, and many scholars are at pains to emphasize that the human imbrication with the nonhuman and the inhuman isn't a new phenomenon but rather an always already co-constitution (see, for example, Haraway 2008 and Latour 1993). As Wolfe tells us in a recent book on posthumanism, "[a human] is a fundamentally prosthetic creature that has coevolved with various forms of technicity and materiality, forms that are radically 'not-human' and yet have nevertheless made the human what it is" (2010, xxv). This has always been the case and signals that we inhabit a world of co-fabrication rather than autonomous selves. However, there is no doubt that the trend toward "biological citizenship" (Rose & Novas 2004) is accelerating, and we are witness to various efforts at entrepreneurial self-fashioning along somatic and vital lines, through biotechnology, gene therapy, cosmetic enhancement, pharmaceutical consumption, and so on. This sentiment is echoed throughout the narrative and gameplay of *BioShock*, where, as explored above, gamers

modify their digital selves with all kinds of powerful and deadly genetic alterations. The separations so avidly policed (but necessarily impossible) between human, inhuman, and nonhuman in the 'real' world are fundamentally blurred in this game. Like Dixon's exploration of the 'semi-living' through the critical BioArt of the Tissue Culture & Art Project, the avatar in *BioShock* becomes a complicated gathering "of the organic and the technical and bereft of categorisation based upon an imagined sanctity, sentience or power of agency" (2009, 421). Dixon suggests, and we think this can be extended to *BioShock* as well, that the kind of work that BioArt does in a real world setting is challenge the very notion that the separation between the human, nonhuman, and technological is possible, resisting the very notion of the human as an autonomous subject. In *BioShock*, then, there is a kind of rehearsal of the biological citizenship that Rose and Novas contend has become so much a part of our present moment. Indeed, as Rose suggests, we now inhabit a world that, at least for some, "biology is not destiny but opportunity" (2007, 51); in *BioShock*, biology becomes the opportunity through which bare life can be transformed. And so, in *BioShock* nature is for the gamer both anxiety-ridden but ultimately regenerative. Through the simulated space of the game (which can 'feel' all too real as game play proceeds), anxiety gives way to desire as the player embraces genetic modification to conquer the underwater city. Nature, as modified by science, is harnessed in an uncertain world and a kind of order, still chaotic and somewhat ungovernable, is restored.

Spore

Like *BioShock*, *Spore* was also one of the most anticipated games of the last decade. Designed by Will Wright of *The Sims* franchise fame and produced by Maxis Games, the marketing onslaught for *Spore* began a full two years before its release, a frenzy which has been dubbed 'Sporenography'.[5] *Spore* has had 3.2 million games either shipped or uploaded since 2008 (Takahashi 2009). Moreover, Maxis hosts a server where *Spore* players can meet in a virtual community and communicate about their creature creations. To date, over 100 million user-generated creatures, buildings, and vehicles have been uploaded onto the *Spore* server from all over the world, a treasure trove of creative options to enhance the gaming experience (and which the designers and producers have never had to pay to develop). In the years since its release, *Spore* has spawned a host of spinoffs, from expansion packs like *Spore: Galactic Adventures* to *Spore Hero* (for mobile phones) to *Spore Hero* (for the Wii console) to *Darkspore*, an action-adventure/RPG for the PC. Our focus in this paper is on the original game, however.

Unlike *BioShock*, *Spore* began life as a primarily PC-based game. Despite limiting its initial design in a way that could not take advantage of some of the technological strengths of a console platform, *Spore* provides no less of an immersive experience, albeit in slightly different form. The player is not thrust into the midst of an extant narrative as with *BioShock*; instead, the player in *Spore* participates in what the developers call

'a massively single-player online game' where 'asynchronous sharing' of user-generated content is central to the gaming experience and the player's enjoyment. *Spore* is many ways the logical extension of Will Wright's hugely successful earlier *Sim* franchises—simulating the details and possibilities of building and managing a city, a family, or an individual.

As with so many other so-called 'god games', in *Spore* the player is put in charge of constructing and managing a literal representation of life, the universe, and everything in it with no explicit goal or victory condition other than attaining and maintaining an equilibrium within the world of the game. *Spore's* gameplay is dubbed "Creatiolutionism" by Wright (Artigas 2008), and is designed to allow the player to control the development and evolution of a species from single-celled organism to a space-faring (and dominating) civilization. The story—while constantly emphasizing the open-endedness and freedom of game play—rests on a linear and ultimately constrained view of the evolutionary process. The game begins with a cut-scene of life emerging out of the primordial soup, seeded by the fortuitous collision between a comet and a planetary body. It is at this point that the player-as-hand-of-God makes their first choice—omnivore? carnivore? herbivore?—and then proceeds along the evolutionary path by meeting certain targets laid out by the game itself. Along the way, the player is given the opportunity to reconfigure their organism, adding appendages, changing size, shape, color, and abilities. Complexity increases as the creature increases in size with the game correlating this to an enlarging intellectual capacity as more 'missions' are successfully completed and prizes/trophies/money is attained.

One might argue that there are indeed short term goals in moving from one stage to the next, with the victory condition being evolution itself – from single-cell to complex organism to land creature to tribal to advanced civilization and finally to space. Players can also win 'medals' for completing certain designated in-game "achievements" (a popular trend for both PC and console games of late). Moreover, game designers suggest that there are certain long-term objectives once the player reaches the space stage – discovering the 'mysteries' lurking at the center of the universe, including a black hole, making contact (and peace) with the robotic race of the technologically advanced and rather aggressive Grox, and procuring the ultimate artifact known as 'the staff of life'.

The player is able to change the look, feel, and characteristics of their species in the first two stages but by the time sentience emerges, one is locked into a single representation of the species. From this point onwards, the player's creativity is focused on the built environment: houses, factories, entertainment complexes and cars, boats, planes and eventually spaceships. While the outcome of each succeeding phase is dependent to some extent on the earlier choices made by the player, this is primarily felt in terms of the initial conditions and leveling experienced at the beginning of a new stage. Indeed, some have described the game as a loose collection of four mini-games and one extended game rather than as a coherent whole. Each stage increases in complexity, difficulty, and even the time taken to completion. The scalar perspective

Figure 5 *The Cell Phase*

that is central to *Spore's* imagining of a god's eye view thus represents a considerable limitation on how life can be manipulated even in a universe of one's own making.

Wright likens players of the game to Tolkien and Lucas in their ability to create new life-forms and universes, the ultimate 'possibility space' (Wright at Comicon). Invoking an expansionist narrative, the gamer is given the opportunity to build and remap the universe, engaging in the production of cartographic fact, albeit virtually. What interests us, then, is the ability to play god through the management of nature. Creativity and ultimate power are, of course, two of the main attractions that *Spore* promises to the gamer. The game offers a chance for pleasure and play in omnipotence and furthermore to share one's creations with the millions of other *Spore* players. The scalar perspective moreover allows the player to instantly zoom back and forth between the universe and an individual creature in a city with the mere scroll and click of a mouse. At the Space Stage, the player is given the ultimate power over the fate and health of cities, planets, and star systems. One may be called upon to cull a herd of diseased animals, to balance a planet's ecosystem by changing its atmosphere or adding flora and fauna (in a precise, predetermined order) to stabilize its environment, to plant colonies on new worlds, or retrieve artifacts and abduct citizens from other civilizations. One may even reshape planets themselves, adding hills and rivers, filling in oceans, subtracting mountain ranges and coloring seas, skies and lands.
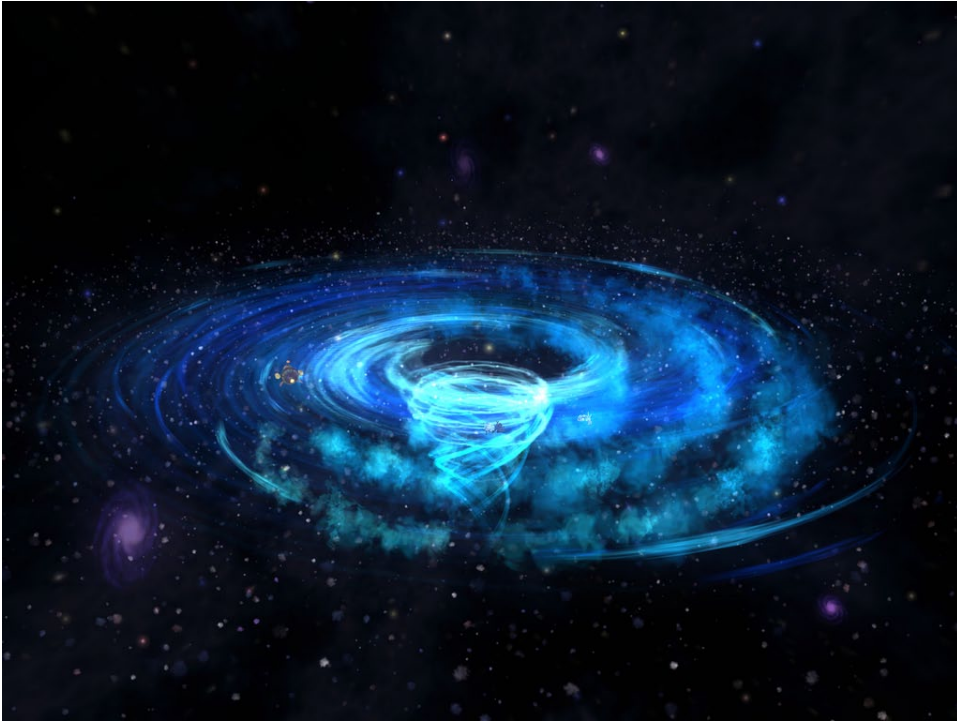
Figure 6 *The Spore Universe*

    There is, of course, pleasure in making your universe. Rather than the incipient dread of *BioShock*, *Spore* offers a gentler encounter with nature, one that is fraught with dilemmas to be sure, but not with the same visceral force or inevitability of violence. Instead, *Spore* traffics in creativity and control. In the first two stages, the gamer dabbles in evolutionary possibilities, acting on the desire to make, to realize, to engineer. Moreover, if *BioShock* offers us a dystopian fantasy in the same vein as *Blade Runner* or *The Handmaid's Tale*, *Spore* offers the gamer something quite different, but equally concerned with nature. In terms of anxiety, the early stages of *Spore* operates through the lens of environmental scarcity—a kind of Darwinistic struggle to become better, stronger, and more efficient in the face of ever greater competition as your engineered species evolves.

    By the Space Stage, the concern moves from progress along an evolutionary scale to maintaining some form of equilibrium. Once a star empire has been built of sufficient size, anxieties—relayed through a series of alert prompts and messages—inform the player of the need to respond to a variety of crises. These include souring relations with neighbors, attacks by a malevolent cybernetic species (the Grox) that plagues the universe, and the ever-present eco-disasters which crop up with annoying regularity and must be attended to by the player within a set time (usually five minutes in the real-time of the game). If the player does NOT respond to the emergency alert, the entire
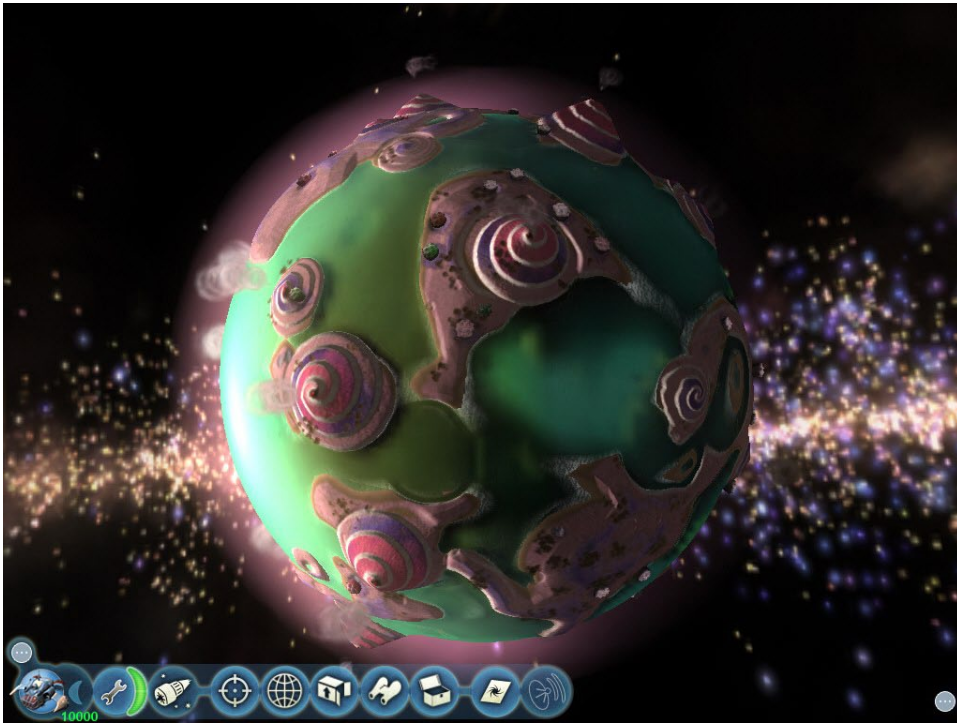
Figure 7 *Terraforming*

species may become extinct, with chain reaction down the line, eventually resulting in the loss of entire ecosystems.

This relentless anxiety is complemented by a biopolitical desire: the ability to have god-like powers to (literally) move mountains, change the course of rivers or the color of lands, alter both the composition and placement of flora and fauna, and manage the atmosphere of specific planets to the best end of the continuation of species you decide should flourish. Indeed, desire in *Spore* operates on a meta-level of either civilization saving and destruction: you decide, as the author of the universe, those that should be made to live and those that are relegated to death. It provides the perfect practice space for biopolitical control. Your end goal? Nothing less than the flourishing of evolution, one guided by your own hand so that the health, well being, prosperity, fecundity, and security of your species is not only guaranteed, but enhanced. And so, like *BioShock*, anxiety is assuaged by power; the ability to manage and control nature so that it performs according to the gamer's dictates.

Conclusion

If we return to the realm of the real, it is easy to recognize that we inhabit an uncertain and increasingly anxiety-ridden world; as some have suggested, modern society is characterized by risk (Beck 1992). Environmental threat seems everywhere. Stories of

Figure 8 *Civilized*

the hazards associated with climate change, peak oil, water shortages, environmental refugees, species extinction, and deforestation enter our lives through a whole range of media, digital games included. But what do such ludic activities offer us? The chance to escape, the ability to forget about the troubles of the world and instead immerse ourselves in different environments—whether exotic or prosaic (but ultimately safe)? The possibility of exerting and extending a form of control and power that many of us rarely dream of in our daily lives? We contend that the popularity of games like *BioShock* and *Spore* signals, in part, such a set of desires, but that they also portend something more and equally as important. We argue that these games offer a particular way to apprehend the natural world, a specific kind of construction of nature that serves as a fictive space to assuage different kinds of environmental anxieties. What each title does, in complex and often contradictory ways, is present nature as manageable through technology and human mastery, offering a biopolitical simulation with extensions into the 'real' world.

Both of these games operate on a number of registers when it comes to how they define the nature of nature. At the most obvious level of interpretation, *BioShock* and *Spore* offer to expand the realm of the possible; they imagine nature as changeable and shapeable. In *BioShock*, you are offered the ability to transform your own body into a chimerical cyborg, which works best as an efficient killing machine. However, *BioShock* warns us to be cautious here; enhancement of body leads to a destabilization of the mind and soul for some—you can't fool with that which nature has already made, as

Figure 9 *Crisis and Disaster*

imperfect as it might be (or least be perceived as such). It also offers an indictment of those who profit from the commodification of life, selling supposed enhancements which actually only lead to death and destruction; here we might read Monsanto and Merck as targets of Levine's ire. Moreover, the game relies on the horror we harbor at a future where nature is polluted, a world where uncertainty characterizes our apprehension of the categories of human, nonhuman, and technological, and where recombinant DNA technology is the norm. So, in some sense, *BioShock* offers a dystopian story, where aggressive capitalism, dogmatic ideology, a penchant for eugenics, and the misuse of technological ingenuity, have made the very basis of nature toxic. And yet, this pollution also offers a possibility space with which to engage: the potential to conquer fear though bodily transmogrification, to become like a god who wields death and destruction, but ultimately, salvation of the environment. At the same time, however, the narrative of the game is flexible enough to also appeal to those who deny the lasting impact of such processes like climate change; in this view, technology, through nature's modification, can solve any environmental crisis, with the application of ingenuity and will. And the game plugs into both the apprehension but increasing acceptance of the biopolitical nature of life, where people become entrepreneurs of their own biology, increasingly relying on the biopolitical prescriptions of the biomedical and pharmaceutical industries to make life work in more 'productive' ways.

Spore offers a different kind of experience, where creativity and control are fused in the god-like management of nature. Through both micro- and macro-manipulations, the gamer is able to construct a personal utopian vision of natural balance realized. Lacking the extensive backstory or atmospheric effects of *BioShock*, *Spore* nevertheless invites the gamer into a universe that is equally immersive. By inventing and controlling the management of your world, there is a sense of power—and affective dimension of desire—that works to assuage anxiety of a planet under threat. In playing *Spore*, the gamer is offered the possibility to remake the world as harmonious, cooperative, and eco-friendly. In the end, what *Spore* teaches the gamer is quite similar to the lessons of *BioShock*, although the biopolitical experience seems premised more on life than death. What *Spore* implies—and the discourse and practice which lend it coherence outside of the game—is nature's manageability: the resources of the earth can be rationalized, indexed, measured, assessed, and made better through the application of various technologies and modalities of rule. Luke argues this point succinctly with regard to the compelling discourse on sustainable development, but one that could equally be applied to the various alerts which pepper gameplay in *Spore*: "Encircled by grids of ecological alarm, sustainability discourse tells us that today's allegedly unsustainable environments need to be disassembled, recombined and subjected to the disciplinary designs of expert management" (1999, 142). This is what *Spore* allows the gamer to rehearse, reinforcing and reifying this particular way of encountering nature.

The stories and experiences provided by these two games have resonance with and indeed inform our encounters with 'real' nature—they do not stand alone but rather exist within a web of allied discourses and practices, making them nodes in an emergent regime of truth. They provide us with the intellectual grammar to apprehend the world. *BioShock* and *Spore* speak to a kind of eco-managerialism *cum* green governmentality, where technology is both the destroyer and the saving grace that nature needs (Luke 1999, Rutherford 2011). This is the kind of eco-managerialism that has vaulted Al Gore to the panoply of environmental gurus now responsible for speaking the truth of the climate crisis. In a way, these games join an ensemble of corporations, governments, media, scientists, nongovernmental organizations, institutions of culture and recreation, and universities to produce grids of intelligibility through which the environmental crisis can be understood as a problem of *management*—a biopolitical misstep rather than deeper problem with Western postindustrial society and our relationship to the nonhuman. And so, we want to suggest that these games extend beyond their digital boundaries, affecting, reinforcing, and shaping how nature is understood and experienced. They rely on particular a construction of nature that circulates almost without question: that any environmental problem simply requires an increased dose of technological will, even if technology is that which caused the crisis in the beginning. This story is as well known as it is dangerous. But part of what makes these games so compelling, then, is that they nestle easily within this already existing biopolitical frame.

However, while the biopolitical technofix has gained ascendance as the solution to the problems of degradation in the 'real world', as mentioned above, environmental anxiety abounds. *BioShock* and *Spore* intervene in this anxiety by not only relying on the narratives of nature we know so well, but by offering new ones. Thus, in the virtual worlds of these games, we can try our hand at genetic manipulation and the steering of evolutionary possibility. This works not only to potentially assuage anxiety, but may also offer a rehearsal, a run-through that could serve to naturalize such practices in the 'real' world natures we encounter everyday. Of course, this movement is neither instantaneous nor simplistic: after playing *BioShock*, one does not necessarily seek bodily enhancement in some eugenic quest for perfection; similarly, after playing *Spore*, the gamer isn't automatically bound by a desire to perhaps breed and rear some kind of life form. Transmission and translation are more complicated than that. And yet, the playing of these games offers the fictive realization that such encounters are both possible and, in some cases, preferable ways of dealing with environmental stress. By naturalizing biopolitical manipulations, these games suggest that such penetrating intervention can offer a way out of the environmental crisis. We need not worry about the impact of climate change and our complicity in the generation of greenhouse gas emissions, for example. Instead, we need to simply develop new ways to commodify and rearrange the natural world. Thus, both games work on this narrative of management but hyperextend it, such that new management techniques become imaginable futures.

Notes

[1] See, for example, Jansz, J. 2005. The emotional appeal of violent video games for adolescent males. *Communication Theory* 15; Kerr, A. 2006. *The business and culture of digital games: gamework/gameplay*. London: Sage.; Newman, J. 2008. *Playing with videogames*. London and New York: Routledge.

[2] See, for example, Šisler, V. 2008. Digital Arabs: representation in video games. *European Journal of Cutural Studies* 11 (2): 203-220.; Leonard, D.J. 2005. To the white extreme: conquering athletic space, white manhood, and racing virtual reality. In *Digital gameplay: essays on the nexus of game and gamer*. ed. N Garrelts, 110-129. London: McFarland and Company.

[3] See, for example, Douglas, C. You have unleashed a horde of barbarians!: Fighting Indians, playing games, forming disciplines. *Postmodern Culture* 13 (Accessed on July 19, 2010).

[4] Metacritic.com, a website that aggregates reviews gives *BioShock* 96/100 based on the reviews of 88 critics.

[5] Reference from a blogger in Jones 2008, 153.

References

Agamben, G. 2005. *States of exception*. Chicago: University of Chicago Press.

Age of Empires series. 1997-2011. Developer: Ensemble Studios, Big Huge Games and Robot Entertainment. Publisher: Microsoft Studies. (Windows).

America's Army series. 2002 - 2007. Developer & Publisher: US Army. (Xbox, Xbox 360, arcade, and mobile).

Anderson, C & Dill, K, 2000. Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology* 78 (4): 772-790.

Artigas, L. 2008. On the origin of the species – by means of natural gamers selection by Will Wright. Accessed on August 17, 2011

Ash, J. 2010. Architectures of affect: anticipating and manipulating the event in processes of videogame design and testing. *Environment and Planning* D 28 (4): 653-671.

Assassin's Creed series. 2007 – 2011 Developer: Ubisoft Montreal. Publisher: Ubisoft. (Play Station 3, Xbox 360, OnLive, Mas OS X, & Windows).

Beck, U. 1992. *Risk society: towards a new modernity*. London: Sage.

BioShock. 2007. Developer: 2K Boston. Publisher: 2K Games. (Xbox 360, Windows, PlayStation 3, BlackBerry, Mac OSX), August 21.

BioShock 2. 2010. Developer: 2K Marin, 2K China and Feral Interactive. Publisher: 2K Games, DS Publisher. (Xbox 360, Windows, Mac OSX, PlayStation 3), February 9.

Bioshock Infinite. 2013. Developer: Irrational Games. Publisher: 2K Games (Windows, Xbox 360, PlayStation 3, Mac OSX), March 26.

Bogost, I. 2007. *Persuasive games: the expressive power of videogames*. Cambridge, MA: MIT Press.

Braun, B. (2007). Biopolitics and the molecularization of life. *Cultural Geographies* 14 (1): 6-28.

Brown, M.P. with Boyle, P. 2000. National closets: governmentality, sexuality, and the census. In *Closet space: geographies of metaphor from the body to the globe*, 88-115. London: Routledge.

Bully. 2006. Developers: Rockstar Vancouver, Rockstar New England, & Rockstar Toronto

Publisher: Rockstar Games & Bethesda Softworks. (Windows, PlayStation 2, Wii, & Xbox 360), October 17.

Carr, D. 2006. Play and pleasure. *In Computer games: text, narrative and play*. eds. D. Carr, D. Buckingham, A. Burn, & G. Schott, 45-58. Cambridge: Polity Press.

Carter, S. & McCormack, D.P. 2006. Film, geopolitics and the affective logics of intervention. *Political Geography* 25 (2): 228-245.

Castree N. & Braun, B. eds. 2001. *Social nature: theory, practice and politics*. Malden, Mass: Blackwell. Civilization series (1991-2011). Microprose, Infogrames Entertainment, SA & 2K Games. (MS-DOS, MacIntosh, Amiga, PlayStation, Sega, Atari, Super NES, Windows).

Chess, S. 2005. Playing the bad guy: Grand Theft Auto in the panopticon. In *Digital gameplay: essays on the nexus of game and gamer*. ed. N Garrelts, 80-90. London: McFarland and Company.

Clough, P.T. & Halley, J. eds. 2007. *The affective turn: theorizing the social*. Durham, NC: Duke University Press.

Coulter, G. 2007. Jean Baudrillard and the definitive ambivalence of gaming. *Games and Culture* 2 (4): 358-365.

Cronon, W. 1995. The trouble with wilderness; or, getting back to the wrong kind of nature. In *Uncommon ground: rethinking the human place in nature*. ed. W. Cronon, 69-90. New York: W. W. Norton.

Darfur is Dying. 2006. Developers: Graduate students in Interactive Media Program at the School of Cinematic Arts, University of Southern California.

Dead Space series. 2008 – 2011. Developer: Visceral Games. Publisher: Electronic Arts. (Xbox 360, PlayStation 3. Wii, Windows, iOS, Android, BlackBerry PlayBook).

Dean, M. 1999. *Governmentality: power and rule in modern society*. London: Sage.

Demeritt, D. 2002. What is the 'social construction of nature'? A typology and sympathetic critique. *Progress in Human Geography* 26 (6): 767-790.

Dittmer, J. 2010. *Popular culture, geopolitics, and identity*. Lanham, MD: Rowman & Littlefield.

Dixon, D.P. 2009. Creating the semi-living: on politics, aesthetics and the more-than-human. *Transactions of the Institute of British Geographers*. 34 (4): 411-425.

Douglas, C. You have unleashed a horde of barbarians!: Fighting Indians, playing games, forming disciplines. *Postmodern Culture* 13 (Accessed on July 19, 2010 from).

Dyer-Witheford, N. & De Peuter, G. 2010. *Games of empire: global capitalism and video games*. Minneapolis: University of Minnesota Press.

Elder Scrolls series. 1994 – 2011. Developers: Bethesda Game Studio, ZeniMax Online Studios, & Vir2L Studios. Publisher: Bethesda Softworks. (MS-DOS, Windows, Xbox, Xbox 360, PlayStation 3).

Esposito, R. 2008. *Bíos: biopolitics and philosophy*. Minneapolis: University of Minnesota Press.

Evans, B. 2010. Anticipating fatness: childhood, affect and the pre-emptive 'war on obesity'. *Transactions of the Institute of British Geographers* 35 (1): 21-38.

Fable series. 2004 – 2012. Developers: Big Blue Box & Lionhead Studios. Publishers: Microsoft Game Studios & Feral Interactive. (Xbox, Xbox 360, Windows, Mac OSX)

Foucault, M. 1990. *The history of sexuality: volume 1*. New York: Vintage.

Foucault, M. 1991. Governmentality. In *The Foucault effect: studies in governmentality*. eds. G. Burchell, C. Gordon, & P. Miller, 87-104. Chicago: University of Chicago Press.

Foucault, M. 2003. *Society must be defende*d. New York: Picador.

Foucault, M. 2007. *Security, territory, population: lectures at the College de France*, 1977–78. Hampshire: Palgrave MacMillan.

Foucault, M. 2010. *The birth of biopolitics: lectures at the College de France*, 1978–79. New York: Picador. Frostling-Henningson, M. 2009. First-person shooter games as a way of connecting to people: "Brothers in blood" *Cyberpsychology and Behavior* 12 (5): 557-562.

Gee, J.P. 2005. Learning by design: good video games as learning machines. *E-Learning* 2 (1): 5-16.

Gee, J.P. 2008. Learning and games. In *The ecology of games: connecting youth, games, and learning*. ed. K. Salen, 21-40 . Cambridge, MA: MIT Press.

Gentile D.A. ed. 2003. *Media violence and children*. Westport, CT: Praeger Publishing.

Grand Theft Auto series. 1997 – 2011. Developers: Rockstar Games, Rockstar North, Rockstar Leeds, Rockstar Lincoln, Rockstar Toronto. Publisher: Rockstar Games. (MS-DOS, Windows, Xbox, Xbox 360, Game Boy, Mac OS X).

Guitar Hero series. 2005 – 2010. Developers: Harmonix, Neversoft, & Vicarious Visions. Publishers: Red Octane (2005 – 2009) & Activision (2009 – 2010). (PlayStation 2, PlayStation 3, Xbox 360, Wii, Windows & Mac OS X).

Half-Life 2. 2004. Developers: Valve Corporation & EA Games. Publishers: Valve Corporation & Sierra Entertainment. (Windows, Xbox, Xbox 360, PlayStation 3, & Mac OS X), November 16.

Hall, S. 1980. Encoding/decoding. In *Culture, media, language: working papers in cultural studies*, 1972-1979. ed. Centre for Contemporary Cultural Studies, 128-138. London: Hutchinson.

Halo series. 2001 – 2011. Developers: Bungie (2001 – 2010), Ensemble Studios (2009), Saber Interactive (2011), & 343 Industries (2011 – present). Publisher: Microsoft Studios. (Xbox, Xbox 360, Windows, Mac OS X).

Hannah, M. 2000. *Governmentality and the mastery of territory in Nineteenth-Century America*. Cambridge: Cambridge University Press.

Haraway, D. 1992. The promises of monsters: a regenerative politics for inappropriate/d others. In *Cultural Studies*.eds. L.Grossberg, C. Nelson, & P. Treichler, 295-337. New York: Routledge.

Haraway, D. 2008. *When species meet*. Minneapolis: University of Minnesota Press. Hinchliffe, S. &Bingham, N. 2008. Securing life: the emerging practices of biosecurity. *Environment and Planning* A 40 (7): 1534-1551.

Jackson, M. July 30 2013. BioShock Infinite reaches 4 million sales milestone. Computer and Video Games. Accessed on January 21, 2014.

Jansz, J. 2005. The emotional appeal of violent video games for adolescent males. *Communication Theory*. 15 (3): 219-241.

Jones, S.E. 2008. *The meaning of video games: gaming and textual strategies*. New York: Routledge.

Kenyota, G. 2007-2008. Thinking of the children: the failure of violent video games. *Fordham Intellectual Property, Media and Entertainment Law Journal* 18 785-815.

Kerr, A. 2006. *The business and culture of digital games: gamework/gameplay*. London: Sage.

Kozlov, M. & Johansen, M.K. 2010. Real behavior in virtual environments: psychology experiments in a simple virtual-reality paradigm using video games. *Cyberpsychology, Behavior and Social Networking* 13 (6): 711-714.

Latour, B. 1993. *We have never been modern*. Cambridge, Mass: Harvard University Press.

Legg, S. 2005. Foucault's population geographies: classifications, biopolitics and governmental spaces. *Population, Space and Place* 11 (3): 137-156.

Leonard, D.J. 2005. To the white extreme: conquering athletic space, white manhood, and racing virtual reality. In *Digital gameplay: essays on the nexus of game and gamer*. ed. N Garrelts, 110-129. London: McFarland and Company.

Lorimer, H. (2008). Cultural geography: non-representational conditions and concerns. *Progress in Human Geography* 32 (4): 551-559.

Luke, T.W. 1999. Environmentality as green governmentality. In *Discourses of the environment.* ed. E. Darier, 121-151. Malden, Pa.: Blackwell.

Mass Effect series. 2007-2012. Developer: BioWare & Demiurge Studios. Publishers: Microsoft Game Studios & Electronic Arts. (Xbox 360 and Windows).

Massumi, B. 2002. *Parables for the virtual: movement, affect, sensation* Durham, NC: Duke University Press.

McCruelty: Super Chick Sisters. 2012. People for the Ethical Treatment of Animals. .

Metzger, P. 2007. Bioshock? You're soaking in it. *Los Angeles Times*, September 20, E.13.

Newman, J. 2008. *Playing with videogames*. London and New York: Routledge.

Nitsche, M. 2009. *Video game spaces: image, play, and structure in 3D worlds*. Cambridge, MA: MIT Press.

Pile, S. 2010. Emotions and affect in recent human geography. *Transactions of the Institute of British Geographers* 35 (1): 5-20.

Power, M. 2007. Digitized virtuosity: video war games and post-9/11 cyber-deterrence. *Security Dialogue* 38 (2): 271-288.

Rabinow, P. 1984. Introduction to *The Foucault Reader*, ed. Paul Rabinow, 3–29. New York: Pantheon Books Pantheon Books.

Rehak, B. 2008. Genre overview: first-person shooters. In *From pinball to PlayStation: a history of video games*. Ed. M. Wolf, 187-195. Westport, CT: Greenwood Publishing Group.

Resident Evil series. 1996 - 2005. Developer & Publisher: Capcorn. (PlayStation, PlayStation Network, PlayStation 2, PlayStation 3, Xbox 360, Wii, Windows, Sega Saturn, Nintendo DS, iPhone, Zeebo, iPad).

Rose, N. & Novas, C. 2004. Biological citizenship. In *Global assemblages: technology, politics, and ethics as anthropological problems*. eds. A. Ong & S.J. Collier, 439-463. Oxford: Blackwell Publishing.

Rose, N. 2006. *The politics of life itself: biomedicine, power, and subjectivity in the Twenty-First Century*. Princeton: Princeton University Press.

Rose, N. 2007. *The politics of life itself*. New Haven, CT: Princeton University Press.

Rutherford, S. 2007. Green governmentality: insights and opportunities for the study of nature's rule. *Progress in Human Geography* 31 (3): 291-307.

Rutherford, S. 2011. *Governing the wild: ecotours of power*. Minneapolis: University of Minnesota Press.

Schneider, E.F. 2006. Death with a story. How story impacts emotional, motivational, and physiological responses to first-person shooter video games. *Human Communication Research* 30 (3): 361-375.

Schwartz, L. 2006. Fantasy, realism and the other in recent video games. *Space and Culture* 9 (3): 313-325.

Second Life. (2003). Developer: Linden Research, Inc. (Windows, Mac OS X, & Linux i686)

Shaw, I.G.R. & Warf, B. 2009. Worlds of affect: virtual geographies of video games. *Environment and Planning A* 41 (6): 1332-1343.

Siegel, R. 2005. Tipper Gore and family values. *All Things Considered*. (Accessed on July 20, 2010).

Šisler, V. 2008. Digital Arabs: representation in video games. *European Journal of Cutural Studies* 11 (2): 203-220.

Spore. 2008. Developer: Maxis. Publisher: Electronic Arts (Windows, Mac OS X, iPhone), September 4.

Takahashi, D. May 4 2009. EA's Spore game creature uploads strong, but game sales now on the decline. Gamesbeat. Accessed on January 21, 2014.

Take-Two. 2011. SEC Filings for Take-Two Interactive Software. March 9, 2011.

The Sims series. 2000 – 2012. Developer: Maxis (2000 – 2008), The Sims Studio (2008 – 2012). Publisher: Electronic Arts. (Windows).

Theme Park Tycoon. 1994. Developer: Bullfrog Productions. Publisher: Electronic Arts. (3DO, Amiga, Amiga CD32, Mega Drive/Genesis, PlayStation, PlayStation 3, Sega Saturn, Super Nintendo, Atari Jaguar, Windows, Macintosh, Mega-C, MS-DOS, & Nintendo DS) .

Thrift, N. 2007. *Non-representational theory*. London: Routledge.

Total War series. 2000-2011. Developer: The Creative Assembly. Publisher: Activision, Saga, Electronic Arts. (Windows).

Unger, J., Troutman Jr, P.L. & Hamilton, V.T. 2005. Signs, symbols, and perceptions in *Grand Theft Auto: Vice City*. In *Digital gameplay: essays on the nexus of game and gamer*. ed. N Garrelts, 91-109. London: McFarland and Company.

Wolfe, C. 2010. *What is posthumanism?* Minneapolis: University of Minnesota Press.

World of Warcraft. 2004 – 2011. Developer and Publisher: Blizzard Entertainment. (Mac OS X & Windows).

Wright, W. 2007. http://video.google.com/videoplay?docid=-262774490184348066&q=spore

Zoo Tycoon series. 2001-2008. Developer: Blue Fang Games. Publisher: Microsoft Game Studios. (Windows, Macintosh).