CHAPTER 1
INTRODUCTION

Statement of the Problem

Giddens (1990) has argued that the disjuncture of time and space is at the heart of modernity, and that this requires us to think about social systems in new ways. He believes the separation creates the conditions for rationalization and results in the 'disembedding' of both people and institutions; social interactions are no longer bounded by a physical place, but instead transpire in new ways across time and space. In the present day, this dislocation is furthered by symbolic tokens such as money (1990:22-27), and by new computing and communications technologies. As social scientists, if we are not cognizant of these changes, we risk framing our analysis around concepts that are no longer meaningful.[1] Both labor and, more broadly, economic exchange have been altered by the disembedding that Giddens describes. In earlier times, labor was a "constant measure between the values of things" (Foucault 1970:253), and markets were situated in local, public spaces (Zukin 1991). Now the entire cycle of production and circulation is assessed for its value, with labor costs as only one piece of the equation (Foucault 1970:253-58). Thus worth is no longer associated with a laboring individual, but rather with the efficiency of a system of

[1] For example, in his book *Imagined Communities*, Anderson (1983), seeks to explain the emergence of nationalism. Because the idea of nation forms an integral part of everyday lived experience, it is difficult for us to conceptualize the nation-state as a "relatively recent, historically contingent form of organizing space in the world" (Gupta 2003:321). In other words, the concept of nation may no longer define a valid area of study. Giddens argues that our understanding of society is conflated with nation-state (1990:12-13), further dismantling familiar frameworks of analysis.

production. At the same time, with the rise of entrepreneurialism, labor practices shifted from home work to shop work and back again. And so over time, "market no longer internalized place," but rather "place began to internalize market culture" (Zukin 1991).

In this changing context, corporations continue to be a major force in driving global relations of power. In many ways, corporations are the quintessential institution of modernity; they work across national boundaries as a matter of course, and in an effort to remain competitive they have a voracious appetite for technologies[2] that promise to increase their efficiency. At the same time, through their participation in the free market system they drive consumerism, perpetuate gross inequities, and ensure a totalizing control of employees that extends well beyond the walls of any headquarters building. Thus, an anthropological study of the corporate form today must consider the ways in which corporations attempt to proliferate in the world system, in relation to both the market and their employees.

There have been substantial changes in corporations since World War II, including a renewed focus on improving the practices of production. Anthropologists have been working in corporations since the 1920s, and were witness to these changes. But a theoretical grounding in structural-functionalism

[2] This study will examine the breadth of technologies in use at one high tech company to manage employees to the desired ends. As it is used here, the definition of technologies includes the domains outlined by Foucault (1988), which be discussed at greater length in an upcoming section. The use of the word 'technology' may result in some confusion because I will also talk about software, which is a very specific kind of technology. Whenever possible I will use an adjective to distinguish the two (e.g. 'computing technology' rather than simply 'technology') to make those distinctions.

led them to focus on equilibrium within teams, and between workers and management. Over time, corporate management shifted their focus from the optimization of internal practices of production (through technologies like Henry Ford's assembly line and Taylor's scientific management) to the relationship between internal order and the market. Anthropologists largely failed to recognize this; we are therefore dependent on perspectives from other social sciences to make meaning of the changes that transpired during this period. Critical theorists Knights and Morgan (1991:257-58) call our attention to three trends which resulted in an increased awareness of and response to the market. The first was "the institutional separation of ownership from direct managerial control," which in turns required management to articulate its objectives and practices to an external audience. Secondly, after World War II the U.S. played a growing role in the global economy, and corporate management was required to articulate plans for success under increasingly diverse and complex competitive conditions. Finally, new forms of corporate organization were required to contend with dispersed work units; over time even corporate divisions were established as operationally independent silos, capable of responding directly to market trends.

In the 1960s and 70s, United States investments in foreign countries increased as it and other economically dominant countries sought cheap labor overseas (Nash 1979:423, Nash 1995). As U.S. financial interests spread around the globe, so too did anthropologists, and they were encouraged to study

developing countries that were being affected by U.S. corporations (Baba 1986:7). Anthropologists thus followed the patterns of corporate growth, and sought to better understand the influence of U.S.-based transnational corporations on the rest of the world. After a backlash against practicing anthropologists during the 1970s, in the late 1980s and early 1990s anthropologists again returned to work in corporations (Baba 1994). Rather than looking at the impact abroad, however, this more recent work addresses the impact of corporations on United States employees and society. Ethnographic work being done now (Barley & Orr 1997, Besser 1996, Downey 1992, Downey 1998, Dubinskas 1988, English-Lueck 2002, Frenkel *et al* 1999, Garsten 1994, Gluesing 1995, Gusterson 1996, Hamada 1994, Kunda 1992, Kusunoki *et al* 1998, Lan 2001, Smith & Kollock 1999, Suchman 1983, Suchman 1999a, Traweek 1988), including my own, expands on work of years past by considering the global and the local, unequal relations of power, and human agency. These recent developments in the anthropology of work will be explored at greater length later in the chapter.

In an essay on world systems theory, Wallerstein (1979) described unequal relations of power between an economic core of nation-states and peripheral states that are exploited by the core for their various resources. Critics of world systems theory argue that it focuses on economic exchange at the nation-state level, rather than on the details of production and labor processes (Blim 1992), and that it ignores the potential influence of human agency (Blim

1992, Smith 1984). As used by anthropologists, world systems theory extends beyond pure economics to analyze “capitalism as a social and cultural phenomenon as much as an economic one, as a process that can be and is affected by class struggle and human agency all along” (Smith 1984:225). More recently, the concept of core and periphery has been used to describe the social and economic relations between a parent company and its subsidiaries in a transnational corporation, for example Garsten (1994).

Understanding unequal power relations on a global scale has been central to the work of anthropology, but our new understanding of social systems as radically fragmented also requires a changed understanding of what constitutes core and periphery. For example, Nash (1979:424-26) expressed concern that transnational corporations are not responsible to a local labor force or market, and that their centralized control both reinforces inequities and discourages a national response. She goes on to say that “the effect on labor has been particularly marked since the mid-sixties when there was a shift from investment in capital-intensive industries supplying overseas markets to labor-intensive industries in low-wage countries” (1979:430). As the global system and corporations evolve, anthropologists have the opportunity to assess the impact and significance of these changes.

For example, the U.S. economy is driven less by manufacturing now than ever before. The increase in service work means that knowledge workers comprise a growing portion of the workforce; we can expect these changes to

impact the global labor market as well. Daniel Bell (1973:14-33) described the transition to what he called 'the post-industrial society,' characterized by (1) the shift from a manufacturing to a services economy, (2) the rapid growth of white-collar and technical workers, (3) the growing importance of theoretical knowledge, (4) a future-focused, technologically-oriented tendency, and finally (5) use of growing technical and theoretical knowledge to make abstract, intellectual decisions about the future. What we call this new era may be open to debate, but it is clear that computing and communication technologies have a critical role in these changes.

As corporations become increasingly globalized, computing technologies have proliferated (Greenbaum 1995:52); high-speed networks have allowed employees to work from different cities and even from different continents. But technologies have served other purposes as well. Management of remote, non-manual labor is a challenge since the physical body is not present to be managed. Since employee costs are the largest expense for corporations, this diaspora is not without risk. Under these conditions, new forms of discipline (many enacted through computing technologies) have emerged to ensure that employees remain subject to corporate demands. A growing trend towards self-management further ensures that remote employees will remain compliant through the internalization of corporate objectives. Thus the shift from co-located laboring bodies to a dispersed network of laboring minds has resulted in new

conditions of work that provide a rich (though sometimes virtual) landscape for study by anthropologists.

Research Questions and Objective

In his 1970 book *The Order of Things*, Foucault described fundamental shifts that modernity (through science) has wrought in our understanding of life, labor, and language. Escobar (1994) has urged anthropologists to assess the impact of science and technology using this same framework. But in more recent work, Foucault further refined his understanding of power, and came to include a fourth domain that he called 'the self.' It is these four domains working in concert that I will argue shape both the discourse and practical reality of the corporation today. As such, I believe the essay in which Foucault articulated these domains is worth quoting at length:

> We must understand that there are four major types of these "technologies," each a matrix of practical reason: (1) technologies of production, which permit us to produce, transform, or manipulate things; (2) technologies of sign systems, which permit us to use signs, meanings, symbols, or signification; (3) technologies of power, which determine the conduct of individuals and submit them to certain ends of domination, an objectivising of the subject; (4) technologies of the self, which permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality. (1988:18)

In the context of changes in the global system described previously, this dissertation is concerned with how and why and by whom these technologies are enacted in the corporate context today.

Computing technologies are one of many *labor or production technologies* in use in the corporate setting today. Deeply embedded in daily work practice, these systems are socially constructed and dynamic. This dissertation explores how computing technologies are shaping the lives of corporate employees today, and in particular how these systems evolve in relation to their social context. Because these socio-technical systems are represented by a device that does not appear to change (like a personal computer), we become increasingly inured to their changing nature and the power they wield. It thus becomes ever more critical to make explicit the role of these technologies in shaping the lives of corporate employees.

Language or sign systems are part of everyday life, and in this research context, communication to dispersed groups is frequently computer-mediated, so communication practices could be considered a socio-technical system in their own right. This dissertation explores communication in the corporate context and when, by whom, and for what purpose communication takes place. Given the decreased frequency of face-to-face communication in a globally dispersed workforce, this dissertation also questions under what conditions communication is conducted in person. Finally, corporate discourse is grounded in language and is integral to the production and reproduction of power relations in the corporate

context. In this dissertation, industry and corporate discourse will be explored as vehicles for the constitution of subjects.

Foucault argued that *technologies of power* determine conduct (1988:18). At his own admission, much of his early work was concerned with control or subjectification of the physical body. However, Stone (1994:113) has argued that "virtual community originates in, and must return to, the physical." So in spite of the fact that work in corporate settings is often conducted virtually, the physical world remains an important subject of study. This dissertation explores the significance of the corporation's physical space, the meanings that are associated with it, and why. It also explores the ways in which technologies are used to manage the remote employee, and if mechanisms of control change as distance from the core increases. But there are also many other, non-physical technologies of power in corporations today. So this dissertation further explores how bureaucratic mechanisms of control – from organizational structure to financial measures - have evolved in response to global socio-economic and political conditions that corporations are experiencing today.

Finally, at the heart of this dissertation are the ways in which *technologies of the self* in use in corporations today continue to evolve into more totalizing mechanisms of control. In other works, Foucault (1982) described the 'capillary' nature of power, which suggests its omnipresence. He thus "advocated an ascending analysis of power relations, beginning with the local points of its exercise" (Covaleski *et al* 1998:299). In a disembedded work environment,

perhaps the only constant, local point of exercise is the individual, which clearly creates conditions for the intensification of technologies of the self. These technologies ensure the institutionalization of employees well beyond the apparent boundaries of the corporation (Grey 1994). As remote knowledge work becomes a global reality, this topic assumes a growing urgency, and will be a central focus of this dissertation.

Research Site

In order to understand these technologies as instruments of governmentality, we must be clear about the larger economic, political, and social conditions from which they emerge (Rose 1989:61-62). The following sections describe both global and U.S. trends that are integral to U.S. high tech workers' understandings of themselves and the corporations in which they work. To that end, this section explores how technological dominance has been a cornerstone of U.S. national identity, economics, and politics; it also looks at how the flood of mass media attention on the high tech industry impacted the U.S. popular imaginary in the 1990s. Finally, this section assesses how U.S. immigration policy has evolved in response to fluctuating demand in the high tech labor market, and questions how these ongoing developments may impact the U.S. high tech industry and workforce in years to come.

Technology and U.S. National Identity

Social scientists have described the role of science and technology in the formation of the United States and U.S. national identity as we know it today; many of these studies trace this trend beginning with the atom bomb and the resulting dominance of the U.S. in both global politics and in the global economy (Harvey 1989:133, Hughes 1998:3) after World War II. However, some studies describe the central role of technology as early as the 1800s, showing that

> The machine, conceptualized as a helpful mediator between nature and society, was generally accepted as one of the main contributors to progress, which in the American context came to mean the conquest of the continent, the exploration of the frontier, and the taming of the wide open spaces and natives peoples of the American West. (Jamison 1998:71)

So it is critical to remain cognizant that technological inventiveness and national identity have been interwoven strands of our history since the North American continent was first discovered and colonized. However, the discourse of U.S. technical prowess became much more competitive and international in nature after World War II. For example, in the 1950s the Soviet Union launched Sputnik into space while the U.S. was still developing its first satellite. The embarrassment in not being first resulted in an acceleration of the U.S. space research program and the creation of NASA.

In the corporate world, by the late 1970s, management theorists were recommending decentralization in part because economies of scale were not realized, and new technologies were sought that could support smaller, more nimble organizations (Greenbaum 1995:67). These were attempts to replicate

the success of decentralized Japanese production, and years later when the 1980s brought economic struggle to the United States, a “story of national liberation” against Japan developed, with United States engineers as the protagonists (Downey 1998:7-8). Through a brief analysis of these eras, it is quite clear that technology is understood as a major driver of U.S. economic growth. As a result, any vestige of Romantic concerns for the social implications of technology are largely obscured by nationalist agendas; in the U.S. popular imaginary, the value of technology is not easily subject to question.

But unlike Sputnik, the concerns about the high tech industry today are not about whether the U.S. is first with an invention or to conquer a new frontier; they are long-term concerns about the future of both the industry and the U.S. economy. As labor markets become increasingly global and shift in new ways, U.S. legislation impacts sectors and workers both in the U.S. and abroad. Americans and their political representatives are questioning whether we are giving too much away by offering work to other countries through visas and outsourcing.

The reality is that the economic success of the dot-com era had a nationalist fervor, and the economic downturn of the current period does as well. On one hand there is recognition that we have shifted from farming to mercantilism to manufacturing to service work, and the U.S. has made those transitions and is still globally dominant in many respects. But it is not apparent what will come after the service economy, and so there is fear about giving

knowledge work away when it is unclear what will replace it and keep Americans employed. Fear of unemployment is very personal and at the same time of national concern, and this only becomes more true as understandings of self become increasingly interwoven with our identity as workers. In the case of the U.S. high tech, this conflation results in part from the fact that the industry is integral to our international dominance, both politically and economically. Miller and Rose (1995:458-59) talk about "economic citizenship," and the idea that workers have come to understand themselves as integral to improving the country's international competitiveness. In other words, it's not just about economics, but about the discourse of U.S. democracy itself.

From End-User to Customer

In the early years of computing technology, mainframes were used to track census data and manage other large-scale information projects, primarily for the government.[3] But once the new generation of hardware became sophisticated, stable, and affordable enough to be widely used, computing technology became available to a much wider (and often less technologically-savvy) audience. And so, the industry focus on software intensified. By the late 1970s, the Graphical User Interface (GUI, pronounced *gooey*) had been

[3] The industry was also accelerated by government funding for research. Under the direction of Licklider in the late 1960s, Advanced Research Projects Agency (ARPA, later DARPA with a D for Defense) stimulated the growth of the high tech industry by funding research in computing (Hiltzik 1999:13). ARPAnet – which later evolved into the Internet as we know it today - emerged during this period. Beginning in the 1970s the privatization of research at corporations like Xerox's Palo Alto Research Center (PARC) propelled the industry forward at an even more rapid rate.

developed at Xerox PARC (Hiltzik 1999), and was being used on the growing number of personal and business machines. This in turn paved the way for a growing use of personal computers (PCs).

In recent years, use of personal computers in U.S. homes has become significantly more common. Several years ago, the Commerce Department announced that the United States now has an information-age economy, as determined by a new industry classification system. The measures of this new age include the fact that more email than "snail mail" was sent in 1997, and that U.S. consumers bought more computers than automobiles (Belton 1999). Thus, despite concerns about the Digital Divide, the Internet has become familiar territory for many Americans, for everything from researching grade-school homework assignments to conducting business-to-business transactions. As a result of the growing ubiquity of both computer and communications technologies, users have also fueled demand for improved technology in homes and in the corporate setting.

Over time, concerns about the user have fused with corporate concerns about the market, and high tech industry discourse has evolved accordingly, shifting from an engineering orientation on the end-user to a growing industry focus on the customer. A free market system serves in part to constitute people as individual consumers (Martin 1997, Rose 1999, Suchman & Bishop 2000b:66). In fact, Zukin (1991:4) contends that with a shift to a services economy, “workers are important because they consume, not because they

produce." Hacking (1985:81) has shown that as "new modes of description come into being, new possibilities for action come into being as a consequence." Thus it is not surprising to see a proliferation of popular press literature helping to explain the ways in which economic success of high tech companies is inextricably linked to technology that meets the needs of customers. Even as the dot-com boom became the dot-com bust, books like *The Customer Revolution* (Seybold 2001), *The Unfinished Revolution: Human-Centered Computers and What They Can Do for Us* (Dertouzos 2001), *Customers Rule! Why the E-Commerce Honeymoon is Over* and where *Winning Businesses Go From Here* (Blackwell & Stephan 2001) and *The Inmates are Running the Asylum: Why High-Tech Products Drive Us Crazy and How to Restore the Sanity* (Cooper 1999) attempted to provide the perfect remedy for decreasing technology sales and the economic downturn in the new millennium.

Interestingly, the need to focus on demonstrating value to customers seems to have only been further reaffirmed as more and more unsuccessful dot-coms and e-business ventures have failed. In fact, the raging success of high tech in the 1990s seems only to have perpetuated this tendency; the urgency of the new and a heightened focus on the customer suggest that the right device or the right marketing ploy is just within reach. And so the corporate discourse of market relations that began after World War II has become intensely focused on the consumer, bringing with it new marketing practices and a re-focused discourse internal to the corporation as well.

The Changing Labor Market in U.S. High Tech

In the U.S., the 1980s and 90s saw a growing demand for high tech workers, which in turn resulted in changes to Human Resources practices and to U.S. immigration programs. At the same time, there was ongoing dialogue in the industry about contract work, unionization, and shifts in the global labor market. The banking and health care industries were undergoing rapid changes in the 1990s at the same time that the high tech industry was fueling U.S. economic growth. But banking and health care institutions did not develop the same Human Resources (HR) strategies (Hybels & Barley 1990) as high tech corporations did. New forms of governance emerge hand-in-hand with new economic conditions (Martin 1997), so the question is "what organizational dilemmas do they mediate?" (Hybels & Barley 1990:201).

During the 1980s and 90s, the shortage of qualified high tech workers was well documented in the popular press. United States citizens with adequate training (even those with minimal experience) were able to land exceptionally high-paying jobs. In order for recruiters to be successful, they had to provide job candidates with "realistic previews of jobs that are challenging, that provide autonomy in the context of team collaboration, real responsibility and control over some meaningful aspect of the work…" (Cascio 1990:183). Contrary to popular belief, base salaries at high tech companies are not highly inflated (Balkin & Gomez-Mejia 1985). Rather, the emphasis is on a total compensation package that includes stock options and profit-sharing (Gomez-Mejia & Balkin 1989).

These types of programs can be lucrative, but in order to realize the gains, employees are often required to stay with the company for an extended period of time; for example, profits earned one year might be paid out a year or two later, and continuous employment is a criterion for payout. Thus, while the total compensation offering may ultimately result in economic gain, it also serves to focus the employee on the corporate objectives, while at the same time limiting the cost of base salaries and related benefits for the corporation (Cascio 1990:185).

There are assumptions in the high tech industry that greater freedom leads to greater creativity; these are fueled in part by ideas about innovation in management literature and in the popular press. Since the 1980s, engineers have been in short supply and freedom was what they wanted (Beyer 1990, Cascio 1990, Zahrly 1990). Changes in corporate practices have been made to accommodate those demands. For example, Research and Development (R&D) units of large corporations are sometimes established as a separate entity (within or even external to the corporation) to ensure that typical corporate requirements (like profit margins) can be relaxed to allow the creative space deemed critical for inventors (Beyer 1990:20, Fryxell 1990, Kanter *et al* 1997). In addition, eccentric and even juvenile behavior was tolerated and even encouraged, dress codes were relaxed, and telecommuting became widely accepted. Both the change in HR practices and the relaxing of other policies were ultimately intended to discourage employee turnover, since there was a growing awareness about the

impact of low employee retention on the bottom line (Bretz Jr. & Dreher 1990, Hybels & Barley 1990, Turbin & Rosse 1990).[4]

While demands for individual freedom were being granted in some arenas, this freedom has its costs. For example, there is a larger economic trend across industry sectors that put social responsibility for services such as retirement back on the worker themselves (Suchman & Bishop 2000b:331). As companies reduce or eliminate pension programs, workers have been forced to take responsibility for their retirement income through 401K plans. Self-management by employees is both "personally attractive and economically desirable," (Du Gay & Salaman 1992:626), and these new mechanisms of control are couched in a language of employee responsibility that gives the appearance of freedom. In fact it is that very freedom that binds employees which is "bought for most at the price of real economic enslavement" (Rose 1999:66); the pressures of consumer society drive employees to consent to corporate practices (Deetz 2003:27) that might otherwise seem unreasonable.

In addition to changing practices for U.S. nationals, some changes were made in U.S. visa programs to encourage immigration of technically qualified workers. The H1B visa grants individuals the right to live and work in the U.S. for up to six years, but prior to the 1990s, these visas were largely issued to fill specialized positions in academic institutions. But by the late 1990s, the majority

[4] This type of mobility between organizations is not new, but it is most prevalent during times of economic or industry-specific growth. For example, it was taking place as early as the mid-1800s in the railroad industry. Zunz (1990:4) says that "movements among firms were essential to an evolution of an integrated business hierarchy of managers."

of the nearly 200,000 H1B visas issued annually were to high tech workers from India, Russia, and other countries where tech-savvy, cheap, and mobile workers reside. Nearly half of these immigrants were from India. The influence of the high tech industry on the H1B visa program is further evidenced by Senate approval in April 2000 of an increase in the annual salary cap (from $115,000 to $195,000), in response to industry pressures. The Immigration and Naturalization Service (INS) was unable to keep up with the H1B visa applications, and was also unable to keep up with the requests for permanent residency. Further, since the INS limits any given country to 7% of the overall residencies accepted, many Indian workers were unable to remain in the U.S. after the expiration of their visas. This was counter to the original rationale of the H1B visa program, which was intended to establish and grow a larger base of technically sophisticated workers.

It seems that the labor market shortage would favor a unionization effort, and some theorists have argued that steps in this direction are absolutely critical given that the rhetoric about individualism largely serves corporate interests, and that employees are increasingly pitted against each other in a work context that demands collaboration (Greenbaum 1995:142-43). Companies that are both "small and technically complex … could create social conditions similar to those found in craft technologies" (Beyer 1990:27), and in turn pave the way for unionization. Anthropologists have studied the dynamics of the workplace and the role of unionization in mediating (or failing to mediate) worker needs

(Devinatz 1999, Edelman 2002, Gamst 2002, Greenbaum 1995, 1979, Holzberg & Giovannini 1981:321, Hybels & Barley 1990, Menzies 2002, Nash 1995, Pandian 2002, Sabea 2002, Striffler 2002, Zahrly 1990), but there is still much to be done to understand what the trend towards dispersed knowledge work has on collective bargaining efforts.

While the conditions for unionization certainly exist on the manufacturing side of high tech both in the U.S. and abroad, it seems that white-collar workers in the high tech industry are unlikely to unionize at this time for a number of reasons. Perhaps most importantly, unionization is often a response to de-skilling, or the "separation of conception and execution" (Burawoy 1979:240). The daily work practice of knowledge workers regularly incorporates a certain degree of autonomy and decision-making, which likely results in a decreased sense of urgency on this topic. In addition, certain forms of knowledge work like psychology and law require formal certification, which in turn facilitates association with an occupational group. But such formal practices do not exist in the high tech arena (Hybels & Barley 1990:205), as basic requirements like national and international curriculum standards for engineering have not been set.[5] Finally, the performance of commitment through long working hours is integral to the acquisition of social capital in high tech culture, and not something that could be easily mitigated by unionization. In an economy in which

[5] It is quite likely that the Romantic notions of individual genius have impacted the lack of focus on formal certification of engineering skills, as there is a feeling in the industry that true creative genius cannot be codified and taught.

knowledge workers represent a growing portion of the workforce, the risks to and potential for collective bargaining presents an important area for additional study, but one that will not be addressed further in this dissertation.

In recent years, changes in the U.S. economy have clearly impacted new company growth and the ebb and flow of foreign professionals. These changes continue to create shifts in the global labor market. For example, by early 2000 there were a growing number of stories in the press about Indian engineers on an H1B visa who were unable to find work in the U.S. and were forced to return home. The high tech industry found ways around immigration restrictions by increasing the practice of offshore piecework, primarily with workers from India. India already had a growing high tech sector, and in combination with H1B visa-holders returning home, India continues to experience growth in this area. These knowledge workers now have an opportunity to shape their futures and the economy of their country in a way that may well change the global landscape of the high tech industry in years to come. In a very different example, the government of Ireland has established legislation that makes it desirable for transnational corporations to relocate their global technical support services. Combined with a technically literate, English-speaking population, these legislative efforts are bringing substantial income to Ireland. Yet these are also considered some of the lowest-ranking positions in the world of IT, so it is not clear what this portends for Ireland's place in the global economy of the high tech industry. This will be an interesting trend to watch in the next few years as well.

As the U.S. economy and the job market have contracted in 2002 and 2003, the changes continue. Many theorists claim that the insatiable appetite of capitalism requires innovation, as competition and market saturation decrease the profit margin on older products. This dismantling of the old and constant need for the new was described by Schumpeter (1975), as the process of *creative destruction*. He argued that this was the "fundamental impulse that sets and keeps the capitalist engine in motion," and that we typically concern ourselves with "how capitalism administers existing structures, whereas the relevant problem is how it creates and destroys them" (Schumpeter 1975:83-84). More recently, these ideas have been revisited in the popular press management literature by Christensen (1997), who has argued that companies have to break from their sustainable business models and seek ways to develop disruptive technologies if they are to remain competitive. One scholar notes that in the early 1960s there were about 400 publications on how innovations diffuse, but that by 1995 that number had reached nearly 4000 (Rogers 1995:xv). Today, the drive for "new consumers, goods, the new methods of production, the new markets, the new forms of industrial organization" (Schumpeter 1975:82) remains an ongoing focus in the U.S. high tech industry.

Despite the recent economic downturn, there remains an underlying belief that technology is the answer, and that the next new thing will rally the high tech industry and even the U.S. economy as it did in the 1990s. Unemployment in the U.S. has been high, and there has been a backlash against international workers

as evidenced by sites like http://www.hb1visasucks.com, which is attempting to collect signatures to eliminate the H1B visa program completely. At the end of 2003, the number of H1B visas issued annually has been dropped back to its pre-dot-com era level. Venture capital for new technology companies has dried up, and corporate R&D units are being managed to timelines and budgets in a way that would have been unthinkable ten years ago. Major corporations have been forced to evaluate employee compensation plans, as profit margins have decreased and payouts are no longer as lucrative for employees as they had been in the past. These challenges are compounded by changes in U.S. regulations that will likely require businesses to deduct estimated costs for stock options to employees. At the same time, much of the U.S. high tech workforce is still foreign, and seventy-five percent or more of engineering students at some universities are international students, such that corporations are sponsoring international students to ensure a steady flow of qualified employees (Cascio 1990:181). As technical skills and markets continue to grow in India, Russia, Israel, and more recently China, it is not clear whether the U.S. can maintain its dominant position as a producer (and not simply a consumer) of new technology, and what this most recent cycle of creative destruction portends for U.S. employees working in the high tech corporation today.

Today, the widely discussed public concerns about job markets and outsourcing are largely economic, and the socio-cultural dimension of these shifts remains largely unexplored. For example, not unlike the U.S., Japanese

firms are experiencing a shortage of qualified engineers, and as a result they are outsourcing engineering projects. A recent study demonstrated that Japanese firms prefer outsourcing to India because the programmers are believed to be more capable (Walsham 2004). However, ongoing challenges exist in this outsourcing relationship because of significant cultural differences, and because there is no shared language; the Japanese do not speak English well enough to document product specifications, and for the most part Indians do not speak Japanese. For these reasons and others, the Japanese would prefer to outsource to China, so it is expected that outsourcing from Japan to India will likely decrease as the capabilities of Chinese engineers improve (Walsham 2004). Thus, while socio-cultural considerations are secondary today, they will play an important role in Japan's outsourcing decisions in the years to come.

This dissertation begins to explore both the economic and socio-cultural implications of these global trends for U.S. high tech workers. In the global labor market, U.S. employees are perceived as expensive to compensate on one hand and easy to hire-and-fire on the other. Fear of job loss thus naturally remains a central focus of the U.S. discourse on globalization of job markets. In the high tech sector, Americans are largely unused to having their interests subordinated to those of other countries. With the shift in power relations, tensions are personalized and directed at the remaining visa-holders in the U.S., as well as at those foreigners who are claiming the outsourced work. The social aspect of

these economic changes presents a rich opportunity for ongoing study by anthropologists.

Linus Torvalds and the American Dream

Individuals participate in the free market system not just as consumers of goods and services, but also of their own careers. High tech work consumes the worker with the long hours and personal commitment the industry demands; the hope is that individual career success is produced in these efforts. This tendency has been further reinforced by high tech industry trends that have focused employees on their own careers and occupations, rather than an alliance with a workgroup or corporation (Beyer 1990, Hybels & Barley 1990). Not surprisingly, then, the drive for the new is also closely linked to notions of individualism in the capitalist system:

> The quest for the new put extraordinary emphasis on the role of the individual. A single person, properly placed, could change the destiny of a nation; a single idea could create a new product or industry or a new artistic form … Emancipated from tradition, society was now dependent on genius; and genius, wayward and unpredictable, was to be found only in the individual. (Greaves *et al* 1990:729)

The media fascination with Linus Torvalds provides a means to explore ideas of innovation, individual genius, and success. What is perhaps most interesting for the purposes of this dissertation is that, in the press, the individual achievements of Torvalds and the rapid growth of Linux are depicted largely in opposition to

corporate interests, but integration of Linux into corporate America is still the measure of its success.

In the early 1990s, Torvalds was a computer science student in Finland when he created an operating system modeled after a commercially available system called Unix. He put the basic structure in place, placed a GNU General Public License on it, and made it available publicly on the Internet. The resulting operating system, now widely known as Linux, is free and it can be modified or improved by anyone with the interest and the skill. In an essay about sharing information online, Kollock (1999) theorizes about sharing information online and ties these ideas to anthropological notions of gift-giving. He says that any piece of information posted to a public forum becomes a public good, thus through an act of communication, one person can have as great an impact as a large organized group. Motivations for such an act might be to get something in return, to improve one's reputation, to improve the context, or because someone might need it. With virtually no cost of distribution, the likelihood of sharing information increases. In the case of Linux, programmers are motivated to contribute good changes because of the social capital they earn if their changes are incorporated into the standard for the benefit of all. Sharing information in the online context thus becomes a new way of producing and reproducing (and perhaps even altering) power relations.

Although it does not supplant all the products delivered by Microsoft, Linux has been hailed as a contrast to the seemingly ever-growing power of high tech

corporations of that stature. Linux (personified in Linus Torvalds) has been hailed with near-religious fervor as the nemesis of Microsoft, "Linus's round, bespectacled countenance became a favored dartboard target within Microsoft Corporation, which was now faced with its first, honest-to-goodness competitive threat" (Torvalds & Diamond 2001:ix). But the imagined possibilities were even larger, including impacting big business control over technology, as evidenced by sweeping statements in the popular press like "smaller companies are leveraging open-source software to triumph over corporate giants" (Von Hippel 2001).

Linux has been described as a social movement, and the "overall gestalt … is evangelical" (Chapman 1998). Torvalds (2001) has made clear that the open source movement existed long before he first made Linux available for download in 1991, and that in fact the growth of Linux today would not have been possible without the work of many other people.[6] He has nonetheless come to personify the open source movement in the popular imagination. Linus himself has been described as a luminary, and those who do not believe strongly for or against the open source movement are self-described agnostics. Torvalds' autobiography entitled *Just for Fun: The Story of an Accidental Revolutionary* is in some sense the creation myth for Linux. Because he worked from a small bedroom in his mother's house in Finland, the story has unique qualities, but in other ways, it is very much like the stories of other huge high tech companies

[6] For example the General Public License (GPL) was created by Richard Stallman. The GPL allows for the sale of software like Linux, but only under the condition that the source is made available by the seller to the buyer.

today; Apple, Hewlett-Packard, and Microsoft all have 'we started as two [or three] men in a garage' creation myths. The reality is that the majority of new product innovation is driven by the Research and Development teams of large corporations:

> Indeed, contrary to popular stories, saleable new technology is rarely developed in people's garages and basements. Instead, it is the result of long periods of research and development and almost always comes from, or is ordered by, large companies. (Greenbaum 1995:56)

More than ten years after Linus' first upload, the open source movement had been largely conflated with Linux, and some question whether the momentum is held together by antipathy to Microsoft (Gillmor 2001) and the big business stranglehold on the high tech industry. It has been very interesting to watch the play of one against the other in the popular press, to see how we try to make meaning of Linux in the context of an industry controlled by some of the largest and most powerful multi-national corporations in the world.

In 2000 alone, Linux experienced growth of 16%, increasing it's market share to 24% (relative to Microsoft's 41%) of the business operating system market (Associated Press 2000). As Linux has grown in popularity and market share, and as it becomes further integrated into corporate America, it is interesting to note that it has not been vilified. Consider in contrast this summary of new items about Microsoft, which appeared in the press between 1999 to 2001:

- An announcement was made that a change in to Microsoft's licensing agreements would require a full re-purchase of the license for non-current versions; this resulted in a flood of users to Linux, especially in academia, and there were class-action lawsuits against Microsoft for using their monopoly to overcharge consumers. The final outcome of the years of legal wrangling was that Microsoft was not forced to split the company, but they were found to be engaging in anti-competitive behaviors (Phillips 2001). This has resulted in ongoing scrutiny of their practices, as with the recent release of XP (Lohr 2001), which raised legal questions because in an effort to combat software piracy, it forces consumers to re-register the product with each change in system hardware.
- Microsoft publicly stated their opposition to and concerns with the General Public License (GPL) on which Linux is based. The reasons were primarily financial: "because the GPL is applied to any new, modified software that is developed, it 'infects' formerly proprietary technology, eliminating the economic value of such intellectual property" (MacCrisken 2001). Microsoft led the charge to educate consumers and government officials about financial impact of the GPL on software companies, arguing that continued use of the licensing scheme could impact their ability (and the ability of other commercial software companies) to innovate. At the same time, in an effort to combat negative press and take advantage of the collaborative benefits of joint review of code, Microsoft developed a

'shared-source' program (Wilcox & Shankland 2001), though since the acceptance of any code changes was at the final discretion of Microsoft, the program was largely met with derision from open source proponents.

- Microsoft was portrayed as using its financial clout to influence legislative decisions to the advantage of large high tech corporations. The company hired a lobbyist to focus on governor George W. Bush should he be become president (Brinkley 2000). Microsoft also made big donations to select election campaigns, urging politicians to balance the freedom to innovate with the need for a competitive marketplace (Phillips 2001) – in other words, challenging the GPL on the grounds that it threatened Microsoft's ability to innovate.
- Microsoft created a special team to monitor Linux and combat Microsoft's decreased popularity in the press. The team ran and published some performance tests of Microsoft NT versus Linux, but were publicly pressured to re-run the study because they had optimized NT for the testing (Wall Street Journal 1999). The fact that NT's performance was better in both cases appeared to be of less interest to the press than the fact that (1) Microsoft had developed a special team to monitor Linux, and (2) that Microsoft had designed the tests to their advantage.
- During the same period, Microsoft settled an eight year lawsuit brought against them by temporary workers, and they were forced to pay out $96.9

million in back benefits (Schafer & Joyce 2000), which amounted to $70 million in funds to over ten thousand long-term temporary workers.

By 2001, Linux was getting endorsements from major high tech companies like IBM (Connor 2001, Riley 2001), who perhaps thought that open source software would continue to drive hardware sales despite the slump across the industry. The market share for Linux was forecasted to triple in 2002 (Lyman 2001), and despite the fact that there was little interest in Linux for home computer use (Vance 2001), Linux was quietly getting infused into consumer electronics, because no software license was required by the manufacturer (Pastore 2001). The open source movement has been focused on paving its way in the corporate world, and defining a sustainable partnership strategy with major corporations. In 2001, Internet law exert Lawrence Lessig warned attendees of LinuxWorld that the Digital Millenium Copyright Act of 1998 limits innovation, because it reinforces big corporate interests; Lessig encouraged his audience to get actively involved in government decisions on these topics (Shankland 2001). The ability of the open source movement(s) to negotiate the complex playing field of government and big business will be an interesting trend to watch in years to come.

What is particularly interesting about these developments is the fact that, as Linux gets absorbed further and further into the mainstream, there is no backlash against its corporatization. I would argue that Linux is considered a success and not a sell out because it reinforces the achievement of the American

Dream, personalized in Linus. Americans seem to be particularly susceptible to myths that glorify the Dream achieved through technology; the story of Linus Torvalds and of Linux is about the triumph of the individual success rather than victory over a particular opponent. As he's made his way from his dark little bedroom in Finland to a BMW Z3 on the highways of California, Linus Torvalds epitomizes just that. He is a virtual cowboy on the high tech frontier, and he has reclaimed the spirit of engineering that has been lost in the world of big business by creating a liminal yet powerful space for collaborative, inventive teamwork that transcends the rapacious demands of any one corporation. But, it is nonetheless important to remember that his success - and the success of Linux - is still very much dependent on partnerships with and absorption into mainstream corporate America.

TechSoft [7]

This dissertation will describe and analyze activities at the U.S. offices of TechSoft, a transnational company with global headquarters in Europe. TechSoft develops, sells, and services software that supports the operations and management of large, complex corporations. The United States headquarters for TechSoft was established in the late 1980s to provide sales and marketing support for the region, that is, for all of North and South America. The U.S. has been charged with driving an increase in worldwide software sales by targeting

[7] This name is fictitious. In order to protect the privacy of the company and its employees, other descriptive details have also been removed or altered.

prospective customers in the United States, and closing the gap between TechSoft and its U.S.-based closest competitors.

TechSoft's first few years in the United States were enormously successful and spurred the expansion of North American offices, a new U.S. headquarters building, and the growth of the corporation as a whole. In addition, prior to the year 2000 (Y2K), concerns with transitioning non-compliant 'legacy' systems created a boom in the business software market. Along with many other high technology companies, by the late 1990s, TechSoft's stock had reached its all time peak. Through the mid-1990s the global headquarters in Europe gave the U.S. management team freedom to shape the local organizational structure and penetrate the market in the way regional management deemed most effective, but still aligned with global strategies. The growth of global and local organizations has been accompanied by a degree of tension. During the period of my research (1998-2002), a number of factors began to take their toll on TechSoft. Ongoing attempts to evaluate operations in the United States demonstrate that both global and local management teams struggled; the division of labor between global and local was not as clear as it would seem, and has been a locus of deliberation in recent years. In addition, the company has struggled to develop a global strategy (and accompanying corporate discourse) in relation to the changing demands of the market. My research thus takes place during a particularly difficult period in the company's history, and concludes in

early 2002 when the U.S. economy had reached a substantial low, in part due to terrorist activities in the United States in September 2001.

Relevance and Contributions

This dissertation brings the strengths of Anthropology together with complementary disciplines of Science, Technology, and Society (STS) studies, sociolinguistics, and the literature on governmentality. The combination offers a strong ethnographic tradition, well grounded in an understanding of global politics, economics, and social trends, while at the same time providing tools for an analysis of local power relations. STS and the governmentality literature provide further insights into the role of technologies in shaping the lived experiences of workers in the corporate context. While each theoretical area is well-developed in its own right, the convergence opens up new possibilities for exploration, and advances understanding in all four areas of study.

Anthropology of Work

This dissertation builds on the industrial ethnography tradition of the 1940s. However, it fuses that legacy with more recent understanding of the world system and power relations to ensure that the industry in global context, the corporation in industry context, the U.S. subsidiary in relation to its global parent, and the relationship of the anthropologist to the site of study all remain central considerations throughout the dissertation.

The anthropology of work in American corporations (Baba 1986, Burawoy 1979, Hamada 1998, Holzberg & Giovannini 1981) began in the 1920s during a period when anthropologists relied heavily on functionalism and structural-functionalism as frameworks for analysis. These understandings of culture as structured systems formed an integral part of this early research. The Hawthorne Studies[8] provided insights on individual employees' experience in the context of the larger workgroup or organization (Baba 1998:19, Nye 1990:363, Reese 2002:19, Rose 1989:73). These were the first efforts to optimize the work context through formal expertise about the psychology of the individual employee. Warner and other anthropologists of this era "placed the burden for change on freely volunteering participants," and in this way perpetuated liberal ideals about society into the workplace (Wolf 1969:256). This approach became known as Human Relations, and it was the precursor to Human Resources departments that exist in corporations today.

Anthropologists engaged in this early research were academics, were not paid by the companies under study, and were primarily interested in the worker's point of view (Baba 1998:20). They also made recommendations for changes to both manager and worker behavior (1998:19). Fischer (1994:175) states that organizational psychology and other fields of study are insular and fail to address "concepts of power, authority, and class." He goes on to argue that those social

[8] Elton Mayo was a trained psychologist who brought a therapeutic, solutions-oriented perspective to his research at Hawthorne Electric in the 1920s (Baba 1998:18; Burawoy 1979:234). In the early 1930s, Mayo was joined at Hawthorne by anthropologist W. Lloyd Warner, who was interested in using his knowledge to solve business problems in the United States (Baba 1998:17).

scientists working on the Hawthorne studies were co-opted by the management who had requested their help with employees: "[Human Relations Theory] must be perceived as the commodity of a new class vying for position in the evolving world of bureaucratic capitalism." (1994:193) It is true that Mayo and later theorists failed to look at the broader economic, political, and social context in which these approaches emerged (Burawoy 1979, Holzberg & Giovannini 1981); in particular, they did not adequately address issues of class conflict and structural inequality in their work.

In the 1940s and 1950s, anthropologists produced a number of industrial ethnographies.[9] These were "case studies of whole industrial cultures found in a single business enterprise or permeating a given industry" (Baba 1986). Theorists in the anthropology of work today identify full-length ethnographies as an ongoing need for the discipline (Baba 1986, Hamada 1998); this dissertation continues the industrial ethnography tradition. Some have hypothesized that the case study approach has been preferred by industrial or corporate anthropologists because, "being contextual in nature, [it] most closely approximates the holistic, integrative dimensions of anthropological inquiry" (Holzberg & Giovannini 1981). The authors go on to caution that this work runs the risk of remaining narrow in scope and focusing on the equilibrium with the company, much as the Hawthorne Studies did. Thus, literature reviews indicate that such studies would benefit from comparative explorations (Burawoy 1979)

[9] See Holzberg and Giovanni (1981) and Baba (1986) for a detailed discussion of the work of industrial anthropologists in this period.

and a grounding in the larger industrial and economic context (Holzberg & Giovannini 1981). Comparative work is beyond the scope of this dissertation, but I do identify a deeper understanding of the context external to the corporation as critical to understanding the construction of the worker-as-subject inside the corporation.

At the same time, insufficient work has been done on how different groups within a company make meaning based on their varied cultural backgrounds, work experiences, and understandings of the overall corporate objective (Kleinburg 1994). Thus, some theorists believe that more work is still needed (Bechky 1999) to understand occupational conflicts. This dissertation therefore fills a gap in existing literature because it addresses the relationship between tacit or 'local' knowledge and organizational practices, which has been studied (Greenbaum 1979, Howard & Schneider 1988, Howard & Schneider, Kusterer 1978, Ong 1987, Scribner & Sachs 1991, Zuboff 1988) but at this time is still not well understood (Baba 1990).

While mechanisms of worker control for high tech corporations may be more complex – technologically sophisticated forms of surveillance, incentive plans instead of wage hikes – the objectives and outcomes are still focused on the control of employees to drive productivity and profit. These have been central themes in the anthropology of work literature, but in the past anthropologists failed to adequately analyze the impact of external social, economic, and political trends on corporate practices. Recent research has

begun to fill this gap by demonstrating that workers experience mechanisms of power that are deeply embedded in and created by both global and local forces (Applebaum 1995, Baba 1998, Berg & Kreiner 1990, Braverman 1994, Edwards 1994, Fischer 1994, Frenkel et al1999, Gamst 1995, Hamada 1998, Harvey 1989, Weber 1994, Zuboff 1988, Zunz 1990). As corporate practices evolve in response to external factors, there is also an ongoing opportunity for anthropologists to assess the impact of these changes on the lived experience of employees. This dissertation undertakes just such a project by providing ethnographic data on the experiences of employees at TechSoft.

Much of the anthropological research being conducted by U.S. scholars today is still focused outside of the United States (Nader 1996, Nash 1989), perhaps because research in the U.S. still carries a stigma (Gupta & Ferguson 1997:13-4). All except the most recent of the U.S. based work (Edelman 2002, Gamst 2002, Striffler 2002) still avoids the complex power dynamics of studying corporations and workplaces at home. Baba (1986:7, 1998:20) refers to the 1960s and 70s as a 'latent period' in the anthropology of work, because the body of theory on corporations that emerged from management scholars and other disciplines during this period did so largely without the involvement of anthropologists. In fact, the majority of research on the corporate context has been done by non-anthropologists, as evidenced by essays like that of Buroway (1979), in which only six of the 127 citations are of work by anthropologists (Holzberg & Giovannini 1981:319). As a result, today there is still much work to

be done to strongly situate practicing anthropologists in their corporate and industrial contexts, to articulate the value of using Anthropology at home, and to better articulate the impact of the ensuing power dynamics on their research. These issues are also examined in this dissertation.

Science, Technology, and Society (STS)

As it is used in this dissertation, the Science, Technology, and Society (STS) literature provides a theoretical framework to talk about popular misconceptions about technology and its impact on society. It also positions TechSoft as an institution of high technology, drawing in particular on the 'lab ethnography' tradition. Finally, the STS literature supports analysis of the socio-technical systems that are integral to management and self-management practices at TechSoft.

In the popular press and in social sciences dialogue, there is an ongoing question as to whether the Internet and computer technologies have propelled us into the midst of a so-called Computer Revolution or Information Age, which will have as far-reaching an impact as the Industrial Revolution did. For example, during the 1990s in the popular press, the conflicting themes appear as the great democratizing potential of the Internet on one hand, and the Digital Divide on the other. Shapiro's (1999) *The Control Revolution: How the Internet is Putting Individuals in Charge and Changing the World We Know*, concludes that the Internet offers the possibility of altering traditional relations of power. He argues that a technical decentralization (from mainframes to a distributed client-server

environment) allows for a broader distribution of power. However, neither the client-server environment nor the increased demand for technical skills in the workplace are, as some would hope, democratizing forces; systems may be distributed broadly but they can still be centrally monitored, managed, and controlled. Other authors in the popular press are less convinced of the positive potential for the Internet and related computing technologies, citing the growing Digital Divide, and fissures along the lines of race (Chapman 1999a, 1999b, Katz 1998, Zipp 1997) and gender (Peltz 1998) or both (Terry 1999).[10] In general, social scientists considering these topics (Compaine 2001, Ezzamel & Willmott 1998, Frenkel 1990, Gunkel 1998, Smith 2001, Taylor *et al* 1993) are skeptical of overstating the democratizing potential of these computer technologies.

In his book *Cyborgs@Cyberspace*, anthropologist David Hakken (1999) questions whether a revolution has occurred at all. Hakken discourages us from infusing computing technologies with mythological potential to effectuate change; computing technologies are social phenomena and must be analyzed as such (Bijker *et al* 1987, Hakken 1993, Hess 1995, Pfaffenberger 1992, Winner 1985). He recognizes some of the changes identified by Bell (1973) but is reticent to prematurely label these a revolution. Castells (1998:346) argues that the identities being constituted in this space are aggregating in social movements which, if successful, could result in another kind of revolution. The perspectives of theorists like Hakken and Castells are the strength of the STS tradition today,

[10] This is not an exhaustive list, as there were many articles on these topics published during the late 1990s.

and form a critical part of my analysis. The STS tradition ensures that understandings of technology are not microcosmic in focus, but rather situated in their broader socio-economic and political context, which is something that the Anthropology of Work has not done well in the past.

As discussed earlier, because of a U.S. technocratic regime after World War II, scientific knowledge was not easily made subject to question; it was thought to be objective and not culture-laden. Thus, early work in STS focused on scientific communities and institutions (Hess 1997), and was somewhat limited in its perspective (Staudenmaier 2001). Kuhn (1970) was among the first to look at the content of science, which had not previously been subject to evaluation. His seminal work *The Nature of Scientific Revolutions* was a deconstruction of scientific epistemologies. Studies that built on Kuhn's work, like Latour and Woolgar's (1986) *Laboratory Life: The Construction of Scientific Facts* were 'lab ethnographies' that described insider activity in scientific labs, and thoroughly situated the lab and its workers in a broader social, political, and economic context.

For example, *Beamtimes and Lifetimes* is written in the lab ethnography tradition. In it, Traweek (1988) offers a line of sight into the world of high-energy physicists. She describes the industry, including high-energy physicists in relation to other types of physicists and the dynamics within and between groups in a particle physics laboratory. She also describes the physical context of that work, including the buildings and grounds, all with the perspective of a female

anthropologist researching a community of male scientists. Because of her work in one of the major labs, she has a participant's view, but her role as an observer allows her to tie micro-level behavior to social and political activities external to the lab. For example, she explains how individuals and the laboratory community as a whole interact with the federal government and its agencies, with funding sources, and with foreign colleagues. This balance of macro and micro, emic and etic perspectives provides a well-rounded view of both the physicists and the context in which they work. In the following pages, I hope to provide the same breadth and depth as I provide a description of the U.S. headquarters campus of TechSoft, while at the same time situating the global corporation and it's local practices in their broader socio-economic context. This contextualization is a strength of STS, and, as mentioned earlier, has until recently been missing in the Anthropology of Work literature on corporations.

Institutions of science have been well studied, and there has also been some work done on technology institutions (Bijker *et al* 1987). However, there is still much to be done in this latter area, as understandings of science do not necessarily transfer to the unique practices and bodies of knowledge of technology and its institutions (Staudenmaier 2001, Wacjman 1991). While limitations of time and space in this dissertation will not allow for detailed analysis of TechSoft as a site of software production, my work nonetheless begins to fill this gap in the STS literature by providing an in-depth study of one technology company.

One of my main concerns with STS is that it is very theoretical, and while that distance provides valuable insights, the lack of detailed ethnographic data in much of the STS literature results in a failure to address the messy reality of technology-in-use in U.S. corporations today. One recent exception is Downey's (1992, 1998, 1997, 1995) writings, which describe the world of engineering as he grows increasingly immersed within it. He argues from what he calls the *cyborg anthropology* perspective, that is, we have to understand both the technology and ourselves as products of our relationship to the world around us, rather than allowing either to remain a fixed element of analysis. In addition to explaining engineering in the context of U.S. and global politics, Downey attends undergraduate engineering courses and also collects data on the experiences of the students with whom he is studying. So, while he maintains the contextual perspective that has been a strength of the lab ethnography tradition, because of his experiences 'in the field,' he is also able to provide perspective on the agency people exercise as part of a socio-technical system. The flexibility that this approach provides is critical in the reality of fragmented, disembedded research sites today.

In 1994, Escobar wrote an essay entitled "Welcome to Cyberia". He argued that both computing and bio-technologies (or *cyberculture*) emerge from our social world, and are shaped by the discourses and practices of modernity (Escobar 1994, Hess 1997). It was a seminal piece at the time, as it charted a course for anthropological engagement the study of cyberculture – or STS.

Escobar (1994:217-18) suggests five ethnographic domains where anthropological perspective and methods could bring value. All of the domains proposed by Escobar are addressed to some degree in this dissertation:

- *The effect of STS on the popular imaginary*. This is especially relevant in the U.S. high technology industry, where the drive for technological dominance has a nationalist fervor, and where hopes for individual success in the industry are largely dependent on and at the same time subsumed by the interests of large high tech multinationals.
- *The impact of science and technology on the global political economy*. Escobar suggests that anthropologists are uniquely positioned to explore how flexible, de-centralized labor practices will impact macro-economic and political relations.[11] As mentioned earlier in this chapter, an understanding and evaluation of the corporation and its practices is a key component of this dissertation.
- *The production and use of new technologies*. In this dissertation, I am not able to address software production as much as I would have liked because the primary responsibility of TechSoft's U.S. subsidiary is sales and services for software produced elsewhere. However, the regular introduction of new technologies is a reality in the high tech workplace today, and something that will be explored herein.

[11] Escobar also mentions the opportunity to explore the impact of these changes on our understandings of race and gender. These areas are beyond the scope of this work but they do present important areas for further study.

This domain includes an exploration of changing ideas of self, which Escobar argues can only be understood using an ethnographic methodology. This area will be outlined in detail in an upcoming section entitled Worker as Subject.

- *The growth of computer-mediated communities* and the *impact on the 'relationship between language, communication, social structures, and cultural identity'*. The role of computer-mediated communication and its role in the formation of corporate discourse will be explored at several points in this dissertation, as outlined in the following two sections.

In summary, Society, Technology, and Society studies is critical for this dissertation in a number of areas. The lab ethnography tradition supplements historical gaps in the Anthropology of Work literature. Cyborg anthropology provides an approach for talking about socio-technical systems the boundaries between human and machine. And finally, the confluence of Anthropology and STS opens up a wealth of new arenas for exploration.

Sociolinguistics

In various ways, anthropologists are grappling with the increasingly fluid boundaries of global communities. Seeking to move beyond the text-based analysis of language, Gumperz (1968) defined a speech community as a group with a "shared set of social norms" that is reflected in their communication to one another. He expressed that this approach gives primacy to "social factors in

language change" (1968:383). Later, the concept was broadened to a "community of practice" (Wenger 1998), which was "a community defined by social engagement" (Eckert & McConnell-Ginet 1998). This idea is a crucial one for this research because it provides a graceful way to transcend the limitation of geographic communities associated with traditional anthropology. Despite the value of these concepts, however, it remains critical to understand power relations as they exist in embodied exchange, so that we can be clear about how those relations are reinforced by computer-mediated communication (CMC). Thus, while I will document and analyze electronic exchanges in this dissertation, these will not be a primary source of understanding the relationships between different individuals and groups under study.

Research on technology and social change has focused on the concept of and implications for community. Some ethnographies take place entirely online (Horn 1998, Markham 1998, Rheingold 1993), and one (Hakken & Andrews 1993) takes place in a geographic community. There are also a number of articles which described different geographic communities and issues that arose as the development of a parallel electronic community progressed (Caroll & Rosson 1996, Dibbell 1993, Kraut & al 1998). Other books and articles reflect on how, why, and what happens when people use technological tools to build communities, and how those experiences are similar or different to those in 'real life' (Agre 1999, Fernback & Thompson 1999, Katz & Aspden 1997, Smith & Kollock 1999). However, all of these works fail to adequately address the

relationship between the virtual relationships and the embodied ones. This failure validates the approach undertaken in this research, which gives primacy to daily, lived experience and uses virtual communication to supplement these understandings.

Although as anthropologists we realize the limitations of categorization and analysis based on race, class, gender, we are still very much dependent on those categories. There has been much discussion in the popular press about how computer-mediated communities may be impacted by these issues, but anthropologists are just beginning to explore how our understandings might need to be re-evaluated. In an essay on online exchange, O'Brien (1999) says that in idealizing the online context, people believe that somehow categories that constrain face-to-face interaction will be eliminated, and that the boundaries of our bodies will simply disappear. As discussed earlier, some have argued that the Internet would offer the possibility for a revolution, but most agree that these new contexts continue to perpetuate, rather than alter, existing power relations. O'Brien concludes that we need to have some clarity about people's roles before we can comfortably interact with them. Ultimately, as Burkhalter (1999) argues for race, O'Brien underscores that such contexts will likely further reinforce stereotypes regarding gender, rather than open up new possibilities and understandings.

For example, traditional minorities in the realm of computer technologies (women, African-Americans), are increasingly present online in representative

proportions, but this doesn't mean they have any say in how technology is shaped, created, controlled, and how it in turn affects them. The majority of people holding computer science degrees, working in the industry, and ultimately shaping the tools and the communication that transpires in these new contexts is still an elite, non-representative group (Cameron 1998, Castells 1996). As Cameron (1998:6) points out in her introduction to *The Feminist Critique of Language*, this may result in an ever-widening gap: "The conditions are in place for a communicative practice originally dominated by men for material reasons (e.g., better access to technology) to go on being dominated by men for social reasons even after material conditions have changed." Thus it is not surprising that the study of language and power generally (Akinnaso & Ajirotutu 1982, Bordieu 1991, Woolard 1985), and the study of language, gender, and power specifically (Cameron 1998, Eckert 1998, Eckert & McConnell-Ginet 1998, Maltz & Borker 1982, Matoesian 1993, Troemel-Ploetz 1998, Uchida 1992) will be valuable tools in an analysis of high-tech workplace communications, as these both play an integral part in the transmission of corporate culture, values, and priorities.

Corporate communications are usually transmitted by email or by phone and video conference. This is a necessity because in addition to working remotely, members of the same team may work in different time zones, even changing time zones from one day to the next. While most forms of computer-mediated communication (CMC) are asynchronous, the implications of this is

virtually absent in current discussions about the Internet and other electronic forums. In her book *The Argument Culture*, Tannen (1998a) expresses her concern that additional communication with strangers and the lack of face-to-face accountability in computer-mediated communication will lead to increasingly hostile exchanges. Leap's (1997) account of the development of anti-gay graffiti on a bathroom wall provides a similar perspective, both on issues of asynchronous communication and the negativity that often seems to accompany it. However, in a meta-analysis of studies on computer-mediated communication (CMC), Walther *et al* argue that there as not as much evidence for these trends as some would think, and in fact, argue that the cases that are reported may be somewhat exaggerated (Walther *et al* 1994:477-78).

As awareness grows about the role of asynchronicity in computer-mediated communication, recent studies have become more attentive to this issue. Certain studies (Cherny 1999, Davis & Brewer 1997) do look at the implications for the contexts they study, but it does not yet appear that any conclusive results about the impact have been reached (Walther *et al* 1994). There is nonetheless an important opportunity to assess the impact of these multiple communication channels on corporate employees. For example, in a context where CMC is omnipresent, face-to-face communication becomes a 'new' category of communication to be observed and analyzed. In large U.S. corporations today, travel is often the second-largest expense after payroll, not counting employee time lost in transit. In an efficiency-focused, cost-conscious

climate, face-to-face exchange may thus be rare, and may even have to be rationalized. In conjunction with analysis of CMC in the corporate context, this dissertation will also explore under what conditions face-to-face meetings occur, and why.

Not surprisingly, official communications by management have a significant role in shaping corporate discourse. In addition, these communications provide data on how forms of discipline are articulated and rationalized, and by whom. But communication that transpires through official channels provides limited insight into the full breadth of exchange occurring in the work context, since communications via email and digital conference are often uni-directional (top-down). Analysis based only on formal structures has been a limitation of other social sciences (Deetz 2003); perpetuating such an approach would further an imbalanced view of the corporation and do little to enhance our understanding of the complex dynamics at work in corporations today. Therefore, an understanding of lateral communication (peer-to-peer) or interpersonal exchange will provide critical insights into how corporate values are internalized or resisted by employees. Alternate forms of communication are as varied as the forms of discipline that elicit them, and the awareness of one informs the other. Research in this area has been done by social scientists, who have pointed out that awareness of the subtleties of workplace dialogue is critical for our understanding of the organization as a whole (Forester 2003, Lampe 2002, LaNuez & Jermier 1994, Page & Dyer Jr. 1990:115-16, Wynn 1979). My

insider (co-worker) status has been absolutely critical in this arena, as evoking shared experiences has enabled a level of personal exchange during interviews that would not otherwise be possible. However, in spite of my effort to collect data on multiple communication channels, this dissertation is nonetheless still biased in favor of top-down exchange, since communication through these alternate channels is often covert and therefore difficult to capture.

This study explores the role of communication to provide a more nuanced understanding both of the changing nature of communication and the corporation itself. However, language is "primarily constitutive rather than representational" (Deetz 2003:31), so more important than language use is the ways in which language creates both subjects and populations, at the same time validating the discourse it perpetuates. In Kunda's book *Engineering Culture* (1992), the concept of *normative control* describes how employees are indoctrinated with particular concepts of a corporate culture to ensure their self-management. But Kunda failed to assess how different populations might experience, internalize, and act on that discourse in different ways and how normative control worked in concert with other forms of control in the workplace. In contrast, one of the objectives of this dissertation is to look at how groups within the corporation are distinguished as 'populations' requiring unique attention or administration. Differences rationalized by management and negotiated by employees make explicit both varying forms of discipline and how individuals make sense of their subjectivity. The challenge and strength of this dissertation is its analysis of

multiple populations, and the breadth of mechanisms of control that it seeks to make explicit for the reader.

Worker as Subject

The following section brings the three previously-discussed arenas (broadly: work, technologies, and language) together with the literature on governmentality inspired by the work of Michel Foucault. This confluence brings new understanding to the ways in which institutional discourse and forms of discipline constitute the worker as subject in the corporate context.

In addition to demonstrating how conditions external to the institution shape the activities within and beyond its bounds, the work of Foucault and others in the governmentality tradition has demonstrated the ways in which institutions are totalizing in their control. Foucault's (1975) *Discipline and Punish: The Birth of the Prison* described the way in which the Panopticon permitted the subjugation of prisoners beyond the boundaries of the prison, and without the direct gaze of a prison guard. More broadly, *Discipline and Punish* traces the transition from physical punishment of the body to a more complete form of control through a broad range of disciplinary practices.

In an essay exploring the usefulness of Foucault for organizational analysis, Burrell (1988:230) describes a struggle in organization theory to understand whether organizations should be compared for their similarities or contrasted for their differences. He describes a methodological change in Foucault's career, from an archeological method (looking for commonalities that

govern social practices) to a genealogical method (looking for subtle changes and unique circumstances to discover meaning). Burrell goes on to argue that it is precisely the combination of these two approaches that afford the most thorough understanding of institutions; both an understanding of their commonalities and their unique qualities is critical. In making this argument, Burrell (1988:230) supports Foucault's claim that "prisons resemble factories, schools, barracks, hospitals, which all resemble prisons". Foucault's study of the prison, then, becomes a model for institutional analysis. As such, echoes of *Discipline and Punish* are present throughout this dissertation; the upcoming chapters explore (a) space as a form of discipline, and (b) the plethora of highly rationalized technologies at work in corporations today.

(a) Social psychology, political geography, and other social sciences have demonstrated a growing interest in the relationship of power to space and place. Anthropologists, too, have been engaged in exploring these issues since at least the days of Margaret Mead, as evidenced by her early study of *esketics*, the scientific study of human settlements. Edward Hall's work in *proxemics*, or the study of human personal space, is perhaps better known by anthropologists today. Most recently, anthropologists have grappled with space and place in a reflexive way, by assessing what it means to be an anthropologist, when a critical rite of passage – being 'in the field,' and studying a clearly differentiated Other – must evolve in response to the changing nature of global relations (Gupta & Ferguson 1997). More specific to the focus of this dissertation, with corporations

exercising substantial power in the global system it is not surprising to see a growing body of literature on the relationship between corporations and their built environment. As anthropologists we still have substantial work to do to understand the role of both place and space as a mechanism for control, and more specifically for the creation of subjects (Burrell & Dale 2003) in the corporate setting. This dissertation furthers that goal.

(b) Foucault's neologism *governmentality* has been described as "a way or a system of thinking about the nature of the practice of government (who can govern, what governing is, what or who is governed" (Gordon 1991:3), where government is a practice intended to affect individual or collective conduct. Perhaps because the State and government as specific institutions have been conflated of with governmentality, little early work in this tradition explored the private sector. However, this trend has changed gradually in the past ten years, so there has been a growing body of work focused on the constitution of worker as subject in the private sector. This research has been done primarily in Critical Theory under the umbrella of Critical Management Studies, and has been driven in large part by the work of British sociologists and management theorists.

The work of Nicholas Rose (Miller & Rose 1990, Miller & Rose 1995, 1989, 1999) has helped make the transition between citizen-subject and worker as subject by showing how practices like psychoanalysis, social work, and human relations create subjects. Rose (1989:116) has also demonstrated the ways in which management literature (generated largely in the U.S.) has infused

concepts of self-fulfillment into the workplace. More recently, a number of authors have demonstrated the value of subjectivity, agency, and resistance in our theorizing about the corporate context (Cooper & Burrell 1988, Jermier *et al* 1994, Knights & Morgan 1991, LaNuez & Jermier 1994, Reed 1988), and a few have begun to bring together governmentality studies in the private sector with ethnography, exploring changes in particular industry sectors, their impact on management practices, and ultimately on employees (Du Gay 1993, Knights & Willmott 2000, Morgan & Sturdy 2000, Sturdy *et al* 2001). The existing research has demonstrated that in an extremely market-focused context like the high tech corporation, an entrepreneurial spirit is also fostered within organizations, as the energy, productivity, and complicity of employees is believed critical in responding to elusive, ever-changing market demands.

The impact of specific bureaucratic practices has been explored extensively by management theorists, but only a few authors analyze these technologies as instruments of governmentality. These latter scholars have been particularly focused on areas that will also be addressed in this dissertation, including accounting (Covaleski & Dirsmith 1988, Covaleski *et al* 1998, Hacking 1985, Power *et al* 2003), statistics (Hacking 1991), human resources practices (Deetz 2003, Townley 1993a, 1993b), and, more broadly, corporate discourse (Berdayes 2002, Knights & Morgan 1991, Morgan & Sturdy 2000, Sturdy *et al* 2001). Ironically, what becomes clear from this work is that the individuation created by these practices actually results in a loss of individuality (Townley

1993a:537) and creates a compliant subject. The majority of the work both on industry trends and specific practices has been done in Europe. Few if any of these studies have combined the governmentality literature with longitudinal fieldwork; most are empirical studies based on interviews and other forms of data collection like archival research. By bringing the strengths of these approaches together with in-depth participant observation at one institution, this dissertation deepens our understanding of the impact of modernity and practices of governmentality on employees the corporate context.

From Inside the Iron Cage

Many anthropologists have attempted to answer the question of how to be sufficiently engaged and disengaged simultaneously. How can we – or can we – be agents of change in the world we study? This has resulted in deep questioning of the traditions of Anthropology (Diamond 1969, Escobar 1995, Gledhill 1994, Hess 1997, Hymes 1999, Schneider & Rapp 1995), and how to bring our theoretical ideas back to social justice and action. Nader (1969) argues that anthropologists "have not had an intense commitment to social reform because of their relativistic stance and a belief that such a stance was necessary to a truly 'objective, detached, scientific perspective.'" The work of scientists and social scientists alike is couched in a complex political and economic structure that is an integral part of how ideas are formulated, analyzed, and ultimately presented. Rather than denying these ties, Hess (1997) proposes an analytical approach that looks at culture and power, evaluates the perspectives, and

ultimately positions an appropriate intervention based on the information gathered. Since I have undertaken my research at my place of employment, I have been asked to make recommendations based on the research I have done. As a result, I have taken steps down the path recommended by Hess.

My dual role as a researcher and employee at TechSoft has posed challenges in this research. I think it is critical to describe these challenges briefly because it provides "important insights into the way particular places are locally conceptualized, bounded, and resourced" (Hirsch & Gellner 2001:5), and how these realities have had an impact on my research. When I arrived at TechSoft in 1998, I made it clear that I was a doctoral candidate in anthropology, and that my research was relevant to my work. That year I had been invited to present at the American Anthropology Association conference on the topic of computer-mediated communication, and on these grounds TechSoft agreed to pay my tuition. This was formalized in my hire letter.

TechSoft was a subject of curiosity for me long before I decided to use the U.S. headquarters as a research site. I had been reading and thinking about mechanisms of corporate control for several years, but I received written permission from TechSoft to undertake my research on site beginning early in 2001. The timing of this decision has had an impact on the types of data I have at my disposal for this body of work. I have notes from my participant observation starting at the time of my employment, but I do not have formal interview data for the period of 1998-2001; stories have been reconstructed after

the fact from my notes and follow up interviews. It is only beginning in 2001 (once my legal agreement and IRB paperwork was complete) that I made my research interests clear to those with whom I worked. At that time I began actively communicating my role as both a fellow employee and a researcher, and engaging colleagues in interviews.

All TechSoft employees are required to sign a Non-disclosure Agreement (NDA) during New Hire training. Signing an NDA is fairly typical in the software industry and is usually a condition of employment. These agreements are designed to protect the intellectual property of the corporation during the employee's tenure and beyond.[12] While my research is not primarily concerned with the company's software, I nonetheless felt it would be critical to clarify the nature of my research with senior management, and assess any potential conflicts between my area of my study and TechSoft's corporate interests. I developed a consent form to protect those whom I interviewed, and a legal agreement that ensures my full ownership of my research data and analysis. The latter is possible in part because I am not employed as an anthropologist, so while I spend my day immersed at my research site, I have written fieldnotes and undertaken all interviews during non-working hours. To ensure that the interests of the corporation are also protected, publications or presentations of my findings are reviewed by TechSoft Legal and the Corporate Communications department.

[12] Many such agreements have 'non-compete' clauses that prohibit sharing of company-proprietary information. This may be enforced by legal means in cases where a staff member seeks employment with a competitor.

I undertook all these measures in addition to a review by the Institutional Review Board (IRB) for the protection of human subjects at Temple University. In the end, these negotiations have permitted me to present the work set forth in these pages. This dissertation is soley the work of the author, and the opinions expressed in it and conclusions drawn are my own. TechSoft did not sponsor this work, and TechSoft does not take an official position regarding the work, its content or conclusions.

Insider Anthropology

Early anthropologists were from imperialist countries, and they sought understanding that would assist their government in the management of indigenous populations. These anthropologists aspired to be acknowledged as scientists, and to that end they spoke their truth from an omniscient third-person perspective; this approach was used to lend legitimacy to the discipline and its insights (Patterson 1996). By the end of World War II, many colonies had erupted in wars of national liberation, forcing anthropology to look at its ties to imperialism.

In the 1960s, world systems theory was critical in refocusing the anthropological lens on the broader social, political, and economic context in which traditional anthropological research had been embedded. In addition to broadening the scope of traditional ethnographies, anthropologists began to call for a focus on large institutions and corporations that impact the everyday lives of people all over the world. At the same time, anthropologists were wary of the

appropriation of their data for government efforts, and they were more cognizant of their knowledge production and its potential impact on the cultures they studied. One outcome of this shifting perspective was a more collaborative approach with those "subordinated and governed" to ensure that those being studied could also benefit from the anthropological research being undertaken (Wright 1994:15).

New collaborations with natives also resulted in native anthropology, which has broadened the perspective offered by the participant observer gaze. Native anthropology runs the risk of being "knowledge without understanding," but on the other hand, the "reflexive native anthropologist … is uniquely positioned to investigate how these almost automatic choices relate to the overall cultural pattern from which they emerge" (Cerroni-Long 1995b).

Another outcome of reconsidering power relations in anthropology was a self-reflexive trend, which emerged (partly) in response to increased scrutiny on anthropologist. Social scientists began to actively assert their research intentions and perspective as they presented their ethnographic data. Some anthropologists argue that this was an inevitable outcome of our research methods:

> Fieldwork produces a kind of authority that is anchored to a large extent in subjective, sensuous experience. One experiences the indigenous environment and lifeways for oneself, see with one's own eyes, even plays some roles … in the daily life of the community. But the professional text to result from such an encounter is supposed to conform to the norms of a scientific

> discourse whose authority resides in the absolute effacement of the speaking and experiencing subject. (Pratt 1986:32)

However, in bringing a self-reflexive mode to one's work there is also the danger of self-absorption or self-consciousness (Ruby 1980) which could relegate the research to human-interest alone. As with other forms of disclosure, it can augment understanding and provide insight if it is done well. Where appropriate, I will use a reflexive approach in my writing to make my role within TechSoft explicit.

Forsythe (1999) argued that studying up disrupts the "traditional fieldwork narrative," and at the same time calls into question all that is familiar ground for anthropologists from an ethical and methodological perspective. Rather than existing in a distant parallel place, she described this new research context as one where we can have fuller participation, because we speak the language and have a greater knowledge of the society and its workings. Thus, research at home may result in a deeper understanding of the culture in which we are immersed. Jaffe (1995:44) concurs:

> I became progressively less interested and describing or analyzing the 'tacit knowledge' underlying military ritual, custom, and organization. … Being on the inside, I was interested in eliciting opinions, interpretations, and understandings about military life on the same level of intimacy as I experienced it.

The deeper immersion of insiders brings together the emic and etic perspectives, which offers the "best reporting of anthropological data" (Garbarino 1977).

At the same time, the “performance of commitment” (Jaffe 1995) certainly contradicts the objective observer role in which anthropologists have traditionally put themselves. The fact that I have been promoted over time at TechSoft is in itself a limitation, because in order to achieve that success I may have internalized certain aspects of the corporate life that I have not made or cannot make explicit in my writing. While I may know the hierarchies intimately, and understand how to navigate the power dynamics, as a result of my role as an employee my access is also restricted in a way that it might not be if I were solely a researcher. In addition, the fact that I am always inside means that there is no space to go outside and reflect. My work is my research and vice versa. To say that this has been a challenge in the analytical process would be a gross understatement. I have used the time in my car on the way back and forth from work as liminal space, sometimes pulling over by the side of the road on the way into work or on the way home to capture the fleeting thoughts at the intersection of those two ways of thinking.

Studying Up

Laura Nader (1969) argues that large institutions and corporations will have a great impact on the world, and anthropologists can offer valuable insights as to how power is exercised in these contexts. She believes that we have unique perspective to bring to these discussions because we consider the global and the local, the manager and the user simultaneously. The study of large corporations offers insights into how these powerful institutions shape our world,

and how the field of anthropology must rise to the challenge of 'studying up'. Traditionally, anthropologists' "major response has been one of retreat" (Wolf 1969:260-1) in situations where co-optation has been a possibility. There are still dissenters who believe that studying up is not possible, because "cultural similarity prevents valid anthropological analysis" (McLeod & Wilson 1994). These critiques are often followed by admonitions about the dangers of co-optation.

In this research I am studying up because the corporation and management are more powerful than I am; the complexity of my legal agreement is a testament to that. When I started my research I had senior management sponsorship and access. But over time, with changes in the corporation, growing uncertainty about the company's direction, and regular organizational change, I have lost key sponsors and mentors in the organization. My perspective therefore derives from indirect information about corporate direction in conjunction with corporate communications, and not through direct discussion with the management team about their intentions.

Forsythe (1999) remarks on the many challenges facing anthropologists when studying up. She comments that this type of participation requires us to be experts not only in anthropology, but also to some extent in our area of inquiry. As a result, anthropologists may have similar skill sets and jobs to those we study, and we may also be competing against colleagues for funding and/or workplace resources. Informants may be in a position of power over the

researcher, and in fact, sometimes the person being studied may also be the source of the anthropologist's paycheck. This in turn leads to questions regarding who owns the data that is produced. While in traditional anthropological work the research clearly belongs to the anthropologist, in an environment where the subject of study is paying the anthropologist, the ownership of the data collected during the anthropologist's employment is much less clear.

In addition, informants can read what is being written about them, which results in a new accountability and criticism as part of the research process. Forsythe and Traweek (1988) regularly submitted drafts of her work for her informants to review; I have done the same with my research and writing. Forsythe (1999) and other anthropologists (Downey & Hogle 1999, Sherry 1999, Suchman 1999a, 1999b) also describe situations where after observing anthropologists' approach, others attempt to use ethnographic methods. To protect their livelihood and also to ensure that the ethnographic methodology is used properly, anthropologists have then felt obligated to 'police' the use of ethnographic methods at their sites, adding to the already complex power dynamics at work in these contexts.

These challenges are compounded by problems internal to the discipline. By the early 1970s, graduating anthropologists began to look again to industry for employment opportunities because of the "collapse of the academic job market" (Baba 1994: 174). A growing fissure between academic and practicing

anthropologists was formalized in 1971 by the American Anthropological Association (AAA) through the *Principles of Professional Responsibility*, which prohibited 'proprietary research' by requiring that anthropologists not release their reports to project sponsors if the results were not also made publicly available. The Principles were revised again to become less restrictive in 1976 (Baba 1986: 7), but as a result there was not much anthropological work being done internal to U.S. businesses again until the 1980s.

The tensions still exist today. In 1999, the AAA adopted a *Declaration on Anthropology and Human Rights*. According to the Declaration, anthropologists have a responsibility to communicate their research results to and beyond the anthropological community, in order to ensure that our expertise protects human rights. But the Declaration requires a degree of knowledge sharing that stands in stark contrast to the often stringent restrictions of proprietary corporate research. Practicing anthropologists today thus continue to find themselves disenfranchised by or at odds with their governing body.

Chapter Summaries

This dissertation will describe the how practices of employee control in the corporation reflect both the changing global context and specific, local forces at play in one U.S. high tech corporation. The chapters are organized to some degree around Foucault's four arenas of power (see pages 7 through 10 of this chapter), though there are almost always multiple dimensions of power enacted simultaneously.

Chapter 2 describes technologies of power – the bureaucratic framework that is in place to manage the corporation, with a particular focus on global management of the U.S. subsidiary. Global policies and programs seek to reinforce the authority of the parent company. This chapter explores how experiences and perceptions of the global organization vary widely within the diverse populations of the subsidiary. The chapter also explores how and where local understanding diverges from the global.

As computing technology and technical literacy become more prevalent in corporations, computing technologies play an increasing role in the lives of workers. This is especially true in the high tech industry. Does (or how does) the experience vary for employees who are physically or strategically proximate to the core? How are computing technologies used in tandem with other means to elicit the desired behaviors from employees? Chapter 3 assesses the way(s) in which employees are constituted as part of the socio-technical systems in which they work, and how they co-construct the technologies of power and production to which they are subject.

Given that corporations are dispersed around the globe and that many working teams are no longer co-located, Chapter 4 explores the significance of space in relation to corporate values and priorities. What meaning does a headquarters building have in this context, how do understandings of space differ, and why? In general, how does placement in space (relative to the core) or even absence of space have significance? In other words, how is space a

technology of power, and what form does the Panopticon take in this new work context?

In order to ensure employee compliance in the attainment of corporate objectives, mechanisms of control must be personalized in such a way that they constitute the worker as subject. Chapter 5 seeks to explain how this transpires in the high tech corporation. What forms of discipline – including technologies of the self – are at work in corporations today, and what discourse frames them? As global markets expand and contract and as mergers and acquisitions alter the competitive landscape, the free market system demands increasing differentiation (Leslie 1995:403). Chapter 5 further explores how the corporate discourse evolves in response to these pressures. Internally, do new more totalizing mechanisms emerge as Foucault, Burrell (1988) and others would suggest? Do or how do these new practices build on the old? How do both sign systems and the relationship with external audiences evolve, and what impact does this have on employees?

Chapter 6 also explores what happens when theoretical concepts of management theory meet the realities of corporate life. Building on the legacy of Weber and others, management theorists argue for a progression of corporate forms and practices; these are the primary analysts of corporate practices today. But can these theories account for the complexities and human concerns of everyday reality as experienced by employees? Do (or how do) employees make sense of rapidly changing categories in the high tech corporate setting? In

exploring these and other questions, Chapter 6 furthers the case for ethnographic approaches in the study of corporations.

In conclusion, Chapter 7 evaluates how the ethnography of TechSoft America furthers our understanding of the current practices of high tech corporations, what this means for the lived experiences of employees, and for the future of work in a globally dispersed corporate context. It closes by assessing the larger implications of this research and suggesting areas that warrant further exploration.

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