MAKING VIRTUAL WORLDS

LINDEN LAB AND SECOND LIFE

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INTRODUCTION: A DEVELOPER'S-EYE VIEW

I am standing in front of a whiteboard—the dry-erase boards seemingly ubiquitous in high tech company offices—looking at a drawing that offers a bird's-eye view of Santorini on a letter-sized color printout taped to the board. At least I think this is Santorini, a picturesque Greek island formed from the remnants of a collapsed volcano. In the picture I can see its c-shaped landmass, its steeply rising elevation, indicated by a panoply of colors, all surrounded by a deep blue that also fills its bay, where a smaller island sits. A Cartesian grid divides up the image into neat squares, more than four hundred in all. I had done my first ethnographic field research in Greece, ten years prior, though I had never made it to Santorini (ethnographers feel a keen imperative to spend every possible moment at their "field site"; in my case that was Chania, Crete). Now it is February 2005, and I am in a dimly lit yet loftlike space in San Francisco, at the offices of Linden Lab, makers of the virtual world Second Life. The image, with its god's eye perspective and posted in this work setting, suggests strongly the practice of design, even creation in the large sense. This is a piece of a world that is also an object of work. But at the time my perspective gravitated toward the experiential: I was thinking that soon I will be able to

walk—and fly—around at least this homage to Santorini. Within a month, I had done so.

Virtual worlds require less of an introduction by the day, as they have risen dramatically to prominence in a number of quarters.[1] They are characterized by their use of Internet connectivity to provide a persistent, open-ended, and shared three-dimensional space in which users can interact, typically via avatars (virtual bodies that move about and act inside the world). Second Life, launched in June 2003, stands in contrast to many of the other well-known virtual worlds (World of Warcraft, Everquest II, Lineage II) in that it has no established and universal game objectives. Users spend their time in Second Life doing numerous different kinds of things. Many of them socialize via text-based chat (more recently, voice capability has been added), and while they do this they may also be dancing through their avatars or playing games or just enjoying a nice view. Second Life has thus quickly risen to prominence as the most celebrated "social" virtual world. Beyond its remarkable growth (at the time of this writing, February 2008, it has millions of registered users and by some accounts about 600,000 active users), its distinctive feature is its users' access to in-world "tools" for the creation of interactive virtual objects and other content to which they own the intellectual property rights.[2] Users can, furthermore, control how these creations are distributed to other users, including through market transactions in the in-world currency, Linden dollars (L$).

The land (like that shown on the image I pondered) is also a purchasable commodity in Second Life, and this combination seems to have contributed to the emergence of a remarkable economy, one that also supports buying and selling Linden dollars for U.S. dollars. In short, Second Life supports the production of various forms of capital (social, cultural and market), and this in turn has provided a framework for continuing innovations in Second Life's use by individual and institutional participants, many of whom have begun not only to pursue market interests but also to explore the potential of Second Life for learning and therapy. The environment now provides a home for a wide range of nonvirtual institutions, from Harvard Law School and

Reuters News Service, to U.S. presidential campaign offices, therapeutic communities, and financial establishments.

When I began doing research at Linden Lab in December 2004, approximately thirteen thousand users had created accounts in Second Life—small by the standards of the virtual world industry (at the time the original Lineage, a game primarily popular in East Asia, boasted over two million users worldwide), but this number was beginning to rise at an increasing rate, and this lent a sense of urgency and hope to the employees of Linden Lab over that year. I visited the company every month between December 2004 and January 2006, for one to three weeks at a time (usually during business hours, but including after hours get-togethers as well), and while local I focused on face-to-face participant observation along with interviews. I conducted twelve lengthy, recorded, semi-structured interviews (one to two hours, on average) with employees from all over the company, including management, and conducted over forty-five informal, unrecorded interviews (fifteen to forty-five minutes, on average) with Lindens (employees of Linden Lab, as they call themselves) over coffee or during breaks from their work.[3] These were supplemented by innumerable brief exchanges and other interactions. I also did some light work for Linden Lab (nothing that put me in contact with Second Life users) in order better to understand their work practice, including the use of in-world tools. To the extent that the company was small (thirty-five employees at the start, sixty-seven at the conclusion) and for the most part all working in the same building (even the same room), this continued to be effective.[4] I benefited greatly from Linden Lab's open office environment, with employees each occupying desks grouped in clusters in a large room.

Early on I realized that Lindens were incorporating a wide array of communications media into their work practice (as, of course, many people do these days). The workers demonstrated a familiarity and ease with "in-world" affordances (that is, communication tools available inside Second Life), which they seamlessly included in how they went about their jobs. As it became clear that some of their work was itself virtual—themselves making "work" use of the very world they provided

for their users—I began to do research in Second Life as well. This allowed me to continue to use my time when not in San Francisco to conduct research. While I rely most heavily on the face-to-face research in what follows, I also at times refer to in-world experiences, e-mail and instant messaging exchanges, Web-based resources, and other media.[5] It also bears mentioning that this is a work that attempts to capture things as Lindens saw them with regard to themselves and Second Life in 2005, not an account of how the users of Second Life saw many of the same events—the limitations and possibilities of speaking about a shared culture among Second Life users has been extensively treated by Tom Boellstorff (2008).

This book does not offer a comprehensive account of the practices, meanings, and history of Linden Lab as a conventional ethnography might. While certainly the small number of its employees would make such a thorough treatment ethically troublesome, the broader reason is because this book has a different aim. Following the path set by Paul Rabinow's *Making PCR: A Study in Biotechnology* (1996), to which the title of this book is a respectful homage, this work illuminates ethnographically complex processes of governance, games, and creativity. These processes are so much a part of the rise not only of virtual worlds but of multiple settings in which our technologized experience is both open-ended and architected. The book also asks why virtual worlds matter and which factors cause things to be at stake within them. These primary issues determine the structure of the book, with alternating chapters addressing the larger questions regarding virtual worlds and the ways that the employees of Linden Lab wrestled with the questions of how to manage in what they hoped would be a nonhierarchical fashion. Anyone seeking to understand the impact of the digital on new forms of institutions and their relationship to individual creativity needs to ask the questions I raise here. Linden Lab in 2005 is, I argue, a particularly revealing case for developing that understanding through an ethnographic treatment.

By the time I finished my research in January 2006, more than 120,000 user accounts had been created, and Second Life was beginning to appear with greater and greater frequency in national and in-

ternational news outlets. This tenfold increase in 2005 points to the importance of this year in the broader history of Second Life and Linden Lab. The Lindens could not know that a future of more than six hundred thousand active users awaited them. Instead, 2005 was the year in which Second Life moved from obscurity to being buzz-worthy. The optimism this fostered around Linden Lab was nonetheless guarded, for while many companies might count such growth as a proof of the rightness of their strategy and direction, Linden Lab's work practice and discourse were instead marked by a constant awareness of their own lack of control over what Second Life was and could become, and how every move they made was in many respects a shot in the dark. The new landmass I stood pondering was a good example of just this kind of gambit.

The "atoll," as it was referred to around Linden Lab that winter and spring, was part of an ambitious plan begun in late 2004 and continuing through early 2005.[6] As the demand for land grew with the population of Second Life, the content team (the Linden employees in charge of providing the land and other basic infrastructure of Second Life) was scrambling to get ahead of the curve. Needing to be ready to bring online a lot of new land as growth increased, but wanting to do more than just attach more ground to the "mainland" continent already in existence (which was beginning to look more and more amorphous), the members of the team decided to design an entirely new continent to the north of the old one, which they would bring online in pieces as needed. (The size of "continents" in Second Life is not really comparable to continents offline—they are much smaller relative to human/avatar size; although the atoll's size relative to the real Santorini may be similar, the atoll looms much larger in Second Life, especially in comparison to Second Life's "islands," which range from 1/400th to 1/100th of the atoll's size.) The team members sought to bring an interesting and aesthetically "coherent" shape to Second Life on a grand scale, one with a dramatic topography and correspondingly scenic vistas. But they decided to go further and build structures and other objects on this atoll that would themselves, they hoped, be meaningful.

This content would be archeological—the remains of an imagined past civilization that had moved slowly up the atoll in altitude as it advanced technologically (and then departed for "space," almost as the first Second Life explorer—a Linden-created user named Magellan Linden—arrived). This contrived civilization had an iconography, built around the totemlike presence of the moth, which the content team found amusing and inspirational at the same time—a constant moving upward toward the light (the sun—Second Life had four-hour day/night cycles, complete with a sun and a moon) defined its "prehistory" on the island. It had distinct building styles, such as the corrugated steel and whitewashed colors of some structures built on platforms over the water of the bay, and it incorporated more advanced technology in new, higher areas. This strategy of making not only a landmass but also a civilization with a "mythology" to accompany it was a response to something the content team (and other Lindens, though there was not a uniform consensus about this) saw as a "problem" with user creation on the mainland: it was "ugly" or "trashy." Half-finished castles stood next to huge egg-shaped buildings next to giant flashing, rotating advertisements next to log cabins. The team's hope with the atoll project was to prompt residents to explore and expand on a design style together and thus realize one of the values that hung like a promise over Second Life (and Linden Lab, as we shall see): enlightened creativity, with an attendant aesthetic payoff. More broadly, such a combination of top-down contrivance and (hoped-for) bottom-up emergence was emblematic of Linden Lab's approach to governing Second Life (and itself).

The atoll was brought online piece by piece—each square in the grid that overlaid it represented one "simulator" or "sim," itself powered by one server (the size of each sim, relative to avatar size, is sixteen "acres" in-world). The content team watched with interest to see what the residents would do, and indeed in some places residents built with an eye toward the content already in place. With some users employing the matching textures (image files that could be "wrapped" around objects to give them a "texture") and other things Linden Lab provided for free at in-world "kiosks" (effectively, virtual vending ma-

chines), neighborhoods with a consistency of style emerged here and there. But on the whole the engagement of the "mythology" of the past civilization was not extensive, and in many cases, especially commercial buildings, there were no common stylistic elements at all. By early 2006 the island was dominated by the same heterogeneous mix of stuff as the old continent.

By that time Linden Lab's content team appeared disillusioned with the prospect of prompting aesthetically compelling, collaborative content within Second Life on a large scale. At the same time, however, a related development did lead to some thematic coherence—if not, from the content team's point of view, high aesthetic value. This was the result of a significant shift in residents' relationship to land itself following an update to the Second Life software (version 1.6). More and more private islands were being sold (at approximately US$1,000 apiece) and these owners—typically powerful residents with lots of real-estate holdings—were "renting" space to other residents. Making use of the greater sovereignty islands afforded them (as compared to the mainland), they built neighborhoods of a particular style, much like offline suburban developments in the United States. These island owners made spaces that appealed to consumers who wanted a place to live in Second Life, ready-made and with clear zoning restrictions (contained in every renter's agreement with the island owner, much like a covenant in real estate). The lesson contained in this unintended consequence was for Lindens a familiar one: their efforts to prompt user behavior of one sort or another were fraught with complexities, as a number of ongoing processes collided with their own interventions. As one developer said about another initiative of Linden Lab that did not take off as expected (this one making it possible for users to stream video from their own personal computer into Second Life): "There's something that we're missing here. There's some piece that will totally change its usability, and I don't know what that is."

This reveals something distinctive about Second Life as a product. Of course, all companies proceed knowing that the market may surprise them, and this has become an important thread in our understanding of marketing and consumption. As Timothy Burke (1996), for

example, has explored at length, for Colgate and other companies seeking to market hygiene products in Zimbabwe unexpected uses (such as toothpaste for ringworm) posed a challenge of marketing. Which emergent practices should be further marketed (that is, supported)? Which should be ignored or dissuaded? But for conventional products such as these, the product's use is nonetheless dictated principally by the manufacturer, and in a relatively narrow fashion. Colgate was not banking on its customers continually finding new uses for toothpaste.

Second Life is not this kind of product. Like few other products we can identify—early telephone service is one, Internet search engines may be another—Second Life *depends* on unanticipated uses by its consumers. Value in Second Life is highly dependent on a contrived architecture, and it thereby radically reconfigures how human effort accumulates in various forms of capital. In a very important sense Second Life, with so much of its content created by users themselves, was meant to make itself, and this book is an exploration of what that means not only for its creator but for the increasing number of such architects of digital environs, all of whom may be charting a new way to design this open-endedness. To capture more powerfully this activity of contriving a complex space for human use, we might even take a cue from the original Latin verb use and say "to architect." This practice of architecture embraces an approach to control that trades the promise of total order for a different ethical position, one that attempts, imperfectly, to reject top-down decision-making in favor of embracing the indeterminate outcomes of social complexities. What is more, this commitment applied as much to Linden Lab's making of their own organization as to their making of Second Life. And in this ongoing predicament they are not alone in high-tech circles; Google, as recent coverage by several journalists has revealed (Carr 2007), is similarly shaped by an attitude that combines a deep faith in technology with a rejection of vertical authority.

In discussing this issue of intentionally limiting control, by a company of its product and of itself, I favor the term "governance" over "management" throughout this work. There are three primary reasons for this. First, management carries with it an enormous weight of past

literature on business that tends to portray management as a top-down, strategically implemented project. By contrast, I locate the approach to governance that characterizes Linden Lab as an outgrowth of a historically located point of view, one that in a way explicitly rejects "management" in the traditional business sense. Second, and more important, the ways in which Linden Lab (and other companies like it) are coming to shape the human experience of the digital calls for a term that points to the full range of political and other implications of their position. In seeking to contain and benefit from implementing a mix of regulation and affordances over many users' everyday experience, these companies have left management of a product (or a company) behind and entered the realm of social policy. Finally, governance is a term that can allow us to talk about how such policy must recognize a balance between efforts to control and sources of novelty, in much the same way that, for example, copyright law was built on the attempt to strike a balance between regulating private interest and fostering public innovation (Malaby 2006a; see also Burke 2004).

This is an ethnographic account of the peculiar relationship Linden Lab has to its creation and the implications of this relationship for Linden Lab itself. While initial social science attention has been on the human activity *within* virtual worlds, this work explores one site of their production, with a specific focus on the changing nature of authority and architected disorder within it. The hope is that as a result we will be in a better position to understand the emerging institutions that are ever more able to shape and govern our increasingly digital lives. It explores how an organization that set out to create a deeply and complexly contingent environment is then itself remade by its creation through that domain's emergent effects, in a constantly reiterative process, but without losing its position of greatest influence. These effects continued to shape both Linden Lab's ideals and their practice and set off a spiral of outcomes that continues to this moment. Responding to these eventualities was a constant challenge for Linden Lab, and Lindens displayed a number of responses to it, including seeing themselves as providing value-neutral tools, relying on aesthetically driven appeals rather than rational ones, and turning to the techniques and principles

of games and game design to try to manage open-endedness. Linden Lab's struggle to reach an accommodation among its values, its governance of itself, and its governance of its creation may signal the new form of institutions for the digital age, one characterized by something other than the ideal of total control.

The Lindens recognized that new technologies would reconfigure the possible actions that people can take (as they open certain improvisational possibilities and close others); that is, new technologies provide distinct *affordances* to their users. In this, the Lindens are not alone. The history of modern social thought is to a great extent the history of bureaucratic institutions and their changing relationship to human experience. A large part of this is the issue of how bureaucratic institutions govern, often at least in part through technology. Max Weber (1946) and Michel Foucault (1976), most notably, charted the consequences of the rise of practical techniques and representational strategies by which institutions rationalize, discipline, and control. Initial reactions to the implications of new digital affordances (here, principally, vast computing power, mobile devices, and networked technologies) leaned toward the utopian. New technologies, in this technological determinist view, rather than reconfiguring what *might* happen, would inevitably shape our future and, in most accounts, lead to the evaporation of bureaucratic institutions.

But it is by now apparent that institutions are by no account withering away in the wake of these transformations. That is not to say, however, that they are not changing (Kitchin and Dodge 2006, Braman 2007). Programmers and call center employees working in India for a U.S. company are controlled largely through code (see Lessig 1999), in what might be the antithesis of Linden Lab and its approach to Second Life. The programmers' daily lives, including their hours of sleep and work, are thoroughly governed through nonnegotiable code—it controls their login times, implacably measures their error rates, and leaves them "out of sync" with local (Indian) time and its daily rhythms (Aneesh 2006). Here the promise of perfect order is alive and well, but it relies more and more on governance through (software) architecture and less and less on other modes, such as legalistic regulation or shared

convention. We see this too in the governance of airports through a combination of software-based and conventional architectural techniques that geographers Rob Kitchin and Martin Dodge (2006) call code/space.

Such continued uses of what we may call the modern approach to governance, even given the innovations to it that software brings, seem more the exception than the rule, however. At Xerox, for instance, attempts to bolster the repair rates of its photocopier technicians through a sizable investment in a new and extensive manual of step-by-step procedures failed quite spectacularly. Rates improved only after they implemented a suggestion made by Julian Orr, an ethnographer looking at work practices within the company, that they support the technicians' emergent practice of sharing "war stories" (Orr 1996). Other ethnographic accounts of emerging technology have similarly conveyed the importance of recognizing how indeterminate the outcomes are of encounters between new technologies and preexisting practice and meanings. Gary Lee Downey (1998), for instance, has charted the unanticipated ways in which students trained in CAD/CAM systems in the United States in the late 1980s were themselves transformed in the way they saw the world. This leaves us in a position where uncovering a determinative account of how these innovations came to be is impossible, such as in Rabinow's (1996) account of the invention of the polymerase chain reaction.

In such work we find a commitment to seeing technology not only beyond how it is situated in specific institutional domains (such as medicine or science) but also beyond its role as simply serving the interests of these domains. We see how technology is more and more directly confronting human sociality, with effects that are not determined by either existing social patterns or the impact of the new. It is particularly important to pursue this line of inquiry as technology increasingly saturates our everyday experience. Take, for example, the many-to-many quality (at least, for those connected) that enables current communication technologies to confound existing institutional controls. This development sparks new and collaborative uses, many of them quite challenging to established interests (the rise of YouTube

being a current example). The extent to which this set of expectations shapes broad cultural attitudes in Second Life is extensively documented by Tom Boellstorff, who usefully identifies it as a form of "creationist capitalism" (2008: 100, 206–209), and the question of value in virtual worlds is central to understanding what is happening there. What is the (institutional) business model for new circumstances in which users expect to contribute to the practice of shopping or of entertainment or of diagnosis (to name just a few) while believing that they are unconstrained even in how they craft themselves? This is a question not only for businesses. Similar questions must be asked by other institutions: what is the governance model or the activism model or the learning model under these new circumstances? There has, as ever, been no shortage of eager companies attempting to forge a significant piece of the "digital society." In doing so, they answer some of these questions through the practical development of new digital forms, but virtual worlds are a segment that has brought the deepest of these issues into specific relief and provide a source of key insight for the nature of institutional techniques (and, indeed, viability) to come.

What makes virtual worlds so valuable for answering these questions? First, many virtual worlds are game spaces, where foundational game objectives structure much (though not all) of the human action within them. Early successes such as Ultima Online, Lineage, and Everquest gave way to the current giant in this area: World of Warcraft.[7] World of Warcraft now claims ten million active subscribers (grouped in thousands over multiple, identical servers, each with a complete iteration of the game's world). The sheer numbers involved (both demographically and financially) demand an accounting, in the broad sense, of this new phenomenon, but some of the most significant developments in these kinds of virtual worlds tend to be obscured by the focus on their increasing size. These game-based virtual worlds are giving rise to *guilds*, influential player-made institutions which now span virtual worlds and exert considerable influence over both players' and game makers' actions (Malone 2007). Furthermore, these spaces and their effects—such as the appearance of stable markets in their

currencies, objects, and characters (Castronova 2005)—have begun to challenge popular conceptions of what games *are*. Together these developments suggest that we are only beginning to understand the role of games in social life in the current era. Game makers themselves are already confronting how the sometimes surprising social effects that games generate have a significant impact on how they run their games, as Timothy Burke (2004) has written with respect to the changing nature of sovereignty for virtual world makers.

The second thread that we can tease out for why virtual worlds have vaulted onto the scene seems, initially at least, to be in essence quite different. This is the increasing and innovative *uses* of virtual worlds, most obvious in the "social" ones like Second Life. It is Second Life's broader uses for therapy, learning, and commerce that have brought it the lion's share of attention from the media and others in recent years. And in a way this fascination would appear to live up to Linden Lab's own aspirations for Second Life as seen even in its name—one's *Second Life* is intended to be as complete and equivalent an alternative to one's "First Life" as its name would suggest.[8] But these two threads that have caught popular attention (the vast size and increased participation in online games and the innovative "nongame" uses of social virtual worlds) are, I contend, closely related. To see why requires us to approach games differently—specifically, we must recognize that what makes games compelling is not their separateness from our everyday experience but their similarity to it, the way that games present an engaging mixture of pattern and unpredictability that challenges us to act, but also, perhaps, to fail. In games it is a contrived mixture, to be sure, but in short, as game makers have continued to make more and more complex games, they have opened the scope of action within them so broadly as to approach ever more closely the texture of everyday experience. To recognize this, it is also crucial not to see in games only their structures, their rules. Games are not reducible to their rules (Malaby 2007a) but instead legitimize and incorporate forms of contingency that are vital for helping us understand why these architected domains can be a site for the assumption and valorization of intentional self-creation.

This breadth of affordances in virtual worlds owes a great deal to their gameness, so what accounts for this explosion of uses in Second Life and spaces like it is therefore not so removed from what drives the growth of the enormous virtual worlds like World of Warcraft. These worlds share a great deal in the practice of their production, shaped as it is by a combination of game design, computer game development, and software development generally. In their products, these combine to create persistent spaces where users feel a relatively large degree of freedom. But that apparent freedom belies a significant innovation in techniques of governance. In better understanding how these worlds are made and maintained, we might be surprised to find the beginnings of new institutional techniques in the nature of game design itself, which allows game features to be incorporated into the architecture of spaces that become importantly *gamelike*, if not foundationally games. In future inquiry into these spaces, it is vital that we keep in mind the architected nature of virtual worlds, how they achieve their gamelike open-endedness, and the ethical implications of those facts for the changing human relationship to institutions in the digital age.[9]

Let us turn back, then, to the earlier notion that in important ways these games, and the gamelike virtual worlds built on their principles, exist counter to bureaucracy—in the classical sense—and its close ties to the most explicit ideals of modernity. As *socially legitimate spaces for cultivating the unexpected* (Malaby 2007a), games and the virtual worlds based on them can usefully be thought of as the mirror of bureaucracy. If bureaucracy is driven by an ethic of determinacy or *necessity* and aspires to eliminate the exceptional case, games and virtual worlds are driven by an ethic of *contingency*; that is, they are places where the unexpected is supposed to happen.[10] Of course, bureaucracy *in practice* is also a site for contingency (and regularity). Bureaucratic projects certainly do not perfectly realize the modern aim of eliminating the uncalled-for. The point, however, is that bureaucratic projects, such as Xerox's initial efforts mentioned above, or those of the companies that Aneesh describes, *aspire* to reduce contingency—that is the ideal. For Weber and those who have followed his thought, this is no less than

one of the central cultural ideals of modernity. With it we have seen, especially for the nation-state, attempts to maintain this order through portraits of an imagined collective life that obscure idiosyncratic practice (see Herzfeld 1993). Games, by contrast, are socially legitimate domains where unpredictable events are *supposed to happen*, and that is why their rise suggests a changing relationship between institutions and the rationalizing techniques (and strategic representations) that have served them so well in the past.

One aim of this work is to bring games into our conversation about what is happening not only in our relationship to technology but to governance in all the domains in which it is found. At the same time that games have made their presence increasingly impossible to ignore, much of game studies scholarship was long mired in competing, formalist approaches (loosely labeled as narratology and ludology), which shared unproductive root assumptions about the structure of games in all times and places and tended to assume that games are intrinsically set apart from everyday life (this is due in large part to the long-standing and unexamined association of games with play; see Malaby 2007a for a full discussion of this issue). But this self-ghettoization of game studies is ending as a new wave of scholars has found it productive to forge new ground in our understanding of games.[11] Games at this very moment are being incorporated into more and more domains of experience, and excellent work in this vein has begun to appear.[12] A leading example is the work of the journalist Julian Dibbell (2006), who has gone the furthest in suggesting that, by eroding the culturally robust (for the West) separation of work and play, the advent of games' ubiquity in workers'/players' daily experience may herald the beginnings of what he calls ludo-capitalism. In a similar vein, this book explores the point of view of those who are integrating elements from game making into their creations and even their own institutions in ways that appear to move beyond the bureaucratic logic by which those spaces have worked in the past. The central puzzle is one of Linden Lab's own governance, even while that conundrum also characterizes its challenges vis-à-vis Second Life. In making Second Life's world, Linden Lab's world was continually remade.

The book charts how, in setting out to make a world that is supposed to make itself (through the content-generating actions of its users), Linden Lab evinced a remarkable and antibureaucratic commitment to unintended consequences, and then found itself shaped by Second Life as the world and its effects grew.[13] Making it up as they went along, Linden Lab's original ethical attitudes (in practice and discourse) toward people and technology were subtly changed but not necessarily overturned, and this challenges our previously held ideas about institutions and their relationship to what they create. Above all, this underscores for us the importance of understanding the power of the deep architectural position of the relatively small number of people and organizations at the forefront of constructing the digital societies to come. Furthermore, the designers of digital space are shaped by a set of ideas about technology and authority that continue to resonate throughout the halls of Silicon Valley. I term this distinctive combination of distrust of vertical authority, faith in technology, and faith in the legitimacy of emergent effects as "technoliberalism," which marks both its similarities to neoliberal thought but also its emphasis on contriving complex systems through the manipulation of technology. Organizations shaped by this view, in their struggles to act and preserve their position relative to their creations, are working out new institutional techniques to cultivate the indeterminacy previously anathema to organizations. They do so in part because of a faith that inheres in this outlook—that open-ended practice, in the aggregate, will produce not only things of value (an economy) but emergent patterns that will lead to social goods writ large. The challenge, from this point of view, is how to contrive such contingency. The people of Linden Lab, remarkably, out of accident, ambition, or necessity sought to embrace this conundrum practically and thus began a very bumpy ride at the edge of their own institutional existence.

NOTES

Introduction: A Developer's-Eye View

1. They have also been called, variously, massively multiplayer online role-playing games (MMORPGs, or simply MMOGs), massively multiplayer online [worlds] (MMOs), and synthetic worlds (Castronova 2005), but virtual worlds currently enjoys precedence, despite the misleading suggestion that "virtual" makes: that there is a clear separation of it from the "real."

2. This is the number of unique accounts that have logged into Second Life in the past fourteen days as of February 23, 2008. Linden Lab provides a number of regularly updated demographic statistics here: http://secondlife.com/whatis/economy_stats.php. Until mid-2007 Linden Lab's primary statistic for representing its population was "residents," which referred to all accounts that had ever been created (most of them free accounts), a number that surpassed eight million at that time. Since then, Linden Lab has instead provided numbers of users sorted by time of last login (seven, fourteen, thirty, and sixty days) as its primary statistic. It is still difficult to tease out to what degree even these numbers are skewed by the number of new accounts that will never be used again. Also, I chose not to use Linden Lab's term, residents, for Second Life users. While it certainly fits with their marketing efforts, I see no compelling reason for it to stand as an analytic for this or any other virtual world.

3. All Lindens were informed via company e-mail about my research project and given the choice not to participate, which they could invoke at any time. I use pseudonyms or otherwise avoid identifying Lindens who appear in what follows, in quotations or descriptions. At times, I make exceptions for my interviews with Philip Rosedale and other director-level Lindens, who are public figures that represent the company. I also at times refer to public statements that Lindens made elsewhere, such as on Web logs.

4. Linden Lab moved to a new office in April 2005, from an office on Second Street to one near the bluff below Coit Tower. I allude to this move at several points in the chapters that follow. Also, it bears mentioning that the small number of Linden employees makes delving into individual histories next to impossible without revealing enough identifying details to betray actual identities. I focus on the Lindens' work lives to a great extent but even there must avoid giving extensive specifics at times—many of the Lindens continue to work there, and lengthy thick description runs the risk of identification.

5. I also looked for new ways to take advantage of digital media, and in mid-2005 Wagner James Au (a journalist who has covered Second Life for a number of years, at first under a contract relationship with Linden Lab) and I began a Linden Lab History Wiki, to which we invited employees of Linden Lab to add their recollections about Linden Lab's past on a timeline.

6. The island was later named the "Heterocera Atoll" (see http://secondlife.wikia.com/wiki/Heterocera_Atoll, accessed 21 February 2008). This usage suggests that the inspiration for the shape of the landmass may not have been the collapsed volcano of Santorini but rather the circular rings of coral that make up some islands in the South Pacific.

7. It is worth noting that the graphical, avatar-mediated virtual worlds currently prominent owe a great deal of their design to the original text-based virtual worlds, begun in the mid-1970s (see Bartle 2003).

8. Users in Second Life have a special page of their profile dedicated to information about their lives beyond Second Life itself—this tab is labeled "First Life."

9. For an early treatment of similar issues for a text-based virtual world, see Pargman (2000).

10. The picture of bureaucracy here derives from Max Weber (1946), who proposed that bureaucratic authority, in contrast to charismatic and traditional authority, achieves its legitimacy through the necessity of following rules for the sake of following rules. (One recalls the phrase used by the researchers of Stanley Milgram's experiments: "The experiment *must* continue.")

11. For example, new media scholars have sought to develop an approach to games that connects them to critical theory (Bogost 2006; Galloway 2006).

12. See, for example, Burke 2002, 2004; Castronova 2005; Consalvo 2007; Steinkuehler 2006; Taylor and Kolko 2003; and Taylor 2006.

13. On post-bureaucratic organizations and their relationship to ever-changing technology, see Kellogg, Orlikowski, and Yates (2006), and Orlikowski (1996).

Chapter 1. The Product: Second Life, Capital, and the Possibility of Failure in a Virtual World

1. Instant messaging (IM) is also built into Second Life, so users can send private messages to individuals wherever in Second Life they may be.

2. Learning generates competencies; there are other forms of cultural capital—credentials and artifacts—that are generated by other kinds of exchange.

3. See Crump (1981: 8), Simmel (1978: 153), Cohen (1998: 11–12), Leyshon and Thrift (1997), among others.

4. http://news.com.com/Wells+Fargo+launches+game+inside+Second+Life/2100-1043_3-5868030.html.

5. Reciprocity as the basis for the establishment of social relations that could be drawn on to acquire status is classically represented in the "big man" system at one time prevalent in Melanesia. See Sahlins (1963).

6. One account of the event can be found at http://secondlife.blogs.com/nwn/2005/07/day_of_the_doct.html.

7. See http://secondlife.blogs.com/nwn/2005/10/laying_down_the.html.

Chapter 2. Tools of the Gods

1. William Gibson is a perhaps better-known author who wrote about virtual environments in novels such as *Neuromancer* (1984), and his work predates Stephenson's; nonetheless, around Linden Lab Stephenson was cited far more frequently as having provided the model for what Linden Lab was making.

2. In this respect, Tom Boellstorff's identification of the neoliberal underpinnings of Second Life is on target (2008: 209), but it is important to note how the ideas of Brand and others that found their way into Linden Lab did not restrict the arena of the invisible hand to the market alone. The economy of Second Life is indeed "creationist capitalism" of a sort, but the implications