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Andrew Emil Gansky

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**Myths and Legends of the Anti-Corporation:
A History of Apple, Inc., 1976–1997**

Committee:

Randolph Lewis, Supervisor

Craig Campbell

Steven Hoelscher

Jeffrey Meikle

Sharon Strover

**Myths and Legends of the Anti-Corporation:
A History of Apple, Inc., 1976–1997**

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Andrew Emil Gansky, B.A., M.A.

Dissertation

Presented to the Faculty of the Graduate School of
The University of Texas at Austin
in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Philosophy

The University of Texas at Austin

May 2017

Dedication

For my two favorite doctors,

Martin and Who

(well...)

Acknowledgements

Writing this dissertation was a daunting, arduous, and emotionally draining experience. I had an unusually difficult time settling on a topic, and often found myself deep in the weeds of researching and writing, only to discover that I had reached a dead end, or that I lacked the intellectual creativity to bring a subject to life. The extensive research I undertook as I cast about for a focus saw me making many solitary trips to the far corners of the U.S.A., where I would rummage around in archival collections chronicling the history of computing, often without any very clear direction in mind. Archival research is by nature a rather lonely enterprise, taking place in quiet, heavily air conditioned rooms where one spends hours on end poring over documents, sifting for pieces that can be assembled into some kind of comprehensible tale, and only speaking to others when it is time to trade out one box of papers for another. I would often leave a reading room at the end of a long day to find that my fingernails had turned blue, and that my powers of communication were curiously muddled, making usually simple tasks such as ordering food at a restaurant a chancy enterprise. When I did eventually begin to focus on the story of Apple, Inc., I was deeply unsettled by the strangely personal connection I felt to life at that company, which in many respects resembled my experiences in contemporary American universities. As I uncovered more details about how employees coped with Apple's darker side, I found myself by turns exasperated with their seeming inability to recognize or resist their plight and haunted by the peculiar resonances with my own situation.

Fortunately, my home at the University of Texas, the Department of American Studies, has itself been an altogether warm and supportive environment, something of a

sunny island amidst the rough seas of academia, thanks in no small part to the efforts of our long-time chair, Steve Hoelscher, who has done more than I will probably ever fully know to make life for myself and the other graduate students in American Studies as productive, rewarding, and enjoyable as possible. In my seven years at the University of Texas, I have also had the great pleasure of working with many talented and friendly faculty across the campus, especially the members of my committee, Randy Lewis, Craig Campbell, Steve Hoelscher, Jeff Meikle, and Sharon Strover. They are all models of intellectual curiosity, and they have given me tons of encouragement, advice, and assistance over the years. I must also thank Sally Clarke, without whose unusually intensive and stimulating business history seminar I doubt I could have ever written this dissertation. As the chair of my committee, Randy deserves special thanks for helping me at every stage of this project, giving me much valuable feedback on my ideas and writing, and always pushing me to sharpen my arguments and prose. It was likewise Randy's suggestion that I narrow my focus to Apple, a truly brilliant piece of advice. Moreover, Randy has been a good friend and mentor to me throughout my graduate studies, always available to help out with the various queries and conundrums I've faced. I'm incredibly glad to have gotten to know him over the last seven years.

Many other people helped me, directly and indirectly, as I embarked on this project, and I will do my best to thank them all here. I benefitted from extensive and far-ranging conversations with my graduate student colleagues as an intern at the Harry Ransom Center, especially Elizabeth Lovero, Jordan Mitchell, Emily Roehl, Jenn Shapland, and Natalie Zelt, as well as my friend Julie Conquest, and Josephine Hill, who gave me a local's tour of San Francisco during one of my research stints in California. I also had the immensely great fortune to win a fellowship from the Social Sciences Research Council's Dissertation Proposal Development Program, when Susan Lindee and Karen-Sue Taussig

selected me to join their “Making the Biotech Body” research area for the summer 2014 fellowship cycle. Working with Susan and Karen-Sue was immensely rewarding, but I count myself especially lucky to have gotten to know the other students in the group, Priscilla Bennett, Kerri Brown, Matt Hoffarth, April Hovav, Şafak Kılıçtepe, Tess Lanza, Alka Menon, Caitlin Myers, Felix Reitman, Maxwell Rogoski, and Kimiko Tanita. Although this dissertation bears little resemblance to the work I presented to this exceptional group of people at workshops in a U.C.-Berkeley basement and a blank hotel in the D.C. suburbs, their insightful and generous feedback provided an ideal intellectual community, and greatly shaped my thinking and writing as I continued to develop my project. The times I spent with talking with them over food and drinks about the universal ordeals, anxieties, and joys of graduate school were some of the best experiences I had as a grad student.

There is no doubt in my mind that I could not have written this dissertation without the help of archivists. I have to thank Arvid Nelson at the Charles Babbage Institute at the University of Minnesota and Sara Lott at the Computer History Museum in Mountain View, California for their generous help locating and accessing archival materials—I did not ultimately draw directly upon any of the collections at these centers for this dissertation, but I learned a great deal about the history of computers and the technology industry that strongly informed my thinking on these topics. Tim Noakes and the rest of the public services staff in the Special Collections & University Archives at the Stanford University Libraries were especially helpful during two lengthy research stays, and Stanford’s extensive collection of Apple corporate records provided the backbone of this dissertation. I thank them for their assistance navigating the Apple collections, but I would also like to mention my appreciation for the Research Library Cooperative Program between the University of Texas and Stanford, which allowed me to spend an extended period at the

Stanford libraries without having to pay access fees. The Internet Archive likewise proved invaluable in my efforts to reconstruct the history of the Ralph Bunche Computer Mini-School by preserving copies of its old web pages. Finally, I have to thank Rick Watson and Richard Workman for giving me the opportunity to work at the Harry Ransom Center, where I learned much about the inner workings of archives, which was extremely helpful when conducting my own research.

A number of organizations have also provided financial support for this project. The Social Sciences Research Council fellowship allowed me to make a number of preliminary archival visits in 2014, while an informal dissertation research grant from the Department of American Studies at the University of Texas allowed me to carry out the bulk of my archival research on Apple in California in summer 2016. A Graduate Continuing Fellowship from the Graduate School at the University of Texas let me devote most of my time during the 2016–2017 academic year to writing and revising this dissertation. I would also like to thank the Ronald E. McNair Postbaccalaureate Achievement Program, which helped me navigate the waters between undergraduate and graduate studies, and which supported me during my first year of graduate school.

My family has, without question, been the greatest support and source of inspiration throughout my time as a graduate student, and has helped me in so many ways over the course of this demanding and often crazy undertaking. I recognize that the people closest to me have born the brunt of the emotional toll exacted by this dissertation, and I can only hope that my completion of it is some small repayment of my debt to them. I simply cannot imagine finishing this project without Rachel, who has very much lived with this dissertation over the last several years. Many of the ideas and arguments were worked out in endless, roundabout conversations with her before they finally made it onto the page, and I can't say how much I appreciate all the help she gave me while work-

ing on this endeavor. She also turned me on to many strange and fascinating aspects of computer culture through her own artworks and research—her sharp-witted and mischievous perspectives on computing’s utopian promises really helped me see the issues I’ve been thinking about from new angles. Thank you, Rachel, for everything. I was also super lucky to attend grad school at the same time and in the same place as my brother, Paul. It is no exaggeration to say that I probably learned more from our ongoing conversations about books, films, music, art, and the peculiarities of academic life than all my graduate seminars combined, and I will forever look back fondly on the many evenings we spent jawing while swilling dark beers and chomping on Utz dark russets. There is no overstating how important it is to have someone else around who really gets what you’re going through on a deep, personal level, and who can help pull you back from the brink of your frustrations and fury. I am moreover forever indebted to him for going first through every major scholastic hoop, proving that it could be done, and serving as evidence that there is indeed life after grad school. Mark and Lisa treated me to many free dinners and had me over to their house to swim and celebrate holidays, giving me much appreciated breaks from work and making me feel at home in Austin. Finally, my parents, Amy and Alton, were unwavering in their support of me throughout my eleven-and-a-half year college career. During my time in Texas, I have talked endlessly with them over the phone and by email, not only about this dissertation but about nearly every aspect of my experiences in graduate school, and their wise perspectives on a wide variety of topics have helped me through many crises. I am so appreciative of all the feedback they have given me on this project, and the encouragement they invariably provided when I felt I could not possibly go on with the dissertation. Thank you, Mom and Dad, for having so much faith in me over the years.

**Myths and Legends of the Anti-Corporation:
A History of Apple, Inc., 1976–1997**

Andrew Emil Gansky, PhD

The University of Texas at Austin, 2017

Supervisor: Randolph Lewis

Apple, Inc. is today one of the wealthiest and most powerful corporations in the world, with annual revenues that rival the gross domestic products of nations such as New Zealand. Over the company's four-decade history, however, Apple has consistently presented itself as an emblem of countercultural ideals, and its leaders have insisted that their pursuits of profits and influence are fundamentally altruistic, because their ultimate aim is to develop technologies that will empower individuals and serve the cause of social progress. Through an examination of Apple's first two decades, from 1976 to 1997, this dissertation challenges the argument that Apple's financial self-interest is synonymous with the public good. I conduct case studies of two main aspects of the company's growth and evolution: Apple's labor policies and the company's influential role in the computerization of U.S. public schools. Through an extensive analysis of popular literature about Apple and archival materials chronicling labor practices and employee experiences at the company, I show that Apple cofounder Steve Jobs helped establish an exploitative and frequently abusive working environment at the company, which was designed to extract the maximum amount of worker labor at the lowest possible cost. I consider why many employees were nevertheless incredibly devoted to the company, and I examine the consequences of Apple employees' willingness to forego formal labor rights and protections,

which left them largely incapable of mounting any collective resistance to executives' most ethically troubling practices and decisions. By turning to Apple's lobbying efforts, business strategies, and charitable initiatives in U.S. public education, I show that the company repeatedly prioritized its commercial interests in schools over the needs of teachers and students. While Apple successfully turned educational computing into a multibillion-dollar business, I contend that the computerization of U.S. schools has achieved negligible positive results while draining scarce public resources, and in some instances has increased educational inequalities. Finally, I draw connections between Apple's history, broader trends in Silicon Valley corporate culture, mounting wealth inequalities, and the current weakness of U.S. labor rights to challenge the concessions frequently made to corporations in contemporary U.S. public and political life.

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Introduction.

The Business of Technology and the Myth of Social Progress

In November 2016, U.S. president Barack Obama guest-edited a special issue of the popular technology magazine, *Wired*. In his centerpiece editorial, titled “Now Is the Greatest Time to Be Alive,” Obama reported that he had been thrilled when the magazine asked him to participate. “I know it’s the height of election season,” he wrote, “and I happen to have a day job that keeps me pretty busy. But given the chance to immerse myself in the possibility of interplanetary travel or join a deep-dive conversation on artificial intelligence, I’m going to say yes. I love this stuff.”¹ As suggested by the title of the editorial, the tenor of the piece was overwhelmingly optimistic, as Obama laid out a hopeful vision of a future in which Americans would successfully solve many of the world’s most pressing problems through technological innovation and scientific exploration. “I believe we can work together to do big things that raise the fortunes of people here at home and all over the world,” he proclaimed, and “I still believe science and technology is the warp drive that accelerates that kind of change for everybody.”²

Although Obama granted that certain social problems, such as inequality and discrimination, still exist in the United States and across the world, he disclosed an underlying faith that the impetus that drives people to develop new technologies and make scientific discoveries is closely related to the desire to improve human existence. He imagined, for example, children at future science fairs tackling social, environmental, and political problems head-on, foreseeing a time when organs for transplants would be grown in petri dishes, fuels would be made from completely clean sources, and new technologies, perhaps developed by a teenager, would make “voting and civic activism as addictive as scrolling

through your Twitter feed.”³ Invoking a fundamental link between technological development and social progress, Obama concluded, “we must embrace that quintessentially American compulsion to race for new frontiers and push the boundaries of what’s possible.”⁴ In other words, Obama insisted that pursuing rapid technological progress was a nationalist imperative, with deep connections to U.S. traditions of democratic participation and public service.

Obama’s theme was hardly new. The belief that technology helps drive progressive social change has long inflected U.S. cultural thinking. The historian David Nye, for example, argues that Americans of many stripes have cultivated an almost religious sense of awe for spectacular technological achievements since the early 1800s, when “sublime technological objects” such as the Erie Canal began to be seen as “active forces working for democracy” by extending communications, travel, and trade across the North American continent.⁵ Nye contends that an ongoing “enthusiasm for technology” can be witnessed in the large crowds that have gathered throughout U.S. history to “pa[y] homage” to engineering feats such as electric light, skyscrapers, and space rockets, mass gatherings which he suggests have helped “weld society together,” however momentarily.⁶ The environmental historian Richard White corroborates this assessment, noting that the transcontinental railroads of the latter nineteenth century “came to epitomize progress, nationalism, and civilization itself” for many in the United States, and the railroads have furthermore commonly received credit for inspiring their owners to invent many of the features of modern corporate capitalism.⁷ Turning to the contemporary U.S., the philosopher Langdon Winner likewise comments that “it is usually taken for granted that the only reliable sources for improving the human condition stem from new machines, techniques, and chemicals,” and he remarks that even the environmental degradations and demonstrable social harms that at times accompany “technological advancement have

rarely dented this faith.”⁸ Perhaps most familiar to contemporary observers is the popular connection between computer technologies and the democratization of information and communications. As the historian Fred Turner writes of the dawn of the Internet in the 1990s, “pundits, scholars, and investors alike saw [in the Internet] the image of an ideal society: decentralized, egalitarian, harmonious, and free.”⁹ In short, the hope that new technologies will lead us into a brighter future is all too common, but Obama’s particular endorsement of the need for more technological development takes on a special tenor in light of his presidency’s cordial relations with the business leaders of Silicon Valley.

Farhad Manjoo incisively outlined the nature of that relationship for *New York Times* readers in the immediate aftermath of the 2016 presidential election. “During the Obama years, Silicon Valley came to see itself as the economic and social engine of a new digital century,” Manjoo wrote, and he noted that Obama’s “administration broadly deferred to the tech industry in a way that bordered on coziness.”¹⁰ For their part, Manjoo continues, the executives at powerful high-tech firms such as Apple, Amazon, Google, Facebook, and Microsoft spoke “in ambitious, gauzy sentimentalities about a broadly progressive future,” claiming that “[t]heir goals weren’t simply financial but...philosophical and democratic—they wanted to make money, sure, but they also wanted to make the world a better place, to offer a kind of social justice through code.”¹¹ A veritable revolving door between the tech industry and federal government during the Obama presidency suggests that many in his inner circle saw close parallels between their work in public service and the aims of Silicon Valley corporations, with top Obama advisers going on to lucrative leadership positions at tech companies such as Uber, Amazon, and Apple, while former Google and Microsoft executives came to Washington, D.C. to work for the president.¹² Similarly, when the White House held a Global Entrepreneurship Summit at Stanford University in the heart of Silicon Valley in June 2016, Secretary of State John

Kerry called on the assembled technology executives to act as proselytes for their breed of corporate entrepreneurialism in places such as Syria and Iraq. He argued that such business activities could limit the influence of groups such as the Islamic State, saying, “Entrepreneurship is a rebuttal to extremism.”¹³ Another *New York Times* piece reported that Obama’s activities during his final months in office clearly indicated that he would like to build on his “close relationship with Silicon Valley,” perhaps by relocating to California to take up a position at a technology firm.¹⁴ It would not be an altogether novel move—in addition to the Obama advisers who have transferred to the tech industry, former vice president Al Gore joined Apple’s board of directors in 2003, where he still serves today.¹⁵

The significant linkages between the upper echelons of U.S. politics and the technology industry suggests that Silicon Valley enjoys considerable influence over policymakers’ understandings of how they should serve the public good—particularly among politicians who present themselves as progressive or liberal leaders. The classic American faith in the socially transformative capacities of new technologies now evidently includes a growing enthusiasm for the companies that have led the most recent technological revolution. Silicon Valley firms have actively cultivated this popular enthusiasm by presenting themselves and their products as beneficent actors in the world. Google, for example, became well known for its vague yet reassuring corporate slogan, “Don’t Be Evil” (retired in 2009), while Facebook founder and CEO Mark Zuckerberg proclaimed in 2008 that his company’s social networking site had helped “Lebanese Muslims” connect with people in Europe, which he argued had deterred the hold of religious extremism in that country.¹⁶ Given Secretary Kerry’s more recent statements about the need for tech entrepreneurialism in the Middle East, Zuckerberg’s arguments have apparently gained credence in high-level policy circles.

Apple, founded in 1976, has a particularly long tradition of claiming that its technologies will improve the lives of users and change society, and that its business aims transcend the traditional corporate goal of accumulating capital. For example, when the venerable technology behemoth IBM leapt into the new field of personal computing in 1981, which Apple had helped launch in 1977 with the debut of the Apple II computer, Apple took out a full-page advertisement in the *Wall Street Journal* bearing the headline, “Welcome, IBM. Seriously.”¹⁷ Rather than suggesting that Apple’s products were superior to IBM’s, the ad congratulated IBM on “your first personal computer,” and averred that Apple “appreciate[d] the magnitude of [IBM’s] commitment” to helping “distribute this American technology to the world.”¹⁸ Boasting that Apple had “invented the first personal computer system”—a rather inflated claim—the ad nevertheless affirmed that the personal “computer revolution” was more important than any one company, because personal computers would ultimately “increas[e] social capital by enhancing individual productivity,” giving users the ability to “improv[e] the way [they] work, think, learn, communicate and spend their leisure hours.”¹⁹ There was, according to this ad, no realm of human existence that would be left unimproved by the personal computer industry’s consumer products, and Apple presented itself as a magnanimous business leader that was above the base self-interest that defined typical corporate competition. Of course, when Apple began to see IBM as a serious business threat a few years later, the tone shifted. Apple cofounder Steve Jobs began to compare IBM and its products to the dystopian authoritarianism of the Party in George Orwell’s *1984*, and sententiously proclaimed that Apple was “the only force who can ensure [our] future freedom.”²⁰ The famous Ridley Scott-directed television commercial marking the debut of Apple’s Macintosh computer reinforced the association. It featured a red-clad female athlete flinging a sledgehammer through a massive television screen displaying a “Big Brother”-like talking head spewing meaningless propaganda,

while the final narration intoned, “On January 24th, Apple Computer will introduce Macintosh. And you’ll see why 1984 won’t be like 1984.”²¹ George Orwell’s estate did not appreciate Apple’s self-aggrandizing suggestion that the commercial Macintosh computer was a force that could stem the tide of political totalitarianism, and sent a cease-and-desist letter to Apple for copyright infringement; nevertheless, the commercial resonated with the public, and is widely considered one of the most important television ads of all time.²² Such advertisements helped sustain Apple’s popular image as an unusual company with bold social and political aims, and were some of the most important opening volleys in Silicon Valley firms’ ongoing campaigns to present themselves as servants of the public interest.

However, a closer look at the internal dynamics of Silicon Valley corporations, as well as how those corporations conduct their business throughout the world, raises serious doubts whether these private companies are in fact dedicated to serving the common interests of the peoples living in the United States, or indeed across the globe.

SILICON VALLEY: CHANGING THE WORLD, FOR BETTER OR WORSE

The bulk of this dissertation examines the first two decades of Apple’s history, from about 1976 to 1997. However, given prominent, contemporary political figures’ profound expressions of faith in the U.S. technology industry and ongoing popular enthusiasm for firms such as Amazon, Google, Facebook, Twitter, Uber, or Apple, I want to use this introduction to examine some of the serious concerns that currently face companies in Silicon Valley. Recent reports indicate that many corporations in the U.S. tech industry are plagued by systemic sexual discrimination; the managerial cultures at eminent companies are often abusive and exploitative; Silicon Valley exhibits some of the deepest

wealth inequalities of any region in the United States; and powerful industry leaders tend to downplay any personal responsibility for ameliorating social problems, instead ascribing to a species of social Darwinism, in which individual qualities rather than structural factors play the decisive role in choosing life's "winners" and "losers." Even a cursory examination of Silicon Valley's history, however, shows that these are not new problems. A number of critical observers chronicled similar complaints about the tech industry in the 1980s, while the evidence I present about Apple throughout this dissertation indicates that Apple displayed many of Silicon Valley's most troubling traits from its earliest days. It is therefore all the more remarkable that Apple and its charismatic leaders continue to be celebrated in popular culture for their wealth and innovative prowess. It is my aim in this section to outline some of the primary contemporary critiques of Silicon Valley, and to connect Apple's historical development to these problems in the tech industry. By tracing out some of these linkages, I hope to illustrate why it is important to resist the seductive rhetoric and publicity of firms such as Apple, and to remain skeptical of the underlying aims of powerful corporations and their leaders, no matter how attractive their products and figureheads may appear.

One significant set of concerns surrounding the tech industry stems from how corporations in Silicon Valley treat their own employees. As I write this introduction in spring 2017, recent allegations about the toxic work environment at ride-sharing company Uber have placed that corporation in the national spotlight, and brought to light similar conditions at numerous other high-tech firms. On February 19, 2017, a former female engineer at Uber, Susan Fowler, published a blog post that "detailed a history of discrimination and sexual harassment by her managers, which she said was shrugged off by Uber's human resources department."²³ Her dispatch quickly went viral, sparking numerous people to speak out about similar experiences at companies throughout the tech

industry. A subsequent investigation by *The Guardian* found that “in the male-dominated technology industry, female staffers and workers of color say sexual misconduct, discrimination and retaliation are rampant—and that men in powerful positions are routinely protected while women are often pushed out of their jobs by harassment.”²⁴ The newspaper goes on to cite Apple, Oracle, Google, Twitter, and Tesla as prominent companies that have recently faced serious allegations of sexual discrimination. Moreover, women of color in the tech industry report facing additional prejudice and antagonism in the workplace. One African American tech employee was told by her manager that “she shouldn’t wear her hair naturally in an afro or braids because she appeared ‘too ethnic,’” and other women of color said they were repeatedly asked to do menial tasks that did not match their expertise or positions in their companies.²⁵

Several lawyers who have represented worker complaints against technology firms contend that “[u]nder the guise of ‘disruption’ and ‘innovation,’ startups and tech corporations skirt employment laws and reject [human resources] practices,” which often leaves women “vulnerable to all kinds of abuse, ranging from lewd comments to unwanted propositions to groping to assault.”²⁶ “The scale is sort of breathtaking,” said one attorney, pointing to a recent survey of female tech workers in which 60 percent of respondents reported “unwanted sexual advances, often from superiors,” and one third of women “said they felt afraid for their personal safety.”²⁷ In fact, technology scholars have noted that computer science and related private sector careers have become *increasingly* hostile to women over the past four decades—in the mid-1980s, women earned about 37 percent of computer technology degrees, whereas by 2010 that number had dropped to 15 percent, where it remains today.²⁸

The abysmal state of gender equity and pervasive racial biases are not new problems in Silicon Valley, but tech leaders have long been reticent to acknowledge that such

issues exist. In 1987, for example, Apple CEO John Sculley blithely suggested that his company was something of a post-gendered, post-racial paradise. He proclaimed that gatherings of Apple employees “resembled the bar scene out of *Star Wars*: you would meet people from every nationality and race, varying from Indians in turbans to scruffy, bearded kids from New Jersey.” Moreover, Sculley continued, “Gender was a non-issue. It wasn’t that Apple was just a good place for women to work, it was that no one gave a thought to whether you were male or female. Apple, in fact, boasted as many women managers as men.”²⁹ While Sculley’s depiction of race relations at Apple uncomfortably compared ethnic diversity to the exotic aliens of a popular sci-fi movie, his suggestion that women occupied as many positions of power as men at Apple was demonstrably false. For example, when Sculley was filling out his nine-person executive leadership team in 1985, only one senior officer was a woman, and his entire executive staff was white.³⁰ Similarly, the seventeen-person team that spearheaded the development of the Macintosh personal computer—Apple’s signature technology in the 1980s—was overwhelmingly white, and included only three women, all in non-senior, non-technical roles where they had little direct influence over the computer’s design or features.³¹ The palpable lack of gender or ethnic diversity in Apple’s upper leadership persists to this day. Currently, only three members of Apple’s eighteen-person executive staff are women, while Adam Lashinsky’s investigative reporting on Apple’s upper management in 2012 revealed that only seven of Apple’s thirty-three vice presidents were women.³² And while there is some racial and ethnic diversity among Apple’s vice presidential staff, the majority of top leaders are white. Thus, far from being a “non-issue,” as Sculley insisted in the late 1980s, it seems clear that Apple’s leadership has simply declined to address the persistent fact that there are not significant numbers of women or persons of color occupying important leadership roles within the company.

While recent revelations have brought Silicon Valley’s gender and racial discrimination problems to the fore, technology corporations’ tendency to flout employment laws and conventions raises further worries about broader worker abuses in the industry. In 2015, for example, the *New York Times* conducted extensive interviews with more than 100 current and former employees of the online retailing giant Amazon, revealing a workplace defined by crushing demands and pervasive hostility. Employees reported that full-time jobs for the corporation frequently required upwards of 80 hours of work per week—superiors expected instant availability by phone and email on a 24/7 basis, even during vacations, and many workers said they routinely continued working from home or stayed at the office after hours, sometimes foregoing sleep, to meet Amazon’s relentless productivity demands. One Amazon employee’s “fiancé became so concerned about her nonstop working night after night that he would drive to the Amazon campus at 10 p.m. and dial her cellphone until she agreed to come home.”³³ That same employee later said an ulcer and other stress-related health problems led her to leave the company. Other Amazon employees described how they had been pushed out of the company when serious illnesses such as cancer or personal traumas such as the deaths of close family members “interfered with fulfilling...work goals.”³⁴ Finally, workers said that the company encouraged an antagonistic and aggressive office culture, in which employees were encouraged to submit reports on colleagues if they felt they were underperforming, and to “tear apart” each other’s ideas in vicious meetings and review sessions, following an official Amazon management philosophy that such assaults ensure that only the best ideas—and people—survive.³⁵ As we will see in chapter 1, Apple cofounder Steve Jobs pioneered many such aggressive and abusive managerial tactics during his company’s early years.

The *New York Times* report focused on white-collar professional jobs at Amazon headquarters in Seattle, but the company has also come under scrutiny for its treatment of

blue-collar workers. One of the most notorious incidents occurred at a Pennsylvania shipping center in 2011, where employees were required to work long, grueling shifts in a warehouse without air conditioning. In June and July of that year, temperatures in the center climbed as high as 110 degrees, and numerous employees, who had to navigate the vast complex on foot to pick as many as 1,200 items to ship per day, collapsed from heat exhaustion, including two pregnant workers.³⁶ Following a complaint to the U.S. Occupational Safety and Health Administration from a doctor at a nearby hospital and a searing investigative report by a local newspaper, Amazon finally provided “2,000 cooling bandanas” for workers in the warehouse, as well as “cooling vests” for those working in the loading docks.³⁷

Such practices are not isolated to Amazon. Due in no small part to Amazon’s financial successes, with the company valued at more than \$250 billion on the stock market and Amazon CEO Jeff Bezos recently named the fifth richest human in the world, the company has inspired a number of imitators.³⁸ Uber’s cofounder and CEO, for example, explicitly modeled his own management philosophies after Amazon, and Uber employees report a similar level of workplace hostility, saying they have been subjected to things such as “homophobic slur[s]” and graphic threats of physical violence during heated meetings.³⁹ But while critical journalists have helped unearth and publicize troubling labor conditions at technology worksites in the United States, Fred Turner points out that many U.S. tech companies now carry out the bulk of their manufacturing overseas, typically in countries with even weaker labor protections and where factories often remain off-limits to the press. Drawing an ironic contrast to the dearth of women in engineering and managerial roles in the U.S. offices of tech companies, Turner notes that the majority of the employees who assemble products for those same corporations overseas are women, filling jobs which are often “extraordinarily dangerous” because workers must routinely “handle the

toxic chemicals required in [the] manufacture” of most computer equipment.⁴⁰ Moreover, due to lax environmental laws and insufficient enforcement in many of the countries where assembly takes place, Turner reports that these tech factories have caused further harm “to those who live on the land, drink the water, and breathe the air into which those chemicals eventually leak.”⁴¹

Apple’s international manufacturing chains exhibit many of the problems Turner outlines. These facts came before the public eye in January 2012, when Mike Daisey appeared on the popular radio broadcast *This American Life* to detail the pervasive abuses and unsafe working conditions faced by the Chinese laborers who assembled Apple’s iPhones and iPads for the Taiwanese manufacturing contractor Foxconn.⁴² Although *This American Life* later retracted Daisey’s story because it came to light that he had not personally witnessed some of the things he claimed to have seen in his report, a *New York Times* investigation several weeks later revealed that Daisey’s claims about working conditions at Foxconn and other Apple subcontractors were substantively accurate. The report detailed that assembly workers were sometimes forced to stand so long on the job “that their legs swell until they can hardly walk,” and that factories producing Apple products routinely employed child laborers.⁴³ Moreover, the *Times* continued, Apple subcontractors in China had “improperly disposed of hazardous waste and falsified records,” exposing workers and surrounding populations to dangerous chemicals, while the lack of adequate safety measures at iPad factories led to two explosions in 2011, killing four and injuring 77. Although Apple’s leaders publicly maintained that they were committed to improving safety conditions for assembly workers in China, several executives who had recently left Apple told the *Times* that the corporation had repeatedly stopped short of disciplining manufacturing subcontractors when company leaders feared that such measures would delay the delivery of new products and potentially cut into corporate profits.⁴⁴ Thus, while official Apple re-

ports maintained that the company forced the manufacturers of its products to fix labor violations, company insiders revealed that this rhetoric misrepresented actual corporate practice.⁴⁵

In spite of these well-documented worker abuses, which span all ranks of the U.S. technology industry, the staggering value of stock in tech companies and the ubiquity of computer products in every realm of business activity have convinced many observers that Silicon Valley is an indispensable source of U.S. prosperity. The oft-cited sociologist Manuel Castells, for example, argued in 1996 that the innovative business practices and novel technologies that began to percolate in the San Francisco Bay region during the 1970s provided key solutions to the serious economic problems that many developed industrial economies began to face during that decade, such as rampant currency inflation and energy shortages. It was only because corporations—and governments—embraced the ideas and products coming out of Silicon Valley, Castells writes, that industrialized Western nations were able to embrace a new model of “global capitalism,” and thereby head off severe unemployment crises and the deleterious effects of declining government commitments to social welfare spending.⁴⁶ Arguments resembling Castells’s have enjoyed a kind of commonsense validity for some time. In the immediate aftermath of the 2008 banking and mortgage crisis, for example, the editors of *The Economist* intoned that corporations and industries around the world explicitly needed to emulate Silicon Valley’s entrepreneurial business practices in order to restore the health of the global economy.⁴⁷ Indeed, the magazine went so far as to suggest that the relative lack of worker protections in the U.S. tech industry, especially compared to European counterparts, was an essential ingredient in Silicon Valley’s success.⁴⁸

However, while *The Economist* named a handful of Silicon Valley billionaires—Apple’s Steve Jobs, Microsoft’s Bill Gates, and Google’s Sergey Brin—as proof positive

that the U.S. tech industry is something of an economic miracle, the *New York Times* points out that the recent “tech boom has not led to widespread employment,” while “[m]uch of the wealth generated by the five biggest American tech companies flows to young [professionals] in California and the Pacific Northwest.”⁴⁹ Yet even top professionals within the tech industry—whose high wages place them comfortably in the top 10 percent of earners nationwide—have found that their incomes are rarely sufficient to give them access to basic markers of middle class success, such as home ownership or daycare for their children. A recent *Guardian* report discloses that Silicon Valley engineers, whose annual salaries routinely exceed six figures, are typically forced to devote between 40 and 50 percent of their incomes solely to rent unless they are willing to commute multiple hours. Moreover, professionals with young children have found that childcare is rarely provided or subsidized by employers, and that purchasing childcare independently is an exorbitant added expense. Even one tech employee earning \$700,000 a year could not afford to purchase a house nearby his office—exasperated with driving a total of five hours to and from work every day, he decided to take a significantly lower-paying job in San Diego, where the cost of living is not quite as high.⁵⁰

The *Guardian* points out that many of the tech employees interviewed for the article “are among the highest 1% of earners,” and that the skyrocketing expense of the San Francisco area, due predominantly to the rapid growth of the tech industry in recent decades, has been even more disastrous for “teachers, city workers, firefighters and other members of the middle class, not to mention low-income residents.”⁵¹ While tech professionals have lobbied top executives at companies such as Facebook and Twitter to help with their personal housing costs, they also report feelings of profound anguish when faced with the plight of the region’s growing working poor and homeless population—the *New Yorker* reports that homelessness in the region spiked by 20 percent just between

2011 and 2013.⁵² As one tech worker told the *Guardian*, “You are caught in this really uncomfortable position. You feel very guilty seeing such poverty and helplessness.” Yet facing a grueling work schedule and her own financial troubles despite an annual salary topping \$100,000, this same employee expressed a sense of paralysis about her personal ability to help solve the deeper problems of affordability, saying, “what are you supposed to do? Not make a lot of money? Not advocate for yourself and then not afford to live here?”⁵³

The spiraling housing crisis in the San Francisco Bay region is all the more disturbing because it is almost as old as Silicon Valley. The sociologists Everett Rogers and Judith Larsen found in 1984 that even high-paid Silicon Valley professionals often resorted to “[h]ouse-sharing” in response to the pervasive “housing crunch,” while the labor historian David Noble spoke about unaffordable child care and “the banal horrors of the two-hour commute” many tech workers undertook due to “escalating housing costs” in 1989.⁵⁴ It is not yet clear whether the contemporary leaders of Silicon Valley’s powerful tech firms will finally take meaningful steps to address the longstanding cost-of-living problems that their corporations have caused in the region, but history suggests that executives’ lack of action on such problems stems from a deeper lack of concern with the social problems that stem from income inequality. As Rogers and Larsen concluded, “Most Silicon Valley tycoons are not concerned with issues of social inequality or injustice; to the entrepreneur, the poor and weak in society are poor and weak because they are inferior.”⁵⁵ In other words, the tech leaders who arose in the 1980s recapitulated the social Darwinist perspectives of their Gilded Age forebears, excusing themselves from worries about potential negative repercussions following from the inequitable distribution of wealth in their industry.

Such tendencies can be seen clearly in Apple's early leadership. For example, when Apple conducted its historic initial public offering of stock in 1980, just three years after the company's incorporation, Apple's founders, executives, and early investors reaped incredible personal gains—Apple CEO Mike Scott found himself in possession of \$96 million in stock, chairman Mike Markkula's options were worth \$239 million, and the shares of cofounders Steve Wozniak and Steve Jobs were valued at \$136 million and \$256 million, respectively.⁵⁶ However, when a number of young engineers at the company—who were earning about \$20,000 yearly—approached Steve Jobs in early 1981 to complain that they had been denied modest, contractually guaranteed raises, even though they had received high performance reviews, Jobs tried to brush them off, telling the engineers that they “had much more important things to worry about than [their] salaries”—namely, designing new computers for Apple.⁵⁷ A poignant, anonymous employee letter to Apple CEO John Sculley in 1990 suggested that professionals' relatively modest salaries at the company continued to make it difficult for them to raise families or afford housing near their jobs, while Adam Lashinsky's contemporary reporting indicates that Apple wages are “competitive with the marketplace—but no better.”⁵⁸ In other words, workers' contributions to Apple's phenomenal profits and market value—which helped Apple become, in 2015, the first corporation in history to have a market capitalization of more than \$700 billion—have not translated into substantive financial rewards for the majority of the company's employees.⁵⁹

Given brusque dismissals of employees' financial concerns and workers' inability to enjoy a substantive share of the incredible profits and stock returns posted at companies such as Apple, it is small wonder that Silicon Valley's rise has coincided with the vast expansion of wealth inequality in the United States. The economist Michael Storper notes that between 1979 and 2000—precisely the era when Silicon Valley became a key site of

U.S. economic activity—income gains accrued predominantly to the wealthiest 5 percent of earners in the U.S., while wages stagnated or declined for most other Americans. For example, the wealthiest 5 percent in the U.S. earned ten times as much as the poorest 5 percent in 1979, whereas in 2000, the wealthiest 5 percent were earning 25 times as much as the poorest 5 percent.⁶⁰ And while the top 1 percent saw their share of total income double between 1979 and 2000, the middle 60 percent actually lost 2 percent of their wages in real terms.⁶¹ In Silicon Valley itself, most tech worker wages declined by between 3 and 12 percent during the 1990s, while executive pay increased “by over 2,000 percent in real terms” during the same time period.⁶² National income disparities have continued to grow—in 2012, the “top 10 percent of earners took more than half of the country’s total income,” which the federal government reported was the greatest income disparity seen since the depths of the Great Depression in the 1930s, and the “top 1 percent took more than one-fifth of the income earned by Americans, one of the highest levels since 1913.”⁶³ The remaining 99 percent of Americans, by contrast, took income cuts of approximately 12 percent between 2008 and 2012.⁶⁴ Although Silicon Valley corporations are far from the sole driver of U.S. wealth imbalances, the World Bank reported in 2016 that U.S. “technology firms appear to be exacerbating economic inequality rather than improving it,” arguing that due in large part to current labor practices in the industry, the activities and technological products of Silicon Valley firms are more likely to depress wages and opportunities for the majority of people around the globe than to increase incomes and quality of life.⁶⁵

With evidence mounting that the U.S. tech industry routinely places the physical and emotional wellbeing of workers at risk, whether in manufacturing, service, or professional positions; that many prominent tech corporations are plagued by systemic levels of discrimination and sexual harassment; and that the technology industry has contributed

directly to mounting income inequality, it is incredibly troubling that prominent and powerful public figures such as Barack Obama and John Kerry would endorse the products and business cultures of Silicon Valley as the likeliest solutions to some of the world's most distressing problems. Instead of challenging tech firms to live up to their promises to make the world a better place, such politicians appear to have taken Silicon Valley corporate rhetoric at face value, using their public offices to champion an industry that suffers from a number of serious and readily apparent shortcomings. The hold of Silicon Valley on the progressive political imagination is especially unsettling because tech industry leaders have frequently made clear that they are only interested in serving society if it also serves their financial self-interest. For example, the *New Yorker* reports that a top Apple executive exclaimed in 2012, "We don't have an obligation to solve America's problems. Our only obligation is making the best product possible."⁶⁶ In a thoughtful analysis of contemporary intersections between Silicon Valley and U.S. politics, this same *New Yorker* piece argues that such statements exhibit a blind faith in the ability of commercial technology products to improve the social condition, and a troubling lack of interest in understanding the complex causes and dynamics of social problems or the nuances of the political system.

However, the U.S. political climate of late 2016 and early 2017 has revealed some deep cracks in Silicon Valley's public service edifice. Donald Trump's rise, in particular, has at long last stirred doubts in the minds of some Silicon Valley elites that there may be fundamental errors in their longstanding conviction that they can solve social problems by doing nothing more than developing and distributing technologies through commercial channels. In the days immediately following Trump's election on November 8, 2016, the *New York Times* reports that some tech workers and executives even expressed anguish that prominent social media platforms such as Facebook and Twitter, rather than provid-

ing new forms of “radical connectivity” and promoting “widespread peace and prosperity,” had instead directly “contributed to a rise in the kind of trolling, racism and misogyny that characterized so much of... Trump’s campaign.”⁶⁷ Although I first began researching this dissertation in the spring of 2014, I believe that the events of the current moment offer a particularly valuable opportunity to take a closer look at the history of Silicon Valley corporations, in order to understand why these firms, despite frequent public proclamations that they are committed to serving the greater good, have largely failed to achieve their progressive social aims.

THE CASE OF APPLE, INC.

My overarching argument in this dissertation is that Silicon Valley corporate leaders have tended to confuse their financial self-interest with the public good: they have failed to see meaningful distinctions between the activities they undertake to enrich themselves and more altruistic understandings of shared public benefits. In Silicon Valley, it has become a commonplace to believe that profiting from the development and sale of innovative computer products is synonymous with social progress. Perhaps no company better reflects this mentality than Apple, Inc. In many respects, the corporation and its charismatic leaders pioneered the rhetoric and philosophies that have underlain Silicon Valley’s particular claims to serving the greater good—in particular, Apple’s leaders self-consciously drew on the rhetoric and ideologies of the 1960s counterculture to describe their aspirations for empowering ordinary people through technology, and to shape the early mythos of Apple as something of an anti-corporation, an enterprise that transcended base financial self-interest.

In this dissertation, I dissect Apple's history of corporate mythmaking, focusing on the first two decades of the company's existence, from about 1976 to 1997. Apple arose at precisely the moment when Silicon Valley was becoming a preeminent site of economic activity and technological development, and during the company's first twenty years, Apple and its leaders influentially popularized the notion that the U.S. technology industry was more than a collection of moneymaking enterprises. Although Apple's technologies are certainly an important part of this story, my primary interest is how Apple and its leaders convinced the public and policymakers that the corporation could be trusted to solve social problems and turn a profit at the same time.

Founded in 1976 by Steve Wozniak and Steve Jobs, and incorporated in 1977, Apple was far and away the most successful example of a new breed of high-tech company that began to pop up on the San Francisco peninsula as the Baby Boomers came of age and the U.S. economy took a striking turn from an industrial to a post-industrial paradigm. Prominent technology companies such as Lockheed, Hewlett-Packard, and Fairchild Semiconductor had already begun to reshape the predominantly rural region between San José and San Francisco following World War II, sustained in part by the growth of the military industrial complex, but in distinction to these more conservative and established firms, Apple emblemized the collision between computers and the 1960s counterculture, which had taken hold throughout the region at places such as Berkeley, Stanford, and in San Francisco neighborhoods such as the Haight-Ashbury.⁶⁸ As a business, Apple was therefore a peculiar creature. The counterculture's marked suspicions of corporate conformity had directly influenced cofounders Jobs and Wozniak, but Jobs in particular was driven to build Apple into a corporation large and powerful enough to redefine the very meaning of computing in the United States.⁶⁹

Wozniak and Jobs's primary goal for their company was based on the belief that computer power was equivalent to social power. Consequently, they aimed to democratize access to computers by transforming the historically massive, exorbitantly expensive, and intimidating machines into personalized, user-friendly objects that were small enough to sit on a kitchen table. In Jobs's mind, these useful, intuitive technologies should be consumer products—he believed that the commercial market would quickly and efficiently distribute the personal computer revolution far and wide.⁷⁰ Yet even as Jobs, Wozniak, and Apple's other early leaders built their company into a powerful, multinational firm, they hoped to avoid what they saw as the pitfalls of traditional business activity—they especially wished to maintain Apple's predominant focus on making useful technologies that would “empower” users without becoming overly preoccupied with the corporation's need to make money. “Apple was founded on the singular vision of empowering the individual,” Wozniak would later say. “Although we were too young for the 1960s, we still had revolutionary ideas and a belief that individuals can actually make a difference in the world.”⁷¹ Towards the end of his life in 2011, Jobs similarly reflected, “Sure, it was great to make a profit, because that was what allowed you to make great products. But the products, not the profits, were the motivation.”⁷² In this equation, corporate financial self-interest was simply a means to a greater end. Accumulating wealth was precisely what allowed Apple to develop life-changing technologies. There is, of course, considerable hubris in this argument, as it asserts that Apple inherently knows what is best for society, and that consumers would be foolish to resist purchasing the corporation's products.

Despite the inherent conflicts of interest in Apple's mission, over the course of the 1980s and 1990s, the company successfully pursued rapid corporate growth while consistently cultivating a public image as a novel kind of business—one driven more by the public-spirited mission of extending computer power to the masses than the desire to

profit. Thus, while Apple expanded from Jobs's parents' garage in 1976 to a multinational corporate enterprise with \$1 billion in sales in 1983, and continued to swell into the mid-1990s, when Apple was selling some \$11 billion of computer products annually, generating immense personal wealth for investors and corporate officers, Apple enjoyed a seemingly unshakable popular reputation as an emblem of countercultural values.⁷³ Savvy advertising and publicity campaigns consistently renewed this image. In the early 1980s, for example, Jobs and other company leaders determinedly defined Apple and its products as "a holy crusade" against the much vaster and more powerful computer firm IBM, which had earned the ominous moniker "Big Blue" for ruthlessly decimating its competitors throughout the 1950s and 1960s.⁷⁴ Likening IBM's formidable mainframes to Big Brother's dystopian tools of social control, Jobs asked in a famous public speech in 1984, "Will Big Blue dominate the entire computer industry? The entire information age? Was George Orwell right?" He suggested that the United States might indeed fall under the sway of this sinister corporate behemoth but for the efforts of Apple, which Jobs presented as "the only force [that] can ensure [our] future freedom."⁷⁵ In the 1990s, when IBM had been reduced to a mere shadow of its former corporate strength, Apple successfully applied similar strategies in its competition with software giant Microsoft.⁷⁶ Although Apple was by no means a small or weak corporation during the 1980s or 1990s, accentuating contrasts with IBM or Microsoft helped Apple sustain its public image as an alternative kind of company, a striking departure from conventional corporate practice.

Commenting on these corporate rivalries, technology and design historian Kimon Keramidas remarks that consumers have proven remarkably willing "to form strong allegiances not only to...technologies but also to the corporations that make those technologies," and argues that Apple has largely driven "the penetration of [technology] companies' corporate identities" into the realm of personal identity.⁷⁷ In 2004, the journalist Le-

ander Kahney chronicled consumers' unusual passions for Apple and its computers in *The Cult of Mac*. A self-described "Mac nut," Kahney attributes much of the popular obsession with Apple to the superior quality of the company's famous line of Macintosh computers, launched in 1984, and he argues that purchasing a Mac offers consumers the opportunity to become part of a wonderful community defined by its progressive social values. "Mac users can be extremely cool," Kahney writes. "It's a lifestyle thing. Mac users tend to be liberal, free-thinking, counterculture. They dress well, look good, and have discerning taste (in New York, anyway)."⁷⁸ This statement corroborates the claims of Steve Jobs's official biographer, Walter Isaacson, who writes, "Jobs was able to encourage people to define themselves as anticorporate, creative, innovative rebels simply by the computer they used."⁷⁹ But consumer passions run deeper than a connection to products. Kahney also collects numerous images of people who have adorned their arms, ankles, necks, chests, and even more intimate bodily regions with tattoos of Apple logos and corporate symbols. Says one graphic designer of his tattoo, "I wanted to show my loyalty to Apple."⁸⁰ And when Steve Jobs passed away in October 2011, the outpouring of spontaneous memorials online, at corporate headquarters, Apple stores around the globe, and Jobs's home in Palo Alto revealed that many people the world over felt a personal connection to the man, his multibillionaire status notwithstanding.⁸¹

Apple's ardent following is all the more remarkable because it indicates that the company's customers and fans are still capable of believing that Apple exemplifies countercultural values and nonconformity despite the fact that it has become one of the most financially valuable and powerful corporations in the world.⁸² The lack of popular concern about potential conflicts of interest between Apple's corporate goals and its stated social aims emblemizes broader cultural and political failures to interrogate the airy rhetoric frequently on display at Silicon Valley tech firms. In part, Apple has been able to sustain

its favorable reputation because the corporation's history and inner workings have largely escaped critical examination—not least because Apple (like most large corporations) is incredibly difficult to access. Michael Moritz, a *Time*-journalist-turned-venture-capitalist who briefly chronicled Apple's operations in the early 1980s before Steve Jobs excommunicated him over a minor tiff, vividly describes the frustrations outside observers face. "While they remain small," he writes, "companies are easy enough to describe but once they outgrow a garage or an office suite they become increasingly opaque."⁸³ When Moritz was invited to cover Apple, the corporation was already large, with extensive overseas operations and corporate headquarters dispersed over a sprawling, disjointed campus of haphazardly annexed buildings in Cupertino, California. Beyond the problems of scale, Moritz likewise notes that the orchestrators of Apple's finely tuned publicity apparatus carefully circumscribed what he was allowed to observe. Alternative perspectives could at times "be gleaned from bitter refugees," Moritz says, "but a closer inspection is more hazardous. It's difficult to obtain a tourist visa, simple to discover the official line, impossible to move around without being followed, and all too easy to get expelled."⁸⁴ By all accounts, Apple has only grown more difficult to access over time—business journalist Adam Lashinsky recently termed Apple the "most secretive" company in the United States, reporting that even the majority of the company's employees have little knowledge about how the corporation is organized or operates.⁸⁵

As a result, most of the first-hand accounts of life at Apple are either written by prominent insiders—such as former CEO John Sculley's memoir or hardware engineer Andy Hertzfeld's chronicle of the invention of the Macintosh—or rely predominantly on interviews with a handful of high-level employees, such as Walter Isaacson's official biography of Steve Jobs. These accounts, as Michael Moritz warns, tend to burnish a mythology of Apple as a wonderful place to work, populated by creative, passionate, and unusual

characters, committed to the unique mission of democratizing access to computers. “Myths spring up about life in the good old days,” Moritz writes, “and even the best-intentioned efforts turn from fact to fiction.”⁸⁶ Indeed, Moritz’s own book, which aspires to offer a more critical perspective on Apple, frequently lapses into hagiographic descriptions of the innovative prowess of Steve Jobs and his inner circle. As a result, the published record generally neglects to take a more critical stance on Apple’s official corporate rhetoric. Even Ian Bogost’s recent scholarly volume on Apple, *The Geek’s Chihuahua* (2015), indulges in a fair bit of nostalgia, suggesting that Apple’s originally pure intentions have only become perverted over time.⁸⁷

Another body of evidence, however, suggests a rather different story. The department of Special Collections at the Stanford University Libraries holds a remarkable range of materials chronicling the years from Apple’s founding in 1976 up until 1998, and I spent several weeks in California in June and July of 2016 sifting through numerous memos, letters, emails, voicemail transcripts, corporate publications, financial reports, organizational charts, brochures, pamphlets, sales manuals, employee recruitment materials, corporate values and mission statements, management policies, and employee handbooks, as well as a diverse array of employee-produced ephemera, ranging from hand-drawn cartoons and fake corporate announcements to newsletters and printouts of conversations carried out on the company’s online message board. These materials disclose that Apple’s leaders were ruthlessly self-interested from the company’s earliest days, and that their much-vaunted aspirations to extend computer power to the masses were underlain by exploitative and abusive labor practices, as well as a hubristic faith in their personal capacity to change the world for the better through commercial products.

The three chapters of this dissertation examine the fundamental contradictions between Apple’s financial goals and social aims. I focus on two realms where the company

promised to make a particularly striking and positive impact: labor relations and educational reform.

The first two chapters detail Apple's labor policies and employee experiences at the company during the 1980s and 1990s. In addition to Apple's widely known marketing and publicity campaigns, the company's unusual managerial structure, workplace environments, and employment policies served as some of the most important markers of Apple's sharp divergence from corporate convention, and evidence of the fact that Apple was fundamentally committed to improving society. Apple did enjoy an incredible level of devotion from its employees, even though the company placed taxing demands on workers' time, energies, mental capacities, and emotional health. Apple sustained employees' deep commitments through a mixture of financial incentives, arguments about the social impact of the company's products, and a variety of workplace perks and symbolic rewards, such as referring to engineers as artists, permitting casual employee attire, and filling office areas with stereos, video games, pianos, ping pong tables, and popcorn carts. Yet in receiving these benefits, which often made day-to-day life at Apple more engaging and pleasurable, employees largely sacrificed formal labor rights and protections, leaving them vulnerable to abusive managers, relentless time commitment and productivity demands, and unscrupulous labor policies that saw many employees sacrificed when executives made disastrous decisions, or when company leaders simply needed to boost profits to please shareholders. Chapter 1 focuses on the exploitative and abusive management policies Steve Jobs set in place at Apple in the late 1970s and early 1980s, and contextualizes employees' willingness to suffer workplace maltreatment within the broader development of post-industrial labor models. Chapter 2 focuses on the years following Jobs's acrimonious departure from Apple in 1985, up until his return in 1997. I examine the business strategies of Apple CEO John Sculley, who sought to preserve Apple's countercul-

tural status even as he pursued aggressive yet shortsighted business strategies. Due to Apple's entrenched labor practices, employees were largely helpless to resist Sculley's decisions, even though they led to a number of serious corporate crises and resulted in extensive layoffs in 1990, 1991, 1993, 1996, and 1997.

Chapter 3 looks further afield to Apple's extensive involvement with U.S. public schools. K-12 education was one of Apple's most important market segments throughout the 1980s and 1990s, representing a large share of the company's total revenues during these decades, and expanding to a multi-billion dollar business by the 1990s. Moreover, Apple maintained a controlling interest in school computing during these years—by the mid-1980s, more than two-thirds of the computers in U.S. schools were Apple products, a ratio that remained relatively stable for the next decade. Beyond Apple's obvious financial stakes in education, however, the company frequently promoted its relationships with schools as important evidence of Apple's larger commitments to social progress. The company claimed that its products would improve public education in revolutionary ways, and through a variety of charitable corporate programs, Apple sought to help teachers adapt to shifting student needs in a post-industrial society. However, a closer examination of Apple's attempts to influence national school computerization policies and the impacts of its charitable educational programs indicates that corporate financial interests often outstripped actual commitments to serving the needs of public schools, teachers, and students. Thus, while millions of Apple computers poured into U.S. public schools during the 1980s and 1990s, these technologies more often proved a drain on scarce public resources than a benefit to schools.

Chapter 1.

More than Jobs: Romanticizing Apple's Rebellious Workplace

During Apple Computer, Inc.'s early years, which spanned the late 1970s and the early 1980s, the company gained a reputation as an exceptional place to work. John Sculley, who joined Apple as its CEO in 1983, recalled that he was immediately struck by the incredible passion of his new employees, which far exceeded anything he had witnessed in his fifteen-year tenure as an executive at Pepsi in upstate New York. "I couldn't explain what was going on when I arrived" at Apple, he said. "It was almost as if there were magnetic fields, some spiritual force, mesmerizing people. Their eyes were just dazed. Excitement showed on everyone's face. It was nearly a cult environment."¹ Sculley's comments suggest that he was rather overwhelmed by his employees' excitement, which he saw expressed in deep worker commitments to the company and its products. "Apple was a company populated by young people bent on making a difference," he continued, "or at the very least an impression, upon the world. It was not a nine-to-five job for anyone. People were willing to work incredible hours to bring out products."² But rather than seeing Apple employees' cult-like devotion to work as an unhealthy obsession, Sculley insisted that Apple sustained such intense worker commitments because the company embodied a revolutionary social purpose, not unlike the counterculture of the 1960s. Comparing Apple's young workforce to the hippies who had made the pilgrimage to San Francisco in the 1960s, Sculley relayed stories of youth who drove "across the country in the proverbial Volkswagen bus" to Apple's parking lot in Cupertino, California, where they "just wait[ed] to get in to play a role at the company."³

Such incredible employee devotion to Apple was not, however, a spontaneous occurrence. The notion that Apple and its products emblemized countercultural values—especially a desire to empower individuals and a healthy suspicion of traditional forms of authority—was a self-conscious posture adopted by Apple’s cofounders, Steve Wozniak and Steve Jobs. Wozniak put it succinctly when he proclaimed, “Although we were too young for the 1960s, we still had revolutionary ideas and a belief that individuals can actually make a difference in the world.”⁴ Apple’s products, Wozniak continued, were a perfect expression of this ethos. He described the Apple II—which was Apple’s first formal product and one of the very first personal computers available to consumers when it debuted in 1977—as a tool that “pushed technology beyond the limits of conventional wisdom” and “ignited the revolution of the individual, using high technology to show new ways of doing things.”⁵ Within Apple itself, company leaders waged a continuous campaign to convince employees that their corporation was committed to a grander social cause than mere financial self-interest, and that employees themselves were viewed as distinct individuals rather than interchangeable units of productive labor.

To promote these ideas, Apple’s leaders worked to develop and sustain an official company culture, which was reflected most clearly in the creation of Apple Values, a set of precepts that formed the basis of Apple’s internal corporate rhetoric throughout the 1980s and 1990s. First drafted in 1981 by a team of employees at the request of the executive staff, the Apple Values were particularly concerned to neutralize possible qualms among employees that the corporation’s financial interests and business goals might conflict with company commitments to empowering consumers or treating workers well. In a memo circulated throughout the company, the first Apple Values statement argued, “We are here to make a positive difference in society, as well as make a profit,” and suggested that Apple’s chief contribution to society was “providing the power and usefulness of the com-

puter to individual people.”⁶ “With this tool,” the statement continued, “people are improving the way they work, think, learn, communicate and spend their leisure hours.”⁷ Based upon these hopeful claims about how personal computing would benefit average people, the Apple Values concluded, “Our profits are the result and an important measure of how well we succeed in making this contribution” to society.⁸ By extension, the creation of profitable, proprietary computer technologies could be framed as a form of positive civic engagement—employees ostensibly did not have to look any further than their jobs at Apple to fulfill their political or humanitarian impulses. The corporation could be trusted, the Apple Values implied, to offer elegant technological solutions to social problems, an arrangement which would equally benefit Apple and society at large.

As for workers, the Apple Values continued, “[t]he individual worth of each employee as a person is highly valued.”⁹ The statement elaborated that Apple’s growth and health could only be sustained by “the creativity, craftsmanship, initiative and good work of each person,” and the memo promised that Apple leadership would “support...employees in achieving their personal objectives in line with their contribution at Apple.”¹⁰ Moreover, the Apple Values proclaimed, the company would strive to avoid installing a bloated managerial bureaucracy, and would instead maintain a “simple and flexible” organization that would allow “ideas and information [to] pass freely among” employees and make it easier for everyone in the company to “work...together for a common goal.”¹¹ In sum, the Apple Values insisted that friendliness, creativity, personal growth, and individual initiative would be prized, while overt forms of managerial authority or corporate politicking would be actively discouraged. Just as Apple’s products ostensibly served the cause of individual empowerment, the Apple Values suggested that the company’s labor practices placed a premium on the individual value of each employee as a human being rather than as a mere laborer.

Although the tone of the Apple Values was determinedly positive, and insisted that Apple leadership was committed to crafting a corporation that departed from convention, the realities at Apple were more complex. When the executives had outlined their personal goals for Apple a few years earlier, they made clear that high profits were their main motivation—all other aspirations, however appealing they might sound, were secondary to making money. Defining their primary goal with an accountant’s precision, they aimed for Apple to “grow to a minimum of \$.25 billion in revenue by 1981 while maintaining [a] 12% after tax profit margin.”¹² “Only if we continue to meet our profit objective,” the executives continued, “can we exist to achieve our other corporate objectives.” This executive memo nevertheless granted that it was imperative for employees to “have faith in the motives and integrity of their supervisors and of the company,” and to trust that Apple management would never “compromise our ethics or honesty in the name of ‘profit’ or ‘business.’”¹³ These two sentiments sat side by side somewhat uneasily. Apple’s leaders recognized that they might need to compete vigorously, even ruthlessly, to meet their ambitious financial goals, but they also hoped to maintain employees’ faith that Apple possessed a special purpose that surpassed mere moneymaking. In practice, however, these two aims were rarely complementary. As I argue in this chapter, Apple’s leaders’ aggressive pursuit of profits frequently led them to manipulate, exploit, and abuse employees, which created a number of deeply troubling labor practices at the corporation.

This chapter and chapter 2 are closely related, as both contrast the mythology of work at Apple with critical analyses of employee experiences at the company. This chapter focuses on the origins of Apple’s workplace mythos, chronicling the years from Apple’s founding in 1976 to the company’s first major crisis in 1985. As such, the company’s charismatic leaders and cofounders—especially Steve Jobs, Steve Wozniak, and John Sculley—loom large in my analysis. It is impossible to separate the reputations of these men

from popular understandings of Apple, and indeed, each of them shaped Apple's labor ideologies and practices in distinct ways. For his part, Wozniak eschewed taking on an executive role in the company he cofounded, and he became an idol for many of Apple's young engineers who similarly preferred to see technological tinkering as a calling that answered to a higher cause than the pursuit of a paycheck. As I explain in detail below, Wozniak's disposition was emblematic of a larger shift in U.S. labor history, in which a new generation of white-collar workers, who began to enter the workforce in the 1970s, displayed a marked preference for attaining intangible rewards and pleasures from their jobs rather than maintaining the strong worker rights and protections that skilled blue-collar workers had won from industrial corporations. For his part, Jobs was an adept manipulator of these changing labor attitudes. Even though he repeatedly treated his employees with cruelty and derision, he cannily cultivated his self-image as an iconoclastic corporate rebel, and many of his coworkers came to see his assaultive style as an essential component of his entrepreneurial genius. Finally, although Sculley came to Apple towards the end of the period considered in this chapter, he was particularly skillful at translating the workplace dynamics he observed at the company into a full-fledged labor ideology, and his arguments are extremely useful for understanding the larger stakes of the labor relations that developed at Apple in the late 1970s and early 1980s.

The three sections of this chapter each emphasize a distinct argument. The first section considers Apple's official labor ideologies in relation to major developments in business history and labor history. I argue that Apple's particular labor politics, which emphasized employee satisfaction and fulfillment over job security and worker rights, were representative of the broader erosion of formal worker rights and protections in the United States in the 1970s and beyond. I likewise connect the particular characteristics of working life at Apple to larger trends in the U.S. technology industry, and I argue that

tech workers' individualistic dispositions and antipathy for collective bargaining are emblematic of the labor arrangements that have contributed to the increasingly unequal distribution of wealth in the United States over the past four decades. The second section turns to Apple's origins, as I examine the dynamics of the relationship between cofounders Steve Jobs and Steve Wozniak. I argue that through Jobs's early interactions and collaborations with Wozniak, he learned a number of valuable lessons about extracting productive labor from technicians with unconventional motivations, which decisively shaped Jobs's managerial style as Apple grew from a garage-based enterprise into a multinational corporation. The third section details Jobs's management of the Macintosh project, one of the most heavily mythologized episodes in Apple's early history. As Jobs oversaw the creation of the Macintosh personal computer, his most arrogant, abusive, and manipulative tendencies were on full display, yet the employees from the Macintosh team have been some of Jobs's most faithful apologists. I consider why these workers were so willing to submit to Jobs's cruelties, and I argue that their defenses of Jobs have helped defray broader criticisms of labor abuses in the tech industry.

To tell this story, I draw on a variety of published sources and archival sources from the collection of Apple materials at the Stanford University Libraries. While I did find many illuminating documents at Stanford, the records for the period considered in this chapter, 1976 to 1985, consist chiefly of official corporate publications that do not shed much light on day-to-day life at Apple. Thus, although I rely on these documents to illustrate, for example, where official company policies diverged from more optimistic rhetoric about work at Apple, to describe actual employee experiences, I draw largely on the popular literature about the company, especially Walter Isaacson's official biography of Steve Jobs; Michael Moritz's journalistic account of Apple's early years, *Return to the Little Kingdom*; Apple software engineer Andy Hertzfeld's chronicle of the creation of the

Macintosh, *Revolution in the Valley*; and John Sculley's memoir of his years at Apple.¹⁴ These popular texts almost universally represent work at Apple in a positive light, and describe Apple's cofounders and leaders as brilliant innovators. Some do offer criticisms of Jobs's abusive tendencies and the darker aspects of life at Apple, but these brief passages are largely muted by the extensive praise the authors heap on Jobs and the company he cofounded. None of these texts analyzes the working environments that emerged at Apple from a critical labor history perspective, and none of them raises concerns about the systemic labor abuses journalists and scholars have uncovered in Silicon Valley over the last four decades. I therefore treat these popular works as co-constructors of Apple's popular mythology, and I read them skeptically and critically with the explicit aim of challenging Apple's status as a laudable emblem of corporate success.

Nevertheless, the stories told in Hertzfeld, Isaacson, Moritz, and Sculley's books are complex and compelling. Although I contend that the labor dynamics that developed at Apple were disastrous because they expressly eroded formal labor rights and led to the inequitable concentration of wealth and power in the hands of a tiny class of corporate leaders, many people found Apple to be an incredibly seductive place to work. Numerous employees proved willing to devote extraordinary amounts of time and energy to their jobs, often to the exclusion of activities or attachments beyond the confines of Apple. By extension, many began to believe that they could fulfill their personal aspirations, identities, and social responsibilities through work, which made employees markedly less critical of how Apple's leaders' aggressive productivity and corporate profitability goals undercut their rights and well-being as laborers or created troubling conflicts of interests with the company's stated commitments to altruistic social causes. In my estimation, the best way to communicate the conflicted seductions of work at Apple is by letting employees' experiences unfold in longer, narrative passages, aspiring, as best I can with the materials at

my disposal, to something like the anthropologist Clifford Geertz's method of "thick description."¹⁵ It is only through extended considerations of employees' descriptions of their working lives that some of the most interesting, enlightening, and contradictory aspects of life at Apple become visible. Apple's holding power over the popular imagination has endured in large part, I contend, because Apple employees have admitted to feeling a nearly religious devotion to the corporation. It is incredibly important to understand how that devotion takes hold of employees and plays out in their daily experiences of work if we are to effectively comprehend—and challenge—the full scope of Apple's sway in American life.

APPLE TO THE CORE: A POST-INDUSTRIAL LABOR CONTRACT CONGEALS

John Sculley, who served as Apple's CEO from 1983 to 1993, was one of the chief proselytes of Apple's managerial and labor practices. In his 1987 memoir, Sculley argued that Apple was at the forefront of establishing a new "social contract" between workers and employers in post-industrial corporate America. For Sculley, the key difference between industrial-era corporations and the "third wave" companies of the post-industrial or information age hinged on the kind of loyalty firms demanded from their employees. Borrowing William Whyte's snide moniker for the faceless drones who ostensibly populated the post-World War II U.S. white-collar workforce, Sculley argued that in an industrial corporation, "the Organization Man traded his loyalty for security and lifetime employment."¹⁶ Although Sculley granted that the "trappings of loyalty," especially the promise of a "pension [and] cradle-to-grave employment," had appealed to many American workers in the middle of the twentieth century, he insisted that this arrangement was actually "a Faustian bargain, which seemed to offer the job holder limitless wishes while

robbing him of his freedom, his motivation, his creativity.”¹⁷ Sculley suggested that the executives of industrial firms reduced individual employees to “cog[s] in the wheel of a systematized corporation” because they possessed a mechanical understanding of employee efficiency and productivity; as a result, industrial leaders saw strict managerial hierarchies and narrowly defined employee roles as the best methods to keep their companies running like well-oiled machines.¹⁸

Sculley believed, however, that industrial business structures were no longer relevant in a post-industrial society. The new, post-industrial economy specifically needed creative individuals who were continuously capable of developing innovative ideas and products—freed from bureaucratic constraints, these individuals would underwrite a new model of corporate productivity. “Third-wave people,” Sculley wrote, “are motivated by commitment to an ideology, by the chance to personally change the world, the chance to grow as a person.”¹⁹ Apple, he insisted, provided an ideal working environment for these “third-wave” workers: “People tend to look at joining a company like Apple as getting a graduate degree at a university. You select Apple because you think it can offer you an incredible, life-growing experience.”²⁰ In exchange for these individual growth opportunities, Apple demanded greater personal responsibility from employees for the company’s financial growth. As an official statement of Apple Values from 1987 asserted, “We expect individual commitment and performance above the standard for our industry. Only thus will we make the profits that permit us to seek our other corporate objectives.”²¹ In Sculley’s estimation, this was a fair bargain. Apple employees faced intense demands for individual productivity and received no guarantees to lifelong employment or a retirement package, but they were more than welcome to use their time at the company to gain skills that served their individual aspirations or to develop products that spoke to their personal visions of a better society.

Apple's particular labor politics, with their emphasis on personal growth and heightened individual responsibility for the financial health of the firm, were indicative of the contradictory impulses that reshaped middle class employment in the United States between the 1970s and 1990s. During this era, white-collar professional work in a variety of fields—especially technology, medicine, finance, and education—increasingly displaced blue-collar production labor as the predominant sector of middle class employment.²² But these macro economic transformations entailed more than a simple shift in the fields that undergirded the U.S. economy. The growing importance of corporations such as Apple—and the attendant expansion of white-collar employment—also heralded a striking revision of the labor policies, practices, expectations, and rights that defined work in the United States. As Sculley's comments indicated, Apple promised to give its employees a variety of workplace freedoms and to connect their labor to a grander social cause, but at the same time, Apple employees occupied a relatively precarious position. They had little job security and few formal labor rights, which, as we will later see, left them vulnerable to excessive managerial demands and the abusive and exploitative tendencies of company leaders. The subsequent sections of this chapter chronicle how Apple employees' fears of corporate conformity led them to forego strong worker rights and protections as they conducted a more nebulous search for workplace pleasures and self-fulfillment; this section contextualizes these developments within the broader contours of post-World War II U.S. labor history. First, I chart how the pressures of deindustrialization contributed to the decline of skilled blue-collar labor, undermined political commitments to strong labor protections, and diminished the power of unions and collective bargaining. I then turn to the characteristics of white-collar professional work that shaped the new models of employee-employer relations that emerged at Silicon Valley corporations such as Apple in the late 1970s, and I connect these labor and management practices to the mounting ine-

qualities of the U.S. economy. My aim is to establish a critical framework that can help illuminate the more troubling consequences of Apple employees' capitulation to the new corporate "social contract" articulated by John Sculley, Steve Jobs, and other Apple leaders between the 1970s and the 1990s.

There is no question that Apple arose during a particularly tumultuous period of U.S. business history. The industrial base that had underwritten American prosperity in the decades following World War II began to collapse in the early 1970s, as many established U.S. corporations, especially manufacturers, lost significant ground to foreign competitors that were able to provide goods and services more cheaply.²³ In response, Jackson Lears points out, American firms "eliminated many high-paying jobs and exported others overseas," while placing incredible demands for increased productivity and efficiency on remaining U.S. workers.²⁴ These upheavals were initially most pronounced in industrial production, and the outsourcing and labor speed-up tactics Lears describes particularly decimated the ranks of skilled blue-collar employment. Along with the immediate trauma of large-scale job losses, however, this era saw significant structural changes in the rights and protections enjoyed by American workers.

In Arne Kalleberg's extensive study of U.S. labor since the 1970s, he explains that during the decades immediately following World War II, the relatively large and prosperous middle class was undergirded by the collective bargaining power of unions—concentrated in skilled blue-collar professions—and strong federal enforcement of worker rights and protections.²⁵ In the 1970s, however, acute anxieties about declining corporate profits and the concomitant destabilization of the U.S. economy witnessed the rise of "coordinated anti-union business strategies," coupled with laxer governmental enforcement of labor laws, which Kalleberg argues shifted the "balance of power...heavily away from workers and toward employers."²⁶ Once again, the deterioration of collective bar-

gaining initially left blue-collar workers most vulnerable to a newly antagonistic labor climate, but the decline of unions had broader implications for the character of U.S. labor relations. Kalleberg explains that at the height of U.S. industrialism after the Second World War, the specter of proliferating labor unions had “led nonunion employers to provide similar benefits to their workers,” which meant that the kinds of rights and protections secured by unions extended to some degree to the U.S. workforce at large.²⁷

By contrast, the white-collar professions that became more important in the post-industrial era emphasized individualism and lacked strong traditions of collective bargaining, and these professions’ marked failure to advocate for robust labor rights in the 1970s and beyond exacerbated the overall deterioration of formal worker protections in the United States. White-collar professionals’ relative lack of concern for formal labor protections and unions reflected, in large measure, an alternative set of responses to the principal labor struggles of the twentieth century. During the late 1800s and early 1900s, as corporations began to grow into vast enterprises, sometimes employing many thousands of workers, business leaders and managers had become obsessed with maximizing labor productivity and efficiency in order to maximize their profits. The concept of “scientific management,” most famously outlined and promoted by the industrialist Frederick Winslow Taylor, was particularly influential at the turn of the twentieth century.²⁸ Following Taylor’s ideas, scientific managers at firms across the U.S. began to look at work as a mechanical process that could be broken down into simpler component tasks, which individual workers could then perform much more quickly. Although the mechanized assembly line, applied at Ford and other manufacturers, is perhaps the best-known application of scientific management, similar ideas also reshaped office labor in the early twentieth century, creating what historian Graham Lowe has called “paper-generating assembly lines.”²⁹

Despite Taylor's contention that scientific management would ultimately give both laborers and capitalists what they most wanted—high wages and low labor costs—the working arrangements installed by scientific managers generated many worker complaints.³⁰ The fragmented and simplified tasks workers had to perform quickly became tedious, while managers installed rigid, punitive bureaucracies to enforce their rationalistic work schemes and to gain more direct control over laborers.³¹ As Nikil Saval writes in his popular history of office work, scientific managers were “little interested in their workers as human beings,” and their treatment of employees as unthinking, unfeeling pieces within a larger labor machine could lead to feelings of profound alienation among a company's workforce.³² Union activity, which was concentrated among skilled blue-collar production workers, mounted a two-fold resistance to the excesses of scientific management. On the one hand, unions fought for strong employee rights and clear contractual obligations that would give them more autonomy on the job and modulate the tedium of scientific management's most extreme applications, while on the other hand, union workers agreed to submit to some managerial demands for higher productivity and efficiency in exchange for better compensation and more job security.³³ White-collar workers, by contrast, demanded more sociable modes of work that could provide greater mental and emotional satisfactions.³⁴ Rather than emphasizing collective worker rights or bureaucratically defined seniority and promotion guidelines, white-collar professionals advocated for workplaces where individual skills and efforts would define success.

By the late 1950s, white-collar demands for more creative, fulfilling, and autonomous modes of work began to have a significant impact on professional work in the U.S. As Thomas Frank argues in his reappraisal of the relationship between corporate America and the counterculture, broad cultural fears of conformity and anxieties about the stagnation of U.S. business in the late 1950s and early 1960s led a number of corporate leaders,

especially in the fields of advertising and fashion, to openly repudiate scientific management regimes. These corporate leaders, Frank writes, feared the ills of a homogenous “mass society” and “deplored conformity, distrusted routine, and encouraged resistance to established power.”³⁵ At the same time, however, these business executives had not entirely abandoned scientific management’s obsessions with worker productivity—they simply believed that stimulating their employees’ creative capacities was a more effective tactic for enhancing the productive output of their industries. At leading ad agencies and menswear companies, Frank elaborates, employees therefore enjoyed considerable feelings of autonomy as their employers encouraged them to think of themselves as rule-breaking “artists,” and to see their work more as a matter of personal expression and exploration than disenchanting, formulaic labor for pay.³⁶ The enlightened attitudes of such business leaders and the growing pleasures and satisfactions of white-collar work further reduced professionals’ interest in collective measures such as unionization, as executives’ aims already appeared to be aligning with professionals’ workplace aspirations.

The 1960s counterculture helped popularize these more creative and fulfilling styles of work, especially among younger, college-educated workers, who expressed a keen desire to derive more from their jobs than just a dependable paycheck and a pension. In his cultural history of Silicon Valley, Fred Turner suggests that aspiring professionals’ growing emphasis on job quality as opposed to job security stemmed from ongoing anxieties about the evils of corporate conformism and scientific management. These younger workers, Turner writes, believed that older professionals “had found themselves locked into rigid roles” within vast, bureaucratic firms, where “[t]heir hands ached from years on the corporate ladder, and their souls had begun to wither beneath their suits.”³⁷ Fearing that they would likewise be trapped in a “hierarchical world of cold war corporate adulthood” that would crush their “whole and authentic” individuality, the youth of the 1970s

searched for work experiences that they hoped would free them from subservience to more overt forms of corporate authority.³⁸ Yet both Turner and Frank suggest that there was considerable irony in the youth counterculture's anti-corporate pretensions, as the soul-crushing workplace conformism they feared had already begun to fade in many white-collar professions by the 1970s. Numerous corporate leaders in fact "welcomed the youth-led cultural revolution," Frank argues, "because they perceived in it a comrade in their own struggles to revitalize American business and the consumer order generally."³⁹ The business scholar Shoshana Zuboff agrees that corporate employers were largely receptive to the tastes of this "new generation of better-educated professionals and workers," which demanded "[s]elf-fulfillment and satisfaction" in the workplace.⁴⁰ Many corporations in the 1960s and beyond, Zuboff continues, enthusiastically worked "to provide psychologically more enhancing, and economically more productive, work experiences."⁴¹ In other words, the white-collar professionals who embraced more engaging and pleasurable modes of work in the 1970s were a good fit for mainstream management ideologies of that era, and their abandonment of collective worker movements in favor of workplace individualism was less a triumph of anti-corporate counterculture sentiments than the culmination of a longer rearrangement of white-collar labor relations.

John Sculley represented this transformation of corporate labor as a mutually beneficial development for businesses and employees alike. In particular, he suggested that corporations' increasing focus on the fulfillment and personal growth of employees made companies more responsive to the social and political commitments of their workers. Sculley held up Apple and its workforce as sterling examples of this new labor arrangement. Apple employees, Sculley wrote,

were mesmerized, possessed almost, by what they were doing; they were universally young, passionate, idealistic, and brilliant. They wanted to change the world.

If they had been born a decade or so earlier, they would have been part of the sixties culture that lived in communes and protested the Vietnam War. They didn't have a cause in a war or a president, however. Instead, they focused their energies on changing the world through products. [They] demonstrated a cultlike dedication to working, sometimes through the night, to solve a technical problem.⁴²

These employee attitudes, Sculley continued, gave Apple “the intellectual feel of a university, not a corporation,” while company management, following Steve Jobs's example, officially referred to workers as “artists, not engineers.”⁴³

These particular comments about Apple are noteworthy for several reasons. For one, Sculley suggested that work at Apple did not adhere to conventional understandings of corporate labor, where employees would be expected to hold regular working hours and would perform tasks largely according to managerial directives. At Apple, work called on a different range of aptitudes—the creative expression associated with artistry, the intellectual curiosity associated with higher education, and a degree of psychological absorption that verged on religious devotion. Yet Sculley's depictions of his employees' political orientations were even more remarkable. He explicitly aligned Apple's youthful workforce with the counterculture of the previous generation, but rather than pursuing social change by organizing political groups, engaging in protest movements, or living in alternative communities, Apple employees apparently believed they could more effectively achieve their aims by designing consumer technologies for a Fortune 500 company. Although Sculley took his employees' devotion to technological development as evidence of Apple's transcendent social mission, the implication that corporate labor could simply replace other modes of civic or social responsibility was more disconcerting. Apple's leaders and employees had not, after all, abandoned their intention of reaping considerable financial rewards from the production and sale of computer technologies, and U.S. history suggests that the aggressive pursuit of corporate profits rarely correlates with broadly shared social benefits.⁴⁴

Indeed, a number of scholars have expressed significant concerns about the growing tendency of middle-class professionals to align their personal goals and identities with corporate employers such as Apple. As employees become less capable of maintaining distinctions between their personal and professional lives, they lose some of their critical capacities to recognize that corporate financial goals and associated demands for high worker productivity often run counter to their own self-interest. Shoshanna Zuboff, for example, remarks that most blue-collar industrial workers “could give of their labor without giving of their selves,” which implied that the “human being as wage earner and the human being as subjective actor could remain separate.”⁴⁵ By contrast, Zuboff continues, it is more difficult to disentangle personal identity from corporate mission in professional jobs at companies like Apple, where employees need “to sustain...high levels of internal commitment and motivation” to meet their employers’ intense productivity expectations.⁴⁶ In a recent study of how white-collar workers cope with mounting demands from their employers, Melissa Gregg argues that “middle-class professionals [have] been encouraged to see work as the most significant demonstration of their success and identity,” and she suggests that many have come to believe that “paid employment is the most compelling demonstration of virtue, accomplishment, and self-identity that society makes available.”⁴⁷ She worries that such intense personal investments in work have contributed to troubling trends in contemporary corporate labor, such as “professional workers’ willingness to engage in work outside paid hours” and their tendency to “withdraw from a range of more complex human relationships to focus on a proven source of personal esteem—their job.”⁴⁸ Gregg highlights the rising propensity of professionals to retreat even from robust interactions with workplace colleagues, which further undermines employees’ collective abilities to modulate or resist unreasonable or exploitative employer dictates. Instead, she argues, professional laborers come to believe that managing the pace

and intensity of work is a matter of personal responsibility and adaptability.⁴⁹ As Zuboff puts it, professionals in the more fractured, competitive, and individualistic American corporations of the post-industrial era have lost much of the “the clarity of rights and obligations that...offer[ed] an important sense of personal control” within the more collectivist workplaces of the mature industrial economy; in turn, these working expectations have made it more difficult for professionals “to manage the extent of one’s own exertion.”⁵⁰

Thus, while business leaders such as John Sculley made airy proclamations about a new “social contract” that would make work more fulfilling and corporations more socially responsible, the lack of emphasis in Silicon Valley on job security, collective bargaining, or worker rights produced a number of troubling dynamics in the tech industry. Dennis Hayes, who worked as a journalist and itinerant software programmer in Silicon Valley during the 1980s, developed a thoroughly jaundiced view of the business rhetoric churned out by companies such as Apple. “The warm corporate promise of ‘providing a setting conducive to personal growth,’” he wrote, “was finally about ‘raising productivity,’” and Hayes argued that “corporate concern for the individual” was little more than an appealing fiction designed to disguise the relentless pressure Silicon Valley companies placed on employees to produce more value for the corporation.⁵¹ Meaningful resistance to the exploitative characteristics of work in Silicon Valley, such as managerial demands for unpaid overtime to meet unreasonable deadlines, Hayes continued, was persistently undermined by the instability of employment and the individualistic convictions of workers in the tech industry. High rates of employee turnover at most tech companies, Hayes argued, had engendered an “itinerant perspective [among] a large and growing proportion of workers,” which minimized their ability to organize collective campaigns to push “firms to correct problems, to invest in and implement safety procedures, or to chas-

tise or remove offensive managers.”⁵² Moreover, because tech workers tended to see success as a matter of personal skill and effort, they rejected unionization or other cooperative labor groups as a means to realize improvements in their working situations. The most common response to workplace antagonisms, Hayes reported, was simply to jump to another company in the hopes that it would prove more agreeable.⁵³ The pronounced lack of collective labor efforts has been an enduring feature of the U.S. tech industry. As the labor scholar Christoph Hermann recently noted, “If there is an overarching characteristic of Silicon Valley, it is the absence of unions or other forms of organized social resistance.”⁵⁴

Despite the paucity of worker rights and growing experiences of employee exploitation in Silicon Valley in the 1980s, workers in the tech industry revealed remarkable commitments to their jobs. Everett Rogers and Judith Larsen—whose 1984 sociological survey of rising tech corporations, *Silicon Valley Fever*, largely corroborates Dennis Hayes’s firsthand accounts of workplace abuses—discovered that tech industry employees were eager to believe that their working experiences represented a radical departure from corporate convention, leading them to view hectic schedules and intense pressures as a marker of their field’s dynamic thrills rather than unreasonable demands on their time and energies. “Some Silicon Valley people simply like to work,” Rogers and Larsen noted. “They put in long hours and cope with the job-related stress because they like microelectronics better than working in an established industry where they feel most people are bored clock-watchers.”⁵⁵ Andy Hertzfeld, a software engineer who helped develop Apple’s original Macintosh personal computer in the early 1980s, perfectly encapsulated the willingness of tech employees to give over most of their time and energy to designing computers. “Most Macintosh software team members were between 20 and 30 years old,” Hertzfeld explained in his memoir, “and with few family obligations to distract us, we were used to working long hours. We were passionate about the project and willing to

more or less subordinate to it the rest of our lives.”⁵⁶ Although Hertzfeld suggested that the excitement of building a new computer was ample compensation for the fact that his work at Apple displaced other aspects of his life, Rogers and Larsen were less sanguine. They worried that “work-obsessed technocrats” dominated the professional ranks of Silicon Valley, and that tech employees’ lack of interests or relationships beyond the workplace left them “with a limited life experience and a stunted human understanding.”⁵⁷

Although Silicon Valley professionals willingly poured themselves into their work, fueling the rapid expansion of tech firms and underwriting the region’s growing economic importance in the 1980s and 1990s, the distribution of wealth in the industry was incredibly skewed, with executives and high-level managers reaping most of the rewards through lucrative stock options, while professionals’ salaries and compensation stagnated. Once again, Apple offers an emblematic example. The journalist Michael Moritz—who briefly served as Apple’s official historian in the early 1980s—reports that as Apple grew from a tiny start-up into a fully-fledged corporation, the company filled out its ranks with seasoned professionals from corporations such as Hewlett-Packard and National Semiconductor.⁵⁸ These new hires lobbied aggressively—and often successfully—for high-level managerial roles and valuable stock options during their interviews, while many employees who had been with Apple from the earliest days were passed over. In an interview with Moritz, one indignant employee—who began working at Apple as a high school student in the late 1970s—described a pervasive sense of competitive individualism and distinct lack of employee solidarity. Speaking on behalf of the younger employees who felt betrayed by Apple’s stock distribution and promotion policies, he said, “We missed out on the American dream because we were too nice.... We weren’t obnoxious enough to make ourselves millionaires.”⁵⁹ These comments indicated the darker side of tech employees’ individualistic proclivities—rather than fighting for broader compensation increases to re-

ward employees' collective contributions to Apple's expanding wealth, workers advocated chiefly for themselves, exhibiting little concern for the deepening inequalities at the company. For his part, Moritz contends that the wealth disparities between white-collar workers and company leaders that began to develop at Apple in the 1980s "were far larger than those that separate the chairman from the janitor in mature companies like General Motors and Exxon."⁶⁰

More comprehensive studies of wealth disparities in Silicon Valley substantiate these anecdotal observations at Apple. The economic geographer Chris Benner, for example, argues that the "success of [Silicon Valley's] economy" has diverged sharply from "career success for workers in the regional labor market," as professionals and other "workers in the region face high levels of uncertainty in their employment opportunities and career paths."⁶¹ The compensation data Benner cites vividly illustrate how few individuals have truly shared in the tech industry's phenomenal growth. "Between 1991 and 2000," Benner writes, "the average compensation of the top 100 executives in Silicon Valley's largest companies grew by over 2,000 percent in real terms, while the average annual income for production workers in the electronics industry declined by 7 percent."⁶² Or, put another way, top tech executives were paid about forty times as much as their average employee in 1991, whereas in 2000, executives were making almost 1,000 times more than average workers.⁶³ Silicon Valley therefore exemplifies Arne Kalleberg's arguments about the broader transformation of the U.S. economy since the 1970s. As worker protections have deteriorated and professional fields have "deemphasized collective solutions" in favor of "personal responsibility" for labor disputes, Kalleberg writes, "workers' situations have worsened while many companies have prospered."⁶⁴ These policies and trends, Kalleberg concludes, have made it increasingly common for the financial rewards of corporate activ-

ity to accrue to executives and shareholders rather than being shared in a more egalitarian fashion with employees.⁶⁵

Thus, from a labor history perspective, Silicon Valley's rise during the 1980s and 1990s is fraught with ironies and problems. While industry leaders such as John Sculley promised to give employees greater autonomy and to fashion their corporations into more socially responsible entities, thereby progressively extending the creative work revolution that had begun in fashion and advertising in the 1950s, in reality, Silicon Valley technology firms had tightened their grip on employees' lives and had pervasively undermined formal worker rights and protections. Moreover, as white-collar professionals in the tech industry fell prey to the seductions of competitive individualism, self-fulfillment, and the belief that tech companies diverged sharply from the authoritarianism of other industries, they lost interest in collective worker organizations, and poured themselves heart and soul into their jobs while a privileged corporate elite reaped most of the rewards for their labor. As I argue in the remainder of this chapter and in chapter 2, these dominant labor structures and dispositions undergirded Silicon Valley's phenomenal financial growth during the 1980s and 1990s, as well as the incredibly unequal distribution of that wealth.

The subsequent sections of this chapter turn to the mythology of Steve Jobs. Popular interpretations of Jobs have emphasized his entrepreneurial genius and astute technological vision as the key factors in his remarkable ascendance as a business leader, but I argue that it was in fact the shifting priorities and beliefs of professional workers in the 1970s and beyond that subsidized Jobs's quest to become an emblem of success in the post-industrial United States. As Apple's cofounder and one of the company's most influential leaders during its early years, Jobs was unrepentantly manipulative and abusive. He avidly exploited employees to extract the maximum amount of value from their labor,

and he made a number of disastrous business decisions that brought Apple to the brink of destruction in 1985, which cost many employees their jobs. Although Apple's board forced Jobs out of the company in 1985, the wealth he had accrued from Apple stock options allowed him to pursue a number of other lucrative business ventures until he returned to Apple in 1997 as a multibillionaire—in other words, Apple employees suffered the brunt of Jobs's abuses and mistakes, yet those who worked with Jobs have consistently downplayed the negative consequences of his actions and behaviors. As I examine the origins and evolution of Jobs's managerial tactics at Apple from 1976 to 1985, I consider why employees were so willing to submit to his aggressive and selfish impulses, and I argue that tech workers' unwillingness to stand up to business leaders such as Jobs has markedly contributed to the ongoing invisibility of labor problems in Silicon Valley.

ORIGIN MYTHS: STEVE JOBS, STEVE WOZNIAK, AND THE FOUNDING OF APPLE

My aim in this section is to map out the origins of the complex labor and management relationships that defined Apple during the 1980s and 1990s. As a point of departure, I examine the conflicted friendship between cofounders Steve Jobs and Steve Wozniak, both of whom served as important figureheads for key aspects of Apple's corporate culture. I argue that through his early interactions and collaborations with Wozniak, Jobs began to sketch out a framework for corporate labor–management relations that decisively shaped the first two decades of Apple's existence. In dealing with Wozniak, Jobs learned how to appeal to some of the key desires shared by many young professionals of the era. Jobs would later use these techniques to great effect when he led the development of the Macintosh personal computer between 1981 and 1985, which is the focus of the next section of this chapter.

Although Apple grew quickly from a garage-based enterprise in 1976 to a multinational corporation by the early 1980s, adding thousands of employees across the globe and entering the Fortune 500 after just seven years in business, the conflicted friendship between cofounders Steve Jobs and Steve Wozniak was curiously indicative of the larger labor patterns that would come to define the corporation's character.⁶⁶ Jobs and Wozniak both grew up during the 1950s and 1960s amidst the sprawling towns and suburbs that stretch along the bayside coast between San Francisco and San José, California. The region was already densely populated with high-tech corporations and government installations, giving Wozniak and Jobs many opportunities from a young age to observe and interact with neighbors and family members employed in the technology industry, who tinkered endlessly in their spare time with the novel technological tools and components that were becoming increasingly accessible to consumers. In 1971, when Wozniak was twenty years old and Jobs just fifteen, the journalist Donald Hoefler somewhat unwittingly heralded the rising economic, cultural, and political importance of the metropolitan hub when he coined the moniker "Silicon Valley" in a series of articles for the trade magazine *Electronic News*.⁶⁷ Jobs and Wozniak thus came of age at a time of profound flux in both technological development and the economic fortunes of the United States, in the very place where countless high-tech businesses would arise to shape many of the key features of post-industrial corporate activity.

An important strand of Apple's popular mythology, however, rests upon the contention that neither Jobs nor Wozniak was a likely candidate for founding what would become one of the most important and influential corporations in recent history. A 1982 *California Magazine* profile of Apple's cofounders, for example, described Wozniak as "a naive, almost innocent" man who simply "couldn't conform to the corporate agenda," and remarked that Jobs "was just another kid with long hair and scruffy jeans" who had

traveled “to India in search of a guru” and had returned instead determined to start a successful company.⁶⁸ In other words, the pair of bearded college dropouts did not look like the clean-cut, gray-flannel-clad managers who had dominated the American imagination of business leadership in the 1950s and 1960s. But as I argued in the previous section, the conventional measures and markers of U.S. corporate success had been shifting since the late 1950s, and by the time Jobs and Wozniak arrived on the scene in the mid-1970s, they were both ideally positioned, in their own ways, to become emblems of the new, supposedly cooler and more creative corporate America of the late twentieth century. As we will see in this section, Wozniak was a perfect example of a white-collar professional who was motivated more by the artistry of his work than by money or a desire for managerial authority, while Jobs’s abrasive iconoclasm ironically gave him the ability to motivate—and manipulate—a new generation of professionals who had grown suspicious of traditional corporations. But even though Jobs and Wozniak’s looks and behaviors differed from the classic image of corporate leadership, the company they built still possessed a conventional need for profits, and as Jobs assumed a dominant leadership role during Apple’s early years, he betrayed a canny ability to extract labor from friends and employees under questionable circumstances. If Jobs’s managerial tactics were unconventional, they were not entirely commendable, and his troubling treatment of his friend and business partner Wozniak displayed some of the key features that would define Jobs’s career as a corporate executive.

In analyzing the relationship between Jobs and Wozniak and detailing Apple’s founding and early growth, I rely in large part on Walter Isaacson’s biography of Steve Jobs and Michael Moritz’s extensive journalistic account of life at Apple in the early 1980s. The archival record for these years is surprisingly thin, which gives the accounts of popular authors such as Isaacson and Moritz greater authority. However, as I contended at

the beginning of this chapter, these popular texts tend to mythologize Apple's founders as singular geniuses rather than offering a sustained, critical analysis of how Apple fits into a broader—and often troubling—transformation of U.S. corporate activity. Although my ability to tell this story is clearly indebted to the extensive interviews Moritz and Isaacson undertook in their own research, I am particularly concerned in this section to challenge Moritz and Isaacson's tendencies to minimize the implications of Jobs's manipulation and exploitation of Wozniak as they worked together to found Apple, and to consider some of the consequences of Wozniak's own reticence to criticize his former business partner. My chief contention is that popular texts such as Moritz and Isaacson's books and the diffident public statements of Apple employees like Wozniak have polished the mainstream mythos of Jobs as a brilliant entrepreneur while dissimulating the problematic labor conditions that existed behind the scenes at Apple, and which continue to shape Silicon Valley today.

The task of deconstructing the mythologies surrounding Apple, Jobs, and Wozniak is made all the more difficult by the fact that the two cofounders are intriguing characters, and their path to founding Apple easily takes the form of an exciting adventure story. For one, both Wozniak and Jobs were fairly undisciplined youth, and displayed a marked disdain for traditional forms of authority. In high school, Wozniak gained notoriety both for his technological prowess in electronics classes as well as his pranks, two pursuits which he most notably combined in the construction of a fake bomb, an exploit that earned him a night at the juvenile detention center. There, Wozniak claims he and his fellow inmates rewired the ceiling fans to the cell bars to shock anyone who touched them.⁶⁹ As a first-year undergraduate at the University of Colorado in Boulder in 1969, Wozniak continued in a similar vein, neglecting his coursework in favor of pursuits such as hacking a university-owned mainframe computer and developing a device that allowed him to in-

terfere with professors' attempts to use televisions in the classroom. When a dean took formal disciplinary action against Wozniak, Michael Moritz reports that Wozniak responded "by hiring a lawyer to write a threatening letter," a maneuver that accelerated the demise of his academic career in Colorado.⁷⁰ Despite his lack of formal training, a friend helped Wozniak secure a position as a midlevel engineer at Hewlett-Packard soon after he returned to California. The desktop calculators Wozniak helped design at the company did not particularly inspire his imagination, and his superiors denied his repeated requests for transfers to more interesting projects because he had failed to finish his degree. For a while, however, Wozniak appeared content with his steady paycheck, using his spare time to design and build computers and other electronic devices.⁷¹ He also entertained himself by running a "dial-a-joke" service from his home phone, reading Polish one-liners to callers until a spate of irate correspondence from the Polish American Congress prompted him to switch to jokes about Italians.⁷²

Jobs's adolescent biography reveals similar proclivities. In elementary school, Jobs also gained a reputation as a troublemaker for pulling such stunts as setting off fireworks indoors and learning all his classmates' bike lock combinations so he and a friend could switch them all around.⁷³ When he started college in 1972, Jobs discovered his own frustrations with the rigors of university life. Impatient with the number of required courses he encountered at Reed College in Portland, Oregon, Jobs dropped out but convinced a dean to allow him to attend the classes of his choosing for no credit. This arrangement gave Jobs the selective opportunity to study things he found interesting while staying involved with the fringier edges of campus culture, where he picked up strange dietary obsessions, stopped wearing shoes, ceased bathing regularly, and engaged in considerable recreational drug use.⁷⁴ After a few years, Jobs drifted away from his rather directionless existence in Oregon back to California, where he managed to land a job designing video

games for Atari in 1974. Here, Jobs quickly gained a reputation for his arrogance and acute lack of social skills. Jobs's intensity charmed Atari's founder, Nolan Bushnell, but his coworkers found his behavior and questionable personal hygiene insufferable. To defray tensions, Bushnell decided to let Jobs work by himself in the office late at night when there was no one around to insult or irritate.⁷⁵

Jobs and Wozniak's personalities made them misfits in traditional institutions, so when a mutual friend introduced them in 1971 it was not surprising that they clicked on the basis of their shared love of pranks and their interest in electronics. Yet from the very beginning of their friendship, Wozniak and Jobs differed in their ultimate goals of working with technology. Wozniak emblemized the hacker culture that emerged around computing in the 1970s, which combined a love of technological experimentation with the thrills of challenging authority. Jobs, by contrast, possessed an overriding concern for how technologies could be turned to economically rewarding ends. The interplay between Wozniak and Jobs's impulses emerged during their first collaboration, the construction of "blue boxes," electronic devices which allowed users to hack AT&T's infrastructure to make free telephone calls anywhere in the world. In the 1960s and 1970s, a dispersed subculture of "phone phreaks" across the United States figured out how to manipulate AT&T's switching system by artificially generating the sonic tones that governed how calls were patched through the global telephone network. After Wozniak's mother showed him a lengthy *Esquire* article about phone phreaking in 1971, Wozniak and Jobs became obsessed with building their own blue boxes to hack into the telephone network. In early 1972, Wozniak designed a miniature digital computer circuit that could produce the necessary tones.⁷⁶ Among their more infamous stunts with the device, Jobs and Wozniak managed to dial through to the Vatican, requesting a conversation with the Pope while

posing as Secretary of State Henry Kissinger—they spoke to a bishop, but never got the Pope on the line.⁷⁷

The basic appeal of phone phreaking for Wozniak and Jobs was obvious. It combined technological skill along with the thrills of defrauding a mighty corporation and the possibilities of speaking to powerful—and otherwise inaccessible—figures. At the time, Jobs was still in high school and Wozniak was taking another stab at college at Berkeley, but Jobs became convinced that they could start an underground business manufacturing and selling the devices. Wozniak would assemble the blue boxes for about \$40 in parts, and then he and Jobs would lurk around the Berkeley dorms performing demonstrations of the boxes, selling them to interested parties for \$150.⁷⁸ Jobs was eventually spooked by the potential legal repercussions of making and selling the blue boxes, and after being robbed at gunpoint while trying to sell one in a parking lot, he dropped out of the business.⁷⁹ Wozniak, however, was hooked, and continued making and selling the boxes to the detriment of his grades, which became a contributing factor in his decision to once again abandon his college career. He eventually amassed about \$6,000 from selling the devices, and even though Jobs had stopped being involved in the enterprise, Wozniak split the proceeds with him. “It was my business and Steve got half of it,” Wozniak later commented, foreshadowing the problematic division of labor that would continue to shape their business relationships.⁸⁰

Three years later, after Jobs had returned from Oregon to work at Atari and Wozniak was building calculators at Hewlett-Packard, another collaboration between the pair arose when Jobs’s boss, Nolan Bushnell, asked him to design the hardware for a single-player version of the video game *Pong*, called *Breakout*. Bushnell told Jobs that in addition to a base fee, he would offer a bonus if Jobs could construct the game using fewer than fifty computer chips. Bushnell reportedly did not believe that Jobs was capable of ac-

tually designing the hardware, but he knew Jobs was friends with Wozniak, and had little doubt that Jobs would convince Wozniak to help him design *Breakout*. Jobs did indeed induce Wozniak to build the hardware, offering to split the base fee but leaving out the details about the bonus. Although Bushnell gave Jobs a month to complete the game, Jobs wanted to travel to a friend's farm in Oregon in a few days, so he simply told Wozniak that "it had to be done in four days and with the fewest chips possible."⁸¹

Jobs's imposed time constraints were mostly self-serving, but they also cannily spoke to Wozniak's ingrained love of technical challenges. As Wozniak claimed, "A game like this might take most engineers a few months," and at first he balked at the tight deadline.⁸² Yet Jobs proved a talented persuader. As the leader of the Macintosh project at Apple, Jobs would later become known for his so-called "reality distortion field," which Wozniak described as such: "His reality distortion is when he has an illogical vision of the future, such as telling me that I could design the *Breakout* game in just a few days. You realize that it can't be true, but he somehow makes it true."⁸³ With Jobs consistently appealing to Wozniak's pride, telling him that he was indeed capable of performing such a remarkable feat of engineering, Wozniak embarked on a sleepless, dizzying, four-day adventure, sketching out circuit designs by day at Hewlett-Packard and then driving to Atari after a rushed dinner to build the game by night. He made the deadline and used only forty-five chips, earning Jobs a healthy bonus that remained a secret from Wozniak for a decade. When a friend enlightened Wozniak about Jobs's omission, he was understandably hurt. As he later told Isaacson, "I think that Steve needed the money, and he just didn't tell me the truth.... I wish he had just been honest. If he had told me he needed the money, he should have known I would have just given it to him. He was a friend. You help your friends."⁸⁴ But Wozniak was also hesitant to push the point further, telling Isaacson that "being manipulative is just the darker facet of the traits that [made Jobs] success-

ful.”⁸⁵ Isaacson likewise fails to plumb the implications of Jobs’s behavior, casting such instances as evidence of a personality flaw which may have periodically made life difficult for Jobs’s closest associates, but which Isaacson ultimately agrees defined Jobs’s particular success. “Polite and velvety leaders,” Isaacson intones, “who take care to avoid bruising others, are generally not as effective at forcing change.”⁸⁶

Such comments display a disturbing capitulation to Jobs’s authoritarian tendencies, suggesting that the value of Jobs’s individual vision outweighed the need for his colleagues or employees to resist his manipulations, even though Jobs had clearly placed his self-interest before the value of friendship or basic ethics during the Atari episode, raising serious questions about Jobs’s ultimate motivations as an business leader. In reality, I argue, Jobs’s interactions with Wozniak encouraged him to see management as a game where manipulation and outright deceit could lead to personal rewards, and the lack of pushback from Wozniak would embolden Jobs to employ similar tactics with his employees at Apple. Indeed, Wozniak exhibited—often to the extreme—many of the salient traits of the rising cadre of young professionals who would enter the U.S. workforce in the 1970s. As Arne Kalleberg argues, this generation of professionals tended to be more inspired by “intrinsic rewards” than “extrinsic rewards.” “Intrinsic rewards,” he explains, “reflect people’s ability to utilize their skills, knowledge, and abilities in their jobs. Some people obtain satisfaction from their jobs primarily because they have the opportunity to develop their abilities and to have interesting, meaningful, and challenging work over which they can exercise responsibility.”⁸⁷ By contrast, Kalleberg continues, older generations of workers, who valued extrinsic rewards such as stable salaries, good benefits, and job security, tended to put less stock in finding pleasure or fulfillment through their work. Jobs had found that the promise of friendship and the excitement of a difficult technological challenge could be used to make Wozniak work productively and creatively. These realiza-

tions formed the basis of the managerial style Jobs would later employ to inspire Wozniak and many others like him to design Apple's innovative computer products.

Jobs and Wozniak's early collaborations therefore contained the seeds of the labor dynamic that would evolve at Apple, with Jobs and other executives serving as "impresarios" who could "cleverly deal with the creative temperaments of artists," as John Sculley later put it.⁸⁸ In this respect, Jobs's own dissonant relationships with institutions and authority gave him important personal insights into the approaches that could stimulate educated youngsters who were similarly resistant to traditional forms of motivation. Unlike Wozniak and many later employees, however, Jobs aimed to attain the authority that many young professionals began to spurn in the 1970s. Wielding this power within a large corporation without alienating workers was a complex undertaking, and as Jobs extrapolated from his more informal working relationships with Wozniak to build a full-fledged corporate culture, he consistently expanded, tested, and revised his leadership tactics to discover the most effective combinations.

The founding of Apple brought the odd balance of power between Jobs and Wozniak into sharper relief. Wozniak had first tried to build a home computer with another friend in 1971, but he and Jobs's mutual interest in small computers was piqued again in 1975 with the inauguration of the Homebrew Computer Club in Menlo Park, California. The club brought together numerous hobbyists—mostly engineers and scientists working at area corporations and universities—who were interested in the novel computing possibilities offered by the rapidly shrinking size and falling cost of computer components. Many members of the club were especially enchanted with the notion that average people could soon own and operate computers out of their homes. This represented a striking departure from computing in the 1950s and 1960s, when computers had been technological monstrosities. Far from being a single object, computers of this earlier

era were often vast complexes of devices, consisting of mainframes, filing-cabinet-sized tape and disk drives, display monitors, programming consoles, and units that allowed remote computer access via telephone. In their largest configurations, these computers could take up entire rooms. Such computers were also fabulously expensive. One model of IBM's System/360, which became an industry standard in the 1960s, retailed for \$253,000 in 1968—about \$1.7 million in 2016 dollars.⁸⁹ Clearly, only very large institutions could afford or justify computerization in this era, and it was rare to find computers outside large corporations, universities, hospitals, or the government until the 1970s.

However, the Altair 8800, released in 1975 by Micro Instrumentation and Telemetry Systems (MITS), indicated the rapidly shifting direction of computer technologies. The Altair was one of the very first—and one of the most popular—computers designed for home use and sold directly to consumers through catalogs and electronics stores. Wozniak first observed the Altair at a Homebrew meeting, but he was not terribly impressed. Like other home computers of the same generation, the Altair 8800 came as a kit that required considerable skill to assemble, as well as significant knowledge of one or more abstruse programming languages to operate. Moritz writes that constructing and running the Altair required the owner “to plow through pages of arcane instructions, sort components from plastic bags, test the chips, wield a soldering iron, and deal with problems like a chunky power supply that was prone to overheat.”⁹⁰ Even once these obstacles were surmounted, Moritz concludes, the Altair “didn’t do much” besides sit “on a table with its lights flashing.”⁹¹

Wozniak was thrilled by the idea that regular people could have their own self-contained computers, but he believed home computers should be more exciting, useful, and fun, and much easier to use. Wozniak was predictably inspired by the technical challenges of designing just such a computer, and he began spending his nights at Hewlett-

Packard testing components, assembling hardware, and writing software. His designs centered around a recently developed computer component, the microprocessor chip, a relatively compact and inexpensive circuit that Wozniak believed could run an entire computer system, including a keyboard and monitor. Even so, the entire system would still be small enough to sit on a desk and affordable enough for an average consumer to buy.⁹² When he showed a prototype to Jobs in the summer of 1975, Jobs quickly became preoccupied with the business possibilities represented by a self-contained desktop computer that would not require consumers to wire together circuit boards. Wozniak had unsurprisingly neglected to consider the business prospects of his computer design, which would become the Apple I, the first device manufactured and sold by the Apple Computer Company. “I designed the Apple I because I wanted to give it away for free to other people,” Wozniak said, and he made good on his word by passing out schematics at Homebrew Computer Club meetings.⁹³

Jobs, however, was able to convince Wozniak that they should go into business together. At first, Wozniak was dubious whether they could make money, but Jobs employed another strategy, suggesting that it would be incredible just to own and run a business together as friends, an argument that appealed directly to Wozniak’s sensibilities. “I was excited to think about it like that,” he later told Isaacson. “To be two best friends starting a company. Wow. I knew right then that I’d do it. How could I not?”⁹⁴ On another level, the idea of putting computer power in the hands of average people appealed to the friends’ desires to thumb their noses at the status quo. As John Sculley would later say, Jobs began to see himself as “a passionate folk hero whose enduring dream was to allow individuals the power that only large corporations and institutions were able to wield,” a feat he and Wozniak would accomplish “by personalizing the computer, once a distant, nearly ominous abstraction in the form of large mainframes, and bringing it down to

scale so it could rest on a person's desktop."⁹⁵ Possessed with visions of owning their own company and shaking up the social distribution of computer power, Jobs and Wozniak formally entered into a business partnership in April 1976. They began assembling the Apple I with help from friends and relatives at Jobs's parents' kitchen table, testing the soldered circuit boards in the garage.⁹⁶

From Wozniak's perspective, the business side of his early collaborations with Jobs was relatively straightforward. "Every time I'd design something great," Wozniak recalled, "Steve would find a way to make money for us."⁹⁷ Their prior collaborations on the blue boxes and *Breakout*, however, revealed two key complications that would speak to Jobs's later efforts to maintain managerial control over a much larger number of engineers at Apple. First, Jobs had revealed himself to be much more financially self-interested than Wozniak, and Jobs had at times found ways to manipulate Wozniak to do the things he wanted. However, Jobs was by no stretch of the imagination an engineer or technological wizard. Although he had been able to capitalize financially on his friendship with Wozniak, it was also clear that Apple's early success would be almost solely dependent upon Wozniak's ability to deliver innovative technological designs. For a while, though, their productive symbiosis continued. After Jobs and Wozniak managed to clear a profit on the Apple I, which they sold as an assembled circuit board in electronics shops throughout Silicon Valley, the pair moved on to a more ambitious project—a prepackaged desktop computer that consumers could truly plug in and use as soon as they brought it home from the store.

Jobs's compelling vision of a commercially marketed consumer computer and Wozniak's brilliant design for the device impressed some key financial backers, so the pair dissolved their partnership to reform as Apple Computer, Inc., in January 1977 under Mike Markkula's guidance.⁹⁸ Markkula was a thirty-three-year-old former Intel executive

who came out of early retirement to serve as the new corporation's chairman of the board.⁹⁹ Once again, however, it had been difficult to convince Wozniak that moving Apple in a more ambitious business direction was a good idea. He bemoaned leaving his stable job at Hewlett-Packard, where he clearly understood his responsibilities. "I felt very insecure in starting a company where I would be expected to push people around and control what they did," he commented, revealing a distinct personal distaste for managerial duties.¹⁰⁰ He finally agreed to join Apple as an engineer in much the same official capacity he held at Hewlett-Packard, but just as he disdained becoming a manager, he would prove incredibly difficult to manage.

At first, everything went swimmingly. Wozniak delivered the design for the Apple II, which debuted in 1977 as part of the first class of full-fledged personal computers, alongside the Commodore PET (Personal Electronic Transactor) and the TRS-80, manufactured by Tandy-Radio Shack. These were the first commercially available computers to include the core features that came to define personal computing: customers purchased them fully assembled and contained within an enclosed case; each included a standard QWERTY keyboard; users interacted with the computer through a text- and graphics-based visual interface, displayed on a conventional television or special monitor; and the computers could run either commercial software or the user's own programs out of the box.¹⁰¹ The Apple II was the only member of the trinity able to produce color graphics, and it benefited from a strong contingent of third-party software as well as a reputation among consumers for usability and reliability.¹⁰² The computer was undeniably the core of Apple's growth and profitability well into the 1980s. Indeed, the Apple II initiated a line of computers that would endure almost seventeen years, surviving the tenures of four CEOs and many company crises before it was finally discontinued at the end of 1993.¹⁰³

But after designing the first Apple II, Wozniak's dependable and creative productivity suddenly dissipated. When the Apple II first shipped, programs had to be loaded using a cassette tape drive, a clunky and imprecise technology. IBM had created a much faster and more dependable alternative, the floppy disk drive, but Apple needed Wozniak to engineer a proprietary version. Although Apple promised the drive to customers before the end of 1977, Wozniak took a cavalier attitude toward the project, and did not begin designing the device until the very final weeks of the year. Recalling his earlier push to finish *Breakout*, Wozniak completed the project over a few sleepless weeks. Rob Holt, a new executive at Apple, commented that Wozniak was revealing an unhealthy relationship to motivation: "It was...as if he needed the adrenaline spike of almost being late in order to really create."¹⁰⁴ Although engineers at Apple and beyond were very impressed with the design, the lateness of Wozniak's delivery was not ideal for business. The subcontractor that Apple hired to manufacture the drives turned out a slipshod product, but Apple still needed to rush the drives to market to satisfy anxious consumers. Apple's own engineers therefore "cannibalized parts" from the malfunctioning drives to cobble together functional units, which took up all the time they had intended to use to write a full set of instructions for the device.¹⁰⁵ Lacking proper documentation, many customers were unable to operate the drives. A letter from one particularly furious Apple II owner who could not use his drive suggested that Wozniak's undependability could be profoundly detrimental to customer relations. "You fucking bastards. I bought an Apple with floppy and nobody, I mean nobody, in L.A. or San Diego knows how to use the sonuvabitch [*sic*]," the letter read. "Everybody talks about this great manual in the sky that is coming out soon??? Shit! Shit! Shit! I need this computer now in my business not next year. Fuck you. I hope your dog dies."¹⁰⁶

Wozniak's lack of interest in business and financial matters, which had at times worked to Jobs's advantage in the past, became much more problematic in a corporate setting, where consistently productive employees were at the heart of the company's profitability. Jobs's frustrations mounted when he found he could no longer induce his friend to do his bidding, a matter which came to a head when Jobs could not get Wozniak to write a key piece of software needed to make Apple's operating systems more sophisticated. Wozniak, meanwhile, became more cognizant of Jobs's aggressive ambitions and his willingness to step on toes and to abuse employees and coworkers to get what he wanted. "Steve was too tough on people," Wozniak later told Isaacson. "I wanted our company to feel like a family where we all had fun and shared whatever we made."¹⁰⁷ It was an altogether thorny situation, with implications that extended well beyond the status of Jobs and Wozniak's friendship. As a technician at Atari, Jobs had revealed his own scorn for the traditional trappings of managerial power and coworker sociability, and he thrived on creative collaborations with people who possessed a similar antiauthoritarian streak. Yet Jobs was implacable in his determination to make Apple into a powerful and wealthy corporation. To do so he needed to find more dependable ways to motivate engineers like Wozniak—who tended to express more interest in playing around with technology than Apple's financial health—without alienating them.

Jobs hit a number of speed bumps in his quest for control over Apple's fast-growing workforce. Some of his struggles stemmed from his unique position within the company. Jobs was just shy of twenty-two when Apple incorporated in 1977, and although Mike Markkula, Apple's new chairman, was impressed with the young cofounder's business drive and his astute understanding of the emerging consumer market for personal computers, he worried about Jobs's unpredictable temperament and lack of experience. Isaacson, for example, reports that Jobs continued to refuse to wear shoes or bathe

regularly, sometimes relaxed by soaking his feet in the toilet at work, frequently mocked potential business associates at other companies, and would routinely walk up to people at Apple and tell them that what they were working on looked like “shit.”¹⁰⁸ Markkula therefore brought on a thirty-two-year-old former colleague and a high-level manufacturing manager at National Semiconductor, Mike Scott, to serve as Apple’s president, while convincing Jobs to take the role of vice-chairman of the board.¹⁰⁹ In this role, Jobs had two primary responsibilities—to serve as the main public face of the company and to manage new product development—yet he lacked the absolute authority of the CEO or chairman of the board.

Jobs’s lack of authority proved particularly problematic when the Apple II’s success began to fuel a period of rapid growth. Once the other engineers on the Apple II team helped put the floppy disk drive fiasco in the past, and after the executive team and their advertising firm, Regis McKenna, settled on an effective marketing scheme, the Apple II took off. Between 1978 and 1979, Apple II sales more than quadrupled; largely on the basis of these skyrocketing sales, Apple held an initial public offering of stock in 1980, which was the largest IPO since Ford had gone public in 1956.¹¹⁰ Within a few weeks, the market valued Apple at nearly \$1.8 billion, which Moritz reports “was about twice as much as the combined market value of United Airlines, American Airlines, and Pan American World Airways.”¹¹¹ It was an astounding expression of investor confidence in a company which effectively sold only one product, the Apple II, but it also placed incredible pressure on the corporation to bring a more diverse and robust product line to market. This was particularly true as investors and technologists began to sense a gold rush in personal computing—riding a wave of investor speculation, personal-computer-focused startups and projects within established corporations popped up like mushrooms after rain to compete for a share of the brand new market.¹¹²

To help Apple meet its obligations to hungry shareholders, the company began hiring employees at a fantastic rate to fill out the ranks of new product development teams. Over the course of twelve weeks in 1980, for example, Apple doubled in size from 600 to 1,200 employees.¹¹³ Many of the new hires were seasoned engineers from established corporations where the executives and cofounders had personal ties, especially Hewlett-Packard, Intel, and National Semiconductor.¹¹⁴ Although these professionals brought considerable experience to the table, they tended to be older than Jobs or Wozniak, and they had grown accustomed to the more conservative conventions of corporate labor and managerial authority. It was likewise clear that more than a few new employees had joined Apple at least as much out of financial self-interest as out of a sense of excitement for the company's mission to bring computer power the masses—Apple's stock was hot property, and Moritz reports that many recruits brought a mercenary attitude to the bargaining table, securing lucrative stock options as part of their hiring packages.¹¹⁵ These hiring practices sowed the seeds of a serious culture clash at Apple. Like Wozniak and Jobs, many of the company's early employees lacked formal degrees or extensive employment experience at larger corporations, and Wozniak had personally recruited a number of hackers from the Homebrew Computer Club, such as programmer Chris Espinosa, who started working at Apple as its eighth employee in 1976 when he was only fourteen years old.¹¹⁶ Espinosa and other members of Apple's younger cohort were angry and offended when older professionals poached from other companies took up management roles and began treating the youngsters as undisciplined upstarts. Espinosa colorfully complained that the suit-wearing new hires were like “extras in Cary Grant movies,” shallow corporate operators who were only interested in how much money they could make.¹¹⁷ Another early employee grumbled, “We started getting people who were trying to make Apple sound and

smell like IBM,” the ultra-conservative corporate behemoth that had dominated the U.S. computing market since the 1950s.¹¹⁸

Not surprisingly, Jobs himself soon ran afoul of this new cadre of more practiced, hard-nosed engineers. Unlike Wozniak or Apple’s early hires, these professionals were not easily wowed by Jobs’s rhetoric about making computing more accessible and enticing to average people, and given Jobs’s distinct lack of engineering or programming know-how, they had little interest in seeking his approval or friendship. Matters came to a head on a product development team that was designing a computer the company hoped would appeal to deep-pocketed corporate customers. Jobs moved into a leadership role on the project and named the computer Lisa, but the engineers responsible for the technical architecture of the machine saw Jobs as an immature and arrogant dreamer. Growing tired of constant fights with Jobs, they went above his head to CEO Mike Scott and Apple chairman Mike Markkula, asking for permission to kick him off the project. Scott and Markkula sided with the Lisa managers and removed Jobs from the team, but they determined Jobs needed an even sterner message about his behavior. In September 1980 they reorganized the company, demoting Jobs to a non-executive position which, in Isaacson’s words, “allowed him to remain Apple’s public face, but it meant that he had no operating control.”¹¹⁹

Although Scott and Markkula’s decision to downgrade Jobs’s authority stemmed, at least in part, from their perception that Jobs’s conduct was causing significant operational problems, Michael Moritz and Walter Isaacson both interpret Jobs’s demotion as a sign that Apple was moving in the wrong direction. Moritz contends that Scott and Markkula believed that Jobs “needed adult supervision,” but Moritz retorts that “[t]his is the very last thing that rare and wonderful founders need.”¹²⁰ In Moritz’s estimation, Jobs should have been given free rein to run Apple as he saw fit, because company founders

such as Jobs tend to possess a “determination and ferocity” that makes them uniquely qualified to lead their companies with “an owner’s instincts.”¹²¹ Isaacson takes a somewhat more philosophical tack, suggesting that the anxieties and pressures of Apple’s wealth had started to turn the heads of some of the company’s leadership team, while Jobs was searching for ways to avoid the “materialistic and careerist” attitudes he believed were taking hold at his fast-growing corporation.¹²² Both Moritz and Isaacson therefore ascribe a certain purity of spirit to Jobs, contending that Apple’s other leaders failed to appreciate the unyieldingly idealistic aspirations Jobs possessed for his company. But the years following Jobs’s dismissal from the Lisa team belie these hagiographic interpretations of Jobs’s peculiar brilliance.

Jobs’s bitterness at being ejected from the Lisa project and stripped of an official managerial role in the company he had cofounded—following hot on the heels of his falling out with Wozniak—honed Jobs’s sense that he needed to have more complete control over his employees and the working environment. He took the lesson to heart that there were certain kinds of people who were not pliable to his managerial style—after being forced out of the Lisa project, Jobs therefore set his sights on the Macintosh project, a much smaller research team that was developing a computer intended for the general consumer. As the leader of the Macintosh project, Jobs would possess precisely the kind of absolute authority that Moritz and Isaacson argue he should have been given by Scott and Markkula in the first place. Jobs was able to build up the Macintosh team almost from scratch, filling it with people who were closer in temperament to Wozniak and himself, and due to subsequent upheavals in Apple’s executive ranks, the constraints Scott and Markkula placed on Jobs in September 1980 would rapidly evaporate. Yet rather than leading Apple into a golden age of success, Jobs would turn the Macintosh into a direct competitor with the Lisa, a vindictive maneuver that would nearly tear Apple apart.

Within the Macintosh project, Jobs did inspire incredible commitments from his employees, but his managerial tactics were determinedly abusive, manipulative, and exploitative. Finally, despite the ambitious pretensions of the Macintosh computer, the first version was a technical and commercial flop, exacerbating Apple's business problems and leading to the company's first serious layoff, costing one-fifth of Apple's workforce their jobs. Nevertheless, Jobs's management of the Macintosh project solidified his mythos as a brilliant innovator and business leader and profoundly influenced the overall character of labor relations at Apple throughout the 1980s and 1990s. The remainder of this chapter examines these problems in detail.

THE CREATION OF THE MACINTOSH AS AN ACT OF CORPORATE REBELLION

Jobs's leadership of the Macintosh team from 1981 to 1985 decisively shaped Apple's company culture for a number of reasons. Under Jobs's direction, the Macintosh project became a haven for engineers who venerated Wozniak and Jobs's rebellious streaks, and who outwardly ascribed to the belief that designing technologies to thrill and empower the average person was more important than maneuvering through the ranks of a corporate bureaucracy or making millions off of stock options. This was therefore the group at Apple that most clearly emblemized the generational divide that emerged among white-collar professionals in the 1970s, with Macintosh team members explicitly exhibiting desires to achieve personal fulfillment and impact society through their work. Yet even though Macintosh employees tended to scorn the conventional trappings of corporate employment, Jobs proved canny in his ability to capitalize on their sense of disaffection from business concerns to fuel intense feelings of devotion to the Macintosh project and inspire astonishing levels of worker productivity. When John Sculley joined

Apple in 1983, the Macintosh team's legendary dedication to their work encapsulated what he believed made Apple a unique departure from traditional corporations. After Jobs left Apple in 1985 in the midst of a serious company crisis, Sculley tapped key people from the Macintosh project to fill important leadership roles as he reorganized the corporation, and extracted a number of important management and labor relations lessons from the Macintosh team to guide his efforts to reinvigorate Apple's workforce.¹²³ Ultimately, what Sculley learned from his observations of the Macintosh team shaped his notions of what post-industrial professional labor should look like, and formed the basis of his vaunted new "social contract" between labor and management at Apple, which I examine in more detail in chapter 2. For the remainder of this chapter, however, I want to focus on the evolution of Jobs's managerial tactics as the leader of the Macintosh project, to examine how employees responded to his aggressive and manipulative tactics, and to consider how employees' defenses of Jobs have helped normalize workplace abuses within the technology industry.

Once again, the key problem that motivates my analysis in this section is the mythology that surrounds Steve Jobs, which casts him as a business leader who bucked corporate convention to forge an innovative and unusual company. As I have argued, popular writers such as Isaacson and Moritz have repeatedly presented this mythology to a public audience, but Apple employees have also actively constructed such depictions of Jobs and their company. In this section, I continue to draw on Isaacson and Moritz's interviews with Apple employees for worker perspectives on Jobs, but I also rely on software engineer Andy Hertzfeld's comprehensive account of the Macintosh's creation, *Revolution in the Valley*.¹²⁴ These sources detail Jobs's pervasive manipulation and abuse of employees, but they also normalize his behaviors—much like Steve Wozniak, the workers Jobs hired for the Macintosh project have consistently downplayed the seriousness of Jobs's managerial

offenses. I contend that employees' ongoing reticence to condemn Jobs's abusive and exploitative behaviors has helped disguise his failings as a business leader, and more seriously, has masked many of the serious labor problems at Apple and in Silicon Valley. To challenge these relatively uncritical employee perspectives, I draw on corporate documents uncovered through original archival research that indicate that Job's major managerial decisions on the Macintosh project ultimately hewed to conventional corporate profit objectives and labor productivity targets. I therefore argue that the seemingly unorthodox features of Jobs's management style were in fact superficial gestures designed to serve Apple's financial interests rather than the needs or desires of employees.

In Jobs's own telling, he possessed several aims when he gravitated toward the Macintosh group after being kicked off the Lisa team and stripped of some of his executive privileges. Jobs explicitly framed his leadership style on the Macintosh project as an attempt to return to Apple's feisty, iconoclastic roots. "It was like going back to the garage for me," he later reflected. "I had my own ragtag team and I was in control."¹²⁵ At a Macintosh division retreat in fall 1982, he appealed directly to Apple's start-up days to inspire his employees, telling them, "You know, this is the nicest place in Apple to work. It's just like Apple was three years ago. If we keep this kind of pure and hire the right people, it'll still be a great place to work."¹²⁶ And in many respects, the Macintosh itself was the Apple product that best spoke to the mission of making computer power available to the widest number of people. Jef Raskin, a former University of California San Diego professor, had initiated the Macintosh project in 1979 with the goal of making a personal computer that would be more like an appliance, "extremely inexpensive and radically easy to use."¹²⁷ Isaacson writes, "Raskin's manifestos about an inexpensive machine for the masses, with a simple graphic interface and clean design, stirred [Jobs's] soul."¹²⁸

Another motive, however, colored Jobs's approach to the Macintosh. He aimed to build a computer that could compete directly with the Lisa—Isaacson suggests that Jobs “wanted to beat it” as revenge for being kicked out of the project.¹²⁹ The inexpensive computer of Raskin's dreams could hardly outshine the powerful, business-oriented Lisa, so Jobs began pushing to make the Macintosh a more ambitious machine. When Raskin resisted, he and Jobs fought bitterly, and Raskin received the brunt of Jobs's most abusive and aggressive tendencies. Raskin became so angry in early 1981 that he wrote a lengthy memo to the executive staff outlining his frustrations, enumerating such concerns as the fact that “Jobs regularly misses appointments,” “he acts without thinking and with bad judgment,” “he makes absurd and wasteful decisions,” “he does not keep promises or meet commitments,” and he “is often irresponsible and inconsiderate.”¹³⁰ If Raskin hoped that Scott and Markkula would take his side as they had with the Lisa's managers, he miscalculated. Raskin and his Macintosh project did not, in the executives' eyes, hold much immediate importance to Apple's corporate objectives, and perhaps out of a desire to distract and console Jobs, they gave him official control of the project. Raskin soon after resigned from Apple.

Jobs's forceful takeover of the Macintosh revealed an indomitable desire for control, and indicated that he would not brook concerted challenges to his authority. Yet his ability to dispatch Raskin also emblemized an aspect of Jobs's personality that the Macintosh group would come to revere, even if it did inspire some fear. Jobs's employees saw him as something of a corporate rebel, an individual who could stand up for what he wanted in the face of executives who failed to understand the true importance of the Macintosh. In reality, Jobs's truly oppositional relationship to Apple leadership disappeared shortly after he engineered Raskin's removal from Macintosh. Mike Scott, Apple's CEO, had long ruffled feathers due to his own abrasive tendencies. Scott was, for example, so dependably abusive during ⁷³ staff meetings that the human resources

dependably abusive during staff meetings that the human resources department developed tongue-in-cheek awards “For valor and courage in the face of fire.”¹³¹ At times he would also terrorize random employees around the Apple campus, looming suddenly over their cubicle walls to bark, “Are you working your ass off?”¹³² By 1981, resentment toward Scott had grown so acute that Apple’s board asked Markkula to secure Scott’s resignation. For all his caustic intensity, Scott was deeply devoted to Apple, and his letter captured his profound sense of distress at being kicked out of the company he had helped build from the ground up. “I *quit*,” he wrote on July 17, 1981, “not resign to join a new company or retire for personal reasons.... This is *not* done for those who fear my opinions and style, but for the loyal ones who may be given false hope.... I have always loved and cared for those at Apple. That responsibility will never end.”¹³³

In part to disguise from investors the acrimonious nature of Scott’s sudden dismissal, Markkula took over Apple’s presidency, while Jobs assumed Markkula’s former position as chairman of the board, a shift that returned Jobs to the kind of powerful senior executive role that he had lost a mere ten months prior as retribution for his poor behavior on the Lisa project. Jobs’s newfound authority was particularly enhanced, Isaacson notes, because Markkula was a “rather passive president.”¹³⁴ As Moritz assesses Scott’s departure, “he took with him the thread of discipline that had run through the company...and a rough relish for strapping Jobs into a corporate straitjacket.”¹³⁵ It is a testament to Jobs’s charisma that the Macintosh group would continue to buy in to his persona as a rebellious corporate outsider when there were in fact few meaningful checks on his authority. Indeed, as chairman, Jobs had remarkably free rein to shape the character of the Macintosh group as he saw fit, and to pit the project more aggressively against the Lisa computer and other teams at Apple.

Although Jobs's personality inflected almost every aspect of daily life on the Macintosh project, employees on the team were also inspired by Wozniak's approaches to work and computer design. The Macintosh software engineer Andy Hertzfeld offers many insights into how these attitudes and aspirations intersected with Jobs's ambitions to inspire worker productivity and to build a commercially successful computer. For Hertzfeld personally, the decisive factor in his decision to work for Apple stemmed from the ostensible purity of spirit with which Wozniak approached computer design, an aura which Hertzfeld deduced from his first encounter with an Apple II. "The best purchase of my life occurred in January 1978," Hertzfeld recalled, "when I spent \$1295 plus tax, most of my life savings at the time, on an Apple II microcomputer (serial number 1703) with 16K bytes of RAM." For Hertzfeld, Wozniak's hand was palpable in the machine, which he said possessed "an ineffable quality that went beyond mere [technical] features." The more Hertzfeld used the computer, the more it seemed full of "magic": "it became clear to me this was no ordinary product: the coding style was crazy, whimsical, and outrageous, just like every other part of the design—especially the hi-res color graphic screen. It was clearly the work of a passionate artist." This computer, Hertzfeld averred, transcended the status of mere consumer object. "Even though the Apple II was overflowing with both technical and marketing genius, the best thing about it was the spirit of its creation," Hertzfeld claimed. "It was not conceived or designed as a commercial product in the usual sense." In the end, Hertzfeld felt an insatiable urge to experience firsthand the source of the magic. "I became so obsessed with the Apple II," he professed, "that I had to go to work at the place that created it. I abandoned graduate school and started work as a systems programmer at Apple in August 1979."¹³⁶

According to Hertzfeld, he wanted to work for Apple not only because he was so impressed by the computers the company designed, but because he believed that the work-

ing environment at the corporation was not completely beholden to traditional business concerns. Upon arrival, however, Hertzfeld sensed that something was amiss. Although Apple only employed about 250 people when he took up his job in 1979—a mere two years after the debut of the magical Apple II—the company seemed to be evolving in ways that contravened the values that Hertzfeld had perceived in his Apple II computer. He noted that the teams that had been put together to develop two new computer systems for Apple “were organized in a conventional fashion, with seasoned computer industry veterans recruited from companies like Hewlett-Packard coordinating dozens of engineers and marketing folks across multiple layers of management.”¹³⁷ Hertzfeld, along with many of his young colleagues, found this kind of bureaucracy distasteful, and he began to worry that “Apple’s original freewheeling style was waning.”¹³⁸

Hertzfeld became particularly disenchanted in February 1981, when then-CEO Mike Scott suddenly terminated a number of employees in an event that came to be known as “Black Wednesday,” justifying the layoffs with the argument that “the company had grown much too fast over the last year and had made a few key bad hires, who themselves had hired even worse people.”¹³⁹ Yet Hertzfeld thought the firings were scatter-shot, which included his only colleague on an important coding project, whom Hertzfeld maintained was talented and dependable. Another worker recounted Scott’s bizarre behavior at the post-layoff company debrief in an office basement. Scott stood next to a keg with a plastic cup of beer in hand and opened the meeting by quipping, “I used to say that when being CEO at Apple wasn’t fun any more, I’d quit. But now I’ve changed my mind—when it isn’t fun any more, I’ll fire people until it’s fun again.”¹⁴⁰ Hertzfeld complained to a senior manager that “a Stalin-like purge was not a valid way to run a company,” and suggested that it had shaken his faith in the corporation’s mission to the point where he “wasn’t so sure about Apple’s values anymore.”¹⁴¹ Hertzfeld said that he might

quit, a threat that earned him a personal meeting with Scott the next day, where Hertzfeld indicated he would be much happier if he could move from the Apple II division to the Macintosh project. After a very brief interview with Jobs, Hertzfeld was added to team.

Hertzfeld had first heard about the Macintosh project in 1979, when it was “a tiny research effort to design an easy-to-use, low-cost, consumer oriented computer.”¹⁴² This was the kind of undertaking that thrilled Hertzfeld. He was enamored with the Apple II, but admitted that “it was still much too hard for most non-technical people to master.”¹⁴³ With the Macintosh, Hertzfeld said, “We thought we had a chance to create a product that could make computers useful to ordinary people and thereby truly change the world.”¹⁴⁴ In Hertzfeld’s estimation, then, the original motivation behind the Macintosh was not making money. Instead, the goal was to give people who were intimidated by technology an opportunity to share in the wonders and power of computing, which Hertzfeld (and others like him) found so personally transformative. In a reciprocal gesture, Steve Wozniak credits Hertzfeld and his colleagues from the Macintosh project with preserving the values that he wanted to be at the heart of Apple: “It’s chilling to recall how this cast of young and inexperienced people who cared more than anything about doing great things created what is perhaps the key technology of our lives.... [They] take me back to those rare days when the rules of innovation were guided by internal rewards, and not by money.”¹⁴⁵

These kinds of comments polish the mythology that passionate engineers inside Apple possessed pure intentions, however aggressively company managers pushed for worker productivity or Apple competed with other corporations for shares of the lucrative personal computer market. In this strand of corporate folklore, technologists such as Hertzfeld and Wozniak merely hoped to create enchanting and useful technologies. An Apple employee orientation manual indicated that the love of technology and the belief that computers could revolutionize society were important components of official com-

pany culture: “*Our vision and products make us the number one inspirational force in the romance between people and computers.* This is what most of us came here to do. It’s the key to changing the world.”¹⁴⁶ Of course, even the starriest-eyed employees recognized the business implications of designing a computer that would inspire the passions of average consumers. As Wozniak himself told an interviewer in 1981, “most people aren’t programmers at all—nor inclined to become them. And yet, these nonprogrammers comprise the real market that the personal computer industry must reach and serve.”¹⁴⁷

Thus, although rhetoric about a higher social purpose helped underwrite Hertzfeld’s and others’ faith in Apple and the Macintosh project, the notion that he or his colleagues were entirely dispassionate about money matters has to be taken with a grain of salt. By all accounts, employee obsessions with Apple’s corporate wealth were an almost inescapable feature of company life in the early 1980s. When Sculley arrived at Apple in 1983, he perceived that workers at Apple and in the high-tech industry more broadly were such enthusiastic laborers because they hoped to achieve the luxurious lifestyles of their wealthier bosses and colleagues. “Young people lived high,” he observed, “on their pay and stock options and especially their mounting debt.”¹⁴⁸ Despite Sculley’s professed reservations about the sustainability of Apple’s early growth, Apple management reinforced employee preoccupations with corporate finances by hanging bulletin boards in every Apple building that posted the latest stock price every hour.¹⁴⁹ Although the inequitable distribution of stock to employees had irked many during Apple’s earliest years, once the company went public, all employees working more than twenty hours per week were given the option to purchase stock through paycheck deductions, linking their personal aspirations ever more closely to the company’s market valuation.¹⁵⁰ As one worker avowed, “I learned as much about stock and taxes at Apple as I did about computers.”¹⁵¹ An employee recruitment brochure likewise indicated that no matter how excited workers might be about Apple’s

products and company mission, the value of their compensation was never far from their minds. Speaking to employee motivation and retention, the brochure proclaimed, “It All Begins With Money,” reasoning that “Apple Employees are special people,” and needed to be rewarded with “the industry’s most aggressive benefits and compensation program.”¹⁵² And despite Hertzfeld’s protestations that he and his colleagues were initially paid modestly and had to fight hard for raises to reflect their actual responsibilities on the Macintosh project, members of the team later ruffled feathers throughout the company when it came to light that they were receiving special bonuses, perks, and fringe benefits as compensation for their work on the project.¹⁵³

Yet Hertzfeld’s insistence that love rather than money inspired his devotion to the Macintosh indicated an important dynamic of his relationship to Apple Computer, Inc. Arne Kalleberg writes that in the 1970s, young professionals’ mounting demands for more satisfying modes of labor and scornful attitudes toward anything that smacked of corporate conformity raised “fears among the media, social scientists, and managers about possible widespread ‘alienation’ from work.”¹⁵⁴ Some of Hertzfeld’s early experiences at Apple, such as the company’s growing bureaucracy and the Black Wednesday layoffs, certainly threatened to alienate him from the corporation. That is not to say that Hertzfeld and others who shared his dispositions lacked financial aspirations, but they were much more conflicted about understanding their motivations through a monetary lens, and thus constantly sought confirmation that their work was more socially meaningful than the kind of labor that simply enriched a corporation. For example, when Bill Atkinson, another key programmer on the Macintosh project, described his motivations for writing software at Apple, he said, “This is coming from inside me. It’s not coming for fame and glory. It’s not coming from money. I’ve got enough of that.”¹⁵⁵ “I use computer code as my artistic medium to express myself, to leave my mark on the world,” he elaborated, “to

steer the world in ways that I will be able to tell my grandchildren I made a small contribution.”¹⁵⁶

In the early 1980s, however, Hertzfeld revealed a deeper sense of confusion about the nature of work at Apple. He told Moritz that when he was in graduate school he had possessed a hacker’s ethos and never considered programming for pay, but he had been surprised to learn what kind of salary he could earn by switching to private industry. “Now I’ve been corrupted by money,” he mused, “and by thinking how much I can make.”¹⁵⁷ Jobs cannily recognized Hertzfeld’s conflicted motivations. As Jobs told Moritz, Hertzfeld “is struggling with himself. He wants to make some money and he wants to be famous.”¹⁵⁸ Beyond seeing himself as the kind of wealthy, Silicon Valley celebrity Hertzfeld supposedly wanted to emulate, Jobs also found other kinds of psychological wages which spoke more directly to the anti-corporate suspicions of Hertzfeld and the rest of the Macintosh team.

Jobs’s personality and background made his psychological appeals more convincing to Hertzfeld and the rest of the Macintosh group. For one, Jobs had long harbored his own suspicions about traditional corporate life. “I didn’t want to be a businessman,” he told Moritz, “because all the businessmen I knew I didn’t want to be like,” and he reportedly sorted through his reservations about founding a company with Kobin Chino, a monk at the San Francisco Zen Center.¹⁵⁹ From the beginning Jobs therefore knew he did not want Apple to be a stereotypical, button-down firm—he did not want to work with suit-wearing corporate climbers, nor did he want to become such a creature himself. The offices that housed the Macintosh most obviously reflected this sensibility, as did the working culture that grew up among the group. Hertzfeld recalled that remote controlled vehicles were constantly whizzing around underfoot, and that spontaneous Nerf gun battles would often break out among coworkers, leading a number of employees to augment

their cubicles with cardboard extensions to offer a tactical advantage during the fights.¹⁶⁰ A photograph of the project's common area likewise shows employees engaged in a vigorous game of ping-pong, huddled around an arcade console, and playing on a grand piano.¹⁶¹ Despite such diversions, one afternoon Jobs found himself worrying that the “offices didn't seem lively enough,” so he shelled out for the group to buy a stereo system so they could listen to music while working.¹⁶² Other Macintosh rituals became company-wide traditions, such as the Friday afternoon “beer busts,” when everyone would put down their work to relax and carouse around the Apple campus—this kind of environment, Jobs told Sculley, “intentionally attracted the dissidents who wouldn't fit into corporate America.”¹⁶³

These comments implied that Apple, despite its inclusion in the Fortune 500, was a breed apart from other powerful companies during the 1980s, and a 1987 version of the Apple Values enshrined Jobs's management philosophies and the Macintosh project's playful workplace traditions as key aspects of Apple's official culture: “We recognize also that rewards must be psychological as well as financial, and strive for an atmosphere where each individual can share the adventure and excitement of working at Apple.”¹⁶⁴ But researchers such as Fred Turner and Thomas Frank have demonstrated that established corporations and even some ranks of the federal military research bureaucracy had begun recognizing the importance of more creative modes of work decades before Apple was founded, and in reality, much of the impetus for insisting that Apple was a unique corporation simply stemmed from a realization that employees like Andy Hertzfeld wanted to believe that their company flouted corporate traditions.¹⁶⁵ As we will soon see, however, Apple's corporate rhetoric and managerial tactics were explicitly designed to achieve the conventional corporate goals of heightening employee loyalty to the company and enhancing their productive output. Sustaining employees' perceptions that they were valued

beyond their contributions to Apple's bottom line was therefore a complex and ongoing effort.

Within the Macintosh group, Jobs found several effective personal ways to suggest that the team's efforts went well beyond the normal dimensions of corporate labor. He created an especially symbolic moment for the project in February 1982, when the group finalized the design of the Macintosh's case, an important milestone for the computer. Demonstrating a flair for theatrics, Jobs convened the team for a special celebration where he declared, "Real artists sign their work."¹⁶⁶ Calling each member of the group individually by name, he collected their signatures so they could be etched into the molding cast and imprinted inside the Macintosh case. "Though most customers would never see them because a special tool was required to open the case," Hertzfeld noted, "we would take pride in knowing our names were in there."¹⁶⁷ After Jobs signed last, the team uncorked a few bottles of champagne. The whole affair impressed upon Hertzfeld that the overarching "goal was never to beat the competition or to make a lot of money; it was to do the greatest thing possible, or even a little greater."¹⁶⁸ Bill Atkinson, another senior software engineer on the project, similarly remarked, "With moments like this, [Jobs] got us seeing our work as art."¹⁶⁹ Hertzfeld evidently took the artist label so seriously that his title on his Apple business cards read "Software Artist," while Burrell Smith, the chief hardware engineer on the Macintosh, took the more whimsical title, "Hardware Wizard."¹⁷⁰

Jobs also imparted the playful and artistic pretensions of the Macintosh group with a more subversive, rebellious edge. This stemmed in part from Jobs's personal vendetta against the Lisa project. Soon after seizing control of the Macintosh, Jobs publicly bet John Couch, the leader of the Lisa group, that Macintosh would ship before the Lisa.¹⁷¹ It was a brazen wager, given that the Lisa had been in development for two years under the direction of experienced engineers and managers, while the Macintosh had been the re-

sponsibility of a miniscule research group and was rapidly changing tack to fit Jobs's desires for a much more ambitious machine. Yet the maneuver indicated Jobs's willingness to compete with—and even undermine—people within Apple who upset him or got in his way. Despite the egotistical overtones of Jobs's wager (and the Macintosh group's clear recognition that they could never finish their computer before the Lisa), competition with the Lisa project resonated strongly with many Macintosh employees—they saw the Lisa as a somewhat debased departure from the kind of computer Apple should be designing.¹⁷² The Lisa was explicitly conceived as a gambit to win customers in corporate America, at banks, financial firms, insurance companies—the very kinds of business environments Macintosh employees despised. As Moritz reports, the attention lavished on the Lisa project in the late 1970s and early 1980s made many of Apple's younger employees feel like “an underclass,” left to grumble “that if they had wanted to make business computers they would have joined IBM.”¹⁷³ The Macintosh's open competition with the Lisa served as an effective rallying cry, inspiring Macintosh group members to see their work as a return to Apple's original values of serving regular people rather than powerful, conservative companies.

There was more than a hint of elitism in Jobs's cultivation of antagonistic and rebellious orientations for the Macintosh group. The way he handled Hertzfeld's transfer to the team was illustrative. After a brief interview, Jobs asked a few colleagues for their opinions on Hertzfeld and decided he was good enough to join the Macintosh project. He dropped by Hertzfeld's cubicle late on a Thursday afternoon to tell him he was now a member of the Macintosh team. Hertzfeld was thrilled, and said he just needed the rest of Thursday and Friday to tie up a few loose ends and pass his current project off to another member of the Apple II team. “What's more important than working on the Macintosh?” Jobs scoffed. He continued, “you're just wasting your time with that! Who cares about the

Apple II? The Apple II will be dead in a few years.... The Macintosh is the future of Apple, and you're going to start on it now!"¹⁷⁴ To Hertzfeld's surprise, Jobs yanked his Apple II's power cord straight out of the socket, erasing the code he had been writing. Jobs quickly bundled up the computer and monitor and started carrying them away, telling Hertzfeld to follow him to his new workspace. They drove a few blocks in Jobs's car to the Macintosh headquarters, where Jobs set down Hertzfeld's computer on a desk and welcomed him to the team before disappearing. As Hertzfeld settled in, he "was surprised to see [the desk] was still full of someone else's stuff."¹⁷⁵ It turned out Hertzfeld had taken over Jef Raskin's old space—Raskin had just been ejected from the Macintosh project, and had not yet cleared out his belongings.

Although Jobs's single-minded belief that only the Macintosh mattered revealed an egotistical bent to his pursuits, his recruitment strategies were also carefully calculated to build a team that would be amenable to his particular management style. Having failed to dominate the Lisa team's more conservative corporate operatives, Jobs explicitly searched for candidates whom he felt would respond to the Macintosh project's anti-corporate look and feel. After joining the team, Hertzfeld sat in on several interviews with potential Macintosh recruits, and remembered Jobs's pointed attempts to feel out whether interviewees would be comfortable in an unconventional working environment. In one particularly memorable interview with an "extremely straight-laced and uptight" prospect, who, Hertzfeld said, "dressed more like an insurance salesman than a technologist," Jobs seemed to take a particular delight in the candidate's discomfort.¹⁷⁶ Among the inquiries Jobs floated were, "How old were you when you lost your virginity?" and "How many times have you taken LSD?"¹⁷⁷ The candidate blanched, and fell back on lengthy descriptions of his technological expertise in an attempt to redirect the session. But Jobs had made up his mind, and cut off the interviewee by gobbling like a turkey. For Hertzfeld,

the lesson was clear. Technological prowess was not enough to make the cut on the Macintosh project. Thus, while Everett Rogers and Judith Larsen cite the tech industry maxim that “[m]eritocracy reigns supreme in Silicon Valley,” the elitism of the Macintosh project went even further—Jobs’s palpable derision for non-Macintosh members gave the team the impression that they were part of an elect cadre of professionals, each possessing some unique trait of personality or attitude that made them fit to work on such a groundbreaking project.¹⁷⁸ In other words, being chosen to work on the Macintosh project was more than a recognition of expertise and hard work—it marked each team member as a person who did not bow to corporate convention.

Jobs stunned and impressed the Macintosh group with other well-staged floutings of business etiquette. When, for example, Adam Osborne, the head of a competing personal computer company, made some flippant criticisms about Jobs and the Macintosh, Jobs called Osborne’s office in front of an audience of several Macintosh employees. Osborne’s secretary informed Jobs that her boss was unavailable, but she asked if she could take a message. Jobs said she could. “Here’s my message,” he announced. “Tell Adam he’s an asshole.” Pausing for effect, Jobs continued, “Tell him the Macintosh is so good that he’s probably going to buy a few for his children even though it put his company out of business!”¹⁷⁹ The phone call caused the Macintosh team endless amusement, and spurred their desire to make their computer as incredible as possible in order to subdue naysayers like Osborne. As the Macintosh group continued to grow over the years, old hands would ask Jobs to repeat the story to new hires, transforming the anecdote into an important thread in the project’s folklore.¹⁸⁰

The Macintosh group as a whole readily took on Jobs’s maverick coloring, avidly creating their own symbols to thumb their noses at the corporate establishment that was ostensibly taking root throughout the rest of Apple. In 1983, as the team moved to larger

offices to accommodate the growing scope of the project, they fabricated a black skull-and-crossbones flag, replete with a rainbow-colored, apple-shaped eye patch, and hoisted it over their new building.¹⁸¹ The idea for the flag evidently stemmed from one of the “Sayings from Chairman Jobs,” Jobs’s own tongue-in-cheek title for his oft-repeated aphorisms: “It’s better to be a pirate than join the navy.”¹⁸² For his part, Hertzfeld gleefully remembered a workplace scuffle when a few members of the Macintosh team had to make a foray into the Lisa building to recover the flag from some thieves on the competing project.¹⁸³

Under Jobs’s direction, the Macintosh project thus became an environment that spoke directly and intimately to employee desires to escape the trappings of conventional corporate life, yet the overarching outcomes of Jobs’s managerial style were intensified employee commitments to work, decreased resistance to excessive managerial demands, increased personal identifications with Jobs, and a decline in worker solidarity across Apple. In other words, by appealing to anti-corporate sentiment, Jobs was rather ironically able to transform the Macintosh team into devoted corporate warriors, ready to pour themselves heart and soul into developing the computer, and to jump to Jobs’s exacting demands. The group proudly embraced emblems of work as the most fulfilling and important aspect of their lives, notoriously donning T-shirts emblazoned with the declaration, “Working ninety hours a week and loving it!”¹⁸⁴

The labor productivity implications of such deep identifications with work were not lost upon John Sculley when he joined Apple, nor did they escape the notice of Apple’s human resources department. Towards the end of 1983, Sculley’s first year as CEO, Apple’s runaway growth hiccupped during the first serious contraction of the personal computer market. As a result, Sculley found himself fighting fires on multiple fronts, but he continually drew solace and inspiration from Macintosh team’s energy. After hours, he

and Jobs would wander through the building, which Sculley described as “a stimulating respite from some of my other administrative tasks.”¹⁸⁵ “No matter how problematic the competition or our internal troubles,” he continued, “my spirit rebounded when I strolled into the Macintosh building.”¹⁸⁶ Drawing again on comparisons to the 1960s counterculture, Sculley found “the peace and love sentiments these kids had absorbed” endlessly invigorating, as he watched them build a computer that reflected “[t]heir abiding faith...in the power of tools made available to everyone.”¹⁸⁷ In Sculley’s eyes, the Macintosh “was the collective personification of a small group of pioneers who were about to open a new frontier for individuals. The product changed their lives, and we believed it would start to change the lives of others as soon as it debuted at our shareholders’ meeting on January 23,” 1984.¹⁸⁸ The relationship between the Macintosh group’s passion for the product and their compulsive productivity was never far from Sculley’s mind. “Even at midnight,” he observed, the Macintosh building “was a place that burst alive with activity.”¹⁸⁹ “For this team,” he averred, “work became...the ultimate seduction,” a reflection of how effectively “Steve made the Macintosh *their* product.”¹⁹⁰ For Sculley, his early experiences watching the Macintosh group work passionately through the night epitomized Apple’s special relationship to its workforce.

What Jobs intrinsically recognized—and what Sculley and Apple’s other leaders came to appreciate—was that by blurring the boundaries between work, fun, and play, and by inspiring a sense of social mission around computer technologies, Apple could push its employees to work much harder than most companies. Again, Jobs’s insights were not exactly novel, but his managerial style did speak incredibly effectively to the social commitments and professional aspirations of white-collar workers in the latter decades of the twentieth century. Yet underneath the excitement of the Macintosh project, Jobs’s aims were far from revolutionary. His ultimate goal was to build a devoted workforce that

was willing to more or less give over their entire lives to work at Apple, and internal corporate documents suggest that Jobs was very successful at extracting productive labor from his employees.

For example, a 1984 company publication, *Inside Apple*, asserted that the corporation's remarkable financial success derived from a loose organizational structure of "entrepreneurial team[s], in which each person makes a difference." The document continued, "To have achieved annual sales of \$1 billion with fewer than 5,000 employees demonstrates the importance of each individual's contributions. Most billion dollar companies have twice as many employees and are proud of adding more. But at Apple, we believe that small teams are more effective—and more fun."¹⁹¹ A 1985 follow-up, *Welcome to the World of Apple*, described even more impressive figures. Reporting that Apple employed about 6,000 people worldwide, the document stated that "this relatively small group of people has built a \$2 billion enterprise that's growing by the minute," which the publication claimed gave Apple "the highest productivity ratio in the personal computer industry."¹⁹² Thus, while Jobs seemed eager to cater to the anti-authoritarian and unconventional tastes of the Macintosh group, an all too conventional corporate goal inspired his managerial tactics: extracting the maximum amount of labor from each employee for the lowest possible cost. When certain strategies failed to inspire higher productivity, Jobs suspended them. Moritz writes, for example, that Jobs had originally allowed members of the Macintosh team to work from home, but when this policy "failed to achieve the necessary results," he sent out a memo that read, "When I agreed to totally flexible hours it was with the stated assumption that it was the most efficient way to get a very professional quality of work done. This group has not demonstrated that quality in the last 60 days."¹⁹³ The very next day, Jobs snapped, everyone needed to return to a regular workday schedule at the office.

To an outside observer like Moritz, such moments revealed the darker edges to Jobs's managerial style and the Macintosh group's remarkable commitments to the project. When Moritz would drop by the offices on the weekend, he often discovered various members of the team laboring away, typically with little or no sleep, on the more intractable or complex aspects of computer design and programming. Sudden ultimatums from Jobs frequently inspired these after-hours sessions, such as the Friday afternoon that Jobs announced he wanted to get rid of the Macintosh's sound chips unless all the bugs were worked by Monday. The engineers who saw the ability to produce sound as an essential feature of the computer devoted the entire weekend to troubleshooting so they could preserve their vision of the machine.¹⁹⁴ Several members of the group, Moritz wrote, "had suspended the rest of their lives until they completed Macintosh," forgoing romantic relationships, family life, time off, and in some cases, even the basic pleasures of friendship. The hardware engineer Burrell Smith told Moritz, "Having friends is orthogonal to designing computers. When they call, I find myself hanging up on them."¹⁹⁵

Donn Denmann, a programmer for the Macintosh, likewise revealed how the team used the many diversions throughout the office to fuel maniacal levels of productivity and to manage stress and exhaustion. "Working 90 hours a week," he wrote, "requires frequent and highly effective work breaks."¹⁹⁶ The *Defender* video game console in the group's common area, he recalled, became a particularly important focus of attention for many members of the team. When employees found their attention drifting, they would frequently challenge coworkers to head-to-head matches on the machine, as they "found that competitive play gave us a jolt of adrenaline and a refreshed mindset when we resumed work."¹⁹⁷ At other times, group members would use the game to assess "current mental capacity"—if a player could not progress past level two, Denman remarked, this

provided a clear indication that it was finally time to give in to bodily demands and sleep for at least a few hours.¹⁹⁸

Along with pushing themselves to meet the productivity expectations of their exacting superior, employees in the Macintosh group enforced their own status hierarchy based on perceived commitments to the project. These tacit notions about relative status rose to the surface in Hertzfeld's tense relationship with Bob Belleville, who was hired in May 1982 to manage the Macintosh software team. Belleville had previously worked as a hardware engineer at Xerox, and he brought a much more traditional sense of managerial hierarchies to his role at Apple. On a team where Jobs encouraged employees to see themselves as artists and rebellious pirates, Belleville's style was an awkward fit. During a performance review in early 1983, Belleville personally attacked Hertzfeld for challenging his rank. "You are consistently insubordinate," Belleville told Hertzfeld, "and you don't have any respect for lines of authority. I think you are undermining everybody else on the software team. You are too big for your britches."¹⁹⁹ Hertzfeld began crying, but he pressed Belleville to explain himself. It soon became apparent that the root of the problem was Jobs. "Whenever there's something you don't like," Belleville said, "even little things, you go running straight to Steve, and he interferes.... It's making it so I can't do my job."²⁰⁰ Hertzfeld retorted, "I can't stop Steve from coming around," and explained that it was common for Jobs to drop by after regular working hours to chat and check up on the progress of the Macintosh, when many of the younger engineers were still in the office. While Hertzfeld felt he was heroically performing the work of at least two people, he noted rather snidely that Belleville was never around for the late-night sessions "because he had to get home to his wife and two young daughters."²⁰¹

Hertzfeld ultimately attributed the friction to a difference in style, saying, "I worshiped at the altar of the Apple II and romanticized my work, seeing it more as a calling

than a job,” whereas Belleville was simply “determined to instill a modicum of order and predictability” into the organization as it grew.²⁰² Yet even though Hertzfeld saw his resistance to Belleville as a sure marker of his inability to exist within a conventional corporate environment, he was in fact deeply entangled in a different kind of corporate power. Under the seductive, seemingly anti-corporate sway of Jobs and the Macintosh group, Hertzfeld had become thoroughly convinced that his work was more than labor for mere pay. This belief underwrote Hertzfeld’s enthusiasm about spending nearly every waking hour at Apple, as well as his scorn for coworkers who treated their jobs as a traditional 9-to-5 engagement. While Hertzfeld had hoped to escape the clutches of corporate servitude, his strong personal identification with his job had in fact made him intimately beholden to an expanded range of workplace demands.

Indeed, the Macintosh group’s compulsive overwork only scratched the surface of the more troubling labor politics that took hold on the project. Jobs’s motivational tactics were not all playful or inspirational—he frequently revealed a cruel and abusive side, especially when his demands were particularly unreasonable. Yet members of the Macintosh group consistently downplayed the seriousness of Jobs’s verbal and emotional assaults on employees. When Hertzfeld first joined the Macintosh team, another software engineer, Bud Tribble, warned him about Jobs’s tendency to attack employees’ work with merciless criticism or to lavish praise upon it, and then to switch positions rapidly. “[J]ust because [Jobs] tells you something is awful or great,” Tribble said, “it doesn’t necessarily mean he’ll feel that way tomorrow.”²⁰³ Tribble also warned Hertzfeld that Jobs was “really funny about ideas,” usually responding to new employee proposals for the Macintosh by calling them “stupid.” “But then,” Tribble revealed, “if he actually likes it, exactly one week later, he’ll come back to you and propose your idea to you, as if he thought of it.”²⁰⁴

Taking credit for employee ideas was just one mechanism that Jobs used to assert his total control over the project. Debi Coleman, who managed the finances of the project, suggested it was almost impossible to resist Jobs's dizzying ability to switch sides or distort reality, even once the Macintosh team had recognized the phenomena. "It didn't matter if [Jobs] was serving purple Kool-Aid," she remarked. "You drank it."²⁰⁵ Joanna Hoffman, who did technical writing for the Macintosh project and oversaw international marketing efforts, offered an even more sinister account of Jobs's ability to manipulate people to get what he wanted. "He had the uncanny capacity to know exactly what your weak point is," she said. "Knowing that he can crush you makes you feel weakened and eager for his approval, so then he can elevate you and put you on a pedestal and own you."²⁰⁶ Even members of the group who usually found themselves in Jobs's good graces lived in constant fear that they would fall out of favor. As Bill Atkinson put it, "there was great polarity between gods and shitheads.... Those of us who were considered to be gods, as I was, knew that we were actually mortal and made bad engineering decisions and farted like any person, so we were always afraid that we would get knocked off our pedestal."²⁰⁷ By contrast, Atkinson said, the people Jobs considered "shitheads, who were brilliant engineers working very hard, felt there was no way they could get appreciated and rise above their status."²⁰⁸

The relationships between Jobs and his employees were clearly prickly. However, as demoralizing as Jobs's ruthless criticisms could be, the Macintosh group came to see surviving Jobs's abuse as a mark of honor. Joanna Hoffman put it bluntly: "His behavior can be emotionally draining, but if you survive, it works."²⁰⁹ In other words, they interpreted Jobs's relentless attacks on their ideas and efforts as a factor that pushed them to do their best work—indeed, several framed Jobs's derisive and acerbic treatment as the key driving force behind the computer. As Atkinson revealed, "We learned to interpret 'This is shit' to

actually be a question that means ‘Tell me why this is the best way to do it.’”²¹⁰ Even employees who stood up to Jobs and managed to convince him that their work was solid usually ended up revising it, and believed that the computer was better for it. “[Y]ou can push back on [Jobs],” Atkinson reasoned, “but should also listen, for he’s usually right.”²¹¹ Hertzfeld offered a similar perspective, saying, “You might think that impossible schedules and uncompromising perfectionism would lead to an oppressive work environment. But most of the time, the ambiance of the Mac team was spontaneous, enthusiastic, and irreverent.”²¹² As for Jobs himself, Hertzfeld termed him the “father of the Macintosh”: “Steve’s vision, passion for excellence and sheer strength of will, not to mention his awesome powers of persuasion, drove the team to meet or exceed the impossible standards we set for ourselves.”²¹³ Jobs’s consistent attacks on employees evidently formed some intense emotional bonds. As Debi Coleman reminisced, “He would shout at a meeting, ‘You asshole, you never do anything right.’ It was like an hourly occurrence. Yet I consider myself the absolute luckiest person in the world to have worked with him.”²¹⁴ Thus, rather than overtly resisting Jobs’s abuse, the Macintosh group found other ways to cope, such as giving out an award every year to the person who most successfully weathered Jobs’s insults and craziest demands.²¹⁵

Jobs’s capacity to control workers could extend even beyond their formal employment for Apple. After the Macintosh was completed in early 1984, Hertzfeld decided that he needed to step away from Apple, so he applied for a six-month leave of absence to begin in March of that year. After his final day, Jobs and much of the Macintosh team went out to dinner together, which Hertzfeld described as an emotionally charged affair, with many members of the group congratulating Hertzfeld on all his hard work and expressing hope that he would be back at Apple soon. Then Jobs closed out the evening with a startling comment: “The thing I like best about Andy is that it’s so easy to make him

cry.”²¹⁶ Hertzfeld professed that he did not know how to interpret Jobs’s statement, but it suggested Jobs’s delight in his ability to manipulate Hertzfeld. Due in part to Hertzfeld’s confusions about the nature of his relationship with Jobs, he ultimately decided to resign in September 1984.

Quitting Apple, however, did not diminish Hertzfeld’s belief in the social importance of the Macintosh project, and he continued writing software for the machine. One of the first programs he developed after quitting Apple was called Switcher, an application that allowed Macintosh users to run multiple programs simultaneously and switch easily between them using a simple keystroke. In January 1985, Hertzfeld got a call from Apple telling him that Steve Jobs wanted a demo. Hertzfeld remembered approaching the meeting “with a bit of trepidation because I thought Switcher was worth at least a quarter of a million dollars to Apple, but I was sure Steve would never want to pay me that much.”²¹⁷ Jobs was impressed with the program and wanted to include it with every Macintosh, but he also told Hertzfeld, “There’s no way you could have written that program without confidential information you learned working at Apple. You don’t have the right to charge whatever you like for it.”²¹⁸ Jobs continued, “I’m not going to allow you to take advantage of Apple.”²¹⁹ Hertzfeld was upset by Jobs’s aggressive tactics and angry that he flatly refused to pay more than \$100,000 for the program, but eventually agreed to the figure. “I didn’t seem to have any alternative but to capitulate to Steve’s price fixing,” Hertzfeld reasoned, “since he was difficult to argue with and I really wanted Switcher bundled with the Mac.”²²⁰ The application switching function is still a key part of Apple’s computer operating system, which suggests that the monetary value of the idea Hertzfeld first worked out in code is almost impossible to quantify. Yet it was all too easy for Jobs to exploit Hertzfeld’s faith in the social importance of the Macintosh.

Despite such instances of brazen manipulation, Jobs's abuse and perfectionism ultimately made the Macintosh team feel that they were Apple's elite, and to see the computer they were building as an earth-shattering revelation. In a sense, Jobs's cruelty raised the stakes of the project to an emotional pitch that ultimately exhilarated the group's core members. The team's intense personal identifications with the Macintosh computer made them increasingly scornful of Apple colleagues working on other projects, whom the Macintosh group started calling "bozos."²²¹ This sense of superiority was an important psychological wage that made their round-the-clock schedules and Jobs's attacks more bearable, even desirable. "In both [Jobs's] personal and his professional life over the years," Isaacson contends, "his inner circle tended to include many more strong people than toadies. The Mac team knew that."²²² In comparison to the rest of the Apple workforce, which was organized along more traditional managerial lines, it was easy for the Macintosh group to see themselves as rebels who had traded formal corporate bureaucracy for a much more personalized—and personally rewarding—environment that called on group members to defend and refine their work constantly, and to push beyond their own perceived limitations. As Isaacson concludes his assessment of Jobs's worst managerial traits, "Dozens of the colleagues whom Jobs most abused ended their litany of horror stories by saying that he got them to do things they never dreamed possible."²²³ In other words, Isaacson implies, Jobs might have displayed some monstrous tendencies in his interactions with other people, but the wonderful things he drove other people to create overshadow those negative behaviors.

However, there are several serious problems with Isaacson's conclusion that the employees who put up with Jobs's abuses demonstrated a laudable degree of fortitude. For one, this assessment skates over the fact that the Macintosh team's overwhelming loyalty to Jobs made them profoundly uncritical of Jobs's disastrous positioning of the Macintosh

project within Apple as a whole. In particular, while the Macintosh group saw their rivalry with the business-oriented Lisa project as a series of somewhat playful workplace contretemps, in reality, Jobs was working aggressively to undermine the Lisa. As we will soon see, this spiteful maneuver effectively destroyed the commercial viability of the Lisa and caused numerous engineers on that project to lose their jobs, and set in motion a much graver company crisis. This turn of events sparked no outrage or criticism on the part of the Macintosh group, betraying a distinct lack of worker solidarity in the face of damaging managerial decisions, and which spoke directly to the absence of meaningful employee rights or protections at Apple. Moreover, although Macintosh team members professed that Jobs's assaults on their work made them improve their efforts, in actuality, their inability to push back effectively on Jobs's authoritarian visions for the Macintosh resulted in a machine with serious technical flaws that struggled to win commercial customers, deepening the corporate crisis initiated by the Lisa's failure and leading to a mass layoff at Apple in 1985. Finally, the Macintosh team's defenses of Jobs's managerial abuses have helped normalize such workplace behaviors in the technology industry, making aggressive management styles and compulsive overwork less subject to criticism or worker resistance. The remainder of this section elaborates on these contentions.

The Macintosh project's open competition with the Lisa was the first crisis to come to a head, and indicated that the Macintosh team was largely incapable of perceiving shared interests with other employees at Apple. As I detailed above, the expensive and sophisticated Lisa was expressly designed for corporate customers, whereas Jobs described the Macintosh as a tool for the average person, which gave many Macintosh team members the sense that their machine spoke to the more meaningful social mission of extending computer power to the masses. The different orientations of the two projects, spurred by Jobs's open antagonism of the Lisa group, had contributed to a heated rivalry between the

teams, but some members of the Lisa project expressed a desire to make the two projects' aims more complementary. In early 1982, a manager from the Lisa group made a formal effort to broker peace between the camps, and invited Burrell Smith and Andy Hertzfeld to give a demonstration of the Macintosh system to Lisa engineers. However, one of the Lisa's main designers, Rich Page, could not contain his frustrations. He burst into the room to interrupt the meeting, yelling, "The Macintosh is going to destroy the Lisa! The Macintosh is going to ruin Apple!"²²⁴ Page's anger stemmed from the fact that the Lisa and Macintosh, despite their different target audiences, in fact shared many technological features, yet their designs made them almost entirely incompatible. Page believed that this would create a disastrously competitive situation between the Lisa and Macintosh—he predicted that many customers would simply wait to purchase the cheaper Macintosh, frustrating the Lisa's chances for success. Unsurprisingly, he saw Jobs as the fly in the ointment. Turning to Smith and Hertzfeld, Page said, "I know it's not your fault. Steve Jobs is the problem. Tell Steve that I think he's destroying Apple!"²²⁵ Although Hertzfeld and Smith were unnerved by the encounter, they were so wrapped up in the design of their own machine—which they did believe would be superior to the Lisa—that they could hardly be concerned about the broader implications for Apple if the Lisa failed. After all, they saw themselves as iconoclastic rebels, and they could not muster much loyalty to a pricey computer intended for corporate customers.

Rich Page's misgivings about Jobs, however, turned out to be well founded. Isaacson reports that when Jobs went to New York in January 1983 to help publicize the Lisa at its debut, he persistently undermined the computer by hinting at the Macintosh and suggesting that it would be a much better and more affordable product. "It was like launching the Lisa with the kiss of death," Isaacson writes, "[b]ut there was a silver lining for Jobs: Within months of Lisa's launch, it became clear the Apple had to pin its hopes on the

Macintosh instead.”²²⁶ Jobs’s silver lining, however, equaled termination for a number of people who had worked on the Lisa. In February 1984, Apple stopped supporting the foundering system and merged the Lisa team into Macintosh, cutting some seventy positions in the process. Hertzfeld remembers Jobs gleefully sticking the knife into the people losing their jobs, telling them “they had screwed up and were B or C players.”²²⁷ Jobs reportedly quipped to the Lisa team members who remained, “[T]oday we are releasing some of your fellow employees to give them the opportunity to work at our sister companies here in the valley.”²²⁸ There were no notable murmurs of dissent from the Macintosh group about the dismissal of their coworkers, perhaps because they shared Jobs’s pleasure in the Lisa’s failure, or perhaps because they found themselves promoted to more powerful managerial roles as the surviving Lisa members were folded into the Macintosh project. In the long term, however, the failure of the Lisa had even more serious repercussions than the immediate loss of seventy jobs. After IBM entered the personal computer market in 1981, Apple struggled to court corporate customers, as IBM had a lengthy history and sterling reputation as the preeminent supplier of business computers. The Lisa was very different from the spare, serious offerings of IBM—during an early demonstration for a bank, one of the executives had remarked, “We’ll have managers at the bank playing with this all day. It’s a video game.”²²⁹ Jobs’s undermining of the Lisa only heightened perceptions that Apple was not dependable or mature enough to serve the needs of corporate America.

Despite mounting evidence that the Lisa’s failure was causing serious financial problems for Apple and indications that Jobs was more than willing to sacrifice dozens of employees simply to satisfy a personal vendetta, the shuttering of the Lisa division buoyed the Macintosh group’s belief that they were the chosen emissaries of Apple’s future. As 1984 progressed, the group’s relationships with other Apple employees became incredibly

tense. John Sculley noted, for example, that employees had termed the street between the Apple II and Macintosh teams' main buildings "the DMZ."²³⁰ Jobs and "his Macintosh cohort," Sculley said, "began to openly call everyone else in the company 'bozos'" while enjoying such perks as free organic fruit juice and a masseuse on call "to work [their] tense backs."²³¹ The hostile culture was a managerial nightmare—as Sculley described the situation, "The anger was poisonous: hardly a day would pass when I wouldn't hear of another key manager or engineer who had resigned" from the Apple II team.²³² The climate was so bad that even Steve Wozniak quit the company he had helped found, frustrated by the poor treatment of the Apple II division despite the fact that their computer still accounted for 70 percent of Apple's sales.²³³

Although the Macintosh group's persistent elitism revealed that they were much more loyal to Jobs than their colleagues in other departments, one piece of Apple ephemera—an anonymous, fake memo published in August 1983—does provide an inkling of broader employee opposition to Jobs. Sent out through Apple's official communications channel, Apple Bulletin, the fake memo openly mocked Jobs's infamous practice of parking in the handicapped spaces around the Apple buildings: "Apple Computer Inc. today announced that effective immediately, all handicapped parking spaces have been converted for the exclusive use of the executive staff." Deriding Jobs's hubristic self-importance, the memo continued, "This innovative approach was summarized in a recent statement by Apple's Chairman of the Board, Steve Jobs: 'Macintosh will not be delayed because I can't find a parking spot.'" Perhaps meant as a jab at workers who saw themselves as part of Jobs's inner circle, the memo displayed an equal disdain for sycophantic employees, concluding with a quote from "Mac Chelslolly III, Apple's only handicapped employee, [who] remarked: 'It's OK with me.... Steve explained that it's an honor to work for Apple and I shouldn't mind having to crawl on the concrete a little.'"²³⁴ Em-

employee reactions to Jobs's insensitivities were not all so jocular—Hertzfeld reports that Jobs often removed the license plates from his Mercedes because a number of unknown workers had the habit of scratching the car's paint with their keys when they found it parked in handicapped spaces.²³⁵ Defacing one of Jobs's more expensive possessions was doubtlessly cathartic, and the ability of employees to hijack Apple's official memo service to make fun of the chairman of the board spoke to company's rebellious self-image, but the anonymous, individualized nature of these outbursts indicates employees' collective inability to resist Jobs in a meaningful fashion. Employees were left to fend for themselves, with little assistance from other executives or even their coworkers.

While other employees found small, individualistic ways to express their frustrations with Jobs and the Macintosh group, the Macintosh's debut in January 1984 quickly belied the team's belief that Jobs's relentless demands had pushed them to make an earth-shattering computer. The design historian Kimon Keramidas points out that the Macintosh quickly achieved iconic status when it came to market due to a massive advertising blitz and the computer's groundbreaking design, but he notes that “the first version of the Mac...was notable more for promise than for actual performance” because the hardware simply could not handle the machine's ambitious software.²³⁶ Among the Macintosh's many problems were its lack of a cooling fan, which Jobs had forced the team to leave out because it did not agree with his aesthetic vision for the machine, as well as its insufficient memory, which Jobs had kept to a minimum in order to reduce the spiraling costs of the increasingly ambitious computer.²³⁷ As a result, the Macintosh easily overheated, which frequently destroyed the machine's circuitry, and the computer struggled to run the programs that took full advantage of its unique graphical capabilities. In other words, many of the features that Jobs insisted the team omit or build into the computer made it functionally impaired for many users. As Keramidas writes, “the whole interface experience of

the Macintosh...was tangled, ponderous, and frustrating,” and its problems were not fully addressed for more than two years, with the release of the Macintosh Plus.²³⁸ Indeed, the first Macintosh was such a commercial flop that Apple began to spiral into a financial crises that nearly destroyed the corporation.

Apple’s board ultimately blamed Jobs for many of the Macintosh’s failings, and he was once again stripped of his managerial role in the company, a drawn-out and acrimonious process that stretched from the beginning of April until the end of May 1985. Few episodes in Apple’s history are more controversial, and Jobs’s supporters invariably insist that Apple’s board made a serious mistake in disciplining Jobs.²³⁹ For example, even though Walter Isaacson highlights some of Jobs’s poor design decisions on the Macintosh, he makes the counterintuitive argument that Apple’s board of directors simply did not appreciate “Jobs’s passion for tiny technical tweaks and design details,” and failed to share his obsession with making groundbreaking products.²⁴⁰ It is a bizarre conclusion—from a technical standpoint, Jobs’s intuitive sense of computer aesthetics was entirely misguided. Certain pieces of his vision for the Macintosh were inspired, but his lack of engineering know-how and his inability to listen to the concerns of experienced technicians resulted in a thoroughly flawed machine that was a commercial disaster and harmed Apple’s sales and reputation. Moreover, Jobs’s managerial style became even less effectual as the Macintosh stalled in its intended consumer market. Specifically, Jobs’s dissolution of the Lisa project meant that Apple now needed to market Macintoshes to business customers, even though the Macintosh team had never imagined their machine in corporate offices. To stimulate business sales, Apple’s board needed Jobs and the Macintosh group to produce a software suite called Macintosh Office. Jobs, however, was not terribly inspired to work on business programs, and the team failed to deliver the product on time, which further poisoned Apple’s relations with potential corporate clients.²⁴¹ Isaacson’s account omits this

episode in Jobs's career at Apple, focusing instead on the personal anguish Jobs experienced as Apple's board became increasingly critical of his failings, which culminated in Jobs's decision to resign from Apple in September 1985 to found a competing computer company, NeXT.²⁴²

While Jobs chose to make a clean break from Apple, his poor leadership left the company reeling. The failure of the Lisa and sluggish sales of the shoddy first-generation Macintosh cut deeply into Apple's profits and reputation, and the executive staff determined that they desperately needed to slash costs to maintain investor confidence in the company. They decided the most effective measure was to undertake a mass layoff. On June 14, 1985, John Sculley informed 1,200 employees, just over a fifth of Apple's workforce, that they would be losing their jobs.²⁴³ Although Jobs had also lost his position as a result of his missteps, it is instructive to consider the deeply divergent prospects he and the 1,200 other employees faced upon exiting Apple. Jobs owned more than \$100 million in Apple stock, and he soon sold all but a single share, using his considerable personal wealth to finance a variety of other ventures.²⁴⁴ In the 1990s, Jobs most famously used his assets and influence to underwrite the computer animation film studio Pixar, and in 1996 he managed to sell NeXT—then a failing company—to Apple for \$400 million, a scheme that allowed him to return as Apple's CEO and consolidate his power over the company.²⁴⁵ The 1,200 others who lost their jobs at Apple in 1985 were mostly salaried employees in non-senior roles—the kinds of people Jobs and his inner circle derisively termed “bozos.” Any Apple stock they might have owned they would have purchased out of their own salaries, and its value would have amounted to much more modest sums than Jobs's multimillion dollar stakes. As befits a large corporation, most of these former employees are anonymous, and their specific stories are difficult to track. Many probably tried to find other jobs in the increasingly competitive and volatile tech industry, which

was experiencing broader convulsions in 1985 as a national recession set in.²⁴⁶ The computer industry's downturn persisted into 1987, which hardly spoke well for the opportunities of the laid off workers to find comparable employment.²⁴⁷

In short, Steve Jobs and his Macintosh group had wreaked havoc on Apple. Yet the disastrous outcomes produced by Jobs's arrogant and aggressive management style have failed to dim popular enthusiasm for Jobs. Indeed, some of Jobs's most troubling features are today held up as exemplars for corporate leadership, and his managerial tactics are visible throughout the U.S. tech industry. For example, in a 2011 *New York* magazine obituary for Jobs, John Heilemann argues that the Apple cofounder's most "culturally significant" achievement was the creation of an "image of the businessman as freewheeling rebel, as swashbuckling artist."²⁴⁸ "More than most corporate chiefs," Heilemann continues, "and certainly any high-tech CEO before then or to this day, [Jobs] understood the importance not merely of image but narrative: of framing and controlling the stories told about (and by) himself and Apple."²⁴⁹ The subsequent heads of tech giants including Amazon, Facebook, and Google, Heilemann insists, have all self-consciously modeled their public personas and entrepreneurial identities after Jobs, casting themselves as iconoclasts with unusual ideas about how to run their businesses.

The chief lesson other corporate leaders have derived from Jobs's life, writes business journalist Adam Lashinsky, is that "he was an effective asshole."²⁵⁰ Reviewing the professional management literature written about Jobs, Lashinsky notes that business professors and other executives in the tech industry have been particularly inspired by Jobs's ability to impose his vision of the future on others around him, whether or not they agreed with the particulars of his aspirations. But rather than expressing concerns about Jobs's pronounced authoritarianism, Lashinsky insists that Jobs's cruelties and obsessive managerial style built one of the most successful business enterprises in U.S. history, and

are, in many respects, worth emulating.²⁵¹ Such assessments clarify Ian Bogost's cryptic and provocative statement that "Steve Jobs was a fascist. That's what everybody loved about him."²⁵² In other words, far from inspiring revulsion, Jobs's abusive proclivities are taken as key ingredients in his success, a conclusion reinforced by employees and colleagues' dependable apologias for Jobs's very worst personality traits.

Pop culture interpretations of Jobs follow in much the same vein. For example, in a *New York Times* review of Danny Boyle's 2015 biopic, *Steve Jobs*—which is based primarily on Isaacson's official biography—Farhad Manjoo concludes that the U.S. technology industry's economic growth and innovative breakthroughs have depended primarily upon "unpleasant visionaries" like Jobs. Although Manjoo suggests that the film "is not very kind to Steve Jobs," he also argues that the "ultimate importance of the personal computer hangs over every conflict in the film."²⁵³ Recounting the movie's numerous depictions of Jobs brutalizing his staff, betraying friends and colleagues, and mistreating his family, Manjoo writes, "Sure, [Jobs] may have been terrible to be around, but in the end, wasn't he right about the importance of [making a] dent in the universe? And if he hadn't been as obnoxious about his aims, would the dent have been as large?"²⁵⁴ In fact, Manjoo extrapolates, Jobs's abuse of laborers is a small price to pay for Apple's consumer technologies, which Manjoo believes have greatly benefitted consumers. In Manjoo's estimation, this makes Jobs's managerial tactics a tolerable—and even an advantageous—feature of the high-tech field at large. "The tech industry may be peopled by many petty, ruthless, self-important weirdos," Manjoo grants. "But look at the products, not the people. In the future, only the products will matter."²⁵⁵

The argument that products are more valuable and important than people is disconcerting, especially if one looks to the treatment of workers at other powerful high-tech firms that have followed in Apple's footsteps. For example, the *New York Times's* exten-

sive 2015 report on working conditions at Amazon reveals some of the troubling consequences of applying Jobs's tactics from the Macintosh project across an entire corporation. "At Amazon," the *Times* reports, "workers are encouraged to tear apart one another's ideas in meetings, toil long and late (emails arrive past midnight, followed by text messages asking why they were not answered), and held to standards that the company boasts are 'unreasonably high.'"²⁵⁶ Despite detailing instances of employees being pushed out of Amazon when "cancer, miscarriages and other personal crises" decreased their productivity, grueling meetings and performance reviews that routinely reduced workers to tears, and inhumanly long workweeks that destroyed families and caused chronic health problems, the authors remark that even many of the most terrorized ex-Amazon employees still possessed strong attachments to the corporation.²⁵⁷ These employees, they write, "described how they tried to reconcile the sometimes-punishing aspects of their workplace with what many called its thrilling power to create."²⁵⁸ In a remarkable echo of Macintosh employees' comments about working with Jobs, the authors report that a number of employees they interviewed "said they thrived at Amazon precisely because it pushed them past what they thought were their limits."²⁵⁹ Amazon's core motivational techniques closely resemble Jobs's. Amazon employees live in constant fear of failing to live up to their employer's excessive expectations—new hires are bluntly told many of them will not last, and Amazon has made an annual tradition of eliminating employees who are deemed less than fully committed. Unsurprisingly, those who survive come to see themselves in elitist terms, much as the Macintosh group began to scorn Apple employees outside the project. However, Amazon's overarching concern—again, much like Apple—is with maximizing employee productivity, and the article details that heightened worker commitments have helped make Amazon the most valuable retail corporation in the United States, and Jeff Bezos, Amazon's founder and leader, the fifth richest person in the

world.²⁶⁰ Yet just as Jobs was able to convince the Macintosh team that their incredible commitments to the project flew in the face of corporate conformity, Amazon awards a badge that reads “I’m peculiar” to employees who perfectly memorize the company’s fourteen “leadership principles,” informing employees who know the rules by heart that they are “overturning workplace conventions.”²⁶¹

Employee buy-in to these labor dynamics, and indeed, employee claims that they derive satisfaction and even pleasure from such working environments, has helped quell meaningful resistance to the tech industry’s exploitative tendencies, and has discouraged mainstream concern for labor rights or protections at such corporations. In the immediate aftermath of the 2008 financial crisis, for example, the editors of *The Economist* composed a paean to the leaders of the U.S. high-tech industry, suggesting that the bold, innovative workplace dynamics they had pioneered within their corporate empires represented the best hope for revitalizing the global economy. The article celebrated U.S. technology corporations’ “unusual freedom to hire and fire workers,” which the editors argued was one of the key reasons that companies such as Apple and Amazon were able to demand a higher degree of performance from their employees.²⁶² Betraying an utter lack of concern that the absence of labor protections could help underwrite troubling or exploitative workplace dynamics, the editors opined, “People like Bill Gates and Steve Jobs have all the upsides of [Andrew] Carnegie and [Henry] Ford without the downsides—the useful products and the open-handed philanthropy without the sweatshops and the massacres.”²⁶³ This statement is all the more bizarre given that Isaacson classifies Jobs as “not particularly philanthropic.”²⁶⁴

Thus, even though the editors of the *Economist* suggest that Silicon Valley has transcended the problems historically associated with the corporate concentration of power, the experiences of the Macintosh group, and their reverberations at Amazon in the

twenty-first century, merely suggest that the exercise of corporate power has become more sophisticated and less visible, operating on a more individualized, psychological plane rather than through mass, physical confrontations between laborers and the overseers, guards, and police who enforced the authority of early industrial corporate leaders. This is much the perspective offered by Gilles Deleuze in his 1992 essay, “Postscript on the Societies of Control,” in which he argues that post-industrial corporations have increasingly tried to inspire employee productivity by appealing to a sense of social mission, or by “present[ing] the brashiest rivalry as a healthy form of emulation, an excellent motivational force that opposes individuals against one another.”²⁶⁵ In other words, Deleuze argues, corporations have striven to displace worker solidarity by pitting them against each other in intensely pressurized environments. In the tech industry, the success of such workplace dynamics is rendered all the more disturbing by employees’ belief that, for example, working day and night on the Macintosh project or performing aggressively at Amazon represents a refreshing break with corporate convention or the dehumanizing tendencies of scientific management. In reality, these employees’ deep, personal identifications with their work has made corporations such as Apple and Amazon incredibly effective corporate masters, capable of extracting rather astonishing time, labor, and psychological commitments from workers.

As I noted at the beginning of this chapter, critical observers have long argued that the troubling labor politics visible at companies such as Apple and Amazon are endemic to the U.S. technology industry. In the mid-1980s, Everett Rogers and Judith Larsen worried that the lack of worker rights and protections were producing a field defined by striking economic inequalities and pervasive job instability, while Dennis Hayes argued in 1989 that tech workers’ individualistic tendencies and rejection of collective bargaining allowed labor abuses to run rampant in Silicon Valley.²⁶⁶ But as I have tried to show throughout

this chapter, white-collar professionals in the tech industry have consistently blunted the impact of these criticisms by tolerating—and even defending—the cruelties of managers such as Jobs. They have likewise deferred sleep, friendship, and time outside of the office in order to meet incredible performance demands, all while seeing themselves as corporate rebels. The successes of corporate leaders such as Jobs, in other words, have rested upon professional workers’ willingness to trade strong worker rights and collective bargaining power for the intangible thrills of abrasive and high-pressure working environments. The desirability of these working arrangements, moreover, rests on the belief that they are an improvement over so-called corporate convention. Yet white-collar workers’ decisions to sacrifice formal rights and protections in exchange for more engaging or fulfilling work is a false bargain, as the pleasures they derive from their jobs were not won from corporate leaders, but rather encouraged by those leaders to fulfill the classic business aim of increasingly employee loyalty and productivity.

In focusing on the mythology of Steve Jobs, this chapter has mostly dealt with the small-scale, interpersonal dynamics of Silicon Valley labor, highlighting specific employees’ faith in Apple’s grander social mission and their motivations for tolerating Jobs’s cruelties and aggressions. But I have only begun to gesture to the larger stakes of the erosion of employee rights by summarizing some of the consequences of Apple’s 1985 crisis, and connecting the working environment on the Macintosh project to contemporary experiences at Amazon. The next chapter, which draws much more extensively on the archival record of Apple’s history, attempts to get closer to the experiences of average workers outside of Jobs’s inner circle—the regular professionals who have remained largely anonymous and invisible in popular histories of Silicon Valley, and who are most likely to bear the brunt of disastrous executive decisions through layoffs and other workplace upheavals. Although these employees never worked directly alongside Jobs or Apple’s other charis-

matic leaders, they largely shared the Macintosh group's desire to believe that their company was special, rebellious, and nonconformist. I detail how corporate leaders, especially CEO John Sculley, who became Apple's chief figurehead after Jobs's departure, played on these desires to extract employee commitments to the corporate cause, especially during times of crisis. Remarkably, even when the actions of Sculley and other executives revealed a manifest lack of concern for employee wellbeing, Apple employees typically struggled to recognize the harms they were suffering at the hands of Apple leadership. Thus, while Sculley and other executives proclaimed that Apple's new "social contract" with employees was mutually beneficial for the corporation and for workers, I argue that the progressive erosion of worker rights at Apple left employees with few tools or resources to resist labor exploitation or to advocate for their own rights and interests.

Chapter 2.

A Company of Artists: Anesthetizing Apple's Workforce

During his keynote address at the 1988 Macworld Expo in San Francisco, John Sculley exuded confidence. He had led Apple out of the 1985 fiasco, restoring Apple to profitability and winning the trust of his employees during a two-year period when most of the rest of the personal computer industry was still struggling to recover from a national recession.¹ *Business Week* had put Sculley on its cover for the third time in January 1987, lauding his remarkable turnaround of the troubled corporation. Comparing Apple's performance to its main adversary, IBM, the article enthused, "While International Business Machines Corp.'s 1986 earnings sagged, Apple's surged 151%, to \$154 million, in the fiscal year ended Sept. 30. The company now has \$576 million in cash and no debt. Apple's shares, which had plunged to 14 in mid-1985, now trade at over 40—a three-year high."² Touting investors' restored faith in the firm, the article continued, "some Apple fans on Wall Street are predicting that its stock will hit 60 by yearend."³ Sculley was pleased, but thought the coverage missed the larger point. As he put it in his memoir, any reasonably skilled executive could have slashed costs and maneuvered the company to post some short-term profits. What set his resurrection of Apple apart, he claimed, was that he had done it all without destroying "Apple's soul"—the company still commanded the kind of deep employee devotion Sculley had first observed in the Macintosh group, which he saw as the core of Apple's success.⁴

At the Macworld Expo, Sculley moved into full proselytizing mode, proclaiming that he had cracked the code to successful post-industrial corporate leadership. In sweeping terms, he announced, "The world is in passage from the Industrial Age to the Information

Age,” and he informed his audience that the assumptions that had governed business and secured American prosperity during the industrial era were no longer valid.⁵ The key problem with industrial mindsets, he continued, was that they did not place enough value upon creativity or innovation. It was only through innovation, he maintained, that businesses could “find new ways to continue to create value in the world.”⁶ “Yet innovation has never come through bureaucracy and hierarchy,” he warned. “It’s always come from individuals.”⁷ This implied profound shifts in corporate organization as well as worker orientations toward their jobs. On the institutional end, he argued, corporations would need to hone “their ability to support the creative contributions of many individuals,” and to “develop new patterns of organization that promote alignment and collaboration while avoiding rigidity and stagnation.”⁸ What he meant was that employers would need to inspire workers rather than discipline them, convincing employees to form close, personal identifications with corporations and their missions. On the other hand, Sculley insisted that employees would “need to have tremendous flexibility” to successfully contribute to corporate profits in the information age.⁹ He explained that to operate at their creative and innovative peak, workers would need to constantly learn, grow, and adapt to the changing realities around them. Sculley predicted that the integration of learning into work would be immensely satisfying, as it would stimulate employee intellects and constantly expose them to new opportunities, and indeed, give them the freedom “to move from one company to another, or from one industry to another.”¹⁰ “Education will not simply be a prelude to a career,” he concluded, “but a lifelong endeavor.”¹¹

Unsurprisingly, Sculley described these shifts in labor and learning in relatively utopian terms, because he believed Apple and its technologies would lead by example. Apple could show other corporations how to prepare for the twenty-first century through innovative management and labor policies, and would sell computer tools to businesses to

help them reorganize more quickly and efficiently. Sculley made particularly clear his belief that employees would become more empowered in this new paradigm, because their jobs would call on the “development of conceptual skills and the ability to test reality against multiple points of view,” which would make workers more intellectually independent.¹² Moreover, companies committed to innovation would place more emphasis on the “nourishment of individual creativity and the encouragement of exploration,” which meant that workers could expect to achieve more personal growth on the job, and finally, new working environments would require collaboration, which would make work more socially rewarding and engaged.¹³ In his memoir, Sculley claimed that he had already begun to realize this “new world” of refined labor “inside Apple, where creativity permeates every facet of our work environment,” which made Apple “one small example of what an exciting new company can be in the information age.”¹⁴

Sculley’s depictions of life at Apple in the late 1980s suggested that the company had matured, yet had retained its commitments to being a forward-thinking innovator, not just in technology, but also in business practices. However, Sculley’s proclamations that Apple had broken radically with industrial business conventions were not exactly accurate. As we will see in this chapter, Apple did possess a conventional bureaucracy of middle managers to enforce executive directives and to discipline or reward employees according to their adherence to top-down company policies. And while Apple did value employee creativity, under Sculley’s direction Apple had largely abandoned the mission of providing computer power to the masses in order to focus on building products for large corporate customers—innovative gambles at the company were now relatively constrained by considerations of whether or not they would pique the interest of deep-pocketed corporate customers. The company had created Apple University to serve as an official avenue for learning and personal growth, but far from offering resources or classes

covering the kinds of cross-disciplinary subjects employees would need to switch companies or careers, Apple University emphasized self-management skills for employees and team management for managers. Sculley was not blind to these facts. He had installed the bureaucracy to gain more control over Apple during the 1985 crisis, he had shifted emphasis to business computing to secure more profits for the company, and he was much more interested in how employees' growth could serve the corporation than their own aspirations. The employee accounts that I examine in this chapter also clearly indicate that workers sensed fundamental changes at Apple under Sculley's leadership. But Sculley and his employees shared a need to believe that their company, their work, and their products were special—not just something that any corporation could offer.

My aim in this chapter is to suggest that work at Apple in the late 1980s became something of a consensual fantasy, designed to preserve Apple people's sense that they were part of a cutting-edge enterprise that broke rules and scorned tradition. Employees and company leaders shared a collective investment in this project, and became increasingly passionate about the symbols that could reassure them that their company was different, and that they had not simply become drones in the disenchanting offices and cubicles of gray corporate America. I want to untangle how and why this particular fantasy of work at Apple took root and grew, as well as the reasons—some overlapping, some diverging—that it became so seductive for Apple's workers and executives. People at Apple during this era well reflect Melissa Gregg's depictions of professional employees who come to "see work as the most significant demonstration of their success and identity."¹⁵ But employee obsessions with Apple's difference from other corporations also indicate that most work fails to fulfill the full range of human aspirations and experiences—Apple employees sought comfort in emblems of their corporation's specialness to compensate for the incredible pressures and time demands their jobs often placed upon them. Even during

company crises and serious layoffs in 1990, 1991, 1993, 1996, and 1997, employees struggled to find enough distance between themselves and their employer to resist unreasonable managerial demands or to recognize that executives' goals and decisions often undermined their job stability and collective rights.

To elaborate these arguments, I draw on two primary bodies of evidence. The first is John Sculley's writings and speeches, which provide valuable insights into the personal motivations and ideological commitments that shaped his leadership at Apple. These documents reveal an executive who, much like his employees, wanted to see his work at Apple in idealistic and unconventional terms, as part of a progressive revolution in business practice that would usher in a more humanistic, invigorating, and fulfilling era in corporate labor. At the same time, however, Sculley possessed a grand vision of Apple and Silicon Valley as the saviors of a troubled U.S. economy, and as a result, he was determined to drive his employees to reach new productive heights and to expand Apple's revenues as quickly as possible, aspirations which often undercut his rather romantic proclamations about the labor conditions at his company. Simultaneously, Sculley had significant personal stakes tied up in Apple stock options, so the fluctuations and vicissitudes of the stock market often saw him putting his financial self-interest before the well-being or job security of Apple employees.

Unlike Steve Jobs, Sculley and his activities at Apple have not been subject to much critical or popular analysis. Most commentators readily dismiss Sculley as an executive who simply did not understand the nuances of the technology industry, and who pursued a number of misguided business strategies. Michael Moritz, for example, brushes off Sculley's record of increasing Apple's annual sales from \$1 billion to \$8 billion between 1983 and 1993, insisting that Sculley merely helmed Apple during a lucky time, when the personal computer market's overwhelming growth "conceal[ed] all types of shortcom-

ings.”¹⁶ Walter Isaacson’s criticisms are more personal. He quotes Andy Hertzfeld calling Sculley “incredibly phony, a complete poseur.... He was a marketing guy, and that is what marketing guys are: paid poseurs.”¹⁷ For his part, Isaacson describes Sculley as someone who desperately wanted “to please other people” and who “painfully craved Jobs’s affection,” which he argues made Sculley incapable of making tough business decisions.¹⁸ The journalist Frank Rose classifies Sculley as the anti-Jobs: a by-the-books manager who “called for more structure, more obedience, more discipline,” rather than the impetuous rebelliousness that defined Jobs’s leadership.¹⁹ But such criticisms, which focus more on superficial personality traits rather than substantive analyses of Sculley’s reign at Apple, miss the fact that Sculley was in fact a perfect emblem of the profound tensions inherent to Apple’s culture, and by extension, Silicon Valley corporate rhetoric and practices. Sculley was a business leader who avidly espoused the seemingly innovative and progressive aspects of Apple’s labor policies, all while presiding over a corporation where workers enjoyed few rights or protections and were held accountable to executive demands through a strict and punitive managerial bureaucracy, and where executive compensation mushroomed in comparison to relatively modest—and stagnant—employee salaries. And as we will see at the end of this chapter, when Jobs returned to Apple’s helm in 1997, he extended many of the draconian features of Sculley’s leadership tactics while revoking most of the informal workplace perks that Sculley installed to make day-to-day life at the company more pleasant. Thus, while Sculley and Jobs may have differed in style, from a labor history perspective, their mutual obsession with high employee productivity and commitments to Apple’s mission saw them both treat workers as exploitable and disposable commodities whose chief purpose was to enrich the corporation.

While analyzing Sculley’s rhetoric and strategies offers an important context for understanding worker experiences at Apple during the late 1980s and 1990s, the true sub-

stance of this chapter comes from a close examination of actual corporate labor policies and employees' own perspectives on their work at Apple. I therefore turn to archival sources that illuminate how Apple leadership worked to bind employees to the corporate cause through a variety of playful workplace features, promises of personal growth on the job, financial perks and incentives, and more authoritarian mechanisms of managerial control. I also rely on a significant body of employee-produced ephemera, which shows Apple workers grappling with their corporation's shifting business strategies and managerial structures, all while striving to maintain their sense of Apple's uniqueness in order to fuel the deep personal commitments and high performance demanded by their jobs.

SAVING SILICON VALLEY'S SOUL

Chapter 1 emphasized the internal dynamics that contributed to Apple's serious crisis in 1985, but in this section, I turn my attentions to the broader context of that crisis. Although Jobs's disastrous managerial decisions and the Macintosh team's destructive competition with other groups in Apple were primary factors in the corporation's struggles that year, the U.S. tech industry as a whole was headed for a fall in 1985. Manufacturers of basic computer components, such as Intel and National Semiconductor, began to face stiff competition from cheaper Japanese products, while blind investor enthusiasm had driven a period of intense—but unsustainable—growth in the personal computer industry.²⁰ Yet the boom years immediately before the 1985 high-tech slump had profoundly shaped the mythologies of the U.S. technology industry. Silicon Valley leaders—and a handful of top employees—grew accustomed to the wealth and fame that followed from the fantastic growth of their stock options, and because this growth occurred against a backdrop of sluggish performance in most other sectors of the U.S. economy, many

tech executives began to see themselves as the individuals most responsible for the future prosperity of the nation. John Sculley particularly ascribed to this belief, and far from being humbled by Apple's serious managerial problems and the larger tech industry crash in 1985, he began to see himself as a person who was uniquely positioned to revive Silicon Valley's economic growth, all without sacrificing its reputation as a place that bucked corporate convention.

This section details Sculley's efforts to turn Apple around during the 1985 crisis, which I argue deepened the conflicts between the company's idealistic promises to its employees and the corporation's broader financial goals. Specifically, Sculley proved unwilling to accept that Apple's phenomenal early growth was an unsustainable trend driven in large part by uncritical investor speculation. As he moved forward from the 1985 crisis, Sculley therefore pushed Apple into new markets to grow the company as quickly as possible, but as subsequent sections reveal, the business foundations of these strategies were far from sound, and they led Apple into a series of protracted crises in the 1990s. To a certain extent, Sculley's questionable strategies reflected pure financial self-interest—as Apple's chief executive, he could earn incredible returns on his stock options if the company performed well on Wall Street, and an essential determinant of Apple's stock value was how rapidly the company's revenues grew on a quarter-by-quarter basis. But there was also an element of personal hubris involved. Sculley had taken a huge risk by jumping into high-tech from the soft drinks industry, and he was determined to succeed according to the rules and myths of his new field. In other words, Sculley, like many Apple employees, possessed a strong desire to see his work as a radical departure from the hide-bound conventions of the industrial world, which he had deliberately abandoned when he left Pepsi in 1983. As Apple's leader in the 1980s and early 1990s, Sculley's approaches to labor management were therefore particularly conflicted. On the one hand, he wanted his em-

employees to continue believing that they were members of an elite cadre of professionals who worked for a thrilling and unusual company, but on the other hand, he wanted to push employees to even higher levels of productivity and efficiency to drive the kind of feverish growth that would pay off in lucrative stock returns. This section deals mainly with Sculley's assertions about his leadership regime at Apple, while subsequent sections examine how his ideas were set down in corporate rhetoric and official company policy, with an emphasis on how rank and file Apple employees fared during Sculley's reign.

When John Sculley gave up the presidency of Pepsi's soft drinks division to become Apple's CEO in 1983, there were a number of risks involved. For one, even though he bargained with Apple's board to give him a \$1 million annual salary—twice his fee at Pepsi—and assorted other perks, Sculley was leaving behind the chance to become the chairman of the vast and powerful Pepsi empire, which Don Kendall, Pepsi's chief executive and Sculley's friend and mentor, had indicated was a very likely possibility. Moreover, Sculley's expertise was marketing and advertising—he knew next to nothing about technology, and many of his colleagues and business associates on the eastern seaboard treated his planned move to Apple with suspicion or even outright derision, questioning how he could possibly make a successful transition to a very different kind of industry and corporate environment.²¹ When Sculley did make the move from New York to California to take up his post at Apple, it likewise placed considerable strain on his personal life, and he later admitted that shifting geographies and the all-consuming pressures of learning Apple's business nearly broke up his marriage.²²

But the siren song of Silicon Valley was hard to resist, and Sculley was not immune to the lures of the dynamic new industry. For one, Apple's board had given Sculley 350,000 shares of Apple stock as part of his signing package, and in his first three months at the company, the value of that stock doubled, increasing his net worth by some \$9 mil-

lion.²³ While Sculley maintained in his 1987 memoir that he was a more realistic and experienced businessman than his “starry-eyed” colleagues, who simply expected Apple’s stock values to keep rising, the journalist Frank Rose suggests otherwise, reporting that Sculley was heard boasting in 1983 that “he hadn’t come [to California] to take Apple from a \$1-billion company to a \$2-billion company; he’d come here to take it from \$1 billion to \$10 billion.”²⁴ Indeed, other passages in Sculley’s own memoir belie his image as a sage and level-headed business leader, especially the revelation that he took out a \$3 million loan to buy more Apple stock in 1983, thereby betting his entire personal fortune on the company.²⁵

Simultaneously, Silicon Valley’s apparently unstoppable growth in the early 1980s earned unabashedly positive coverage in the media, which fueled the American public’s fascination with computer companies. The depth of popular enthusiasm could be measured by the unexpected bestseller status achieved in 1981 by *The Soul of a New Machine*, journalist Tracy Kidder’s on-the-ground account of computer design at Data General, which sailed on to win both the National Book Award in nonfiction and a Pulitzer Prize.²⁶ A 1982 issue of *Time* magazine, which featured Steve Jobs and the Apple II on its cover under the bold headline, “STRIKING IT RICH: America’s Risk Takers,” likewise suggested to the public that the computer industry was at the forefront of corporate practice and prosperity.²⁷ Comparing the people who flooded Silicon Valley in the 1980s to the “jobless dreamers [and] mavericks from the status quo” who had driven California’s nineteenth century gold rush, Sculley averred that the new generation of gold diggers had been enticed by “becom[ing] involved in something that not only lent them fortune but also fame.”²⁸ Sculley shared in these dual aims—he reported being somewhat incredulous, but unable to hide his pleasure, the first time a stranger stopped him on the street to ask for his autograph after he became Apple’s CEO.²⁹

While Sculley became increasingly enchanted with his newfound notoriety and growing personal wealth, he paid little attention to the business problems being created by Steve Jobs's combative management of the Macintosh project, and he also failed to recognize the broader signs of an approaching industry-wide slowdown, as he simply accepted Jobs's optimistic projections about how many computers Apple could sell.³⁰ What Sculley failed to realize was that Apple's rapid early growth—along with the overall expansion of the tech industry—had been exaggerated by rampant speculation on Wall Street. Apple itself had helped drive the speculative bubble in tech stocks in the early 1980s—as Michael Moritz reports, Steve Jobs and Apple chairman Mike Markkula expended considerable efforts in the late 1970s cultivating the favorable attentions of the influential Wall Street analyst Ben Rosen, who helped drum up so much enthusiasm for the start-up that Apple's initial public offering of stock in 1980 was the largest since Ford had gone public in 1956.³¹ But as Moritz also suggests, investor enthusiasm in Apple was not entirely well-placed—Regis McKenna, the San Francisco-based agency that handled Apple's publicity and advertising, was so worried about the company's poor management and lack of clear business plans that they seriously considered dropping Apple around the time of the IPO to avoid tarnishing their own brand.³² But the novelty of the personal computer industry in the early 1980s masked many mistakes at companies such as Apple—these firms were involved in creating a brand new market, and for a time, all it could do was grow.³³ Investors were also not inclined to look a gift horse in the mouth in the early 1980s. The ravages of deindustrialization had seen many sectors of the economy stall or contract throughout the 1970s, and when the United States entered a serious recession in 1982, high-tech companies seemed largely immune from the nation's economic woes.³⁴ A significant number of investors therefore continued to pin their hopes on Apple and its Silicon Valley brethren.

In 1985, however, reality caught up with the computer industry. As the *New York Times* reported in the summer of that year, uncritical investors had dumped truly incredible sums into high technology firms in the past decade. The amount of money invested in computer companies, the article reported, “rose from \$600 million in 1977 to \$19 billion in 1983,” and as a result, the number of high-tech corporations had exploded, with personal computer manufacturers mushrooming from 8 to 47 between 1981 and 1985, while software companies had multiplied from 34 to 280.³⁵ However, one financial analyst conceded that these investments were “a very huge waste of money” because most of the targeted corporations “did not advance technology but merely offered variations of other companies’ products.”³⁶ In other words, the ready availability of capital for tech companies had allowed them to flood markets with indistinguishable personal computers and software, completely saturating existing demand for the new technology—in 1985, most computer firms simply could not find customers for their products, and many went out of business.³⁷ “What we’re going through is a large-scale hangover from a speculative orgy,” lamented the chairman of Hambrecht & Quist, an investment banking firm that had helped handle Apple’s initial public offering.³⁸ The incredible growth that Apple had enjoyed as one of the first companies in a new industry thus came to a screeching halt, and if the company survived the 1985 tech slump—which was not guaranteed—Sculley foresaw that finding significant numbers of new customers would be a serious and ongoing challenge.

As Sculley surveyed the wreckage around him at Apple in the summer of 1985, he saw few reasons to be optimistic, and he struggled to come up with a strategy for putting Apple back on a solid business footing. Stock values had plummeted, employee morale was understandably low in the aftermath of the mass layoff he had executed, and even more troublingly for the long term, Sculley was beginning to realize that the much-

vaunted Macintosh was simply not going to spark a mass computer revolution. Although Sculley admitted he had been swept up in Jobs's "precocious, mesmerizing" vision of computer power for ordinary people, when he began to scrutinize the actual Macintosh sales data, he came to an unexpected realization: "The home market," which Sculley and Apple had been depending upon to "driv[e] our growth, was a figment of everyone's imagination."³⁹ As Sculley took a harder look at the actual capabilities of Apple's products, he had to conclude that the "average consumer simply couldn't do anything useful with a computer."⁴⁰ Despite the Macintosh team's unshakeable faith that they were building a machine that would extend computer power to ordinary people while enchanting and delighting them, in reality, the \$2,495 machine—about \$5,795 in 2016 dollars—did not have a diverse enough array of capabilities to satisfy most potential customers.⁴¹ As Sculley put it, "Most people who bought computers stuffed them in the closet because balancing a checkbook wasn't reason enough to flick on the switch."⁴² Although Apple still had strong relationships with schools, who had formed an important backbone for Apple II sales, Sculley began to believe that selling the pricier Macintosh in significant numbers would require Apple to break into a new and less familiar market: large corporations. "We would have to dramatically alter the whole orientation of Apple Computer," Sculley averred; "Not its values, its groups, its environment, but the kind of business it was in."⁴³ Corporate customers, Sculley deduced, "perceived that technology had some functionality to it and were willing to pay for that functionality," so he held out some hope that Apple could pull back from the brink if the company could win a number of business contracts.⁴⁴

Although Sculley's desire to pursue corporate customers made some sense from a business strategy point of view, his employees were not happy when he made his plans known. In addition to the anxieties caused by 1985's painful layoffs and Apple's fast-shrinking profits, Sculley was effectively telling employees that their desire to empower

ordinary people with useful computers was little more than an illusion, while simultaneously informing them that they needed to focus all their efforts on selling machines to the very customers Apple employees most despised—large corporations. Even worse, to succeed in business environments, the Macintosh would need to be able to talk to the computers made by IBM, Apple’s greatest adversary. Due in no small part to the failure of the Apple Lisa and the Macintosh group’s inability to deliver a fully functional Macintosh Office software suite on time, IBM had been able to capitalize on its longstanding ties to the corporate world and had secured a large enough position in the market to be seen as the business standard in personal computing. Conceding that Apple, in its weakened state, could not mount a successful assault on IBM’s market share, Sculley immediately called on his workers to produce the hardware and software necessary to integrate Macintoshes into IBM-dominated offices, but some Apple employees balked. “Even faced with Apple’s possible ruin,” Sculley remembered, “people still resisted reaching out to business markets, connectivity, and coexistence with IBM—their all-time enemy, the symbol of evil.”⁴⁵ Sculley faced outright mutiny in the ranks—a few employees “rebelled, some refusing to work on products like MS-DOS co-processors cards and IBM mainframe terminal emulators that would allow us to coexist with IBM.”⁴⁶ Sculley recognized that much resistance stemmed from the fact that he was not a technologist, but a transplant from corporate America with an Ivy League pedigree. He heard his employees muttering, “How could a soda-pop executive lead us in a direction we can trust?”⁴⁷

Similar doubts about Sculley’s leadership abounded across Silicon Valley. As Michael Moritz, puts it, corporate leaders in the tech industry had come to see themselves as “people with daring imaginations and a yen for risk,” and Steve Jobs, as “Silicon Valley’s most precocious child,” had come to serve as something of a standard-bearer for the industry’s most iconoclastic traits.⁴⁸ Sculley therefore faced significant pressure from the rest of

the field to maintain Apple's rebellious image, as was made clear in a letter he received from Technologic Partners, one of the third-party developers Apple depended upon to create supporting products for its computers. "You were right, Apple is like *Dynasty*. It's prime-time viewing," the letter began, and suggested that Sculley was "left without much room to wriggle as we all watch you try to turn a consumer company into a computer company."⁴⁹ The letter granted that Jobs could "be maddeningly obdurate and capricious," but Technologic Partners simply did not see how Apple could survive without "his instincts, enthusiasm, wit, impatience, competitiveness and plain voltage."⁵⁰ Such communiqués revealed that Silicon Valley observers would be scrutinizing Sculley's every move as he struggled to revive the corporation, measuring whether he was holding fast to Apple's singular image.

Sculley was therefore deeply uncomfortable position as Apple's leader in 1985, a situation made all the worse by his personal financial problems. The value of his stock options had plummeted, and he had to admit to his wife that this had made them completely bankrupt because of the \$3 million personal loan he had taken out to buy more shares in 1983—the only way he could climb out of the hole was by recovering some of Apple's value on the stock market, which he clearly wanted to do as quickly as possible.⁵¹ In addition to the high personal financial stakes weighing on Sculley, he knew that if he failed to revive Apple, many former colleagues from his Pepsi days would think he was getting his just deserts for making a rash move to a new industry, while his Silicon Valley peers would be confirmed in their suspicions that he was an outsider without the nerve or skill to succeed in high technology. Failure at Apple would see him forever ostracized from the upper echelons of corporate America—there would be no second chances to prove his mettle as a business leader.⁵² Yet the only way Sculley saw out of the 1985 crisis was by seeking contracts with large corporations, a move that inspired serious doubts among his employees

and other Silicon Valley observers. On top of all this, Sculley possessed no little hubris about the vital importance of the tech industry to the overall health of the national—and even global—economy. According to Sculley, Silicon Valley was supposed to guide the United States into a profitable post-industrial age, to “become a territory as rich as the country’s steel belt became poor,” and to “len[d] hope that innovation and creativity were still possible in American business.”⁵³ “If the Valley was doomed,” Sculley agonized, “so was the country.”⁵⁴ Time would only deepen these beliefs—at the 1988 Macworld Expo, Sculley raised the stakes to dizzying rhetorical heights. In making the transition from an industrial business paradigm to a post-industrial one driven by high-tech innovations, Sculley intoned, “What is at risk is not simply our own standard of living, but also the health of the world economy.”⁵⁵ Casting Apple as an exemplar of the new business ideas and technologies that would drive future economic growth, Sculley suggested that the success or failure of his company would say much about the health of global capitalism.

The various personal, ideological, and business pressures weighing on Sculley shaped his handling of the 1985 crisis at Apple in deeply contradictory ways. On the one hand, his own financial losses and the doubts of colleagues made him want to restore Apple’s growth speedily, which pushed Sculley to aggressively pursue contracts with large corporate customers. On the other hand, this strategy conflicted with Apple’s image as an iconoclastic anti-corporation, which risked alienating employees and frustrated Sculley’s own desire to cast Silicon Valley’s unusual business practices and working environments as the key to the future prosperity of the U.S. economy. To begin to get a handle on these complex problems, Sculley saw his most pressing task as gaining more control over Apple’s recalcitrant workforce so that they would be more pliable to his executive decisions, but he also wanted his employees to embody the incredible corporate devotion and labor productivity he had witnessed on the Macintosh team to drive Apple beyond the crisis as

quickly as possible. However, Sculley, unlike Jobs, would not rely on abusive tactics or aggressive psychological manipulation to maintain employees' faith in Apple or gain direct influence over workers. Instead, he would undertake a softer campaign, appealing to employees' sense of elitism and reassuring them with a variety of symbolic gestures, while simultaneously installing managerial structures that would make it easier for Apple management to apply pressure to employees to make them more productive and accountable to executive orders. The remainder of this section examines Sculley's own account of how he managed employees during the 1985 crisis, which he presented as a series of smart tactical maneuvers that got employees on board with an essential business strategy, all without sacrificing "Apple's soul." However, I also highlight some of the questionable aspects of Sculley's tale and explain some of the key problems with his decision to pin Apple's future on business customers.

Sculley's depiction of how he modulated employee expectations during the 1985 crisis revealed his personal proclivity for mythmaking and storytelling. To gain greater control over Apple, Sculley determined that he needed to create a more conventional corporate bureaucracy, but he also claimed that he did not want to further alienate employees with such an overt symbol of traditional corporate authority. It would be necessary, he reasoned, for his employees to see people whom they trusted occupying the new positions of power. "So while I turned to a traditional organizational concept," Sculley remembered, "I reached for non-traditionalists to fill some of the key jobs."⁵⁶ Chief among these was Del Yocum, a "California laid-back" employee who had been with Apple since 1979 and had risen to general manager of the Apple II group. Yocum bore primary responsibility for installing and directing the new managerial hierarchies, as well as overseeing the extensive layoffs and clamping down on errant teams, processes that Sculley knew could get messy. "Giving this job to Del," in Sculley's words, "made it more [palatable] to the

organization.”⁵⁷ Sculley continued, “If I tried to superimpose controls over freewheeling Apple, it would have been as if corporate America had rushed in to clamp down the company. Del, one of the Apple originals, could install the process without creating anxiety. If I did it, it would scare people to death.”⁵⁸

Sculley included this anecdote in his memoir as evidence of his deft managerial skills, specifically his ability to bring some conventional order and business sensibilities to Apple without employees feeling a thing. But the notion that putting Yocum in charge completely blinded Apple employees to the new hierarchies strains credibility, especially when a company-wide memo from 1988 spoke openly to employees about the existence of said bureaucracy. This memo, penned by Sculley himself, summarized why he had created “a functional organization structure” in 1985 to install a “centralized decision process,” which allowed him to more effectively make and enforce top-down directives through a managerial hierarchy.⁵⁹ While that structure had been appropriate at the time, he continued, “today it is too hierarchical to create a focused and exciting work environment.”⁶⁰ As a result, he initiated New Enterprise, a company unit composed entirely of “middle managers,” to revise Apple’s organization for the future.⁶¹ Chief among the group’s recommendations was that Apple should use its “own technology, a flat organization structure and a network vs. a hierarchical paradigm to lead by example in innovation, quality, and flexibility. We will be a model of a great 21st Century company.”⁶² Clearly, Sculley could not refer so offhandedly to the hierarchical bureaucracy he had created in 1985 if employees had no inkling that it existed. And employees could hardly miss the fact that Sculley tapped middle managers—rather than rank and file workers—to conceive Apple’s restructuring, which suggested that the managerial bureaucracy originally installed in 1985 would continue to wield a great deal of authority within the updated company. Moreover, this memo post-dated Sculley’s 1988 Macworld speech by some eight months

and his memoir by more than a year, which reveals that the ways he presented Apple to the public—as a revolutionary “network” of “temporary teams.... designed for management by dissent”—were in essence prospective visions, yet to be attempted in reality.⁶³

Sculley offered an equally questionable account of how he convinced employees that selling Macintoshes to corporations was not a betrayal of the computer’s creators’ intentions to empower ordinary people, nor a breach of Apple’s own anti-corporate culture. First, Sculley said he appealed to employees’ beliefs in the inherent superiority of their product. He assembled evidence from Apple’s corporate customers to prove that “Macs were easier to use by far than IBM personal computers and...they were used far more frequently because of it. The average IBM PC in business is used only thirty minutes a day, while a Mac gets more than two hours of use daily.”⁶⁴ Citing the Macintosh’s revolutionary graphical interface and multitasking capabilities, Sculley also found that corporate Mac users ran far more programs, indicating the Macintosh’s superior versatility. Moreover, Apple’s marketing division discovered that offices were buying Macintoshes and Apple laser printers to make use of the computer’s unique word-processing and text formatting capacities to design and print in-house “newsletters, circulars, and even books.”⁶⁵ Dreaming up the name “desktop publishing” to describe these activities, Apple’s marketing and sales teams turned this unexpected office use of the Macintosh into an effective sales pitch, while Sculley worked avidly to convince employees that even corporate customers could find creative uses for the Macintosh’s graphics.⁶⁶ However, the contention that Apple’s early corporate customers—banks, insurance companies, and other traditional firms—were doing truly amazing text and graphics publishing with the Macintosh somewhat overstated the case. As Sculley revealed in his memoir, most companies were simply enticed by the prospect of cutting costs and increasing efficiency by creating documents in-house rather than “send[ing] their printing jobs to outside printers.”⁶⁷ No reliable re-

cords exist to corroborate whether employees cared deeply about desktop publishing, but once the shock had worn off of Apple's new emphasis on corporate customers, employees could certainly appreciate that the strategy was good for the bottom line, with new business contracts bringing Apple back from the brink of destruction by the end of 1985.

Sculley insisted that shielding employees from the new managerial realities at Apple and his arguments about Macintosh's uses in corporate offices were necessary strategies to regain employee trust in the aftermath of the 1985 crisis—tokens and symbols that would reassure them in a time of uncertainty. But I argue that Apple employees' aspirations and motivations were more complex, and that Sculley had not completely hoodwinked the company's workforce into believing that their company was operating according to its original mission of creating a computer revolution for the masses. As I will show in the subsequent sections of this chapter, official corporate rhetoric had long encouraged employees to see themselves as elite performers, and to see high productivity as a matter of individual determination and skill, blurring the lines between professional success and personal identity. As we will see, a number of employees came to understand their ability to contribute to Apple's business goals as something that called on their essence as unique human beings, not simply their skills as paid laborers. Moreover, as I explained in chapter 1, Apple had enticed some employees to align their professional exertions with Apple's stock value by giving them options to buy shares out of their salaries—in the aftermath of the 1985 crisis, Sculley greatly expanded the employee stock purchasing program, pushing a larger proportion of his workforce to tie up more of their compensation in Apple shares, which gave them direct financial incentives to be conscious of how their daily performance might impact the corporation's financial value, and to be more committed to the business strategies that would most serve Sculley's own financial self-interest.⁶⁸ Finally, while Sculley installed a more powerful—and punitive—corporate bureaucracy to scruti-

nize and manage his employees, he softened this structure with a multitude of symbolic gestures and workplace practices that largely maintained Apple's look and feel as an unconventional employer, and granted many employees considerable feelings of autonomy with respect to how they carried out their jobs on a day-to-day basis.

The corporate culture that emerged at Apple after 1985 therefore brought to the surface many of the inherent conflicts in the company's identity. While workers—and executives—had been inspired by the mission of bringing computer power to the masses, and enjoyed their popular notoriety as technological visionaries operating in an unorthodox corporate environment, they also desired the luxuries afforded by working at a fast-growing corporation with a cozy relationship to Wall Street. There were thus complexities and layers to every development at Apple during this era, and many mixed feelings. As John Sculley's leadership took Apple to new heights between 1985 and 1990, employees found themselves pondering what kind of company Apple really was, even as they hoped that the gravy train would not come to an end. Before I turn to a closer analysis of corporate rhetoric and employee experiences under Sculley, however, I want to briefly outline the fundamental flaws in Sculley's overarching business strategies, because the choices he made during the 1985 crisis would ultimately lead Apple into an even graver series of corporate catastrophes in the 1990s, with deeply troubling consequences for Apple employees.

When Sculley aggressively pushed Apple into the corporate market for personal computing in 1985, the unique graphical and textual capabilities of the Macintosh helped the company capture a new, niche market in desktop publishing, which helped Apple post some much-needed profits and move past the crisis. Yet Esther Dyson, an influential journalist, venture capitalist, and self-described “matchmaker” for business partnerships in the high-tech industry, wondered whether it was wise for Sculley to bet Apple's future al-

most exclusively on large business customers. “Does Apple really belong in the corporate marketplace?” she asked Sculley in a personal meeting. “Or is it like Dorothy, searching for happiness far away in Oz when the true riches lie at home, in the small business and education markets so familiar and friendly to Apple?”⁶⁹ Sculley, however, did not heed her advice, and he failed to take the time to reassess Apple’s strengths and to chart a more careful, multipronged, long-term course for healthy expansion. The problem was that desktop publishing was the only segment of the corporate market where Apple had significant traction, not least because Steve Jobs’s undermining of the Lisa and his failure to deliver Macintosh Office had crippled Apple’s ability to compete with IBM for mainline corporate computing contracts. Moreover, Apple only dominated desktop publishing because no other computer company in the mid-1980s could offer comparable textual and graphics capabilities, and somewhat incredibly, Sculley did little to prepare for potential competitors in that field, even though he was well aware that at least one powerful tech company was working hard on systems software that would allow any other computer to match the Macintosh’s capabilities at a fraction of the price. That company was Microsoft, but like Jobs before him, Sculley failed to take seriously the company’s new operating system, Windows.⁷⁰ Windows, of course, would ultimately almost put Apple out of business. If Sculley, however, had truly let Apple be “manage[d] by dissent,” and valued his employees’ perspectives on the kinds of technologies and strategies Apple should pursue, there might have been a much more vigorous company debate about how Apple should deal with the threat posed by Microsoft Windows.⁷¹ As it was, Sculley instead pushed his employees to focus on their attentions on quarterly profits and fluctuations in Apple stock values, fostering a culture where short-term gains assumed much greater importance than coherent long-term strategies. Although Apple’s board would ultimately fire Sculley

in 1993, as we will see, it was once again employees who suffered the most as a result of the direction Apple took under Sculley.

RECONSTRUCTING THE ANTI-CORPORATION

During the latter half of the 1980s, corporate rhetoric and managerial tactics at Apple strove to maintain employee faith in the company's image as a rebellious anti-corporation, but at the same time, Apple's leadership worked to enforce greater employee accountability to executive directives and corporate financial goals. In the previous section, we witnessed John Sculley's rather fabulous contentions that Apple employees were effectively shielded from signs that their employer had installed a much more conventional—and much stricter—managerial bureaucracy, and that he had convinced his workforce that selling computers to large corporate customers was not a betrayal of Apple's mission to empower the average individual. In this section, however, I present evidence that indicates Apple's professional staff was well aware of the contradictory impulses that motivated Sculley's executive decisions in the aftermath of the 1985 crisis, and that employee decisions to capitulate to Sculley's managerial directives rested on a number of tacit bargains regarding the character of day-to-day working experiences at Apple. Once again, however, we will see that Apple employees proved more invested in maintaining the more intangible symbols of their workplace freedoms than in securing stronger job security guarantees or more meaningful control over the scope and extent of their professional responsibilities.

Most of the sources for this section come from original archival research. In part, I draw upon Apple brochures and publications that specifically targeted employees, and which explicitly sought to shape worker beliefs and behaviors. This kind of corporate

rhetoric, designed to enhance employee faith in the company and secure greater loyalty to corporate causes, has been around for a long time. As Roland Marchand details in his history of corporate public relations efforts, as U.S. firms began to grow increasingly large and impersonal in the early decades of the twentieth century, business leaders worried that employees might feel alienated from their corporate employers, and companies therefore developed a number of publicity efforts to convince employees that even large corporate enterprises possessed humanistic concerns and impulses.⁷² Some of the Apple documents I cite directly extend this venerable tradition of corporate rhetoric, but Apple's archives at Stanford also include a compelling collection of employee-produced ephemera, which offers fascinating and valuable glimpses of employees negotiating such corporate rhetoric and ideologies on the ground. In combination, the records I cite show that Apple pushed employees to believe that they were part of an elite and highly committed class of professionals who should be willing to devote themselves heart and soul to their work, and that Apple's leadership simultaneously subjected employees to fine-grained biannual reviews to scrutinize whether they were truly contributing enough to the company's growth and profits. In return for high commitments, Apple promised to provide employees with substantive personal growth opportunities, a fun and invigorating working environment, and special rewards for exceptional performers. For their part, employees grappled openly with the high workplace pressures they faced, Apple's declining commitments to empowering the average person, the specter of a stricter managerial hierarchy, and the apparent financial benefits of going along with Sculley's overarching corporate strategies. And although a number of Apple employees expressed significant doubts and concerns about the state of their company, they struggled to move beyond fleeting and individualistic responses to the problems they saw at Apple.

The corporate rhetoric that Sculley and his leadership team used to shape employee attitudes during the latter half of the 1980s was not entirely of their own invention. As we saw in chapter 1, work at Apple was subject to a mythologizing tendency from the company's earliest days, indicated perhaps most clearly in the Macintosh group's undying proclamations that they were anti-corporate warriors, but who spent most of their waking lives in Apple's offices, pouring the lion's share of their energies and passions into making a corporate product. Extrapolating from these employee mindsets, company rhetoric memorialized the notion that Apple was an unconventional workplace. For example, a 1983 employee handbook, *Welcome to the World of Apple*, highlighted Apple's unique mission to extend computer power to the masses, exclaiming that the company and its employees were deeply "proud of what our personal computers are and will be doing for individuals and society," and inviting new hires "to share in our adventure with us."⁷³ Indeed, the handbook continued, "Society will be dramatically altered as personal computers extend our individual capabilities far beyond current limitations," and Apple was "committed to making major contributions to the expansion of human potential."⁷⁴ "Our pride and enthusiasm," the pamphlet continued, "are reflected in the way we work at Apple. You will find that it is an open, friendly place where hard work coupled with creativity is prized. We encourage flexibility and innovation and avoid formality. We don't hide behind doors or titles."⁷⁵

A 1984 follow-up, *Inside Apple*, established that Apple's difference from other corporations began with its very name, which "didn't sound like other high-tech companies."⁷⁶ The booklet continued, "Even the logo was different. Multi-colored stripes aren't the stuff serious logos are made of. Why an apple? Why bright stripes?"⁷⁷ *Inside Apple* explained that "these important symbols" indicated that Apple's computers were "friendly, approachable, simple, and affordable" machines "that enable people to be more creative

and productive than they ever dreamed possible.”⁷⁸ The subsequent 1985 employee handbook spoke more directly to the rebellious pretensions that had grown up among the Macintosh crew. Insisting that Apple managed its workforce “with vision and shared values, rather than rules,” the document stated that the “development of Macintosh is a prime example of our vision. While everyone else in the industry was in a headlong rush to become ‘compatible,’ Apple was in a headlong rush to become better.”⁷⁹ Announcing that the company was always looking to hire and retain “[p]eople with the skills and sense of daring that characterized the early pioneers,” the handbook asked its readers, “So, which would you rather do? Follow the so-called rules and be ‘compatible’? Or follow a vision? And change the world.”⁸⁰ To preserve this spirit, the booklet promised, “we don’t have a rigid, structured, bureaucratic organization.”⁸¹

While these documents emphasized Apple’s unconventional business strategies and working environments, other company policies and publications addressed the qualities and characteristics Apple looked for in employees. According to much corporate rhetoric, not just anyone could succeed at Apple—the company explicitly looked for elite performers who were willing to push themselves beyond conventional expectations. A 1984 memorandum on compensation and performance reviews, for example, stated, “We seek better than average people and expect from them a better than average performance.”⁸² A company handbook from the same year likewise touted that Apple employees generated more revenue than their counterparts at most other companies, demonstrating a high level of individual commitment to Apple’s business goals. “To have achieved annual sales of \$1 billion with fewer than 5,000 employees demonstrates the importance of each individual’s contributions,” the handbook read. “Most billion dollar companies have twice as many employees and are proud of adding more.”⁸³ The 1987 revision of the Apple Values, composed at the height of Sculley’s reign, reiterated the theme. “We expect indi-

vidual commitment and performance above the standard for our industry,” the Values informed employees. “Each employee can and must make a difference[,] for in the final analysis, individuals determine the character and strength of Apple.”⁸⁴ An undated memo explaining employee benefits at Apple offered softer words for the corporation’s hard-working staff, but also made clear that high performance was primarily recognized through rewards linked to quarterly balance sheets and stock values. “Apple Employees are special people,” the memo read. “They’re hardworking, committed and their performance far outstrips the industry average.... As a result, our benefits and compensation philosophy is fired by a simple and compelling idea: *Outstanding people deserve the best!*”⁸⁵ “*It all Begins with Money,*” the memo elaborated, outlining that top performers could expect bonuses in the form of special stock options, all-expenses-paid vacations, and, if quarterly profits warranted, a profit-sharing program.⁸⁶

But Apple management suggested that there were additional, intangible rewards that employees would derive from pushing themselves to perform at the peak level. In particular, Apple promised to support employees’ personal growth in the workplace, and Sculley was an especially keen advocate of the idea that Apple and other post-industrial companies should give employees ample opportunities to learn new skills and explore new ideas and fields on the job.⁸⁷ At Apple, the primary avenue for employees to pursue self-growth was through a company organization called Apple University, formed in 1983. Yet there was some dissonance between the official purpose of Apple University and how the company presented the organization to employees. Apple University’s brief charter revealed that company leaders primarily expected the organization to improve employee productivity, explaining that the “purpose of Apple University is to support Apple’s business direction by designing and delivering” classes and resources to “optimize individual, team, and organizational performance.”⁸⁸ A course catalog from 1985, however, suggested

that Apple University was committed to fulfilling employees' personal aspirations in addition to developing workforce skills that would serve the company. In their introductory note, John Sculley and Steve Jobs proclaimed, "We want to do things that have never been done before, to create our own way of managing our business, to challenge ourselves to meet impossible goals."⁸⁹ To ensure that Apple would continue to be such a forward-thinking and invigorating company, Jobs and Sculley continued, "we need commitment and discipline as well as great ideas. We must build inspired leaders and contributors that can help Apple continue to succeed and remain the industry's innovator."⁹⁰ These statements emphasized that Apple's ongoing ability to satisfy employee goals relied on employees working hard every day to make sure that Apple was performing at its best, churning out innovative products and selling them at a profitable rate. Yet the catalog informed employees that they could use the resources of Apple University to map their personal desires to the company's needs. "Where do you want to be a year from now? Five years from now?" the catalog asked. Linking the personal to the corporate, the catalog continued, "Where is Apple heading? How will it get there? How can *you* make that happen?"⁹¹ By asking these questions, employees could begin to identify a path through Apple University that would speak to their personal aims and give them the satisfactions of high achievement, while simultaneously providing them with plenty of opportunities to make Apple a stronger business. Once employees knew where they wanted to go, Apple University promised to help them find the resources they needed to get there. The catalog insisted that the whole process would cater to employee desires. "If you don't see what you need in this catalog, talk to us. We'll help you find it. Or create it," the catalog assured readers. "So you see, Apple U. is *really* Apple *You*."⁹²

Scanning through the actual course listings, however, does not exactly suggest that Apple University existed to help employees grow in diverse or deeply personal ways. The

first category of courses, “Self Management,” covered time management, understanding different personalities to improve teamwork, and negotiation tactics to extract better performance from peers and subordinates.⁹³ Likewise, employees could choose from an extensive range of “Business Communications” classes to improve their presentation skills, their business writing, or the effectiveness of their meetings.⁹⁴ Rounding out the offerings were some dozen classes to help employees use their Apple computers more effectively for work tasks.⁹⁵ By taking advantage of such opportunities, the catalog assured employees, “You’ll be able to contribute and do more. So your division will be able to do more.”⁹⁶ For all the talk about personal growth, the ultimate aim of Apple University was clearly to make employees perform more work more quickly and at a higher quality. “Let’s face it,” the catalog reasoned, “there are only two ways this company can grow. One way is to add a lot more people. The Other Way is to help the people already here to grow. Here’s to the Other Way.”⁹⁷

Some employees were apparently jaded about such attempts to align personal growth with corporate growth, as suggested by an official-looking, undated document that circulated around the company, bearing the title, “Voluntary Education Center: Enrollment Form.” Much resembling other sign-up sheets for Apple activities or opportunities, a closer look revealed something a little off with this course listing. Interested employees, for example, could take such “Self-Improvement” courses as “SI 101: Overcoming Peace of Mind” or “SI 109: How to Overcome Self-Doubt through Pretense and Ostentation,” as well as courses in “Business & Career,” including “BC 3: Packaging and Selling Your Child,” “BC 6: How to Profit From Your Own Body,” and “BC 7: The Underachievers’ Guide to Very Small Business Opportunities.”⁹⁸ In home economics, employees could explore “H 220: Biofeedback, and How to Stop It” or “H 408: Tap-Dance Your Way to Social Ridicule,” while the crafts subject area offered “C 101: Self-

Actualization Through Macrame.”⁹⁹ This course listing, which circulated through corporations around the globe throughout the 1980s and 1990s, was not the creation of an Apple employee, but it obviously resonated at least with the anonymous soul at the company who preserved it for posterity.¹⁰⁰ Much as Apple University told employees that they could experience meaningful personal growth by better managing their time or performing more effectively during meetings, no few Apple people must have chuckled at the Voluntary Education Center’s equally questionable self-fulfillment opportunities. But the form was also indicative of the relatively insubstantial nature of employee criticisms of hollow corporate rhetoric, consisting more in private, sarcastic laughter over oblique satire than in concerted attempts to hold Apple leaders such as Sculley accountable to their promises to help employees grow.

Employee motivation at Apple was therefore clearly a multipronged—and at times ticklish—affair. On the surface, corporate rhetoric and practice constantly sought to establish and sustain Apple’s status as an unusual corporation with a particularly inspiring mission—in other words, a corporation that was worthy of unusual commitments from employees who were themselves unconventional in their workplace aspirations and exertions. Yet the underlying point of massaging employees’ egos, offering “personal growth” opportunities, or trumpeting Apple’s specialness was to push workers to be more productive and committed to increasing corporate profits. But while Apple did offer tangible financial rewards to stimulate employees’ efforts, the company was less concerned with helping employees manage the stresses and strains of their high-intensity jobs, even under particularly difficult conditions. Instead, employees were expected to find personal ways of coping with work-related pressures.

A handout circulated to employees in the midst of the 1985 crisis offered a glimpse of the self-management techniques favored by Apple leadership. Titled “Prescription for

Achieving Excellence,” this document inquired after a variety of employee “symptoms.” “Feeling overworked?” the printout asked. “Anxious about deadlines? Concerned about not achieving excellence on a consistent basis?”¹⁰¹ The document’s “prescription” called on employees to find their own ways to handle the added strain. “Find something you love to do,” the memo pronounced airily, as well as exhorting, “Work hard and work smart, Focus on results,” and “Challenge yourself and learn from your mistakes.”¹⁰² If the stress was still too great, the handout had three more recommendations: “Make movies in your mind, Believe in yourself and take care of yourself,” and “Build support networks.”¹⁰³ The printout blithely glossed over such facts as the recent layoff that had cut 20 percent of Apple’s workforce or the pressure Sculley was applying to remaining workers to churn out new products and win important sales, which made for a particularly punishing pace and atmosphere at Apple at that moment. Instead, the handout simply called on employees to push themselves even harder by developing a range of coping tactics or tricks. Apple still expected excellent results from overtaxed workers in troubled times, and it was employees’ personal responsibility to figure out how to deliver.

In pursuing this worker management strategy, Apple revealed an altogether conventional set of priorities, in which company profits took a marked precedence over employees’ emotional or mental wellbeing. But it also demonstrated the subtler workings of managerial power at Apple. As Melissa Gregg argues, demands for employee self-management have become endemic in white-collar workplaces. She writes, “Self-monitoring and individual goal-setting become disciplinary techniques by which employees engage in the ‘deep acting’ required to implement management tenets.”¹⁰⁴ The “Prescription for Excellence” memo might therefore be read as management through the creation of self-doubt and anxiety. Rather than calling on managers to strong-arm their employees to work harder, which could devolve into counterproductive interpersonal con-

flicts, the memo simply planted a series of questions into employees' minds: Are you working hard enough? Are you working fast enough? Are you achieving the best results? What more can you do to live up to Apple's needs and expectations? Such a communiqué could reinforce employee awareness that they were being measured and observed without making the authority of the managerial hierarchy seem overly harsh or palpable, helping preserve Apple workers' sense that their jobs were largely self-directed and independent. As Gregg assesses these managerial strategies, "The autonomy of salaried work comes at a price: to constantly prove responsibility."¹⁰⁵

The existing records of Apple employee experiences indicate that many workers at the company did internalize the necessity to prove their employability and to manage their own stress. Moreover, these records suggest that when employees raised more serious concerns about structural problems with Apple's labor practices, other employees tended to reinforce the personal responsibility of each individual to deal with job-related pressures rather than encouraging collective actions to challenge or resist excessive workplace expectations. One of the main forums for employees to express concerns and talk about their experiences at Apple was the company's online message board, HotLinks. Any Apple employee, from the CEO down to the newest entry-level hire, could start a new discussion on HotLinks, respond to an existing thread, or simply peruse old conversations, and the forum left contributors anonymous by default, so it was a place where workers could air at least some of their more general grievances without fears of identification or direct reprisal. Many posters, however, did choose to identify themselves on HotLinks, or at least named what division of Apple they worked for, and the printouts of conversations preserved in the archives at Stanford indicate that the forum drew participation from units across much of the company, including sales, marketing, human resources, product development, industrial design, hardware engineering, and software development. Much of the

remainder of this chapter draws on these discussions, as they offer unique and revealing glimpses into how employees absorbed, interpreted, coped with, or criticized the executive decisions, workplace pressures, managerial hierarchies, and corporate rhetoric that I have described from a more top-down perspective in the preceding portions of this chapter.

One particularly illuminating HotLinks conversation about excessive and unreasonable workplace demands began in April 1988, when an employee from the field sales division started a discussion thread on the topic of burnout. “I have been with Apple for nearly 3½ years,” the employee said, and the “pace has been fast and exciting. The work precedence we set for ourselves is absolutely incredible!”¹⁰⁶ After giving this positive introduction, however, the poster went on to describe conversations with a number of other longer-term employees, and reported that the “common theme in the conversations is BURNOUT.”¹⁰⁷ “So many excellent people,” the employee continued, “are working themselves into the ground and feel that they have to in order to keep momentum in their careers as well as just stay on top of the business.”¹⁰⁸ This comment captured the incredible pressures Apple employees faced, as well as a feeling of relative powerlessness to resist such excessive demands. The poster worried that this pattern would not be good for Apple in the long term, yet expressed faith that “Apple has always been a company that puts the individual first and cares about the quality of life for its employees.”¹⁰⁹ Certain that someone, somewhere in Apple’s managerial hierarchy was considering this issue, the poster asked, “Can someone clue us in on what steps Apple is taking to address this problem?”¹¹⁰

The first employee to respond acknowledged, “Burnout at Apple is a problem. We seem to operate at a level of intensity here that’s greater than the pace at other companies. Work can be seductive, and after a while of relentlessly pushing ourselves toward goal after goal, it’s easy to reach physical and mental ‘overload.’”¹¹¹ Yet this employee did feel that Apple had already made a number of good faith efforts to help workers manage the

high expectations they faced, including company policies allowing for flexible hours and some work from home, as well as “practices such as beerbusts and celebrations to ease tension and promote socializing.”¹¹² In addition, this response touted Apple’s policy of using “profit sharing to reward employees and as a by-product to ease financial concerns.”¹¹³ However, the employee admitted that “these benefits cannot prevent burnout, they can merely make employees’ lives easier, more fun, and occasionally ease tensions.”¹¹⁴ But rather than calling on Apple leadership to examine and possibly revise policies or practices that drove employees to overwork, this commenter called on employees to find more ways to help themselves. “Ultimately, each employee is responsible for monitoring his own level of burnout, and doing something about it. And this takes the same self-discipline we put into our work, but this time directed toward ourselves.”¹¹⁵ The employee continued, “It involves expressing our feelings and asking for help from our managers, HR liaisons, family and friends; taking time off when we need to; saying ‘no’ to requests; and paying attention to the parts of our life that are important, but have been neglected.”¹¹⁶ Finally, this poster commented, employees could aid each other by monitoring for signs of burnout, and encouraging coworkers to get help if they seemed to need it. For this employee, a fun working environment and a few financial perks were all one could expect from Apple—it was apparently beyond this commenter to imagine collective employee pushback demanding a more reasonable, sustainable work pace or more meaningful efforts from Apple management to help employees manage the strain the company placed on its workers.

Another employee chimed in that a stress management class offered at the Apple Fitness Center had helped her “look at some of the things I was doing that increased my stress and tendency to feel burnt out,” a comment that assigned primary responsibility for employee stress to personal habits and behaviors rather than to Apple and its high-pressure

working environment.¹¹⁷ “Like any other class,” she continued, “the benefit you get from it is proportionate to the effort you put into it: their techniques won’t work for you unless you have the discipline to practice them.”¹¹⁸ Once again, this commenter reinforced the idea that individual employees needed to take personal responsibility for managing job-related strains.

The next commenter demurred, offering a distinctly more critical account of how difficult it was to actually stand up to excessive demands in an environment where most employees were unwilling to resist their managers’ requests. Gesturing sardonically to the Macintosh team’s infamous slogan, she said, “It seems my manager is a workaholic. He works eighty hours a week (and loving it!) and expects each of us to do likewise.”¹¹⁹ She and others in her group had repeatedly complained to human resources about his excessive expectations, but to no avail. “Therefore,” she continued, “as we in our group work our paltry 40 to 45 hours per week, we continually receive criticism for not turning out enough work,” and she reported that she and her colleagues were typically “shredded” on their formal performance reviews, precluding raises or profit-sharing perks.¹²⁰ This commenter somewhat derisively noted the lack of significant action from the top of the company on the issue of overwork. “Around three years ago,” she wrote, “Sculley and HR made some noise about how Apple employees need to have a life away from Apple. Since then, silence.”¹²¹ The conclusion to her post offered a grim portrait of existence at Apple for people who wanted to preserve an identity beyond work:

I have learned to say ‘no.’ I do the amount of work that I can do in a reasonable amount of time, while still leaving time for my husband and family. I have accepted the fact that I will get bad reviews for missing externally-imposed projects and deadlines. I have removed myself from the fast track—you know, the one that leads to heart attack and stroke—and accepted that working for my present employer means living indefinitely on a fixed income. For me, in my little corner of the world, that’s Apple.¹²²

This employee revealed that Apple's actual expectations for employee performance far exceeded contractual obligations, and that managerial reviews did not assess employees according to their official job descriptions, but according to a much higher standard. In her experience, Apple's bureaucracy functioned to punish employees who merely did their jobs, extending much-vaunted rewards like profit sharing only to workers who were willing to forego much of a meaningful existence outside of the corporation.

The final post on the thread did not respond directly to this searing account of life at Apple. Rather, the next commenter demonstrated a good working knowledge of official company rhetoric. After acknowledging that she had just gone "through a bout with extreme burnout," she wrote, "Most Apple employees are overachievers. We strive for excellence at all times, and at any cost. We are constantly trying to prove ourselves the very best. We ARE committed to 'Changing the World' and to Apple Values."¹²³ For this reason, she continued, it was "no small wonder that the psychiatric community loves Apple. Apple provides a rich customer base with our overstressed and burned out employees."¹²⁴ Indeed, the journalist Dennis Hayes reports that a 1988 study undertaken by Apple management "suggested that at least 65 percent of Apple employees were 'in therapy'" or receiving some kind of professional counseling for work-related stress.¹²⁵ But whereas Hayes was highly critical of the serious psychological strain associated with work at Apple, this employee at least was much more hesitant to place blame with the corporation, insisting emphatically, "THIS IS NOT APPLE'S FAULT.... Apple does its part and more to help us. But all that will not help if we don't take care of ourselves."¹²⁶ She went on to offer tactics she had found effective for managing her stress, including making lists, exercising, and getting away from her desk for at least half an hour at lunch. Finally, she told her fellows on the message board, "If you know you are overworked and ready to break, and someone comes up and asks you to do three more things, you have to say NO."¹²⁷ This last bit of

advice made no acknowledgement of the previous poster's experiences with managerial reprisals, and offered no advice for how to resist if a manager simply would not take no for an answer.

This thread about burnout disclosed some important features about Apple employees' and managers' orientations toward the workplace. The participants in the discussion suggested that Apple workers tended to believe that it was extremely important to push themselves as hard as possible, even if excessive workloads could eventually lead to exhaustion and depression. When employees reached their breaking point, they typically refused to view their difficulties as part of a larger, cultural problem at Apple, where grueling workloads were the norm. Instead, employees tended to blame themselves for not properly managing their self-care regimes. When workers did resist managerial demands that they believed exceeded their contractual obligations—or indeed, a healthy amount of exertion—they tended to be punished by managers, and found that human resources and company leadership would not support them in their refusals to work longer than a standard full-time workweek. Moreover, they could not even expect much moral support from colleagues across the company. Because Apple employees generally accepted that their jobs would exceed the boundaries of a 9-to-5 workday, spilling into the home and onto the weekends, and because they liked to see themselves as superior performers compared to their associates at other technology corporations, Apple's workforce did not perceive a need to collectively resist their extraordinary workloads—indeed, they tended to see excessive performance as a desirable trait, and the ability to thrive under extreme demands as a measure of personal strength and responsibility.

Although the burnout thread on HotLinks suggested that many employees disciplined themselves to keep up the pace, managers used biannual performance reviews as their primary mechanism for penalizing or rewarding Apple employees. The performance

review guidelines, as revealed in a 1984 company memo, assigned each employee a “Proficiency Value” for the review period, which determined what percentage of their base salary employees would receive for the next six months. For example, an employee with only “the absolute minimum skills and experience to learn the job,” might be given a Proficiency Value of 80, which meant that he or she would be paid 80 percent of the base salary deemed appropriate for his or her position.¹²⁸ On the other end of the spectrum, the guidelines continued, “Salaries for employees who deliver consistently excellent results should be aggressively moved above the Proficiency Range,” but warned that “only truly superior performers should be moving over 120% of the Proficiency Value.”¹²⁹ Rather than requiring managers to grade their employees based on specific contractual obligations, the compensation guidelines gave managers relatively free rein to set their own performance objectives. The specific performance criteria listed placed an especially heavy emphasis on individual employees’ self-motivation, asking, “Has the individual displayed innovation and creativity in getting results? Can the individual get others to cooperate as needed? Does the individual bring problems or solutions?” as well as asking for comments “on the extent and the importance of the individual’s ability to work independently” and “on the quality of the individual’s judgment.”¹³⁰ Finally, the guidelines codified the expectation that employees would be able to work outside regular hours, asking, “Does the individual make extra time available in crunches?”¹³¹ Thus, while performance reviews could be used to give especially “committed” or “superior” performers added perks and bonuses, they also gave managers extensive latitude to discipline employees who did not live up to Apple’s aggressive pace, furnishing tools to slash salaries and ostracize employees who questioned the company’s pervasive culture of overwork.

The performance review sessions were the most obvious sign that Apple was moving toward a more conventional managerial bureaucracy under Sculley’s leadership, and

for employees who did resist working above and beyond what they believed their contracts required, the compensation guidelines revealed a rather authoritarian managerial culture. Yet because so many employees did push themselves to exceed expectations, bi-annual performance reviews could also serve as a stimulating challenge, motivating individuals to attain a higher Proficiency Value so they could purchase more stock from their salary bonuses or gain personal satisfaction and monetary rewards by being a bigger contributor to Apple's quarterly profits and profit-sharing rates. As I indicated above, Sculley was especially keen to connect employee rewards to Apple's stock value. Commenting that he expected his employees to take the kinds of creative risks needed to drive Apple's business forward, Sculley insisted that bold workers must "be given high rewards for their high risk, especially in stock options."¹³² Although Sculley likewise suggested that it was his responsibility as Apple's chief executive to sustain the company's "vision and direction," and "to protect that vision and not allow quarterly earnings to get in the way of its survival or growth," tying up significant amounts of employees' salaries in Apple stock was an extremely effective mechanism for motivating employees to do whatever was needed to make every quarter's profit margins as high as possible, which would help raise the stock's value.¹³³ Employees could only buy stock through automatic payroll deductions, and once they opted in, payroll would continue to automatically divert a set amount of their incomes to Apple stock purchases unless employees submitted an official "intent to withdraw from the plan."¹³⁴ Employees diverting significant portions of their paychecks to purchases of Apple stock—and facing significant personal losses should that stock value fall—could hardly be content with modest corporate growth. The employee stock plan therefore considerably raised the personal financial stakes of Apple's continued growth, and served as another mechanism to inspire above-average commitments from workers.

Yet, as the burnout thread on HotLinks suggested, the pace and pressure of life at Apple could exceed the stamina of even the most determined employees. Apple's staff clearly needed more than just the promise of future financial rewards to keep them going. They wanted also to believe that their company was special, and this required a new round of corporate mythmaking. Even if Apple no longer emphasized its original ambitions to empower the masses, and was instead more focused on providing technological solutions to corporate America, employees wanted to see their products in a unique light, and to maintain a working environment that plausibly diverged from corporate convention. Senses of technological superiority, or at least uniqueness, were not difficult to maintain. Until 1990, with the release of Microsoft Windows 3.0, Apple's Macintosh was the only personal computer on the market with a high quality graphical user interface and operating system, so it retained its position as the only computer in its class capable of handling advanced visual applications, graphic design, and sophisticated word processing.¹³⁵ Moreover, Apple would not license its core hardware or software to other manufacturers, so it was able to maintain its status as an exclusive brand, whereas other personal computer companies simply made universal machines that could run the same standard operating systems, first IBM, and later Microsoft Windows.¹³⁶ Corporate rhetoric helped keep alive the notion that no matter where Apple computers ended up, they would "make this world a better place to live."¹³⁷ "We build products that extend human capability," the 1987 Apple Values said, "freeing people from drudgery and helping them achieve more than they could alone."¹³⁸

For Sculley, however, the look and feel of Apple's working environments mattered the most for maintaining employees'—and his own—faith that Apple still differed from more traditional firms, despite the company's newfound emphasis on financial growth rather than technological empowerment and innovation. The value of this was impressed

upon Sculley in October 1985, when Apple held its annual end-of-fiscal-year summit, with meetings and presentations for employees across the company. Traditionally, the multiday event ended with a Halloween party, which Sculley did not believe Apple should hold when it was still in the midst of a crisis. But the company had made some gains, and a few other executives finally convinced Sculley that the celebration was a good idea. He decided to dress up as “the Spirit of Apple,” donning “long woolen underwear with a silver-painted face and multicolored stars for eyes.”¹³⁹ “I didn’t look the part of a traditional corporate CEO,” Sculley recalled, which he said served as “the first sign that the spirit [of Apple] hadn’t died.”¹⁴⁰ It was an important symbolic moment that indicated to employees that Sculley would not take the fun out of Apple, even if he was determined to install a more conventional managerial bureaucracy and to make employees more accountable to the company’s financial growth. Day-to-day work would still feel less formal, and every Friday afternoon would still break into a “beer bust,” giving employees a chance to drink, carouse, and blow off steam.¹⁴¹

The following year, 1986, as Apple crawled back to profitability and began hiring again, orientation sessions for new additions to the company were calculated to highlight Apple’s unorthodox side. As new employees filtered into the orientation auditorium, disco tunes would be pumped through the room’s speakers, which the orientation leader’s guide described as “upbeat music that sets a mood of excitement and action”—and, the guide added, “The group leader must also radiate this feeling.”¹⁴² Giving orientation leaders more pointers on how they should conduct the sessions, the guide said, “The program’s most important goal is to give new employees a sense of excitement about Apple’s mission and potential for changing the world.”¹⁴³ Insisting that the orientation leader’s enthusiasm for the company would “greatly influence the way new employees start out here,” the guide exhorted its readers to remember, “*how* you say things will be more important than ex-

actly what you say.”¹⁴⁴ The vehemently gregarious and cheerful tone of these orientation sessions indicated Apple leadership’s belief that it was essential to begin crafting the corporation’s unconventional image from the first moment that new employees set foot on the company’s campus, and that maintaining this mood was critical for keeping employees “comfortable and productive.”¹⁴⁵

As employees moved from their first training sessions into their actual workspaces, they would continue to encounter a plethora of symbols designed to put them at ease and demonstrate Apple’s divergence from corporate convention. “The work environment needs to be informal and relaxed,” John Sculley purred; “it needs to remove the symbols of management, which in the traditional company means the uniform of the business suit, the closed-in offices, the overabundance of titles, the executive perks.”¹⁴⁶ As far as Sculley was concerned, Apple employees could wear whatever they wanted, so long as their performance remained high. During Sculley’s reign, Apple endeavored to fill the workplace itself with irreverent symbols and playful customs. For example, the company encouraged the employees of each division to come up with “themes” for their buildings, where “meeting and conference rooms aren’t identified by cold, impersonal numbers,” Sculley observed, but by personalized names.¹⁴⁷ “In our ‘Land of Oz’ building,” for example, said Sculley, “the conference rooms are named Dorothy and Toto. Our Management Information Systems Group has meeting rooms with names such as ‘Greed,’ ‘Envy,’ ‘Sloth,’ ‘Lust,’ and the remaining deadly sins.”¹⁴⁸ Finally, Sculley revealed, in many Apple buildings “each floor is outfitted with a red-topped popcorn cart, so everyone at Apple can even sniff how different we are. It’s another symbol to remind us that Apple is not a traditional corporation, so doesn’t think in traditional ways.”¹⁴⁹ “It’s not accidental that many of these are the symbols of childhood (popcorn included),” Sculley concluded, arguing

that regressing to a more tactile state of childlike “innocence” helped employees attain “the most creative state of all.”¹⁵⁰

To keep up impressions that Apple’s leadership itself was not stodgy or traditionalist, Sculley installed some intriguing characters in important positions of power. One example was Jay Elliot, a bearded surfer who Sculley tapped to run human resources, and another was Jean-Louis Gassée, Steve Jobs’s replacement as the head of the Macintosh division and product development.¹⁵¹ A wisecracking French mathematician, Gassée was well known for describing computers in baldly erotic terms. “We must always give our user pure sex,” he once proclaimed. “It’s like a rendezvous in the back seat of an automobile with a beautiful girl. One’s experience with the personal computer should be better than the greatest orgasm you could have.”¹⁵² By peppering his executive team with people whose personalities would have stuck out like sore thumbs as corporations like IBM, Sculley wanted to send a clear signal to employees that Apple was still a place that welcomed oddballs, artists, and wizards. Yet from a business angle, some of the choices were questionable. Gassée, for example, was “primarily a marketing man” with no engineering experience, but he became the head of all product development at Apple—in a corporation that relied primarily on technological breakthroughs to distinguish its costly, non-compatible products from a sea of cheaper alternatives that could all run the same software, Gassée’s lack of technical know-how was problematic.

As if to reassure himself that the combination of bizarre leadership choices and playful symbology comprised a bold vision for Apple’s business was not just some silly illusion, Sculley asked rhetorically, “If a traditional corporation did the same, would it work?” He could only conclude, “Probably not,” as he argued that the installation of such symbols at Apple reflected his company’s deeply held values and vision, whereas at a more conventional firm they could only serve as hollow emblems.¹⁵³ It may seem somewhat ab-

surd to an outside observer that “sniffing” Apple’s difference and Sculley’s rather infantilizing perspectives on employee motivation could make staff members profoundly invested in the corporation, but the evidence suggests that such symbols of Apple’s uniqueness inspired passionate personal identifications on the part of many workers. The importance of these symbols came into full view in late 1988, when an employee started a thread on HotLinks about the dress code for the upcoming Macworld Expo, which set off a veritable firestorm of debate about the meaning of Apple.

“Does everyone know that the ‘Dress Code’ for Apple Employees at Macworld this January is ‘Jacket and Tie?’” the post began.¹⁵⁴ “I find this development very unnerving for Apple and its ‘image,’” the employee continued, because he felt that formal dress “gives people the impression that we are a very conservative and regimented company. Not the type of company that would be at the forefront of technical accomplishments. Not the type of company that would take risks with great, new products.”¹⁵⁵ He continued, “I don’t think Apple should change its current image, especially since it is not really an image, but the truth.”¹⁵⁶ For this employee, much like Sculley, the symbolic gesture of not wearing a suit and tie at an official trade show was not empty posturing, but an important marker of what kind of company Apple really was—an innovative corporation that was willing to take great risks to develop groundbreaking computers, a company that hired people based on ability to perform at high levels rather than capacity to conform to corporate standards. Another employee expressed surprise at this news, asking how Apple was going to enforce the policy, while yet another staff member found the whole idea completely implausible. “I find it funny that anyone would believe such a rumor about Apple trying to enforce a dress code! Come on!” he laughed.¹⁵⁷ “The idea of a dress code is bizarre, ludicrous, and totally without merit as far as I’m concerned. I came to Apple to get away from stupidity and conformity and I don’t believe for an instant that Apple

would ever stoop so low as to establish a dress code for anything other than a formal event.”¹⁵⁸ This employee had an abiding faith that Apple liked and trusted its employees, and that the company’s leadership could not care less about personal appearance, even at a key sales and publicity event.

For another employee, the specter of a dress code was somewhat more unsettling. “There is a lot of talk going on outside Apple,” she noted, “about ‘how big’ Apple is becoming and how we are losing our ‘entrepreneurial spirit’ and turning into ‘another big company.’ While this is not true, wearing jackets and ties just may make it seem so. WE CANNOT LET THE WORLD BELIEVE THAT WE ARE LOSING OUR APPLE-NESS. WHAT ELSE WILL BE LEFT AFTER APPLITES BEGIN WEARING SUITS?????????????”¹⁵⁹ After first calling on everyone to protest the directive by wearing Levi 501s and Reeboks, she mused that there could actually be some value to “presenting a serious/professional image,” as it might make it easier to relate to representatives from other, more conventional companies.¹⁶⁰ So she suggested a middle ground, telling attendees to “wear something half-way professional (a jacket at least) but DO JAZZ IT UP A BIT!”¹⁶¹ For her part, she planned to wear “a skirt and jacket and (yeck!!!!) NYLONS to Macworld.... but I promise you my skirt will be plaid, and my earrings will be funky, and my colors will be bright!!! And my hair will be wild. They will KNOW I am with Apple!” She concluded her post, “PLAY THE GAME WHEN YOU HAVE TO, BUT NEVER, EVER GIVE IN!!!!!!”¹⁶² These comments revealed an interesting slippage between symbol and corporate identity. The employee was insistent that Apple was not losing its particular character, and implied that simply wearing a jacket and tie to a trade show would hardly destroy what made Apple special, but then redoubled her argument that the outside world could not be allowed to believe that Apple was becoming more traditional. At the end, she sought the middle ground, looking for an option that would allow her to fit more easily

into the broader corporate scene without feeling like she had betrayed her own unique persona or Apple's unconventional reputation.

Two other employees took a slightly patronizing tone when responding to their more impetuous colleagues. One quipped, "Having a clean, currently fashionable suit to wear shouldn't be too difficult, considering the wages and profit-sharing we pull around here. (I've even seen Steve Jobs in a suit and tie)."¹⁶³ For this employee, putting on a jacket just for a trade show was not such a big deal, as Apple's current business strategies made it especially important "to be taken seriously in the business world," which could require a little flexibility from Apple employees, at least until "we are well enough accepted to re-define any rules or standards we don't agree with."¹⁶⁴ "I get the feeling that some of us are getting paranoid about becoming 'Big Blued,'" or more like IBM, he concluded.¹⁶⁵ "Perhaps we're just afraid of growing up and accepting more mature standards of behavior."¹⁶⁶ In this employee's eyes, getting past the childlike state that Apple culture intentionally cultivated might not be such a bad thing, and, in any case, once Apple was successful enough, the company could go on breaking any rules it wanted. One of his colleagues was more blunt. "If you're working the booth, play by the rules," he snapped. "Apple's upper management has a business strategy that's worked damned well for us. If they think that wearing suits in the booth will help our image (thereby increasing sales, profit-sharing, benefits, etc.), play the game for a few hours. If you don't want to play, don't volunteer for the game."¹⁶⁷ Here was an employee completely won over by Apple's heady pursuit of profits. After all, just a few months before this conversation started on HotLinks, Sculley had written to employees to tell them that fiscal year 1988 was Apple's most profitable ever, with sales for the last quarter alone topping \$1 billion.¹⁶⁸ Insisting that the year's biggest gains were made with Macintosh in business, Sculley happily announced a record-high profit-sharing bonus for employees.¹⁶⁹ With such lucrative payouts

coming employees' way, who could quibble about something so meaningless as a jacket and tie?

But these posts hardly ended the debate. Another employee, who had grown up and started his career in Europe, gleefully mocked his colleagues' fears of formalwear, as he had long faced ridicule for his habit of wearing a suit to work. Saying he had been judged "a 'lesser' engineer" on the basis of his attire and "asked by management to 'dress down' in order to gain credibility," he proclaimed, "[a] uniform is a uniform whether it is formal or informal and for this reason alone it should be abhorred," suggesting that Apple's enforced informality could be just as suffocating as the rules in the blandest of corporations.¹⁷⁰ On a similar note, another employee sarcastically chimed in, "I love the idea of ALL OF US wearing Reebok brand shoes and model 501 Levis brand jeans. We wouldn't want anyone to think that we were a bunch of dress-alike corporate clones by wearing suits and ties would we?"¹⁷¹ In an attempt to close down the discussion, an employee who helped manage the product booths at Macworld argued that the same "dress code" had been in effect since 1978, and that he found the thread's "comments about wearing a suit and tie very silly."¹⁷² He continued, "We can take risks, we can make great new products, and we can be on the forefront of technology, and some of us do it while wearing ties!"¹⁷³

The thread went quiet for a while until after the Macworld Expo, when the employee who began the thread said what bothered him most was the idea of a "mandatory dress code," when he felt that "[l]etting employees determine what they think is suitable for Apple should suffice."¹⁷⁴ He also relayed the fact that one marketing manager he knew had "silently protest[ed] the dress code" by not wearing "underwear under his suit."¹⁷⁵ Moreover, he continued, John Sculley showed up at the Expo wearing "green corduroy slacks and a baggy Apple sweatshirt," leading this employee to conclude that "the middle management of Apple" were the true villains, enforcing some kind of conformity that

even the chief executive bucked.¹⁷⁶ This comment kicked off a new round of post-Expo deliberations. One employee noted that she “did indeed wear business clothes—a real cool-looking skirt, blouse and jacket, great hair and makeup.”¹⁷⁷ “But here’s the point,” she continued, “I did *not* give in to anyone else’s idea of how they thought I should look. I presented my own personal style—and received a lot of compliments because of it.”¹⁷⁸ For her, maintaining a strong sense of personal identity was important, but so was being flexible as times changed. “[A]lthough Apple was built on the jeans and bare-feet culture, we are, either fortunately or unfortunately moving along with the times (and the money!), and growing up and ‘playing the corporate game.’”¹⁷⁹ Given Apple’s need to stay profitable by courting business customers, this employee perceived that there would be trade-offs. But she likewise wanted to hold onto her sense of personal identification with her job. “The trick here is not playing the game,” she reasoned, “it’s making them *THINK* you play the game, while still maintaining that sense of self. Isn’t that the more important issue here?”¹⁸⁰

The employee who had suggested that everyone don their Reeboks and Levis expressed a similar perspective, saying that she had subverted the formalwear conventions with “funky earrings,” lots of hair mousse, and “un-solid-color pieces,” but also claimed, “I felt MOST comfortable in my running tights, Nikes, bright pullover windbreaker, and green bicycling sunglasses.... Somehow I really felt I represented the Apple spirit BEST when I was dressed like this yet had my briefcase slung over my shoulder. The contradiction of casual/athletic attire and a business-like briefcase seemed to express both my creative side and my business side and I liked it!”¹⁸¹ This comment suggested that employees let their work at Apple spill out into other realms of their lives not simply because it was so demanding and time-intensive, but because it seemed to call on multiple aspects of their interests and personalities. In yet another post, she described the sense of empowerment

she derived from being able to express her personality through clothes on the job. For a business meeting at another company, she decided to wear “a sweater, baggy trousers, and shoes (gotta be careful not to wear holes in your socks),” and as a result she said she felt “comfortable and projected confidence and intelligence and a real sense of self.”¹⁸² Indeed, she argued, “dressing ‘down’ puts you to the test even more because what you say and how you present your ideas and thoughts count even more than if you ‘look the part!’”¹⁸³ Issuing a challenge “to all those people out in the corporate world,” she proclaimed, “take off those suits and ties you’ve been hiding behind and prove yourself in your tennis shoes! THIS is the ultimate test!”¹⁸⁴ These comments got to the heart of how something as seemingly simple as Apple’s lack of a dress code in day-to-day affairs could stimulate a deep personal connection to work. Employees could feel like themselves on the job rather than as if they were merely putting on a performance that had little to do with their personal identities, and they could therefore see their workplace successes as a true reflection of the self.

Another employee was not so sure. Writing that he had been at Apple more than eight years—predating even John Sculley—he suggested that in the past, “Apple’s culture was stronger; wearing jeans was just a side effect.”¹⁸⁵ Now, he mused, employees’ intense preoccupations with sartorial preferences indicated that Apple’s real values had been hollowed out—if the corporation still commanded the faith of its employees, he contended, people would not be so anxious about something as mundane as wearing a jacket to a trade show. Even though he admitted that “Apple is getting closer to feeling like ‘just-another-big-multinational,’” he called on his fellow employees to be more like “a family stretching itself to be the best on the inside.”¹⁸⁶ Another commenter shot back that it was absurd for Apple to have the same values and character from eight years previous, as Apple was no longer the same company. In the past, he wrote, many Apple people might have

been inspired by “relating to the average Joe out there who just wants to know how a computer can help him.”¹⁸⁷ But Apple had to face facts. “Unfortunately,” he said, “the average Joe doesn’t really need a computer yet, so we have to deal with corporate America. It’s very easy to scoff at the blue-suiters, but, let’s face it, they’re the ones who buy our boxes.”¹⁸⁸ He warned that instead of obsessing over something ineffable like dress codes or the company’s heavily mythologized culture, Apple employees needed to focus on making truly great products—he sounded a note of anxiety that Apple’s competitors were now producing computers and software that might not have the same elegance as the Macintosh system, but which offered much the same functionality. Only by making truly excellent products, he reasoned, would Apple remain “unstoppable.”¹⁸⁹

This lengthy and spirited debate, which linked together fashion, corporate culture, and personal identity, disclosed significant tensions in Apple employees’ aspirations to grow the company aggressively while holding onto their special, personal identifications with Apple’s unconventionality. Their conundrums echoed the experiences of the Macintosh group, but where members of that project held fast to the fantasy that they were building their machine to extend computer power to the masses, Apple employees of the latter 1980s were more swept up in John Sculley’s drive to keep Apple’s productivity—and stock growth—at a premium. Yet many still sought assurance that their contributions to Apple’s single-minded pursuit of profits had not turned them into corporate drones. Yet here again, there were slippages. Some of the employees on the thread insisted that breaking with outward signs of corporate conformity—by donning funky clothes, wild hairstyles, or flamboyant accessories—actually helped them play the corporate game at a higher level. The ultimate aim was therefore not to break the chains of workplace demands, but to bind the self more closely to Apple’s challenging business goals. But at least a few employees pointed out that this orientation toward work was perhaps just as con-

formist as wearing traditional business attire. Others were more straightforward in their assertions that Apple's high profitability was more than enough recompense for periodically needing to appear more conventional. All of the employees, after all, believed they were profiting under Sculley's leadership—on whichever side they fell of the fashion divide, each employee was determined to find her or his own particular way to contribute more vigorously to Apple's business strategies.

Yet Apple employees' were able to suppress their worries about Apple's declining specialness and their confusion about the company's direction chiefly because they felt like Sculley's business strategies were paying off. Apple appeared to be growing and profiting at healthy rates, and employees were seeing some of those benefits through stock options and special bonuses. For many workers who chimed in on the dress code discussion, their continuing faith in the inherent superiority of Apple technologies, the company's overall financial health, and a handful of informal perks were enough to sustain their strong personal identifications with their jobs and to keep them wedded to Apple's corporate mission. They did not, on the whole, express concerns that employees lacked meaningful, collective control over their working environments, instead undertaking individual actions—such as not wearing underwear—to protest managerial directives they did not like. And even if employees were not entirely thrilled to be selling computers to corporate customers, no one participating in the conversation suggested that employees should have more say in what kind of business Apple was in. It was simply up to individuals, this thread suggested, to keep Apple's spirit alive on a day-to-day basis, as long as Sculley and the rest of the executive team kept the profits rolling in by whatever means they believed were best. Yet as I indicated above, Sculley's overarching strategies, established amidst the 1985 crisis, were deeply flawed. As the 1980s came to a close, those flaws sent Apple into a downward spiral, where employees' troubling lack of collective rights, workplace controls,

or influence over Apple's business direction would play out most vividly in the conflicts over serious layoffs in 1990, 1991, 1993, 1996, and 1997. I chronicle the unraveling of Apple's workplace myths in the next section.

WE WANT TO BELIEVE: EMPLOYEE FAITH AND THE UNRAVELING OF SCULLEY'S NEW SOCIAL CONTRACT

If many Apple employees and Wall Street investors got on board with John Sculley's post-1985 Apple relatively quickly, and largely maintained their enthusiasm for the corporation for the remainder of the decade, John Gantz, the business columnist for the industry magazine *Info World*, saw the writing on the wall as early as 1986. "It's hard to go against the pro-Apple sentiment these days," he wrote in the summer of that year, noting that "Wall Street has doubled the company's stock price in 1986" and that investors were expressing high confidence in the company's future earning power.¹⁹⁰ "But I am a still a little queasy," he continued, claiming, "Apple is no longer a computer company. It is a financial engine. At the moment it is well-tuned—its operating margins are in line, and its hoard of cash enviable—but it also has an insatiable appetite for fuel."¹⁹¹ Gantz explained that Apple "needs ever-increasing revenues," on the order of thirty percent per year, and he calculated that the company would therefore need to post yearly growth of at least sixty percent in unit sales to cover the perpetually falling cost of hardware and software.¹⁹² He was concerned that there was not enough demand for the Macintosh's distinguishing features—sophisticated graphics and word processing—to justify that rate of growth for long. Gantz predicted that Apple might begin running into problems by the end of 1987.

Gantz's assessment was astute, although 1990 was the year that Sculley's strategies began to crumble. Although Apple had turned out a few new models of the Macintosh, its

basic features and capabilities had not advanced appreciably since its debut in 1984, while Windows—which Jobs had called “really a piece of shit” the first time Bill Gates demonstrated it for him—had progressed through a number of versions, slowly coming up to par with the Macintosh’s capabilities.¹⁹³ Windows 3.0, released in 1990, was good enough for many corporate customers to make the switch.¹⁹⁴ While Sculley had insisted that Apple’s proprietary hardware and software were the company’s “crown jewels,” the fact that the Macintosh operating system and software would only run on Apple hardware made the whole system much more expensive than competing computer manufacturers, whose machines would all run the same software.¹⁹⁵ When the Macintosh offered unique capabilities in the mid-1980s, Apple could squeeze corporate customers because they had nowhere else to turn. When Windows 3.0 debuted, those customers gained the ability to do almost everything the Macintosh could do on computers that cost a fraction of the price.

As we will see in this section, these larger shifts in the personal computer industry rapidly cut into Apple’s business, and I focus on the consequences for the company’s workers. It is in the period between 1990 and 1997 that the flimsiness of Apple’s new “social contract” with its employees comes into the clearest view, as Sculley and other executives repeatedly prioritized short-term profits over employee well-being or job security. Apple leadership repeatedly carried out sweeping layoffs in an effort to cut costs during bad quarters, and company policies increasingly measured worker performance according to impact on Apple’s stock value, while formalizing employees’ lack of rights and protections. I continue to draw on company policy documents, internal communications, and employee HotLinks discussions to show why the labor arrangements at Apple in the 1980s and 1990s were actually a terrible bargain for workers, despite the company’s repeated appeals to fun and self-fulfillment on the job.

Employees at Apple's headquarters in Cupertino, California, were the first to receive indications that the 1990s would be much more unsettled than the late 1980s. On the morning of January 12, 1990, they received a voicemail from John Sculley, who had some bad news. He reported that the initial data from the first quarter of fiscal year 1990, which began in October 1989, indicated "that our revenues and profits will not meet our original expectations."¹⁹⁶ He continued, "Given these results, we are reexamining our outlook for FY90, and must take some immediate steps to bring expense growth better in line with revenue growth."¹⁹⁷ Sculley informed employees that they would soon receive a letter detailing specific plans to cut costs at Apple, which would include layoffs, a reduction of profit-sharing with employees, and new criteria for performance reviews, while executives would give up their luxury model company cars for more modest vehicles. Trying to strike a more reassuring tone, he said, "I want to emphasize that our business is fundamentally sound," but asked for employees to understand that "even the most successful companies must have the flexibility to move quickly when times get tougher."¹⁹⁸

Compared to the 1985 crisis, the layoffs in 1990 were rather more modest—when Apple's executives finalized the figures on February 21, 1990, Sculley terminated about 400 employees worldwide, in contrast to 1,200 in 1985. In his personal letter announcing the layoffs, Sculley tried to soften the blows with kind words for those losing their jobs. "The people who will be leaving Apple are good people who have contributed a lot to the success of this company," he wrote. "Like the rest of us, they've worked long hours and shared in our hopes, successes, and dreams, as well as in our disappointments. It is important to me that they leave Apple knowing how much they are appreciated, and with the full support of Apple behind them."¹⁹⁹ For those remaining with the company, Sculley granted that the next few weeks would be difficult, but asked employees to "try to re-

member that these layoffs mean we're nearing the end of a particularly difficult period for Apple," suggesting that Apple would soon be back on track to profitability.²⁰⁰

However, in a company that had extracted extraordinary employee commitments to fuel rapid growth, the drop in profits and the layoffs left some workers deeply unsettled. Given how much of themselves they had poured into Apple, they were disturbed to think that Apple executives would not think twice about sacrificing people to make the next quarter's balance sheets look better. Such a maneuver smacked of the conventional corporate world—only businesses that did not care about their workers could be so ruthless, and many Apple people bought into the rhetoric that their employer cared about them as individuals. Yet a fact sheet generated by human resources to answer common questions about the terminations reinforced impressions that Apple was not deeply committed to its workers. The memo noted that even should Apple's profits rebound, "We do not anticipate that the positions which are eliminated will be reinstated, and no laid off employees will be recalled."²⁰¹ As for whether terminated staff members could apply to work at Apple again, the fact sheet said that they could, but that they would "not be given preference in hiring."²⁰² Arne Kalleberg points out that such layoffs, carried out to "increas[e] short-term profits by holding down the wage bill," became increasingly common in the 1980s and 1990s.²⁰³ These permanent terminations, he continues, were a striking departure from the standard practices that defined the three decades following the Second World War, when layoffs were generally viewed as an justifiable tactic only if the corporation was in danger of outright bankruptcy, and were carried out with the understanding "that workers would be hired back once business conditions improved."²⁰⁴ Without strong collective bargaining power or worker rights, Apple employees had no definitive means of extracting such concessions from their executives.

An open letter to John Sculley, posted anonymously to HotLinks by “A Loyal Employee” the same day that Sculley announced the layoffs, disclosed the profound anguish of Apple’s workforce as they grappled with the possibility their company was, in fact, much like any other aggressive corporation—driven by leaders more concerned with quarterly profits, stock values, and executive perks than the plight of their employees. “I think that you really are trying to do the right thing,” the employee wrote in the first paragraph of the letter, and averred that “most of us understand that this is a tough time for Apple and we really WANT to support you and the executive staff in getting the company back on course.”²⁰⁵ But, the loyal employee also admitted, “many people within Apple feel as if you are very out of touch with ‘the common man,’” which could “prevent many of us from getting whole-heartedly behind you.”²⁰⁶ The main problem, the employee continued, was the distinct disparity in how the company was distributing its current pain to executives versus employees. “You and Mike [Spindler, President of Apple International,] talk about being one Apple and pulling through this together,” the worker said,

something many of us WANT to get behind. Yet when talking about the fixes, you state in the same breath, “the Executives are losing their cars, and 400–500 people are going to be laid off.” Does ANYTHING about this message sound funny? I sure hope so. You’re saying that 125 executives are losing the \$40–50K car while 400–500 people are losing their jobs. IT JUST AIN’T THE SAME. To add insult to injury we find that these poor executives are going to get a big bonus to help pay for their car.... We understand the idea that the car was part of the compensation package for these executives, but a weekly paycheck was part of the compensation package for the 400–500 people being laid off.²⁰⁷

It was difficult for this faithful worker to believe that the layoffs were really necessary, when it was obvious that the company’s leaders were not bearing any meaningful responsibility for Apple’s troubles. “The main point here, John, is that, perhaps unwittingly, you have not simply slapped Apple employees in the face but have sent them reeling with a

right cross,” the worker wrote, “asking us to believe that somehow the executives of the company have really made a sacrifice while at the same time we’re about to lay off people. It seems to me that layoffs should be the absolute LAST resort to cutting costs.”²⁰⁸

The most alarming signal these events sent to this employee was that Apple might be turning into a company defined by a “class struggle,” where most executives were guaranteed at least a \$1 million severance package, whereas laid-off employees would only continue drawing their regular salaries for up to sixty days, depending on rank.²⁰⁹ “I fear that with the large compensation packages comes a detachment from what most of us consider reality,” the employee elaborated, citing the exorbitant cost of living in Silicon Valley.²¹⁰ “It’s hard for us to feel sympathetic when, even without the increases,” the worker wrote, “you guys are making anywhere from 10–40 times more than most of us (you figure it, \$50,000 (which is high [for an average Apple employee]) vs \$500,000–\$2 million). Does that statistic affect you in the least? So very many of us down here sure hope so.”²¹¹ “John,” the letter pleaded, “would you have any idea what it’s like to be a single parent with a grade 35 job at Apple and have to raise 2–3 kids in an apartment or some small home in the valley? The extremities we’re talking here are enormous.”²¹² Despite deep concerns about the executives’ indifference to their employees’ quality of life and the callousness of the layoffs, this loyal worker had not yet lost all faith. “John,” the employee continued,

[w]e really truly WANT to support you and believe you and understand you and get behind you. But right now you’re giving us the impression that you have absolutely no idea what it’s like to be a peon.... Do you not see that what you’re saying sounds like hypocrisy to us? Please John, help us regain the trust that we’ve had in you these past 5 years. We really do all want to be One Apple. We all share a vision of the greatness this company can achieve. But you need us, John, just as we need you. Please try to get back in touch with us.²¹³

Capturing Apple employees' sense of personal investment in the company, the worker signed off, "Give us back the Apple we know and love."²¹⁴

This remarkable and poignant letter encapsulated a pivotal turning point in Apple employees' relationship to their employer, a moment when some began to glimpse that the informal attire, popcorn carts, themed buildings, and Friday afternoon beer busts were not a reflection of Apple's soul, but ornaments designed to make them believe that Apple was "a company of artists," in Sculley's airy phrasing, rather than a ruthless—and perhaps soulless—corporation.²¹⁵ In a private letter to Jean-Louis Gassée, Apple's head of product development, another employee directly attacked the myth that Apple was not like other large companies. "I recall people saying that Apple was a place where we didn't have the negative trappings of Corporate America," he wrote. "You could call all the executives by their first names, people didn't wear ties, there were no executive washrooms, executive cafeterias, or executive parking places."²¹⁶ That may have been true when he joined Apple in 1984, the employee continued, but even though "you can still call the executives by their first names and you still don't have to wear a tie...today, we do have executive cafeterias, we do have executive washrooms, and we do have executive parking spaces," along with executive "signing bonuses, golden parachutes, and guaranteed stock appreciation payments (even if the stock doesn't appreciate)."²¹⁷ This employee found the severance packages particularly disturbing. "Where is the incentive for these executives to act in the long term interest of the shareholders?" he asked. "They are better off if they are fired than if they stay with the company."²¹⁸ This employee argued that Apple desperately needed some kind of "operating body that acts as a conscience for senior management," but did stop short of suggesting that rank and file employees should have any direct bargaining power: "We certainly don't want a labor union," he affirmed.²¹⁹

Whereas John Sculley had proudly and publicly proclaimed that Apple was a company committed to making bold departures from corporate convention, the details of the 1990 layoffs indicate that Apple was in fact closely aligned with the major trends that transformed corporate America throughout the 1980s and 1990s. Rather than revealing a desirable new “social contract” between corporation and employee, under which Sculley promised that workers would be empowered to learn, grow, and prosper, the years leading up to 1990 showed employees being worked to the bone, and then discarded at the slightest hiccup in quarterly profits. And although Apple’s problems had been set in motion by Steve Jobs’s destructive tendencies before the 1985 crisis, followed by Sculley’s inordinate desire for astronomical growth and failure to establish a solid foundation for that growth, the culture Sculley built at Apple enlarged the salary disparities between executives and employees while shielding executives from the economic costs of poor management. Such maneuvers have increasingly defined U.S. corporate practice. The union of the Communication Workers of America, for example, reports that the ratio of CEO pay to average worker pay at top corporations rose from 46-to-1 in 1983 to 335-to-1 in 2015, while the economic geographer Chris Benner suggests the disparities have long been higher in Silicon Valley, with executives being paid 1,000 times more than average employees by 2000.²²⁰ 1990 at Apple offered a presentiment that trading collective bargaining, strong worker rights and protections, and clear contractual obligations for a casual dress code, playful office environments, and 80-hour workweeks might not have been a fantastic deal.

Not every Apple employee came to such conclusions. In fact, one worker insisted that Apple as a company was not ruthless enough. Taking his opinions to the HotLinks message board, he wrote, “Today within Apple exists the personnel, physical facilities, and capital to embark on a long-range venture designed to lift our company to new highs in

earnings, return on investment, and stock prices.”²²¹ However, he insisted, “To accomplish that goal, our management must adopt a new standard—a standard called capitalism.”²²² Apple’s current problems, he continued, stemmed from the fact that Apple was “operating on a different standard...a standard directed toward a mystical ‘higher cause’ called society. The standard is altruism...a morality diametrically opposed to capitalism.”²²³ Rather shockingly, this employee was especially critical of Apple’s supposedly “altruistic executives,” who he said had betrayed Apple’s core purpose of “serving the stockholders by increasing their long-range common-stock values.”²²⁴ Concluding with a call to arms, he exclaimed, “If we rid ourselves of this altruistic cancer, we will be guaranteed a growing, exciting, 21st century company!”²²⁵ Many of this employee’s comments could have been pulled directly from neoliberal economist Milton Friedman’s 1970 diatribe in the *New York Times Magazine*, in which he railed that the only “social responsibility of business is to increase its profits.”²²⁶

Apple employee responses to this post ranged covered a considerable range. “Get real, pal,” one employee quipped, “get a little balance in your life, take some vacation. We are all rooting for your recovery.”²²⁷ Another said, “‘Altruistic cancer’ indeed! Chilling. Shades of Ayn Rand.”²²⁸ “Just when you thought Apple didn’t have a drug problem... :-),” yet another worker replied.²²⁹ A few other employees engaged with the comments more seriously. “Yes, we all want Apple to make lots of money so that we personally can make money,” one employee wrote, but suggested that Apple’s “altruistic” rhetoric, whether or not it was rooted in demonstrable social commitments, was likely good for business.²³⁰ He explained, “it makes many people ‘feel good’ to help others and therefore may make them feel better about Apple and more motivated to work harder” if they could believe that Apple was committed to “changing the world through personal computers.”²³¹ A different employee disagreed with the original poster’s specific rhetoric, but did agree that Apple’s

leadership was not behaving in the best interests of the company. The real problem, he continued, was that executives were “run[ning] on knee-jerk reactions” rather than establishing a coherent, long-range plan for the company’s growth.²³² Someone else commented that Apple had simply lost its focus on making “great products that have a positive impact on the world,” a goal which he believed could comfortably combine altruistic impulses with financial self-interest.²³³ Finally, one worker attacked the ideology underlying the original post. “I think your link represents the most disgusting aspect of the 20th century: a money-grubbing, selfish, short-sighted, and inhumane attitude that says to hell with society (and the people who live in it) and up with a bunch of meaningless pieces of green paper,” the employee wrote. “If the 21st century means that more and more people will begin to share your goal of selfish, capitalist greed, I refuse to be a part of it and will work actively against such a trend.”²³⁴

This discussion on HotLinks revealed that even though there might have been the odd employee at Apple who looked upon the company’s social progress rhetoric with disdain, many others took those aspirations seriously. Even when presented with evidence that Apple Computer, Inc., did not treat its own people with consistent respect and dignity, they sought to distance themselves from the baser aspects of the corporation’s financial self-interest. They preserved the hope that working for Apple did not entail selling out to the uglier demands of an aggressively competitive corporate capitalist system.

For the next several years, however, Apple slid further and further on a downward spiral, and employees faced additional layoffs and mounting demands that they perform at an even higher level for their struggling employer. On June 20, 1991, John Sculley and Michael Spindler—who was taking on an increasingly important role in the company’s leadership—wrote to employees with news of another workforce reduction, this time to the tune of 900 employees worldwide, almost six percent of Apple’s staff. “Although we

take pride in Apple being a different kind of company, in some respects we are not immune to the realities of the marketplace,” they explained, arguing that it was necessary to engage in an extensive restructuring process to keep Apple competitive for the future.²³⁵ Surely in response to considerable employee outcry that executives had not borne much of the burden during the 1990 layoffs, Sculley and Spindler also announced that the executive staff would be taking pay cuts of between ten and fifteen percent, but in the context of their substantial salaries and additional benefits in stock, severance packages, and miscellaneous perks, these sacrifices seemed largely symbolic. Moreover, they made clear that although the terminations were “personally painful,” it was essential to preserve Apple’s momentum so that the company could be “an important leader in the future.”²³⁶

Part of the executive plan for moving Apple forward was to raise employees’ already remarkable productivity to even higher levels. In 1991, human resources distributed a video entitled *Rethinking the Way We do Business* along with associated training materials to groups and divisions throughout the company. The handouts proclaimed, “Our business is constantly changing, and the challenges we face are enormous.”²³⁷ The responsibility for handling these challenges, the training materials continued, fell largely to the rank and file, who were exhorted to make “your group be more effective, decrease costs, and help Apple succeed in today’s competitive environment.”²³⁸ Although the materials did not threaten employees with possible negative repercussions, with two serious layoffs in the very recent past and a major corporate restructuring underway, the implication was clear—if employees did not do their best to work more efficiently, use fewer resources, and produce more value for Apple, their jobs were clearly on the line. A memo to managers from around the same time similarly indicated that employees’ pursuits of further training and growth through avenues such as Apple University were no longer seen as optional. “Apple employees are responsible for their own development,” the memo stated

flatly, and informed managers it was their duty to make sure employees were living up to their responsibilities by “defin[ing] goals and accountabilities for and with employees,” providing continuous “performance feedback,” and monitoring employee progress “as he/she creates and implements a development plan.”²³⁹

This rhetoric only grew more intense in 1992. A memo from Sculley and Spindler in March of that year had some positive news about Apple’s overall outlook, but they maintained that “the worst thing that Apple could do today is to become complacent with our success of the moment.”²⁴⁰ As a result, they had decided to restructure Apple once again, redrawing divisions and product development plans with the specific goal of “creating shareholder value.”²⁴¹ This would require considerable flexibility on the part of Apple employees, as numerous “people will be asked to take on new responsibilities or to relocate,” while others would have to adapt to changing organizational structures and job descriptions to accommodate the restructuring plan.²⁴² In addition, Sculley and Spindler noted that employee performance reviews would now focus specifically on whether workers were “creating the highest possible value for our shareholders.”²⁴³ Although I could discover no records of employee responses to this particular communication, it would seem to put to rest any questions as to whether Apple executives were concerned about maximizing shareholder values.

Despite numerous, mounting pressures on Apple employees—to retrain, to take on additional responsibilities, to relocate, to demonstrate their direct contributions to shareholder value—John Sculley used a 1992 brochure for Apple Fitness Centers to patronizingly inform his workforce, “it’s easy to forget that there’s more to life than work. You may not find the time to exercise, to eat right, or to take time off for yourself.”²⁴⁴ Failing to acknowledge his own role in cultivating such unhealthy habits at Apple, Sculley continued, “But to be at your best, you must find a balance—one that includes regular ex-

ercise, good eating habits, recreation, and positive thinking.”²⁴⁵ To find this balance, Sculley encouraged his employees to take advantage of the company’s fitness centers, which they could use for the cost of “a nominal membership fee...deducted weekly from your paycheck.”²⁴⁶ The brochure went on to tout the “stress and lifestyle management seminars” at the centers, including classes in “How to Deal with Headaches, Stress Identification, Psychological and Physiological Effects of Stress, Stress Management Equals Life Management, and Body Esteem.”²⁴⁷ This brochure merely extended an existing corporate trend in a time of crisis—burned out, overworked, stressed employees needed to find ways to self-manage the workplace pressures they faced. Apple itself would offer some resources, but employees would have to voluntarily seek them out in their spare time, and pay to take advantage of them.

Such blithe treatment of the intense pressures employees faced was indicative of Apple leadership’s lack of honesty and transparency in interactions with employees. For example, on October 26, 1992, Sculley gave his employees a brief, yet false, ray of hope that things were turning around. He reported that Apple had posted high unit sales for fiscal year 1992—in fact, more than any single competitor. Yet this statistic masked the reality that Windows PCs were flooding the market at record rates, and that Apple’s overall share of the personal computer market was dwindling fast. Nevertheless, Sculley boldly proclaimed, “we are now the king of the mountain that everyone else will be shooting at.”²⁴⁸ The sense of euphoria was short-lived. In May 1993, Sculley and Spindler sent an ominous missive to employees with the subject heading, “Apple is Evolving.” Speaking in sweeping terms, they informed workers that “continuing reorganization of work itself is part of a social transformation as massive and wrenching as the Industrial Revolution,” and that in order to provide technologies that could help other corporations restructure their own employment practices, “Apple has to anticipate and be in a leadership position

in order to be a role model for its marketplace.”²⁴⁹ Unsurprisingly, Apple employees themselves were called upon to manage their own evolving roles, personally “assess[ing] and enhanc[ing] their skills and effectiveness” by “tak[ing] advantage of the learning opportunities that are available both on and off the job” to prepare for a variety of possible future roles and responsibilities.²⁵⁰ “The addition of new skills and knowledge increases each employee’s contribution and employability in the short run,” Sculley and Spindler wrote, “and helps them to be more adaptable and flexible in the face of future challenges.”²⁵¹

The suggestion that employees’ self-training efforts could appreciably increase their job security was hollow. Less than two months later, Sculley himself had been fired by Apple’s board, and Spindler, now CEO, wrote to employees with news of another serious layoff. “We must do whatever is necessary,” he wrote, “to accelerate our revenues, units, and profits.”²⁵² This included terminating approximately 2,500 employees, or fifteen percent of Apple’s worldwide workforce, freezing all salaries, and implementing a “regional pay” scheme that would allow Apple to pay lower salaries to employees working in regions with lower costs of living.²⁵³ “The number of employees to be laid off,” he continued, “is based upon our understanding of the level of expense we must immediately cut from our business in order to live with lower margins and maintain the level of profitability that the board of directors and shareholders expect from us.”²⁵⁴ He emphasized that the layoffs represented a permanent workforce reduction. Spindler’s focus on serving the short-term interests of investors at the expense of employees’ job stability once again illustrated that Apple’s executives could hardly be accused of suffering from an “altruistic cancer.” In an especially cruel twist, Spindler informed employees that he could not yet provide any details about who would actually be losing their jobs, “simply because we’re working out the details.”²⁵⁵ “[M]anagers will do their best to keep you informed,” Spindler promised, but in the meantime he asked all employees to continue to show their “support

in moving Apple forward, and at the same time, helping each other through this difficult period.”²⁵⁶ Although the extensive Apple collections in the Stanford Archives do not record employee experiences during this moment in the company’s history, employees were undoubtedly profoundly anguished by the pressure to work harder than ever without knowing for certain whether their jobs even still existed.

Apple leadership’s handling of these company crises and layoffs in the 1990s revealed that it was all too easy for idealistic company rhetoric to evaporate when profits were threatened, and that without formal worker rights and protections, tacit promises from Sculley or other executives could be revoked at any time. Even Apple’s mythmaking efforts could not fully disguise the fact that the company was not as unconventional as it had long maintained, as revealed in a 1993 document from Apple’s human resources department. Titled the *Apple Employee Handbook 1.0*, this company publication opened with a note from then-CEO John Sculley, who offered the book as a “guide to life at Apple,” where he claimed that “we work to communicate with each other openly and honestly,” and that even “in the midst of constant change we still treasure core values such as designing friendly products for people, innovation, quality, and teamwork.”²⁵⁷ The handbook sought to reassure employees—new hires, in particular—that Apple was a special company with “lore” and “traditions” that had built “a dedicated, enthusiastic work force that is second to none.”²⁵⁸ While the handbook insisted that Apple managers were accessible to employees and the company still valued the kinds of nonhierarchical employee relations that Sculley had extolled so avidly in his memoir and public comments in the late 1980s, the publication also disclosed a more authoritarian bent, telling employees to “[l]isten a lot at first” and “[r]esist the temptation to compare how things are done at Apple versus the company you came from.”²⁵⁹ Far from painting a picture of an unconventional, anti-bureaucratic environment, the handbook informed employees that they

should “[o]btain an organization chart from your manager for your group and other groups with which you will be working,” and ask “your manager for an overview of the company organization from the top down.”²⁶⁰ The handbook also made clear that managers wielded considerable power over employees, as new hires or people transferring to new jobs inside the company were expected to learn “your manager’s preferred work style, your manager’s expectations of you (e.g., work schedule), performance goals for your first review cycle, your first assignment and what your manager sees as your priorities, and who to talk to in your group and in other parts of Apple for orientation.”²⁶¹ As Apple’s travails deepened in the 1990s, it was clear that the signs and symbols that many employees had previously taken as emblems of Apple’s core values had boiled off to reveal the company’s skeleton—an inflexible hierarchy where employees were expected to hew to managerial demands and not ask too many questions or make much noise.

The records from inside the company become sparser after 1993, and employee perspectives in particular become harder to track, perhaps because workers were more reticent to engage in discussions on HotLinks or in other public forums under increasingly hostile conditions. But the lineaments of the ongoing crises at Apple can still be traced. For example, Spindler wrote his employees on January 17, 1996, to inform them that Apple was facing more financial losses and another major layoff—this time, 1,300 people would be losing their jobs, about eight percent of Apple’s staff.²⁶² The typical platitudes Spindler included about restructuring Apple to maintain competitiveness and “move our business forward” must have sounded fairly empty by this point in time.²⁶³ Indeed, layoffs seemed to have become the defining feature of existence at Apple—so much so that the company had taken to circulating handouts for employees with advice on how to cope with the termination of fellow workers. “When seeing your fellow employees laid off, you may experience a wide variety of feelings,” one such document read, suggesting that em-

employees might experience relief, anger, frustration, sadness, fear, a “strong need to prove your value to the company,” sleeping problems, or a “[r]e-examination of how important your job is in the context of your life.”²⁶⁴ While acknowledging that these feelings could be overwhelming and that it was necessary to “[t]ake time to grieve the loss of your co-worker,” the document focused on tactics to help employees adapt to their changing—and likely increased—job responsibilities.²⁶⁵ The concrete advice, however, was not much different from what Apple’s human resources department had offered in the past. “Do something each day that you find rewarding or that makes you feel successful,” the handout read. “Get some exercise.... Look for ways to positively impact the way your work group recovers from the layoff.”²⁶⁶ Another handbook, designed explicitly for managers, emphasized that it was important to “show how the ending”—a layoff—“ensures continuity of what really matters”—the survival of the corporation.²⁶⁷

Finally, the disposability of Apple employees was set down in official policy with the publication of the *Apple Employee Handbook 2.0* in 1995. Informing employees that they had “No Right to Employment,” the policy elaborated, “By accepting employment at Apple, you have acknowledged that there is no agreement (expressed or implied) between you and Apple that you will be employed by Apple for any specific period, nor is there any agreement for continuing or long-term employment.”²⁶⁸ A hastily sketched cartoon, drawn by an anonymous Apple worker in the mid-1990s, offers a glimpse of employee sentiment during this era. Titled, “Have you seen this Endangered Species? ‘The Apple Employee?’” the cartoon shows a bedraggled man with numerous captions pointing out various aspects of his appearance. One line leads out from his forehead to a text box that reads, “Constant Headache/Sleeplessness. Day to day not knowing whether...personal belongs now reside on 2nd level of DA 2 Parking Garage—can I still make the Beemer Payment?” Another caption indicates his rumpled shirt: “The ‘Apple

Sweatshirt.’ One of the leading causes of the current problems—too many shirts, not enough Jobs to fill them...” The cartoon also notes that the man is carrying an “Apple Briefcase: All packed up and ready to move at a moment’s notice,” as well as a “Pager: Even though nobody pages, it looks pretty cool and makes one feel somewhat important, and good during an interview.” A caption pointing to his feet reads, “Good Walking Shoes: You figure it out!” Finally, a line leading to his spotty five o’clock shadow bears the legend, “Stress Factor = Unshaven: With the current situation and attitude, the employee here quickly forgets even the simplest things like how to use a razor.”²⁶⁹

Something was clearly rotten in Apple’s new “social contract” with its employees. While John Sculley had sketched lofty visions of an empowered future in which work would emphasize the personal growth and self-fulfillment of individual employees, offering them meaningful opportunities to change society and serving as a form of positive civic engagement, Apple had in reality swallowed up countless employees and given them little but stress, anguish, and instability in return. The dream that Apple could compete ruthlessly, grow at astronomical rates year after year, and court investors with fantastic stock values while reinventing labor for the benefit of the common worker was dead.

CODA: A COFOUNDER RETURNS

There are two stories that can be told about Steve Jobs’s 1997 return to the company he cofounded. One, which is well known, tells the tale of a brilliant innovator and businessman, his skills and intelligence honed by more than a decade traversing “the wilderness” of Silicon Valley, who triumphantly revived a nearly fallen corporation with a mix of incredible savvy and a slew of groundbreaking products and services: iMac, iPod, iTunes, iPhone, and iPad. It is a heroic narrative. “It is not too much of a stretch to say

that Steve [Jobs] founded Apple not once but twice,” writes Michael Moritz, “[a]nd the second time he was alone.”²⁷⁰ The myth of Jobs’s singular genius is difficult to crack. Walter Isaacson describes his biography of Jobs as “a book about the roller-coaster life and searingly [*sic*] intense personality of a creative entrepreneur whose passion for perfection and ferocious drive revolutionized six industries: personal computers, animated movies, music, phones, tablet computing, and digital publishing”—a narrative which valorizes the individual while effacing the labor of the people who actually made the things for which Jobs tends to receive most of the credit.²⁷¹

The other story—the one I’m interested in telling—focuses on what Jobs’s twenty-first century successes meant for the people who worked at Apple—particularly rank and file employees. Just as his exit from Apple in 1985 had been somewhat protracted, Jobs’s return was relatively halting. He sold his floundering firm NeXT to Apple at the end of 1996, which allowed him to come on as a “part-time advisor” to the company.²⁷² Over the next several months, Jobs waffled about returning to the company full-time, as he was then also serving as CEO of Pixar, but he eventually maneuvered to remove Gil Amelio, a former Hewlett-Packard executive who was then serving as Apple’s chief. By the middle of 1997 Jobs had also eliminated almost the entire board of directors and was the *de facto* ruler of Apple. In the process, Apple was radically pared down. As Isaacson reports, Jobs eliminated seventy percent of the company’s product lines, and numerous employees lost their positions. “Many of the engineers were infuriated at his slash-and-burn tactics,” Isaacson writes, “which resulted in massive layoffs. But Jobs later claimed that the good engineers, including some whose projects were killed, were appreciative.”²⁷³

Jobs’s assessment does not quite match the mood suggested by a fake email sent in his name to Apple employees on August 13, 1997. Under the subject line “An Even More Entrepreneurial Apple,” the email informed employees, “You’ve all become lazy, and only

contribute to Apple's current situation. The only way to save this company is to drive out the loyal employees who have not yet realized their inadequacy."²⁷⁴ Laying out a specific set of innovative policies designed to return Apple to greatness, the fake Jobs announced that "[i]n lieu of laying people off, we are redeploying unneeded workers as janitorial staff. Salaries will be adjusted accordingly."²⁷⁵ Furthermore, employees learned that it would "no longer be possible to call in sick. Any employee who cannot make it into work due to illness will need [to] take a vacation day or go without pay."²⁷⁶ As for salaries, the anonymous writer posing as Jobs explained, "Pay checks will now be issued monthly for four 30-hour work weeks. However, each employee is required to work diligently on Apple business for at least 60 hours each week. Not meeting this requirement is a terminable offense."²⁷⁷ Finally, gesturing to Jobs's infamous habit from his days as the Macintosh chief, the email proclaimed that only Jobs would "be allowed to park in handicapped spaces."²⁷⁸ All others would be towed, but the fake Jobs assured "[p]ersons who are physically disabled" that they would "receive a \$5 reimbursement for towing expenses upon convincing the Executive Team that they are actually disabled."²⁷⁹

The fake email hinted at the fact that Jobs's personality had not changed in his time away from Apple. He was still arrogant and inconsiderate, still expected people to subsume their entire lives to Apple, and he still demanded that everyone do things exactly his way. According to Isaacson, Jobs had no kind words for the employees who had survived the company's disastrous 1990s—in Jobs's eyes, these workers deserved no credit for their commitments to the company, but did deserve much of the blame for letting Apple deteriorate. Jobs reportedly told one product development group, "You are bright people. You shouldn't be wasting your time on such crappy products," and he yelled at employees the day he ousted Gil Amelio, "The products *suck!* There's no sex in them anymore!"²⁸⁰ Just before the debut of the iMac in May 1998—Apple's first major product launch after

Jobs returned full-time as CEO—he burst into tears when he saw that the new computer’s CD drive was a pop-out tray rather than a slot, screaming at the designers, “What the fuck is this?!?”²⁸¹ As Jobs’s behavior had indicated when he was the head of the original Macintosh group in the early 1980s, he had an insatiable need to control everything—and everyone—around him.

The company Jobs built in the 2000s well reflected this urge. Where the Apple of the 1980s, and to a certain extent, the 1990s, had encouraged employees to think of themselves as independent, unconventional, artistic individuals, the Apple of the 2000s became frankly militaristic. Adam Lashinsky, a *Fortune* reporter who interviewed numerous current and former employees for a 2012 book about Apple’s business culture, describes the company today as a “secret society” where “employees are expected to follow orders, not offer opinions,” operating like the cells of “a terrorist organization,” as one former hardware executive told him.²⁸² Apple is so secretive and authoritarian, Lashinsky elaborates, that “[o]rganization charts, typical fare at most big companies, don’t exist at Apple. That is information employees don’t need and outsiders shouldn’t have.”²⁸³ The secrecy is maintained in part to keep Apple’s products or long-range plans from getting out to the public or competitors, and in part to keep employees in the dark so they can focus more completely on their assigned tasks. Employees acculturated to this climate of secrecy tend to mistrust new hires or additions to their teams, who are typically ostracized and not “allowed to sit near the rest of the group for a months-long probation period.”²⁸⁴ It is also a workplace where promotions are rare—“many members of Apple’s middle ranks toil for years in the same exact role,” and while Jobs himself became a multibillionaire through his stock options, “[t]alking about money is frowned upon at Apple,” where most rank and file employees make modest salaries.²⁸⁵ Moreover, according to a former employee, Jobs’s penchant for abuse has become a companywide value: “The fighting can get personal and

ugly,” this anonymous source told Lashinsky. “There’s a mentality that it’s okay to shred somebody in the spirit of making the best products.”²⁸⁶ “Almost nobody describes working at Apple as being fun,” Lashinsky notes, and his sources tell him that the company “isn’t even a particularly *nice* place to work.”²⁸⁷

However, despite the unexceptional pay, the lack of symbolic rewards such as being called an “artist,” the mistrust of fellow workers, assaultive and competitive relationships with colleagues, the absence of job advancement, dictatorial managers, and expectations that employees will work through holidays and weekends or cut short vacations if needed, employees profess a strong attachment to the corporation. As one engineer told Lashinsky, “At Apple, people are so committed that they go home at night and don’t leave Apple behind them. What they do at Apple is their true religion.”²⁸⁸ Another former employee concurred: “Because people are so passionate about Apple, they are aligned with the mission of the company.”²⁸⁹ Yet another former worker revealed that employee passions no longer rest on the underlying belief that Apple’s products will empower consumers or benefit society, but simply that the products are “cool” and phenomenally popular. “Sitting in a bar and seeing that 90 percent of the people there are using devices that your company made,” he muses, “there is something cool about that, and you can’t put a dollar value on it.”²⁹⁰ Lashinsky grants that Apple’s austere treatment of employees might not sound terribly appealing to people not personally initiated into the company’s ways, but he insists that other corporations should take notice, because “Apple is clearly doing something right” to have become “the world’s largest company by market capitalization.”²⁹¹ Apple’s current culture does appear to be a well-oiled machine—according to Lashinsky’s research, employees keep their heads down, do not make much noise, and don’t ask for too much pay, yet they are still devoted to the corporation and its products, and are accustomed to working around the clock to bring out products. This apparently voluntary em-

ployee devotion has doubtlessly contributed to Apple's phenomenal wealth, which reached particularly astounding heights in 2015, when the company's net value was \$700 billion, making Apple wealthier than 75 percent of the countries on Earth.²⁹² Despite recent challenges in some of Apple's key markets, the company remains one of the most valuable in the world today.²⁹³

But is a corporation's accumulation of private wealth truly of higher value than an employee's ability to have a rich, meaningful, socially or civically engaged life outside of work? Steve Wozniak, Apple's other founder, laid out a distinctly different vision in 1992. "Apple was founded on the singular vision of empowering the individual," he wrote. "We believed that individuals, not institutions, were the key to the future."²⁹⁴ Yet the history of Apple, from its founding to its near-collapse in 1997 and on into the present, reveals a corporation whose leaders have consistently acted in the financial interests of their institution, with little regard for the individuals laboring within it. Such are the current myths of success in the United States—monetary gain is seemingly valued above all else, and in an enduring irony, the increasingly educated and professionalized U.S. middle class has become less and less committed to collective worker rights, the egalitarian distribution of corporate wealth among executives and employees, or a sense of self beyond work.

The apocryphal employee quoted in the fake 1983 Apple memo mocking Jobs's habit of parking in handicapped spaces perhaps best sums up the combination of employee faith and managerial abuse that has defined work at the corporation over the course of its history: "It's OK with me. John [Sculley] and Steve [Jobs] explained that it's an honor to work for Apple and I shouldn't mind having to crawl on the concrete a little."²⁹⁵

Chapter 3.

A Commitment to Changing the World: The Rhetoric and Realities of Apple's Efforts to Computerize U.S. Schools

The popular mythology of Apple Computer, Inc.'s origins and rise does not often detail the corporation's extensive involvement with education, even though schools were some of Apple's most significant and loyal customers throughout the 1980s and 1990s, and remain an important market segment for the company to this day. Walter Isaacson's official biography of Steve Jobs, for example, makes no mention of Apple's lengthy and profitable relationships with U.S. schools, despite the fact that Jobs himself publicly credited "schools buying Apple IIs" as one of the essential factors that underwrote Apple's growth.¹ Michael Moritz's authoritative chronicle of Apple's early years, *Return to the Little Kingdom*, likewise ignores Apple's education business, focusing instead on how software applications such as VisiCalc helped sell Apple II computers to small businesses.² Andy Hertzfeld's memoir of working for Apple in the late 1970s and early 1980s does mention that "the Apple II was very successful in the K-12 education market," but he gives no further information about the size or importance of Apple's education business.³

The profound lack of attention paid to Apple's relationships with U.S. schools is difficult to understand, not only because the company sold many billions of dollars of computer products to schools in the 1980s and 1990s, but also because no other corporation wielded greater influence over the course of school computerization in the United States. The financial figures alone are impressive. As Gregory Smith, Apple's first director of education marketing, revealed in a 1981 interview, sales to schools then accounted for 20 to 30 percent of the company's total revenue, netting the company \$80 million that

year.⁴ By 1985, sales to schools grew to more than one third of Apple's revenues, for a yearly total exceeding \$600 million.⁵ In 1996, education sales only represented about 20 percent of Apple's net income, but the company's education business had grown to \$2 billion annually.⁶ While these sales were obviously a key part of Apple's business, the company's dominant share of the school market was also remarkable. In 1992, for example, fifteen years after the debut of the first Apple II, the federal government estimated that there were nearly 2 million Apple II computers in U.S. public schools, which represented a full 55 percent of the total number of computers in K-12 education, while an additional 350,000 Macintosh computers brought Apple's total market share in U.S. schools to 65 percent.⁷ In 1996, Apple's own data indicated that almost 60 percent of new computer sales to K-12 schools would be Apple products that year, helping the company maintain a strong lead over competitors in education.⁸ Given these facts, it is not surprising that a 1994 corporate report proclaimed, "Apple, as a company, was built on its commitment to education."⁹

Beyond the obvious financial importance of Apple's education business, the company's involvement with schools also played a key role in corporate ideologies about Apple's commitments to public service. In the late 1970s, for example, when Apple executives first drafted a set of company philosophies and values, they singled out schools as the primary area where they could "honor our obligations to society" by "improving the educational process through the use of small computers," thereby earning Apple the distinction of being a good corporate "citizen."¹⁰ Even as Apple's involvement with schools grew into an immensely profitable commercial enterprise, corporate rhetoric vehemently maintained that the company had more than a financial interest in education. As a 1985 brochure mailed to teachers phrased it, "Apple is not just out to sell computers. Our goal is to help you take a lead in education."¹¹ The pamphlet elaborated that Apple was interested in

forming mutually beneficial partnerships with teachers, because people at the company contended that by “[w]orking together, we can promote the benefits of the personal computer in educational excellence...and the importance of preparing you and your students for an even more productive future.”¹² As this brochure suggested, much of Apple’s rhetoric about the beneficial impact of educational computing hinged on arguments about the need to prepare America’s youth for the emerging information economy. “Our educational system today is a legacy of the industrial economy,” read a 1988 teacher catalog and information book published by Apple, which further argued that the “transition from the industrial age to the information age is straining the resources of traditional education.”¹³ However, the information book continued, “Apple’s role entails more than simply grafting technology onto the education process,” and the company argued that meeting the needs of the information age required uses of computer technologies that enhanced the creative, collaborative, communicative, and analytical skills of individuals, such that students could become more effective creators “of new knowledge.”¹⁴

Apple’s stated goals in education therefore extended well beyond integrating computers into the teaching and learning process in U.S. schools. In conjunction with this technological goal, people at the company hoped to transform some of the primary philosophies of education. As Apple CEO John Sculley put it in his Macworld Expo keynote address in 1988, “Tomorrow’s students will not simply be learners, passively absorbing subject matter, but more like researchers, actively exploring their environment.”¹⁵ From Sculley’s perspective, students needed to spend much less time quietly listening to lectures, and a great deal more time working collaboratively on open-ended projects that would require independent investigations and creative solutions. “To work in research,” he continued, “is to recognize that knowledge does not reside privately in individual minds, or textbooks, or journals, or libraries, or laboratories, or databases. Knowledge re-

sides in a complex web that encompasses all of these.”¹⁶ Although Apple’s leaders clearly possessed strong ideas about how schools needed to change, the company presented itself more as a partner in scholastic change than an antagonistic reformer. “You are the professionals,” John Sculley told a group of teachers at a national education conference in 1988. “We’re just the toolmakers. We try to make the tools that you will need to prepare the young people for the information age. But it’s what you do as the guides that makes the difference. You are our national treasures and you can change the world.”¹⁷

In an effort to live up to such high-minded rhetoric about partnering with teachers, Apple developed a number of programs designed to support teachers as they tried to revamp the educational process to make it more relevant to the shifting social, technological, and economic realities of the late twentieth century. Chief among these were an educational grants program, founded in 1979, and an extended research project called Apple Classrooms of Tomorrow (ACOT), which ran from 1985 to 1995 and brought together teachers, university researchers, and Apple technologists in collaborative partnerships at five public schools across the United States. A 1986 company report on Apple’s philanthropic activities emphasized that the corporation wanted the “projects it supports [to] become models for widespread educational change,” and optimistically highlighted the ways that teachers who had participated in some of Apple’s education programs had “made presentations to professional educational organizations around the country, shared the results of their work through publications produced by Apple and through academic journals, and helped formulate in-house teacher training programs in their districts, based on the findings of their own projects.”¹⁸ These statements suggested that teachers would indeed lead the charge on school reform, and that Apple would continue supporting them from the background without trying to take control of teachers’ reform efforts.

But Apple's commitments to these altruistic motives were often tempered by more aggressive financial goals—while corporate rhetoric paid abundant lip service to the company's support for teacher-led school reforms, people at Apple were also determined to ensure that these reform efforts included ample use of Apple technologies. Apple's education grants program, for example, required grant applicants to demonstrate that their school systems were committed, financially and administratively, to "incorporat[ing] computers into long-range technology plans," thereby indicating that Apple used its granting process to stimulate further educational purchases of Apple's products.¹⁹ The company likewise capitalized on its strong position in schools to drive consumption in other market sectors. Queasily mixing understandings of public service and financial self-interest, a 1994 corporate report proclaimed, "Nowhere is our commitment to changing the world more evident than in the solutions we create to help children learn faster," but the same page of the document additionally pointed out that Apple's "strength in education also influences other parts of the computer market, most notably home computing, as parents look for computers their children use at school and that can run the learning software they want to use."²⁰ Although corporate rhetoric suggests that people at Apple typically failed to see conflicts of interest in their simultaneous attempts to reform education and to profit from selling computers to schools, the track record of Apple's efforts to build its education business and the outcomes of its philanthropic programs in schools indicates that the company's financial gains from education far outpaced corporate commitments to improving opportunities in U.S. schools.

This chapter examines Apple's troubled attempts to balance business interests with more altruistic aims in U.S. schools during the 1980s and 1990s. I focus on the company's relationships with public K–12 education, because Apple was most determined to reform public primary and secondary schools, and because the company enjoyed such an over-

whelming share of the computer market in these institutions. The chapter unfolds in two sections. In the first section, I situate Apple's education business within the major educational policies and trends that helped shape patterns of U.S. school computerization throughout the 1980s and 1990s. I focus on Apple's explicit attempts in the early 1980s to influence federal and state policies to support the company's commercial interests in schools, and I examine the broader repercussions of lawmakers' receptivity to Apple's arguments about the need for school computerization. Specifically, I argue that Apple's lobbying efforts failed to advocate for adequate teacher training, and because lawmakers themselves failed to appreciate the difficulties teachers faced in using computer technologies, major school computerization policies tended to facilitate large purchases of computers without providing much-needed support for teachers. As a result, Apple's influence over educational policy greatly benefited the company's commercial interests, but left many educators unable to use computers effectively in their teaching.

While the first section serves as a broad survey of school policy and computerization, the second section turns to several smaller case studies of Apple's two primary philanthropic programs in schools, the company's education grants program and the Apple Classrooms of Tomorrow (ACOT) research project. My examinations of Apple's involvement with specific teachers and schools indicate that the altruistic aims of these corporate programs tended to break down because Apple's commercial interests ultimately overshadowed commitments to meaningful school reforms, but my research additionally shows that teachers' and Apple's collaborative efforts were further undermined by pervasive public school funding problems and increasingly antagonistic relationships between policymakers and teachers in the United States. Thus, although I am critical of Apple's conflicted motivations in schools, I also aim to show that problematic trends in public

school administration and policy fundamentally shaped the flawed contexts in which the corporation interacted with schools during the 1980s and 1990s.

APPLE'S ROLE IN SHAPING THE BUSINESS AND POLITICS OF SCHOOL COMPUTERIZATION

An examination of the critical and scholarly literature on school computerization in the United States reveals a curious consensus: despite remarkable political enthusiasm for placing computer technologies in schools and hundreds of billions of dollars spent on hardware, software, and more recently, Internet connectivity, computers have had little impact on educational practice or student outcomes during the past four decades. Indeed, many scholars have been particularly critical of the legacy of computers in public education, arguing that patterns of school computer procurement and use have increased U.S. educational inequalities, drained scarce public resources, and contributed to the privatization of key aspects of public education. Before turning to an analysis of Apple's particularly influential role in educational computerization and school computer use in the U.S., I want to review this literature to highlight some of the key arguments from the criticism of educational technology.

In 1986, Larry Cuban, an educator and scholar who has devoted much of his career to assessing the impact of computers in schools, carried out a historical analysis of educational technologies and a sociological study of contemporary school computer use, and concluded that the majority of U.S. teachers would resist or ignore computers because they lacked access to comprehensive training on how to use the new technology, and because the use of a technological intermediary in the classroom implied a rearrangement of student-teacher relationships that many of the teachers he had observed found threatening.²¹ The very next year, Apple's John Sculley reached a similar conclusion, arguing that

“[m]ost of the computers on school desks today are used for simple drills and rote learning” rather than for the novel uses he believed would better prepare students for employment in a post-industrial economy.²² A 1988 study published by the congressional Office of Technology Assessment concurred that although a number of teachers were “cautiously optimistic” that computers could help them adapt their teaching practices to the economic and social concerns of the late twentieth century, they lacked adequate support or training to do so.²³ As a result, the Office of Technology Assessment argued, schools of education and federal and state governments needed to commit more resources and energies to computer training for teachers to ensure that the growing educational expenditures on computers would achieve positive results in U.S. schools.

As we will see in more detail throughout this section, these criticisms from the 1980s fell on deaf ears, and by 1996, the journalist Paul Starr would conclude that computers had “generally not lived up to the promises made for them,” but in response to President Bill Clinton’s push for connecting schools to the Internet, Starr nevertheless insisted that the “new media are different from the earlier technologies,” and he confidently predicted that network connectivity would finally deliver on the long delayed promises of a computer revolution in education.²⁴ Yet a comprehensive nationwide study carried out by the Office of Technology Assessment in 1995 had warned that teachers were still under-supported in their efforts to use computer technologies, which did not bode well for the impact of the Internet on education.²⁵ Indeed, a bevy of subsequent studies indicates that computer technologies have yet to produce meaningful, systemic improvements in teaching or learning in U.S. schools. In 2000, for example, the investigative journalists Alison Armstrong and Charles Casement crisscrossed the United States, interviewing hundreds of teachers, school administrators, policymakers, and students about their experiences with educational computing, and their judgment was blunt: “So far,” they wrote,

“the most that can be said about computer-based instruction is that vast sums have been lavished on a technology whose educational potential has yet to be proven.”²⁶ Another sociological study led by Larry Cuban in 2001 found that the distribution of computers in U.S. schools was deeply inequitable, providing a privileged elite with access to advanced technologies and expanded educational opportunities, while the majority of school computer use was unimaginative and failed to enhance learning experiences.²⁷ “[T]he quantities of money and time” expended on school computerization, Cuban argued, “have yet to yield even modest returns or to approach what has been promised in academic achievement, creative classroom integration of technologies, and transformations in teaching and learning.”²⁸ The journalist Todd Oppenheimer’s ambitious, multi-year investigation of school computer use throughout the U.S., published in 2003, was even bleaker. “Computer technology is redefining the continuing inequities in our methods of teaching the rich and the poor,” he wrote, as well as “recasting the relationships that schools strike with the business community, warping our beliefs about the demands of tomorrow’s working world, and reframing our systems for researching, testing, and evaluating achievement.”²⁹ Castigating the commercial purveyors of computer technologies as “charlatans and unscrupulous profiteers,” Oppenheimer insisted that the billions of dollars that had been devoted to computer projects was a grave misuse of funds that would have been much better spent in more critical areas, such as hiring more teachers or maintaining schools’ crumbling physical facilities.³⁰

A litany of similar criticisms continues to define the literature on U.S. school computer use. In a 2005 ethnographic study of technology use in Los Angeles public schools, Torin Monahan discovered that district administrators used computer technologies primarily to surveil and control students and teachers in poorer schools, while his extensive classroom observations indicated that computer use often made relationships be-

tween students and teachers more hostile and alienating.³¹ Moreover, Monahan observed, computerized instruction tended to emphasize the acquisition of skills and training that would prepare poorer students to enter low-level service jobs, and he therefore argued that computer-based education has become part of a larger system of structural inequalities in U.S. education that overwhelmingly limits the opportunities of poorer students and students of color.³² The sociologist Neil Selwyn, who has devoted his career to studying educational computing in the Anglophone world, comes to similar conclusions. He argues that the great cost of computer technologies has led many educational institutions to give over control of school technology projects to private interests, which he contends has greatly increased the scope of corporate influence over educational policies and priorities.³³ Moreover, Selwyn continues, these private interests have generally sought to cultivate student attitudes and skill-sets “to satisfy the demands of contemporary capitalism,” which he insists has “served primarily to *increase* socially inequitable and exclusive trends within education,” as small numbers of mostly wealthier, white students gain exposure to the kinds of technological skills that provide access to better jobs and economic opportunities, while poorer students generally fail to gain access to this kind of training.³⁴ Even researchers who are more supportive of educational computerization projects struggle to find evidence of computers’ positive impact on schools. For example, Bill Ferster, an education scholar who holds out hope that mobile computing might finally produce meaningful improvements and reforms in U.S. schools, admits that thus far students and teachers typically use computers to “mimic the actions of older practices” rather than finding truly innovative and productive uses for new technologies.³⁵

The assessments of scholars, journalists, and national federal studies of school computerization are therefore remarkably consistent: lofty promises about computers’ positive impact on education—proffered by corporations such as Apple—have not trans-

lated into meaningful results. Indeed, the studies cited here suggest that in many cases computers have actually increased educational inequalities or degraded students' scholastic opportunities and experiences. Ironically, however, these repeated and consistent attacks on school computerization have had little demonstrable influence on educational policy, as schools continue to spend vast amounts of money to procure new technologies, despite scant evidence that these new products will achieve better results than their forebears. In 2016, for example, U.S. schools spent \$7.35 billion on mobile computing devices alone, even though a recent scandal involving Apple's sale of \$1.3 billion worth of iPads to Los Angeles public schools had raised serious concerns that such mobile computing technologies were extremely difficult to use effectively or maintain in actual classroom settings.³⁶ I will have more to say about the L.A. iPad scandal at the conclusion of this chapter, but my aim in this section is to trace how Apple's educational lobbying efforts in the early 1980s helped shape policies that have favored commercial purveyors of computer products, but which have largely failed to create the teacher support programs or accountability measures needed to make sure that those commercial products actually benefit teachers and students.

In the extensive literature on U.S. school computerization, Apple has received surprisingly little sustained attention, even though the company unquestionably dominated the educational market for computers in the 1980s and 1990s, and worked hard to shape educational policy with respect to scholastic computer use. In this section, I focus on Apple's educational lobbying efforts in the early 1980s, which consistently saw the company place its own financial interests before oft-repeated corporate claims that Apple and its products would be of real service to teachers and students. It is a deeply ironic story, given that mainstream journalists at the time were incredibly critical of Apple's efforts to place its computers in U.S. schools, and repeatedly opposed legislation that would make it easier

for the company to establish a lucrative educational market for its products. Teachers and educational professionals, moreover, raised significant public concerns about the lack of support and training available for educators to use computers effectively in their teaching. However, as this section will show, politicians' actions in the 1980s and 1990s largely ignored these concerns, and many U.S. school systems moved ahead with buying computers while teachers continued to struggle to find productive ways to use the new technology in the classroom.

On the surface, it is rather difficult to understand how policymakers have been able to disregard the substantive concerns of scholars, journalists, and teachers for some four decades, but David Dwyer, a prominent employee in Apple's education research division, suggested in the mid-1990s that the problem reflected fundamental cultural values. The American public, he argued, simply did not care enough about education to question expenditures on computer technologies or to hold policymakers—or corporations—accountable when those costly technologies failed to produce meaningful results.³⁷ Dwyer's claim is striking, and throughout this section I draw on a variety of sources—archival documents, congressional hearings, government studies, and media coverage of Apple's lobbying efforts—to argue that Apple's own aggressive pursuit of profits in schools coincided with a broader political failure to ensure that school technology purchases serve the public interest. The general popular and political apathy for public education in the latter twentieth century offers one important explanation for why there has been little public outcry over Apple's failures to deliver on its promises to improve education, even though my evidence suggests that these corporate failings have been a common occurrence since the early 1980s.

Schools quickly became some of the Apple II computer's most important customers in the late 1970s, but Apple leapt onto the national educational stage in 1982, when

the company promised to donate one complete Apple II personal computer system to each of the United States' 83,000 public K–12 schools, a computer giveaway with an estimated \$200 million retail value.³⁸ But there was a catch. Apple would only donate the computers if the U.S. Congress passed a law—popularly known as the Apple Bill, which the company had co-written with California congressman Fortney H. “Pete” Stark—that would allow Apple to claim an expanded tax deduction for every computer given to schools. Under the existing tax code, corporations could only write off the manufacturing cost of donated computers, but Apple also wanted to be able to write off part of the retail value of each machine. As the *Washington Post* explained the Apple Bill to readers, “If a computer costs \$1,000 to make and is priced at \$2,500 wholesale, for example, the deduction would be \$2,000,” effectively doubling the tax breaks corporations such as Apple could claim for school donations.³⁹

The proposed law was somewhat controversial, as many critics saw it as a special interest giveaway, but Apple's leaders contended that the Apple Bill was necessary to make a national computer donation program financially feasible. As Apple cofounder Steve Jobs insisted in a hearing before Congress, the legislation was “in no sense a free ride for Apple” because he estimated his company would have to pay \$8 million over the manufacturing cost of the Apple II systems to distribute them to all 83,000 eligible schools.⁴⁰ But the *Washington Post's* analysis of the Apple Bill indicated that the corporate income tax deductions allowed under the law would far exceed this distribution cost. Indeed, the *Post* concluded, Apple's tax break would be so large under the proposed law that U.S. taxpayers would effectively *pay* the company \$60 million for its so-called act of charity.⁴¹ As one anonymous congressional opponent protested, “There's no element of giving here.... We're buying the things.”⁴²

Despite accusations that Apple was seeking to profit under the guise of charity, company leaders maintained that schools were woefully behind in their efforts to adopt computers, and insisted that the Apple Bill directly served national interests. As Steve Jobs later recalled, he had fallen in love with computing at an early age due to a school field trip to the nearby headquarters of Hewlett-Packard, but as he looked at school computerization statistics in the early 1980s, he “realized that a whole generation of kids was going to go through...school before they even got their first computer.”⁴³ Given that Jobs and his colleagues at Apple believed that access to computers inherently empowered users, and given that they believed personal computers would be the source of a new era of economic prosperity, Jobs argued that it was imperative for the United States to move quickly to place as many computers as possible in its schools—“*[T]he kids can’t wait,*” he intoned emphatically.⁴⁴

Nevertheless, Apple’s demands for extravagant tax breaks seemed particularly brazen given that the company was in robust financial health, whereas much of the rest of the country was feeling significant economic pain. The U.S. had plunged into a crippling recession in mid-1981 and was still languishing when Apple began advocating for tax breaks in 1982, while newly elected President Ronald Reagan’s financial policies and responses to the recession had hit public schools especially hard.⁴⁵ Although he had greatly expanded military budgets, Reagan was determined to reduce federal spending, and his main targets were education and social welfare programs.⁴⁶ Funds from the federal government had only accounted for about 10 percent of total public school spending in the U.S. before Reagan took office, but his deep cuts—which reduced the federal budget for public education by 20 percent, from \$6.9 to \$5.5 billion—were nevertheless significant.⁴⁷ Most federal money was earmarked to support poor students and schools, but school systems across the country also relied on federal dollars to staff and run teacher training cen-

ters and to purchase many school materials.⁴⁸ While Reagan's budget slashing therefore disproportionately impacted poorer districts and students, many school systems were left scrambling to find ways to cover a number of gaps—New York City and the state of California, for example, had to pick up the cost of vital teacher training centers when Reagan's federal cuts left them without funds.⁴⁹

These added expenditures would have been difficult for state and local governments to absorb under any circumstances, but school funding at state and local levels was also under assault in the early 1980s. The voters of California—Reagan's home state—had led the attack on school funding in 1978 when they passed Proposition 13 by a two-to-one margin. The measure drastically reduced the ability of public schools to raise money through property taxes—a primary source of school funding—and in 1979 alone, voters and legislatures in eleven other states passed similar laws.⁵⁰ Squeezed from every direction, many public schools across the U.S. were reeling by the early 1980s.

Apple, by contrast, was a paramount corporate success story. The company was a Wall Street darling, and had grown at an exponential rate since its incorporation in 1977. Total revenues topped \$300 million in 1981, and by the end of 1982, Apple had reached \$1 billion in annual sales.⁵¹ Moreover, despite public schools' multifarious financial woes, Apple had already managed to turn education into an important and lucrative market for personal computers. In 1981, one quarter of the machines Apple sold went to U.S. schools, and netted the company \$80 million that year.⁵² Apple was also the clear market leader in education—a 1981 national survey indicated that 23 percent of the personal computers in U.S. schools were Apple products, while competitors Tandy–Radio Shack and Commodore trailed at 16 percent and 10 percent, respectively.⁵³ Apple had recently seen more competition from cheaper machines such as the Atari 400, which retailed for only \$600 compared to \$2360 for a fully configured Apple II, and the business systems

behemoth IBM had jumped into personal computing in 1981 with a high-end \$3000 machine.⁵⁴ There was, however, no indication that Apple would fail to hold its own in schools against these contenders. In fact, Apple had garnered official endorsements from a number of state educational computing agencies, including Minnesota, Texas, and North Carolina, which promoted Apple products to public schools throughout their states.⁵⁵ Given that Apple was already profiting handsomely from schools, \$8 million in distribution costs was not an exorbitant price for the company to pay if it truly wanted to give back to public education. Indeed, the administrative costs of Apple's proposed national donation would have hardly dented Steve Jobs's personal wealth—when Apple had gone public in 1980, his stock options alone were worth more than \$250 million.⁵⁶

Apple representatives, moreover, made no secret of the fact that they expected their company to profit, directly and indirectly, from the national school donation scheme. Although U.S. schools were purchasing personal computers in larger numbers every year, in 1982, when the U.S. Congress was considering the Apple Bill, the vast majority of schools had yet to buy their first computer. One survey published that year, for example, estimated that only 20 percent of schools across the U.S. owned at least one personal computer.⁵⁷ People at Apple believed that it was essential for their education business to make sure as many schools as possible entered the computer age with an Apple product, because schools would have good reason to stick with their initial brand of computer. During this era, software purchased for one brand of computer would not run on any competitor's machines, so schools that began amassing costly software libraries for their first computers would be much more likely to continue buying more machines from the same company.⁵⁸ Thus, if Apple was able to place an Apple II in every school in the U.S., there was a good chance that many of those schools would become valuable future customers. It was on these grounds that the National Education Association, the powerful union that

represents teachers nationwide, formally opposed the Apple Bill. Dale Lestina, a spokesperson for the union, criticized the law for effectively bypassing teachers' and school administrators' role in assessing different computers' merits and choosing the best machines for their local context, and he worried that the Apple Bill could have particularly troubling long-term consequences for schools that did not already have a computerization plan in place, saying, "Schools with no computers 'may get locked into whatever brand they receive for free, whether it best meets their needs or not.'"⁵⁹

In addition to helping Apple lock up a greater share of the education market, people at the company also believed that the Apple Bill would help them sell computers in other markets. While the corporation had initially believed that home consumers would provide a large customer base for the Apple II, early home purchases had fallen far short of projections.⁶⁰ But Apple's sales force had discovered that parents were much more willing to invest in a personal computer if they believed it could help with their children's education, and Apple could hardly obtain a better stamp of scholastic legitimacy than having an Apple II in every single U.S. school.⁶¹ In the longer term, the company also predicted that students whose formative computing experiences had taken place on Apple machines would be more inclined to buy Apples in the future. The *New York Times* cited these strategies as the primary motivations behind the Apple Bill, raising concerns that Apple was not deeply committed to making sure that its products served actual educational needs, but that the company instead merely hoped to use schools as stepping stones to more lucrative markets.⁶²

Thus, while Apple's leaders presented the Apple Bill as an effective way to stimulate the scholastic adoption of computers, which they argued was imperative to secure the United States' future financial interests, it was clear that the law, which was crafted in substance by Apple's own legal team, was carefully designed to serve a number of the com-

pany's specific business strategies. However—as people at the company were keen to point out—Apple was not the only company that could take advantage of the provisions of the proposed law. In theory, any computer manufacturer could donate their machines to schools and claim the enhanced tax deductions. One observer optimistically predicted that if the Apple Bill passed, it would inspire “a whole lot of competitive giving from a whole (lot) of companies,” which would effectively nullify Apple's attempts to lock up schools with a tidal wave of Apple IIs.⁶³ However, the Apple Bill did require donated machines to meet certain technical benchmarks to qualify for the special tax break, and the *Washington Post* pointed out that these requirements marked the “dividing line between the simpler home computers that sell for less than \$1,000 and the more elaborate machines like Apple's.”⁶⁴ In other words, companies such as Radio Shack, Atari, and Commodore, whose less powerful yet more affordable machines were starting to make inroads in schools, would not qualify for the Apple Bill's handsome deductions, which lower-end manufacturers understandably decried as giving unfair preference to Apple, IBM, and other top-tier computer makers. Radio Shack was particularly critical of the Apple Bill as an ethically suspect piece of legislation, and even though IBM's computers easily met the law's technical requirements, IBM also formally opposed the Apple Bill in an apparent effort to distance itself from such patently self-interested legislation.⁶⁵

The National Education Association, Apple's competitors, and a critical national press had therefore voiced significant concerns that the Apple Bill would give Apple a number of direct and indirect financial rewards, suggesting that corporate self-interest far outstripped the company's desires to support public education through charity. There were, moreover, legitimate worries that the donated computers would prove useless in the classroom. The *New York Times*, for example, reported that many schools had already “stretched their budgets to buy expensive equipment, often under pressure from parents

who want their children to become ‘computer literate,’” but in many cases the machines went “unused because teachers have not been trained to use them.”⁶⁶ Teachers’ reticence to use computers was understandable. Almost no working teachers in the early 1980s had had any meaningful exposure to computer technologies while earning their teaching degrees, and inservice training opportunities were scarce. One 1982 survey indicated that although teachers were generally intrigued by the possibilities of teaching with computers, only about one third of them had access to computer classes through their school systems, while the majority of teachers with computer skills reported that they had learned them by taking continuing education classes at their own initiative, and often at their own expense.⁶⁷ As I indicated above, state and federal budget cuts had targeted teacher training centers in a number of locales, so computer education prospects for working teachers appeared unlikely to improve in the short term, and the Apple Bill itself placed no burden on computer companies to teach teachers how to use donated machines. Radio Shack was particularly critical of this oversight—the company argued that without adequately trained staff, it was doubtful whether many schools would be able to use computers effectively.⁶⁸ In other words, Apple could end up claiming significant tax deductions for machines that might simply sit gathering dust.

The *Washington Post* ultimately perceived so many problems with the Apple Bill that the newspaper’s editors included it on their list of “must not pass” legislation for the 1982 congressional session, beseeching lawmakers not to spend taxpayer money “to subsidize Apple for doing something in its own interest.”⁶⁹ But while a number of journalists, educators, and competing computer companies believed the Apple Bill was riddled with conflicts of interest, Apple’s own corporate philosophies made it difficult for people at the company to separate their understandings of public service from their corporation’s financial interests. As I detailed in chapter 1, the official Apple Values first drafted in 1981

explicitly framed Apple's financial success as synonymous with the greater public good. "Apple contributes to society by providing the power and usefulness of the computer to individual people," the Values proclaimed, and reasoned that the company's "profits are the result and an important measure of how well we succeed in making this contribution."⁷⁰ Apple's sense of the importance of personal computers for education was particularly elevated due to Apple leadership's belief that students would absolutely need computer skills to compete for desirable jobs in the future. "To maintain America's technological leadership, we must begin training students—of *all* grade levels—in today's computer technology," Steve Jobs maintained. "If we do not, we risk producing a generation of Americans who will be both non-competitive and non-literate in the information society now evolving."⁷¹ In a hearing before Congress, Jobs insisted that computer skills were becoming as important as core scholastic subjects, and therefore needed to be taught from an early age. "Leaving [computer training] to the colleges in today's environment," he intoned, "is equivalent to leaving the teaching of English grammar and arithmetic to colleges."⁷²

Although there were many indications that the Apple Bill was written more in the interest of expanding Apple's profitable involvement with public schools than with expanding students' future opportunities, federal politicians were apparently easily convinced by Jobs's arguments that computers were the key to the nation's future prosperity. When Jobs arrived in Washington, D.C., in the summer of 1982 to lobby personally for the Apple Bill, he was warmly received in elite political circles, despite his lack of experience dealing with busy lawmakers. As the *Washington Post* noted, "he tended to flood members of Congress with long-winded documents instead of easy-to-read two-page summaries," and the paper quipped that the youthful Jobs "looked more like a summer intern than the head of a \$600-million-a-year corporation."⁷³ Jobs nevertheless quickly won

powerful supporters on both sides of the aisle—the Democrat Edward Kennedy of Massachusetts agreed to cosponsor the bill in the Senate, and “gave Jobs a cram course in legislative strategy and tactics,” while Senator John Danforth, a Republican from Missouri, helped Jobs reach out to the education lobby to curry greater support for the bill.⁷⁴ President Ronald Reagan’s administration even openly endorsed the law, placing a presidential aide at Jobs’s disposal to help him gain access to members of Congress.⁷⁵ With such broad political backing, the Apple Bill passed the House on September 22, 1982, by an overwhelming majority, 323 to 62—a margin of more than five to one.⁷⁶

The Apple Bill would have almost certainly passed the Senate, too, if it had not been rolled into an omnibus piece of legislation that included numerous unrelated acts. Among these were controversial rule changes that would have expanded banks’ abilities to write down bad debts, a provision that Senator Howard Metzenbaum of Ohio promised to filibuster if the bill came up for a vote.⁷⁷ It was a case of bureaucratic bungling that still rankled with Steve Jobs almost fifteen years later. In a 1995 oral history with the Smithsonian, Jobs personally blamed Bob Dole—who, as chair of the Senate Finance Committee, had borne primary responsibility for shepherding the Apple Bill through the Senate—for failing to get the law passed, saying, “I don’t think Bob Dole even knew what he was doing but he really unfortunately screwed up here.”⁷⁸ Jobs’s apparent expectation that Dole should have made passing the Apple Bill his primary priority for the 1982 congressional session well captured Jobs’s arrogant sense of entitlement to deference from the U.S. political system, a mentality which *New Yorker* writer George Packer argues still shapes many Silicon Valley leaders’ approaches to politics.⁷⁹

Apple’s federal lobbying efforts, however, did produce somewhat unexpected results in California. Although congressman Pete Stark vowed to reintroduce the Apple Bill during the 1983 congressional session, California state lawmakers proved unwilling to

wait for the federal government to make up its mind about school computerization. As Steve Jobs later recalled, members of the state legislature approached Apple and told the company, “You don’t have to do a thing. We’re going to pass a bill that says ‘Since you operate in the State of California and pay California Tax, we’re going to pass this bill that says that if the federal [Apple Bill] doesn’t pass, then you get the tax break in California.’”⁸⁰ In addition to offering substantial tax credits to computer corporations for donating computers to schools, the California legislature passed a contingent of other policies designed to support computer education, including the allocation of more than \$4 million to fund fifteen teacher training centers throughout the state that would focus on computer education.⁸¹ It was an intriguing arrangement of policy priorities. Computer companies would get immediate access to California schools and large tax breaks, while the state, already struggling to find adequate funds for schools in the wake of Proposition 13—the voter-approved limitations of school fundraising—would assume all responsibility for training teachers and discovering educational uses for the technology. As the policies played out in California over the next several years, it became apparent that they had helped place many more computers in the state’s schools, but had failed to ensure that teachers were well-versed in the educational uses of computers or to verify that the technology actually enhanced students’ educational experiences.

California Governor Jerry Brown, who made frequent mention of “my good friend Steven Jobs” in his speeches, was one of the primary champions of school computerization in the state.⁸² Brown publicly worried that the United States “will soon be in deep trouble if we don’t quickly improve technical education,” and he explicitly touted the computer education programs advanced by his administration “as a way to increase productivity and make the economy stronger.”⁸³ Brown’s appeals to computers as a solution to economic problems, coming in the middle of a serious national recession and

amidst the broader upheavals of deindustrialization, tapped into the anxieties of country. As the investigative reporter Todd Oppenheimer recounts, by the early 1980s, shifting economic realities and technological changes were impacting many parents' careers, and they frequently believed that knowledge of computers could help guarantee their children's future career opportunities. As a result, parents began placing considerable pressure upon local schools to buy computers and integrate the technology into the curriculum.⁸⁴ Indeed, in communities where parents had some disposable income, many found creative ways to pool resources to procure computers when money could not be spared from the school budget. Stories abounded of bake sales, silent auctions, skate contests, and similar activities designed to raise funds for school computers.⁸⁵ Not surprisingly, many Californians greeted Brown's proposal with enthusiasm, as it would put more than 10,000 computers in California schools in short order.

Apple exploited the California tax breaks far more effectively than any other computer corporation, and the company's education business grew exponentially as a result. Although Apple had originally aimed to place computers in every U.S. school through the passage of the Apple Bill, California was still a significant prize. With more than 9,000 public schools and 4 million students, California educated nearly 11 percent of the youth in the United States.⁸⁶ And through a program called Kids Can't Wait, Apple donated an estimated 9,250 Apple II computers in response to the tax breaks, reaching nearly every school in California.⁸⁷ The scale of Apple's donation easily outstripped competitors. Hewlett-Packard, for example, gave away a small computer lab of ten personal computers to fourteen schools throughout the state, for a total giveaway of 140 computers, while IBM spread a donation of 420 computers across 28 high schools in California.⁸⁸ Although Hewlett-Packard and IBM hoped that the concentrated donations would help them gain insights into how teachers and students could best use personal computers, thereby serving

longer-term education business strategies, Apple's tack of maximum exposure paid off for several reasons.

First, in 1983, only an estimated 19,000 schools nationwide owned personal computers, and the total number of machines in schools was just under 100,000.⁸⁹ Although I have not been able to discover how many California schools received their very first personal computers through Kids Can't Wait, Apple's ability to place nearly 10,000 additional computers in schools significantly expanded the company's overall footprint in education, and by Apple's own estimation, the donation program was the decisive factor that caused many important educational software developers to focus on the Apple II as the primary computer for their products.⁹⁰ More immediately, however, Kids Can't Wait stimulated additional sales of Apple II systems to California schools and families. As several Apple dealers who participated in the program reported at the time, "the giveaway has generated some sales of Apple IIe computers to schools, as well as substantial sales to parents who noticed the local school was acquiring an Apple."⁹¹ Another Apple dealer agreed that participating in Kids Can't Wait was good for business: "Anything we can do to acquaint users with our equipment is bound to increase sales. There is no guarantee of any financial reward, but anyone with any sense can see it has got to be a positive factor."⁹² While Apple gloated that Kids Can't Wait "set off an avalanche of software development, information sharing, and teacher awareness," all centered around Apple products, and "ultimately sold a lot of computers," it was much less clear whether those computers made any meaningful difference in California schools.⁹³

The key problem was the limited availability of computer training for teachers. Steve Jobs insisted that Apple helped provide this essential service, proclaiming, "We trained teachers for free and monitored this thing [Kids Can't Wait] over the next few years," but independent coverage of the program indicated that Apple was actually rela-

tively hands-off with schools.⁹⁴ The company relied exclusively on third-party dealers—that is, computer stores that sold Apple products—to train teachers, and these sessions were typically quite limited. One Los Angeles dealer, for example, “gave one hour and 20 minutes of training,” in which teachers “were told about the uses of word-processing and file-management programs” but received little hands-on time with computers, while teachers at a store in rural northern California “spent two hours learning how to unload and set up an Apple.”⁹⁵ As an Oakland school administrator argued, “Apple’s training is ‘just a start to what teachers need,’” and he noted that “a heavy training burden is now falling on the schools.”⁹⁶ Moreover, as Proposition 13 had severely constrained school budgets across California, most schools struggled to find the resources to offer their own technology training programs. And as the investigative journalists Alison Armstrong and Charles Casement later pointed out, the tax credits Apple received for Kids Can’t Wait meant that the company was contributing even less to general education funds through taxes “at a time when spending on education in California was at its lowest point in more than a decade.”⁹⁷

The additional technology education funds Governor Jerry Brown had secured—part of an initiative he dubbed “Investment in People”—were intended to defray the pressures Kids Can’t Wait had placed on schools to train their teachers how to use computers, but the true reach of these efforts was somewhat limited. Of the \$26 million Investment in People initiative, \$4 million was allocated for fifteen Teacher Education and Computer Centers (TECCs), each of which served a particular geographic region of the state, and which formed the backbone of California’s computer training efforts for teachers.⁹⁸ Most of the TECCs had been in existence for some time, but they had historically been semi-independent centers administered chiefly by teachers and funded by grants from the federal government. Karen Kent, the director of the Teachers’ Learning Cooperative in

Marin County, northeast of San Francisco, admitted that the state funds were welcome at a time when “adequate basic funding for local school districts looked bleak” due to Proposition 13, rampant inflation, and federal budget cuts, but she also noted that the state money that kept her center open came with a number of strings attached.⁹⁹

Before Investment in People, the Teachers’ Learning Cooperative had served a relatively small area, and the teachers who administered the center had relatively free rein to develop classes and workshops based on the needs of local schools. Now, the center had to serve hundreds more schools and was directly beholden to Governor Brown’s emphasis on computer education. Specifically, Investment in People stipulated that two-thirds of the center’s funds and activities be devoted to computer education and programs in math and science. While Kent granted that these were important areas to focus on, she feared that the inflexible guidelines would constrain the ability of the TECCs to serve the most pressing needs of teachers in their areas, and questioned whether her center would be able to “maintain successful operations when the territory is arbitrarily expanded, subject matter is spelled out from the top down, and new issues of power and control are raised among existing establishments.”¹⁰⁰ Moreover, Investment in People only provided enough funding for the TECCs to employ a single “full-time specialist” devoted to computer training—in other words, Investment in People funded only fifteen individuals to serve the entire state of California’s computer education needs, and each center would be equipped with only twenty to twenty-five computers.¹⁰¹ As each TECC had to provide services to many thousands of teachers working at hundreds of schools spread across sprawling geographic regions—and possibly using incompatible brands of computers—the TECCs could potentially provide a cursory introduction to computers for a number of teachers, but their ability to offer comprehensive guidance on the classroom use of computers in multiple subjects was questionable at best.

Despite the obvious difficulties facing California teachers as their schools entered the computer age, Jerry Brown was overwhelmingly optimistic in his assessments of the California tax breaks for computer companies and the Investment in People initiative, as evidenced by the testimony he gave when members of the U.S. House of Representatives held a special hearing on school computerization in San Francisco in November 1983. The representatives had made the trip to gather testimony for their deliberations on a new federal version of the Apple Bill, which had been reintroduced to Congress that year. Brown was particularly sanguine about the abilities of teachers and students to use personal computers effectively, even in the absence of carefully planned programs of implementation. “You will find some that will say, ‘Wait’; you will find people that say, ‘Well, the hardware is too complicated, and we have to have more studies,’” Brown testified, “but I don’t believe that. I believe that the young people of America know how to use computers. If they don’t, they learn very quickly, and if the hardware is provided, then good things will follow.”¹⁰² These comments suggested that actual technology training needs were minimal, as students supposedly possessed an innate ability to use computers. Moreover, Brown averred that “teachers are well motivated” to use computers and “will learn to do their part” to integrate technology into their curricula, implying that teachers could—and should—assume significant personal responsibility for becoming acquainted with new technologies.¹⁰³ At the same time, Brown neglected to provide a single specific example of how computers were being used in schools, or even a general overview of how the technology enhanced learning in particular subjects, but he confidently claimed that “the computer really is a significant aid” and predicted that computers would stimulate “a major revolutionary development in the organization of American schools.”¹⁰⁴

Where Brown was frustratingly vague about the need for comprehensive teacher training or the specific impact of computers on the educational process, he was much

more precise about how the state tax credits served technology corporations. “This will benefit companies,” Brown remarked, “because people who use the computers [in school] may wish to buy them for their own homes.”¹⁰⁵ Moreover, the tax breaks had greatly expanded computer companies’ presence in schools—noting that more than 10,000 computers had been donated to schools, chiefly from Apple, Brown said, “we expect that the total number of computers in California schools will have more than doubled” by the time the tax credits expired in 1984.¹⁰⁶ Here, Brown’s comments suggested that his primary aim for the California legislation was to quickly place as many computers as possible in state schools, rather than to develop clear, measurable goals for what computers should accomplish in schools and to form a coherent strategy for meeting those goals.

Brown did admit that the tax credits ultimately meant that California taxpayers paid Apple approximately half the retail value of each donated machine, and given that Apple already offered considerable discounts to educational customers, the company’s gains through tax credits were not substantially less than if Apple had sold the computers outright to schools.¹⁰⁷ In publicity materials for *Kids Can’t Wait*, for example, Apple estimated that each donated Apple II system was worth \$2,364, but an education sales manual from several months later indicated that the same system sold to schools for \$1,230, or about half the full retail price.¹⁰⁸ Although Apple had thus effectively managed to sell more than 9,000 computers to California schools under the guise of charity, Brown touted the program as a “partnership” between “[b]usiness, government, and schools, all combining to create a good, solid result” that “will serve the public interest.”¹⁰⁹

While simply getting computers into schools appeared to qualify as a definite educational success in Brown’s mind, other witnesses at the congressional hearing painted a more complex picture of school computerization. Joan Targ, president of the nonprofit corporation Interactive Services, which worked directly with schools to find effective edu-

cational uses for personal computers, raised concerns about both the school computerization process in California and the new version of the Apple Bill being considered in Congress. In direct contradistinction to Brown, Targ insisted, "Lack of teacher training, not lack of equipment, is the primary bottleneck preventing effective use of computers in the schools."¹¹⁰ Pointing out that there were no official guidelines or plans to help teachers implement the technology in their classrooms, Targ highlighted a number of issues with which teachers had to grapple. "What are the uses to which [the computers] are going to be put?" Targ asked. "Who deals with the complexity of introducing a whole new discipline into the schools in a way that is effective and that also moves with technology as it changes?"¹¹¹ Moreover, she argued, there were "issues dealing with who uses [computers] within the school, girls, boys, minority youngsters. How do you see to it that the whole spectrum of youngsters within the school have the appropriate introduction to computers?"¹¹² To deal with these complex and overlapping scholastic, social, and technical dilemmas, Targ contended that every school needed a staff member who was intimately familiar with educational uses of computers in multiple disciplines and who could therefore provide guidance to other teachers on the integration of computers into curricula, appropriate uses of computers with different groups, and software purchases. Ideally, Targ continued, that person would also possess considerable technical expertise and could assist with computer setup and maintenance. Finally, she pointed out, computer technologies evolved rapidly, so schools needed someone to follow new developments to ensure that instruction involving computers remained relevant.¹¹³

The depth of expertise that Targ believed necessary to guide effective computer use in the schools clearly could not be attained through a two-hour introductory session at a computer store, or even through a few weekend classes at one of California's TECCs. She was therefore concerned that the Apple Bill before Congress in 1983, just like its predeces-

sor the previous year, included no provisions or funding for teacher training. “Our strong suggestion,” she testified, was for Congress to amend the Apple Bill to support “teacher training, whether that be as a percentage of the donation that then goes to the State departments of education or in other ways. It is enormously important.”¹¹⁴ But Targ’s concerns did not stop with the lack of comprehensive plans for computer training in California or at the federal level. She also took issue with Apple’s particular donation scheme, which she thought did little to correct an already troubling gap in computer access between wealthier and poorer students. Acknowledging that many schools across the U.S. had been dealing with budget problems, Targ nevertheless noted that “suburban districts which serve middle class youngsters have found ways to bring computers into their schools, while inner-city and rural schools which serve low-income and minority students have far too few.” “Despite the seeming fairness of the ‘one school, one computer’ formula,” she continued, “it hardly seems equitable that an inner-city high school serving three thousand youngsters receives its first (and only) computer while a suburban elementary school of 300 receives its sixth.”¹¹⁵ Instead of scattering computers as widely as possible, Targ argued, companies and lawmakers should work together to concentrate donations where they were most needed and could have the biggest impact.

Targ’s comments indicated that whether or not Apple truly hoped to improve student and teacher experiences by donating computers to schools, the Kids Can’t Wait program was troublingly disconnected from the strategies that would actually help teachers and students benefit from computers in their classrooms. First, the program left teachers without meaningful training or support, which placed the primary burden on educators and their schools to figure how to use the new technology. Second, educators could not simply assume that instructional strategies worked out in one context would translate readily to other schools, because diverse student populations from different backgrounds

would likely have different educational needs. Finally, Kids Can't Wait distributed computers in a haphazard fashion, meaning that some schools without a pressing need for more technology would receive a surplus machine, while schools that had yet to enter the computer age would be left with only a single device to serve the entire teaching staff and student body, and the positive impacts that could come from a single school computer, Targ suggested, were altogether dubious.

The testimony of Alwine Fenton, an elementary school teacher in Hayward, California, reinforced Targ's contentions about the need for more comprehensive teacher training programs and the benefits of having access to multiple computers in a classroom. Fenton taught students in the gifted and talented program at her school, and as a teacher in that program was given an Apple II computer for classroom use. Unfortunately, she continued, the school left sole responsibility for learning how to use the computer in her hands. "There I was," Fenton recalled, "with a beautiful, expensive piece of equipment, 32 children eagerly looking at me to use it, and I had never touched one before, let alone had any training."¹¹⁶ Fenton recounted her struggles trying to teach herself to use the Apple II from the manual, but she pointed out "when the computer stays at school and they lock the schools at 4:30 because there is no custodian at night, it is a little hard to have time during the school day to teach yourself to operate that computer wisely."¹¹⁷ Ultimately, Fenton took "four different computer classes at a personal cost of about \$500" before she felt she "was adequately trained to teach the computers."¹¹⁸ But using the computer in her classroom presented further frustrations, as it was nearly impossible for her large class to share time effectively on a single machine. She finally found an interim solution to her lack of equipment when the principal of a nearby adult education school with a fully equipped computer lab allowed Fenton and her class to walk over once a week to have lessons in the lab. Fenton's comments suggested that schools which received their first and

only computer through Apple's Kids Can't Wait program would likely see little immediate benefit from the donation. As Fenton explained, one computer for a class of thirty-two students was hardly sufficient to give each child meaningful access to the technology, so one computer for a school with many hundreds or even thousands of students would clearly make little difference.

Despite the frustrations and worries that surrounded Fenton's efforts to make personal computers an important part of her curriculum, she was understandably proud of the work she had undertaken at her own initiative to help her students learn to use a technology that would doubtlessly impact their lives in numerous ways. "I became part of the technological revolution," she told the panel, and the comments she read from a number of her students indicated that computer technologies had already begun to profoundly shape their imaginings of future opportunities.¹¹⁹ As one student had written, "I think it is good for kids to learn how to program a computer. When he or she reaches adulthood, they will find a good occupation very early."¹²⁰ Many others offered variations on this theme—one student dreamed that she "could someday be a big-time computer programmer," while another worried that "[i]f children don't use a computer when they are young, they will not be as good on computers—when they're grown [they] will not get...good jobs."¹²¹ Yet another student seemed steeped in the Cold War anxieties of competing nation-states. "What can a superpower do," he mused worriedly, "if its citizens do not know how to operate a modern machine that will be used in the future?"¹²² While Fenton's own comments had focused primarily on the tangible difficulties of using computers effectively in schools, these student statements spoke directly to the economic fears that gave lawmakers such as Jerry Brown such a sense of urgency about placing computers in classrooms, even if there were as yet few notions of how to use the technology for educational purposes.

Educators therefore faced a number of tensions and difficulties in their efforts to use computers in the classroom. Teachers such as Fenton were excited about the possibilities of integrating computers into their curricula, and national survey data indicated that the vast majority of teachers were excited about the potential of the new technology.¹²³ Moreover, parents were anxious to have their children exposed to a technology that promised to play a significant role in many future workplaces—as Larry Cuban writes, parents in the early 1980s “needed little convincing of technology’s virtues when it came to their children working on classroom computers,” because they could readily see the technology’s growing impact on the world around them.¹²⁴ But as Randal Kottwitz argued in the popular computing magazine *SoftSide* in 1982, the public generally failed to appreciate the nuances and struggles of adapting an unfamiliar technology to the classroom. Kottwitz pointed out that parents were putting significant pressure on schools to adopt personal computers even as many of them “cheer[ed] the government’s deep paring of educational budgets,” and he argued that schools’ financial woes and the uncertainties they faced at the hands of the Reagan administration and “disenchanted” voters was making it extraordinarily difficult for educational institutions to take up computing in a thoughtful and considered fashion.¹²⁵ In other words, popular enthusiasm for computerizing schools was not paired with a deeper concern for maintaining the health of the public education system at large or ensuring that teachers were adequately trained and supported on the new technology. In the absence of a public that was committed to funding schools or holding policymakers and computer companies accountable to their promises to improve education, it became all too easy for politicians to commit tax dollars to school computerization, thereby fulfilling their symbolic duty to modernize U.S. schools, without making equal monetary or policy commitments to teacher support.

California again offers the illustrative case, where school policy continued to frustrate teacher attempts to use computers effectively even as more machines poured into the state's schools. The testimony of Joan Targ and Alwine Fenton revealed that the California TECCs would provide desperately needed services to California educators seeking to use computers in their classrooms, even if the centers could not address the full range of teacher needs. But even the modestly funded TECCs proved vulnerable to shifting political fortunes. Governor Jerry Brown had chosen to make a losing bid for the U.S. Senate in 1982 rather than run for reelection, and his successor, George Deukmejian, shared a zeal for cutting government spending with Ronald Reagan and California voters. The TECCs survived Deukmejian's first term, but in 1987, he slashed education spending across the state, including the \$12 million annual operating cost of the TECCs—he argued that computer training and a number of other programs on the chopping block were simply “above and beyond” what was needed to “provide basic educational needs.”¹²⁶ The teacher journal *Classroom Computer Learning* viewed the cuts as particularly shocking, as the state had a \$1.1 billion budget surplus for preceding year as well as \$900 million in emergency reserves, and therefore had no pressing need to reduce spending.¹²⁷ But both *Classroom Computer Learning* and the journal *Electronic Learning* suggested that there was an unseemly political motivation behind the cuts—Governor Deukmejian's public response to criticisms from Bill Honig, the popular State Superintendent of Education, indicated that Deukmejian feared Honig as a potential opponent in the next gubernatorial election, and that he had made the cuts as part of an effort to undermine Honig's future political career.¹²⁸

The closure of the TECCs was a definite setback for computer education in the state, but in reality, Deukmejian's cuts were only one symptom of the serious educational problems that had been growing in California since the passage of Proposition 13 in 1978,

which produced immediate and precipitous declines in school funding. In 1977, California had been seventh in the United States in per-student spending, but in 1978, as a direct result of Proposition 13, California's per-student spending dropped to fourteenth in the nation.¹²⁹ Under Deukmejian's leadership during the 1980s, the state largely failed to compensate for school budget cuts related to Proposition 13, and by 1990, California's per-student spending had fallen to twenty-ninth in the U.S.¹³⁰ The Stanford-based educational historian Larry Cuban shows that these reductions in public school funding led to the elimination of counseling and other educational support services, the marked growth of class sizes, the deterioration of school facilities, the loss of teacher training programs, and general declines in student performance.¹³¹ The simple addition of computers to California's increasingly troubled schools had always been unlikely to reverse these more fundamental issues, but the elimination of the TECCs erased the single most important source of technology support for teachers in the state, further hampering teachers' abilities to use computers effectively. However, even though computer training for teachers continued to languish over the next decade, the state did see extensive investments in educational technologies. In 1997, for example, California lawmakers allocated \$100 million to connect state schools to the Internet, but again failed to provide comprehensive training to support teachers' uses the new technology.¹³²

Although people at Apple were clearly aware of the ongoing funding and training problems plaguing computer-using teachers—as evidenced by news clippings covering the 1987 TECC closure debacle in employee files in the company archives at Stanford—the corporation made no public comments about the closures, and did not offer any specific aid to California teachers as schools across the state cast about for new computer training options.¹³³ Although the company had donated five Apple II systems to every TECC in 1983 as part of Kids Can't Wait in an obvious show of support for California's state-run

teacher training programs, Apple's lack of response to the tumultuous political climate in California in 1987 reflected the company's own shifting approaches to teacher training. Specifically, Apple had begun that year to offer incentives for teachers to purchase their own Apple computers, arguing that extensive home use of personal computers was the best way for teachers to become effective instructors with the technology.¹³⁴ Previously, only schools had qualified for Apple's education discounts, but under new company policy, teachers, principals, counselors, and other educators could take advantage of the same discounts when they bought Apple products for themselves. Beyond the obvious financial rewards of selling more computers directly to educators, this strategy held several additional advantages for Apple—where independent teacher training centers might offer instruction on a variety of machines from different companies, teachers with Apples at home would become more dedicated to the brand, and as they built up expertise with Apple computers would be much more likely to advocate for school purchases of Apple products rather than devices from competitors.

In the late 1980s, the federal government found that California's teacher training woes were endemic of the national school system, but framed Apple's new, more self-interested approach to teacher training as a promising alternative. The 1988 report, prepared by the Office of Technology Assessment (OTA), discovered that only one third of teachers had even ten hours of computer training, and of those teachers with some training, the majority indicated that their classes had "focused on learning about computers, not learning how to teach with computers."¹³⁵ In addition, the OTA reported that colleges and universities had yet to make computer training an integral component of teacher education. Only 29 percent of teachers just entering the profession, the report said, "perceived themselves to be prepared to teach with computers," and while many politicians had publicly called for extensive reforms to the teaching profession, the OTA pointed out

that “there is almost no Federal money for the training of new teachers.”¹³⁶ Despite the clear, systemic shortfalls in teacher training, the OTA praised Apple’s educator discounts as “very important resources that should be encouraged” to increase teacher familiarity with computers.¹³⁷ In other words, the OTA report suggested, teachers who lacked access to comprehensive computer training in their school systems should take personal responsibility for gaining computer skills by spending their own money on a machine for home use, and becoming familiar with the technology in their spare time.

There were, of course, a number of problems with depending upon teachers to handle most of their own computer training needs. As the teacher journal *Classroom Computer Learning* noted, computer technologies rapidly went out of date as newer, more sophisticated machines came on the market. As a result, the journal suggested, “computer educators will need to relearn and redefine their role in the school—probably every year or two.”¹³⁸ For teachers training themselves at home, this also implied that they would need to keep their machines up-to-date, a costly personal expenditure that few public school teachers could afford. Moreover, teachers who did make the effort to learn about computers on their own initiative often found that there were few formal rewards for doing so. Although a 1987 survey of computer-using teachers indicated that some teachers received modest salary bonuses or fringe perks such as slightly reduced class loads, they were often tasked with extensive additional duties, such as setting up and maintaining computer labs or offering technical support to other teachers, responsibilities which some teachers said added more than ten extra hours to their workweeks.¹³⁹ Frustrations with such conditions led numerous teachers to leave the profession. “Once teachers learn how to use computers,” another survey reported, “they tend to leave their school system for higher paying jobs in private industry.”¹⁴⁰

Thus, despite initial hopes that teachers could fill in the significant gaps in formal computer training by taking advantage of educator discounts offered by Apple and other corporations, the OTA's follow-up report on teachers and technology use in 1995 revealed that teachers were still largely unprepared to use computers in sophisticated ways in their classrooms. In the opening pages of the report, the OTA was blunt in its assessments of teacher training, saying, "perhaps the *most* valuable...part of the education equation has been virtually overlooked: the teachers," and as a result, "relatively few of the nation's 2.8 million teachers use technology in their teaching."¹⁴¹ This report, just like its 1988 predecessor, was highly critical of the federal government. "Much of the federal support for technology-related teacher development is optional in nature and small in amount," the OTA reported, and was moreover "highly variable from year to year, piecemeal in nature, and lacking in clear strategy or consistent policy."¹⁴² Criticizing the political uncertainties that had largely undermined comprehensive teacher training efforts, the 1995 report concluded that federal efforts had "devot[ed] more attention to promoting the development of and access to technology than...to preparing teachers to use technology well."¹⁴³ Indeed, the OTA found that there were almost 6 million computers in U.S. schools in 1995, or about one for every nine students.¹⁴⁴ Thus, while schools and governments throughout the U.S. had spent billions of dollars outfitting classrooms with personal computers, the OTA argued that these costly technologies had not appreciably enhanced educational opportunities for the majority of students.

While the national data indicated deep, systemic problems with computer education, a closer look at public schools serving wealthy and poor communities disclosed an even more troubling situation—teachers in wealthier schools were far more likely to possess substantial computer training, and were therefore more likely to use computers in advanced, creative ways in their classrooms. Such disparities had begun to emerge in the

early 1980s, due in significant measure to Reagan's education cuts. His spending reductions had disproportionately harmed poorer schools, because the majority of federal education monies had served as "compensatory" funds intended "to supplement state and local revenues for schools serving students from poor families."¹⁴⁵ *Classroom Computer News* found in 1983 that the Reagan cuts particularly "exacerbate[d] the educational disadvantages experienced by the large number of students who attend schools in urban centers," and noted that schools in poorer communities were finding it particularly difficult to purchase computers or to offer training for their teachers.¹⁴⁶ "While a privileged minority of students in smaller school districts are becoming computer literate," the journal warned, "city schools are struggling to provide their students with a basic education."¹⁴⁷

Such disparities continued to mount throughout the 1980s. In 1985, for example, Antonia Stone, director of the non-profit computer advocacy organization *Playing to Win*, noted that the 12,000 wealthiest schools in the United States were four times as likely to have computers as the 12,000 poorest, but that the differences in how the schools used their computers were perhaps even more important. "Wealthy schools use computers for programming and for applications like data base and word processing software," she explained, whereas "[p]oor schools use computers for drill and practice exercises" little different from simple workbook activities.¹⁴⁸ "That worries me," Stone continued, "because drill and practice does not take full advantage of the computer as a tool," which she argued would leave poorer students ill prepared to use computers in truly productive and empowering ways.¹⁴⁹ In 1991, Jonathan Kozol, a former teacher and noted education activist, offered a similar assessment. He observed that poorer schools still "characteristically employ[ed] computers for repetitive and rote activities—a passive and unimaginative use," and he called on educators to provide students with the "intellectual resources to search out and master any skills they may later need for jobs that we can't possibly imagine: the

skills to strategize and reason, select, and connect one piece of logic to another.”¹⁵⁰ Con-
tending that “[w]e already do this in many suburban schools,” Kozol held out some hope
if “wisely used, computers may reduce those disparities and push our nation toward the
goal of genuine equality,” but he likewise recognized that patterns set in the 1980s had
produced “a time of great disparities between the education offered to the children of the
rich and poor.”¹⁵¹

By the 1990s, it was therefore becoming clear to many observers that significant
problems had plagued school computerization in the United States—the majority of
teachers still lacked sufficient training to use computers effectively in their classrooms,
and except for a relatively small number of students in the wealthiest districts, few youth
appeared to be deriving significant benefit from school computer use. Private corpora-
tions, however, benefited immensely from their access to schools during the 1980s and
1990s—especially Apple. The company had absolutely dominated educational computing
in the 1980s, and was still the leading provider of school computers in the 1990s despite
increasingly fierce competition from personal computers running Microsoft Windows.
During the 1984–1985 school year, for example, schools nationwide spent \$520 million
on computers, and 70 percent of the computers purchased for education were Apples.¹⁵²
Given these substantial sales, Apple estimated that schools accounted for one third of the
company’s total revenues in 1985.¹⁵³ In 1990, Apple calculated that annual education sales
were worth more than \$1 billion annually, and a major national survey in 1992 indicated
that Apple was still dominant in education—there were nearly 2.3 million Apple comput-
ers in U.S. schools, representing 65 percent of the total installed base.¹⁵⁴ In 1996, Apple’s
own data indicated that 86 percent of the public schools in the United States owned Ap-
ples, and that almost 60 percent of new computer sales to K–12 schools would be Apple
products that year.¹⁵⁵ The same company report revealed that Apple’s education business

still accounted for 20 percent of total sales, worth more than \$2 billion annually.¹⁵⁶ Despite the broader financial problems Apple faced in the mid-1990s—discussed at length in chapter 2—company leaders specifically sought to reassure investors that Apple could recover by highlighting the corporation’s strong position in education. The cover of Apple’s 1996 report to shareholders, for example, featured a new, affordable laptop computer, which the document proclaimed would “extend Apple’s leadership in the education market,” while numerous figures inside the front cover highlighted the corporation’s long and profitable history of selling computers to schools.¹⁵⁷

As this overview of Apple’s involvement with schools indicates, no single market was more consistently profitable or important for Apple’s business during the 1980s and 1990s than K–12 education. Moreover, the company’s own market research in the mid-1990s continued to indicate that Apple’s strong presence in schools was the primary driving force behind the company’s sales of computers to home consumers, a fact which greatly extended the significance of education for Apple’s larger corporate strategies.¹⁵⁸ Yet teachers seemed to be increasingly disenchanted with Apple by the 1990s. For example, a 1990 editorial in *Electronic Learning* by an Illinois teacher criticized Apple for “milk[ing] education to pay for its foray into the business world.”¹⁵⁹ He pointed out that Apple had for many years neglected the Apple II line of machines—by far the most popular computer in U.S. schools—in favor of the Macintosh, which few schools could afford. Even worse, this teacher felt that the education press, where Apple spent lavishly on advertising, had become far too cozy with the corporation, and was failing to hold Apple’s “feet to the fire whenever it neglects education and then turns around and piously claims the contrary.”¹⁶⁰ Another teacher editorial in *Electronic Learning* suggested that Apple’s ongoing dominance in schools stemmed primarily from fears about the costs associated with retraining teachers to use a different brand of computer and rebuilding software libraries

from scratch—in other words, many schools stuck with Apple mostly out of force of habit.¹⁶¹

Apple's business strategies had therefore succeeded in securing a dominant market share in schools, but the evidence suggested that the company was not living up to its loftier promises to serve as a supportive partner for teachers. Indeed, the priorities reflected in the federal Apple Bill and the Kids Can't Wait program in California indicated that Apple's educational business strategies could be profoundly disconnected from corporate rhetoric about improving the educational process, as the company demonstrated little concern for teachers' preparedness to use computers in their classrooms. But Apple's failure to support teachers mirrored the attitudes of policymakers, who proved eager to buy computers for schools, but consistently undermined teacher training programs over the course of the 1980s and 1990s. It was something of a perfect storm. Despite the concerns raised by teachers, journalists, scholars, and other critical observers, the broader public remained relatively apathetic about problems in public education, making it all too easy for Apple's financial interests to overshadow the corporation's more altruistic aims to reform education.

To be fair, Apple did carry out more concerted efforts to make a positive difference in the lives of teachers and students in the 1980s and 1990s, especially through an ambitious education grants program and the long-term Apple Classrooms of Tomorrow (ACOT) research project, which are the focus of the next section. These programs actually produced a number of exciting examples of how computers could be used to enrich educational opportunities, but caught between Apple's overarching financial goals and a hostile political climate for public education, the teachers and Apple employees who worked together on these projects often found that corporate superiors, school administrators, and

policymakers were not particularly interested in their insights, stultifying the long-term impact of Apple's more altruistic educational aspirations.

CUSTOMERS OR PARTNERS? APPLE'S CONFLICTED RELATIONS WITH TEACHERS

In this section, I focus on Apple's two most ambitious school reform initiatives: an education grants program, which launched in 1979 and donated tens of millions of dollars of computer equipment to schools throughout the U.S. during the 1980s and 1990s, and the Apple Classrooms of Tomorrow (ACOT), a research partnership between Apple and five U.S. public schools that ran from 1985 to 1995 and which aimed to develop sophisticated insights into how computer technologies could best serve the educational process. These programs represented Apple's most concerted attempts to live up to promises that the company would be more than just a commercial purveyor of computers to schools, and in some instances, teachers used Apple grants and participation in ACOT to do remarkable and promising things with their students. Yet the hopeful gains Apple observed in these specific classrooms proved difficult to translate into larger transformations in public education, and the corporation was an inconsistent ally in teachers' attempts to make positive changes in their schools and districts. In many cases, the Apple employees who worked most closely with teachers discovered that improving education was not intrinsically aligned with Apple's financial interests, and the company's involvement with schools through ACOT and the grants program, which began with much optimism, tended to end in disillusionment for Apple employees and teachers alike.

Even though ACOT and the education grants initiative were two of Apple's most prominent educational programs, only a handful of commentators have discussed either effort, and to my knowledge, there have been no extensive examinations of how these

programs fit into Apple's larger business strategies, how the company used the programs to generate publicity and marketing materials, or the frustrations that both teachers and Apple employees faced in their efforts to achieve meaningful school reforms. Todd Oppenheimer, for example, betrays an overarching antagonism for the educators who participated in ACOT and the grants program—he argues that the ACOT teachers had too much “faith in technology” to offer honest assessments of their experiences working with Apple, and criticizes one Apple grant recipient, Paul Reese, for overstating the positive educational impacts of technology.¹⁶² These cursory dismissals of Apple's efforts fail to recognize that ACOT employees were themselves dubious about the long-term impacts of technology and their program, or that Reese was adamant that committed teachers—not computers—were the key to reforming schools. Alison Armstrong and Charles Casement offer a more nuanced assessment teacher experiences on the Vivarium project, a five-year research grant awarded to the Los Angeles Open Charter School in 1987, but again, their investigative reporting does not provide a detailed assessment of the corporate motivations behind the project.¹⁶³ Although I am generally sympathetic to the critical perspectives offered by Oppenheimer and Armstrong and Casement, their arguments do not always capture the complexities of school policy and administration, the contradictory impulses that drove Apple's involvement with schools, nor the doubts and concerns of some of Apple's own employees. By drawing on a broad range of materials—corporate publications, Apple publicity materials, education sales manuals, grants application instructions, Apple philanthropy guidelines, teacher and student accounts of their experiences in Apple's education programs, journalistic coverage of the company's school reform efforts, and critical education scholarship—I hope to illustrate the complicated range of factors at play in educational technology use and school reform. While I argue that Apple's pursuit of financial interests in schools contributed to the failure of ACOT and Apple education

grants to produce meaningful school reforms, I also aim to show how more fundamental political problems in the administration of U.S. public education consistently undermined teachers' and Apple employees' best efforts to enhance students' educational experiences and opportunities.

Apple's education grants program began relatively modestly in 1979 as a department called the Apple Education Foundation, staffed by just two employees, and represented the corporation's first formal philanthropic initiative.¹⁶⁴ Apple's leaders had, since the earliest days of the company, maintained that their corporation could "contribute [to society] in certain special ways due to the unique nature of our products," and in their first attempts to sketch out a statement of company values, Apple executives had singled out schools as a place where computers could make a particularly positive impact.¹⁶⁵ In a catalog and information booklet the company distributed to teachers in 1981, the company likewise assured educators that "Apple Computer, Inc. believes companies have a responsibility to the societies in which they exist," and elaborated that the company had specifically chartered "the Education Foundation as one means of meeting this responsibility and demonstrating [the company's] commitment to education."¹⁶⁶ Reflecting the ingrained corporate philosophy that Apple personal computers possessed a remarkable potential to empower their users, company leaders decided that the Apple Education Foundation would "focus Apple's philanthropy on grants of computer equipment rather than money—in other words, to share the high-technology products [the company] designs and produces with sectors of the community promoting social and personal well-being."¹⁶⁷

While corporate rhetoric emphasized the public service motivations underlying the Apple Education Foundation, the program was also intended to serve Apple's business strategies. Personal computers, as a brand new technology, were completely untested in schools in the late 1970s and early 1980s, and people at the company hoped that by plac-

ing machines in actual classrooms they could gain valuable insights for further educational product development and marketing purposes. As company documents show, the primary criteria the Apple Education Foundation considered when reviewing the first round of grants applications in 1979 was whether teachers' proposals were likely to "further...the use of microcomputers in education."¹⁶⁸ Indeed, Apple treated grant sites as valuable research and development opportunities as well as fodder for publicity and marketing campaigns. Yet Apple's approaches to the education grants program represented a relatively complex mixture of corporate self-interest and more altruistic motivations.

On the one hand, the people administering Apple's education grants wanted to ensure that teachers and students were taking full advantage of personal computers, using them for creative and innovative purposes that truly added something to learning experiences. When Barbara Bowen, for example, took over Apple's education grants program in 1983, she expressed concern that there were too many "computers in schools these days that are being used just for computer literacy and drill and practice programs," uses which she saw as "kind of dead-ended."¹⁶⁹ To address this problem, Bowen sought to foster model sites through the grants that could help teachers throughout the national public school system "grasp a coherent sense of the possibilities from others who have been thinking about creative uses of computers in education."¹⁷⁰ Three years later, Apple proudly reported that teachers who had received grants had "made presentations to professional educational organizations around the country, shared the results of their work through publications produced by Apple and through academic journals, and helped formulate in-house teacher training programs in their districts, based on the findings of their own projects," which the company hoped would help catalyze "widespread educational change."¹⁷¹ Moreover, since the people running Apple's education grants program began to recognize that certain groups of students, especially "female and ethnic and linguistic minority students,"

tended to have less meaningful access to computers in their schools, the company began focusing its grants on projects that would specifically target these groups of students.¹⁷² In subsequent years, the vast majority of Apple's education grants did go to schools that predominantly served low-income youth in places such as the Pine Ridge Indian Reservation in South Dakota; Newark, New Jersey; Philadelphia, Pennsylvania; and Harlem, New York.¹⁷³

The teachers and schools who received these grants did use computers and other support from Apple to create intriguing new learning opportunities for their students, some of which I will explore momentarily. But Apple also capitalized on grantees' efforts in their larger education sales efforts. A corporate education sales manual from 1988, for example, informed employees that the "Education Grants Program helps your sales efforts in many ways."¹⁷⁴ On the most basic level, the grants program provided concrete "success stories and references sites" that salespeople could cite as evidence of "success in integrating Apple technology into curriculum areas" when negotiating sales with other school systems.¹⁷⁵ Grant recipients themselves also often provided free publicity by presenting findings from their computer projects at professional conferences, and the sales manual additionally pointed out that "[g]rantees who are 'satisfied customers' generally purchase more equipment since they are able to convince the decision-makers that it makes good sense/cents to invest in the technology."¹⁷⁶ In other words, initial grants could open the door to larger sales in the future, when excited program participants could help convince their schools and districts to make more extensive investments in computer technologies. And Apple found that many applicants who did not win grants from the company ended up purchasing equipment in any case, as the demanding grant-writing process typically involved teams of teachers who had spent considerable time and effort drafting plans "in which computers would be fundamental in achieving curriculum goals and objectives,"

and they were often able to adapt their Apple grants applications to win funding from other sources.¹⁷⁷

Corporate rhetoric presented Apple's capitalization on grantee efforts for sales and publicity purposes as an eminently fair bargain. For one thing, company materials framed the education grants program as far more than a gambit to sell computers to schools. More importantly, the company explicitly hoped to use the grants process to advance a progressive school reform agenda centered on interdisciplinary education. "To adapt successfully to life's changing circumstances," a grants application booklet proclaimed, "young people need a range of skills and knowledge. Curriculums that teach subject by subject, however, often separate school from life outside its walls—leading many students to question the relevance of what they're learning."¹⁷⁸ The grants program therefore called upon teachers to employ computers as just one tool in a broader interdisciplinary program. As the grants application instructions suggested, "Interdisciplinary curriculums can include lessons drawn from students' backgrounds, day-to-day lives, and communities—all rich sources of lesson material and learning experiences."¹⁷⁹ The education grants program therefore encouraged teachers to create proposals that included plans for collaborative teaching across discipline areas, activities that would push students to become more active in the local community, lessons that would bring in experts from outside the school, and projects that would call on students to communicate and collaborate with other students in distant locations.

In addition, Apple's support of grant recipients went further than the mere provision of equipment. Grant applicants were expected to develop a three-year plan that would employ Apple computers as part of a larger interdisciplinary teaching initiative. During the first year of the grant, Apple would provide up to \$5,000 in addition to donated computer technologies, which teachers could use to "pay for such critical compo-

nents as software, peripherals, curriculum materials, inservice training, and outside consultants” to help establish a comprehensive support system for the project.¹⁸⁰ Moreover, Apple would fly grant recipients to company headquarters in Cupertino, California for an intensive summer training session that would include presentations and workshops conducted by former grant recipients. Apple believed that it was absolutely essential to help grantees “establish relationships that can provide a network of support for the future,” as the company recognized that feelings of isolation were a common complaint among teachers trying out new projects and approaches in their classrooms.¹⁸¹ In exchange for providing these services, Apple informed grantees that the company “retain[ed] the right to publicize any aspect of your grant award,” and insisted that schools be open at all times to “periodic visits from our staff or the news media.”¹⁸² Finally, at the conclusion of the grant period, Apple “expect[ed] to see sustained financial support from the school and district to ensure that the program will continue into the future,” and if at all possible, the company hoped to see administrators commit the funds to replicate the pilot program supported by the grant on a school-wide or even district-wide scale.¹⁸³

In Apple’s equation, then, teachers would benefit from seed grants of money and computers, as well as training opportunities and inclusion within a broader professional network of computer-using teachers. The company, meanwhile, would benefit from positive publicity, the creation of model sites that could be mined for marketing materials, and commitments from teachers and school administrators to advocate for future purchases of more Apple products. Ultimately, people at the company contended, both Apple and schools would benefit from the expanded use of computers within creative, interdisciplinary educational programs that encouraged such goals as critical thinking and self-directed learning. And as a result of the grants program, Apple could indeed point to

schools where teachers were using computers to support creative new educational initiatives.

One particularly vivid example came from Pine Ridge High School on the Pine Ridge Indian Reservation in South Dakota, which is governed by the Oglala Lakota Nation. Pine Ridge High School, like most reservation schools in the United States, had historically worked to suppress indigenous language and culture. Bryan Brewer, who had been a student at the school in the 1960s and later returned to serve as a Native American Studies teacher, recalled that “he and his classmates were punished for speaking the Lakota language,” and revealed that it was only during the late 1980s and early 1990s that “Native American culture [began to be] officially incorporated into teaching curricula.”¹⁸⁴ Interestingly, one major catalyst for teaching Lakota language and history in the school was an Apple education grant won by English teacher Tom Gray. Gray’s grant proposal, written along with several colleagues, noted that there was a profound disconnect between many of his students’ home lives and their experiences at Pine Ridge High School, as the school had not made comprehensive attempts to connect the culture and history of Oglala Lakota people to the subjects learned in school. By using the multimedia capabilities of Apple Macintosh computers, Gray aimed to have his students collect and publish stories, myths, and legends from relatives and tribal elders, which he hoped would help students and their families begin to see the school “as an integral part of their lives.”¹⁸⁵

Pine Ridge High School won the grant, and teachers and students alike were immediately taken by the possibilities offered by the Apple computers. One student, Elmarla Little Spotted Horse, had long been interested in writing stories, and she was particularly intrigued by the program HyperCard, which allowed her to turn her stories into interactive, animated texts. She recalled her mounting curiosity as she explored the program, as she wondered, “What else do computers have to offer? How can we manipulate them to

get what we're looking for?"¹⁸⁶ Among the HyperCard projects Little Spotted Horse worked on was an anthology of student poems, stories, and video animations dealing with contemporary and historical Lakota life, titled *Sparkling Silence*. As Little Spotted Horse later told Andrea Gooden, Apple's education grants coordinator, the project had marked an important turning point in her life, because she had not in the past thought "much of the reservation because of what I saw on TV," but in the process of researching *Sparkling Silence*, she said, "I learned a lot more about myself as an Oglala Sioux than I knew before."¹⁸⁷ In addition to helping provide a deeper connection to Lakota culture, Little Spotted Horse's work with computers opened up other opportunities, giving her an introduction to some of the skills she needed to pursue a college degree in computing in Colorado.¹⁸⁸

Another student, Seneca DeCory, used video software on the Macintosh to create a video analyzing and deconstructing "stereotyped images of Indians" in Hollywood films, while yet another student, Jonna Swiftwater, used HyperCard to create a multimedia research project exploring contemporary relations between the Oglala Lakota people and white Americans.¹⁸⁹ Like Little Spotted Horse, both DeCory and Swiftwater hoped to continue building on their computer knowledge through further study in college, and Swiftwater was committed to continuing to work with Pine Ridge teachers to create "a Lakota language and culture project" that she hoped would "help other students grasp the richness of their Lakota heritage."¹⁹⁰ As she said in an interview with Apple employees, "I'm proud to be living on the reservation.... We've had a lot happen to us, and to the land, but we're still living and we're still functioning in today's world. We're strong."¹⁹¹ Such comments suggested that the Pine Ridge High School project had delivered on many of the goals of the Apple education grants program. Students and teachers had used the computers to deepen their connections to their community and heritage, but they had

also gained familiarity with technologies that broadened their future opportunities beyond the reservation.

But the nature of the support offered by Apple's education grants program made it difficult to sustain the gains in student excitement and engagement seen immediately after the introduction of new technologies at Pine Ridge High School. When the school received the grant of twenty-four Macintosh computers in the late 1980s, other school materials and facilities had suffered from years of neglect. As Apple representatives noted when they visited the schools, most of the books in the school's library dated from the 1930s or earlier, and because economic opportunities on the reservation were scarce, with unemployment rates over 70 percent, the school was completely dependent on federal funds, which had become increasingly meager under President Reagan's austerity measures for public education.¹⁹² Thus, while Apple maintained it was the responsibility of schools that had received grants to find the money to maintain and expand computer programs, Pine Ridge faced unique difficulties in its ability to continue raising funds for costly computer supplies, especially given that the cycles of rapid obsolescence that define commercial computer products make fundraising an endless process.

Although I have not been able to track the specific details of what happened to the computer education projects at Pine Ridge High School in the years following the Apple grant, a 2015 investigative report in the Minneapolis *Star Tribune* discloses that schools across the Pine Ridge reservation have fallen far behind other schools in technology access, as well as other fundamental measures of educational opportunity. Indeed, the *Star Tribune* reports that federal funds for reservation schools, distributed through the Bureau of Indian Education, have continued to fall during the twenty-first century, leaving schools on the Pine Ridge reservation unable even to replace crumbling asbestos tile flooring, which federal officials have told teachers is "fine as long as it's not disturbed."¹⁹³ The

nearby Shannon County public schools are a study in contrasts. Middle school students have ready access to Apple iPads, while a high school student from Pine Ridge who had competed in basketball tournaments in Shannon County remarked that the public schools outside the reservation had “fancy floors, new flooring, new design, new curtains,” as well as “technology—they had TVs in the hallway to show the student activities. It makes our school kind of look sad.”¹⁹⁴ Thus, while Apple had confidently predicted in the mid-1990s that Tom Gray and other teachers at the Pine Ridge High School would be able to inspire schools across the reservation to start their own computer education projects, the broader failings of federal support for education on reservations clearly made such efforts a losing battle.

It is not perhaps fair to expect Apple Computer, Inc. to be able to correct the long-standing legacy of federal antagonism and neglect that has shaped relations with Indian reservations since the 1800s, but Apple’s use of the Pine Ridge High School grant as a prime example of meaningful educational change was more troubling. The glowing, happily-ever-after tone of corporate materials publicizing the grant’s impact at the school downplayed the pervasive political, social, and economic challenges that students faced on the reservation, transforming an opportunity for an honest assessment of deeper problems with federal educational policies into a photo opportunity for a publicity-hungry corporation. It was a maneuver that simply reinforced the lack of critical reflection in official discussions about the capacity of computers to solve systemic problems in public schools during the 1980s and 1990s. In 1995, for example, President Bill Clinton held up the Internet as a technology with seemingly miraculous implications for public education. As Clinton laid out a sweeping initiative to connect schools to the web, he proclaimed, “I want to emphasize one of the most important aspects of the technological revolution is the opportunities being opened to children so many Americans had given up on and

schools that too many Americans had given up on.”¹⁹⁵ This statement implied that simple access to the Internet could somehow reverse many of the inequalities apparent in U.S. public schools, but said nothing about the larger budget shortfalls or social problems with which many schools had to grapple. Clinton’s vice president, Al Gore (who now sits on Apple’s board of directors), likewise intoned that the Internet would “give every American, young and old, the chance for the best education available to anyone, anywhere.”¹⁹⁶ These statements distinctly echoed Apple’s own optimistic assessments of the transformative capacities of computers, and betrayed a similar tendency to gloss over the deeper causes of inequality and lack of opportunities some students faced within public schools.

To be sure, some of the challenges at Pine Ridge High School were not representative of U.S. public education at large, but even grant recipients who seemed much more likely to achieve long-term successes were frequently frustrated in their efforts to improve their schools or districts. The experiences of Paul Reese, a teacher at Ralph Bunche Elementary School in Harlem, New York, were particularly illustrative of the complex issues teachers faced when they tried to spearhead school reform efforts based around technology projects. Reese was first approached in 1985 by the Bank Street College of Education, where researchers were looking for a school site to study the possible benefits of using computer networks to support collaborative learning in elementary science education.¹⁹⁷ Bank Street College, located in Manhattan’s Morningside Heights neighborhood, was just a few blocks southwest of Ralph Bunche School, which sits at the edge of West Harlem on 123rd Street. In partnership with Bank Street College, Reese agreed to lead a project called Earth Lab, which ran from 1987 to 1990 and was supported by an Apple education grant of twenty Apple II and Macintosh computers.¹⁹⁸ The primary goal of Earth Lab was to transform the science curriculum at Ralph Bunche from a relatively passive, lecture-based mode of instruction to an inquiry- and experiment-based curriculum. The Earth Lab cur-

riculum focused predominantly on a series of long-term collaborative projects that also required students to draw on skill sets from other subject areas, including written communication, history, and geography. Designing Earth Lab therefore required Reese to work with teachers in different departments across the school so they could coordinate assignments that drew on multiple disciplines at once.

Thus, while Earth Lab emphasized stimulating students' interests in science, the project fit neatly into a number of aims laid out by Apple's education grants program. First, as Reese noted, most of Ralph Bunche School's "African-American and Hispanic students live in the neighboring public housing," and the majority of the school's children "meet many of the criteria of low income and/or measures of poverty."¹⁹⁹ Furthermore, Reese had seen "many students decide early in their school life that science is not for them," and he cited the fact that "[l]ess than 1% of our students gain admission to New York City's specialized high schools" that offered advanced science and technology training, which he argued "closes off future career options and narrows the pool from which the nation's scientists and engineers will come."²⁰⁰ Earth Lab, which would specifically serve African-American, Hispanic, and female students from low-income backgrounds, and would seek to increase the youths' future academic and career opportunities, perfectly answered Apple's call for projects that targeted disadvantaged children. Moreover, the collaborative teaching plans and multi-subject assignments well reflected Apple's desire to see more interdisciplinary teaching and learning in U.S. public schools.

According to Reese, the Earth Lab program stimulated a number of new teacher and student approaches to learning, due in some measure to the characteristics of the computer technologies involved. "The structure and nature of the computer activities brought teachers together," Reese wrote, both because most teachers were unfamiliar with computers and because the machines were concentrated in a shared lab.²⁰¹ "[S]tudents and

teachers frequently came to the computer room where they began to depend on each other for training and assistance,” Reese continued, and through these collaborative interchanges, teachers began to appreciate the benefits of team-based teaching and learning.²⁰² “These encounters...led teachers to share successful lessons and organizational techniques,” and Reese noted that teachers participating in the program began to gain a more holistic view of the educational process, and to come up with lessons that supported learning across disciplines.²⁰³

Reese and several of his colleagues were so energized by their experiences participating in the three-year project that they decided to lobby school administrators to let them expand their efforts through the creation of a computer mini-school within Ralph Bunche. Reese explained that teachers who participated in Earth Lab felt that working more closely with their colleagues helped them improve their teaching, especially by helping them overcome the isolation and fragmentation they often experienced in their own classrooms. As one teacher explained, many students at Ralph Bunche required remedial support in one or more subjects. The school tried to remediate most students through pullout programs, which tended to be incredibly disruptive. “You have kids being pulled out for reading, pulled out for math, then the whole class is pulled out for science,” she complained. “It’s just like a merry-go-round: it never stops.”²⁰⁴ The teacher further explained that with so much instruction happening outside the classroom with numerous other teachers or learning specialists, it became next to impossible to keep track of student progress in various areas, which made it especially difficult to compose lesson plans for the whole class. In Earth Lab, with its emphasis on integrated instruction across disciplines, teachers found that they could work together to identify problem areas and find ways to build necessary remediation into larger projects, which gave the teachers more opportuni-

ties to monitor student progress directly and minimized the disruption of pullout programs.

As a result of such insights, Reese recalled, “teachers began to realize the power of their collaboration,” so they “met and discussed how they would like to see the school organized.”²⁰⁵ The mini-school that Reese and his colleagues proposed suggested a number of structural changes, chief among them smaller class sizes and permission to craft a fully integrated curriculum that would allow teachers to work in teams across disciplines. Arguing that teachers with fewer charges would be better able to serve their students’ diverse needs and to track their performance in multiple subjects, the teachers “offered to surrender contractually guaranteed unassigned preparation periods for smaller classes,” and also asked that resources be diverted from one pullout program “to reduce class size even more.”²⁰⁶ To ensure greater continuity for the students involved and to guarantee that they would represent a diverse range of abilities and backgrounds, Reese and his colleagues suggested that students should be picked for the mini-school by lottery, and that they would remain in the program for their fifth- and sixth-grade years. The school agreed to the project, so in 1990, Reese and his colleagues began working closely with each other to create a flexible, project-based curriculum, which used a variety of computer tools to encourage students to combine scientific data collection, problem solving tactics, and spoken and written communications skills to become better writers, critical thinkers, and collaborators in their learning pursuits. Although the mini-school explicitly sought to improve student performance in core subjects, such as math, English, and science, the overarching goal for Reese and the other teachers was to “emphasize self-esteem and responsibility,” encouraging students “not to sit idly by and accept what happens to them, but to shape the paths that they follow.”²⁰⁷

If any one program that grew out of Apple's education grants seemed likely to make a lasting impact on public education, it was the Ralph Bunche computer mini-school. Reese was a particularly dedicated and charismatic teacher, and the efforts that he spearheaded drew significant praise and attention from the press and influential policymakers. Between the initiation of Earth Lab in 1987 and the dissolution of the computer mini-school in 1999, Reese and mini-school students attended numerous national education conferences to give presentations about their work at Ralph Bunche School. Between 1987 and 1990 alone, Ralph Bunche students participated in seventeen conferences, traveling to locales such as San Francisco, St. Louis, Boston, and, in 1990, Washington, D.C., where Reese and his students met and interviewed congressman Charles Rangel, the eminent Army general Colin Powell, and then-chair of the Democratic National Committee Ron Brown, who would later visit Ralph Bunche in person when he was serving as Secretary of Commerce under Bill Clinton.²⁰⁸ The mini-school likewise received positive coverage in national newspapers, as well as international publications such as the London *Financial Times*, and was even visited by a group of Danish journalists.²⁰⁹ Reese himself was named Educator of the Year by the journal *Electronic Learning* in 1990, and he soon after became the official technical adviser for sixteen neighboring schools.²¹⁰ In addition to the initial grant from Apple, the mini-school secured additional funds and resources from technology companies including Panasonic and the Boston-based firm Bolt Baranek and Newman, as well as a supplementary \$100,000 grant of equipment from Apple in 1993, a National Science Foundation grant that paid \$15,000 annually for school Internet access, and another \$100,000 grant for computer equipment from the New York City Council in 1999.²¹¹ Reese was also invited to testify before the U.S. House of Representatives in 1997, as Congress considered ways to replicate what it considered the most successful examples of school technology use.²¹² Reese likewise contributed to the federal Office of Technology

Assessment's comprehensive studies of school computerization in 1988 and 1995, and the Ralph Bunche School was profiled as a model site in the Clinton administration's preliminary report on school Internet access in 1996.²¹³

The excitement that surrounded Earth Lab and the subsequent computer mini-school at Ralph Bunche is not difficult to understand. Visitors to the school were, first of all, typically impressed with the technological skills and confidence exhibited by the students they met. Reese had been particularly interested in using computers to help his students connect with people outside of their immediate environment, and several years before most Americans had heard of email or the Internet, children participating in the Earth Lab program were exchanging electronic messages and sharing weather and climate data with classrooms in London, Australia, Belgium, and Japan.²¹⁴ One student even managed to strike up a correspondence with a professional biologist in Australia, whose work with marsupials fascinated the sixth grader. "You send a message, and people respond," the student happily told a *New York Times* reporter, "telling you things you never knew."²¹⁵ The same journalist also witnessed a group of students videoconferencing with professors at Cornell University in upstate New York.²¹⁶ Reese was especially proud of his students when a contingent of Danish reporters arrived—because children in the computer mini-school had previously exchanged messages with a school in Denmark, they were able to greet the journalists in their own language. Reese happily reported that the Danes "had several stereotypes of New York City schools shattered that day as the student-hosts helped them" send messages to Denmark using the "local area network and went on to explain several of their science projects."²¹⁷ The students who first participated in the Earth Lab program also made it into the national news in 1989, when they used data collected from their rooftop weather station to track Hurricane Hugo, and formed a more accurate projection of the storm's path than the National Weather Service.²¹⁸

The mini-school also produced examples of long-term successes. Several students who participated in the mini-school in its early years continued to be closely involved as mentors for younger students and technical assistants after they graduated from elementary school. One, Hamidou Diori, whose family had emigrated from Nigeria in 1989, later served as an editorial consultant on the mini-school's newspaper and helped Reese maintain the school's network. "I always wanted to learn to use computers," he told the director of Apple's education grants program, and was particularly proud of having worked with Reese and an employee from Bolt Baranek and Newman to connect all the school's computers to the Internet in the early 1990s.²¹⁹ "This was no ordinary network," he recalled, as the school "was going to become a node on the Internet," and Diori explained that his job "was to set up all the Macs that had hard drives with MacTCP, then configure their IP (Internet protocol) address, then configure the gateway address (the router). Finished that, no problem."²²⁰ Thanks to Diori's work with Reese, Ralph Bunche became the second public school in the United States to have access to the Internet.²²¹ As a high school student, Diori spent every Tuesday at Ralph Bunche to troubleshoot the various technical problems that inevitably arose with the school's numerous computers, and he enthusiastically described plans for studying computer science in college. Another student, Herbert Williams, found that he had learned so much about computer technology and programming in his two years in the computer mini-school that he was already overqualified for all but one computer class at his high school. Combining his interest in computers with a desire to give back to the community, Williams helped create and administer a website for a children's rights organization called Kids Meeting Kids, and he frequently returned to Ralph Bunche to help younger students. "It's a lot of fun to see what the people after me are doing," he said, and marveled at the students' work ethic: "They do a lot of work, even the third graders—a lot of work."²²²

Beyond students' increased facility with computer technologies and remarkable contacts with others around the globe, the major projects that anchored the Ralph Bunche computer mini-school curriculum showcased the students' civic engagement, political awareness, and communication skills. One of the longest-running projects was the creation of a comprehensive journalism program. It included a monthly publication called *Computer School News*, which was published on the school's website and had a print circulation of 3,000, and a video news segment called *KidWitness News*.²²³ The *Computer School News* often dealt with local community issues, including educational policies that impacted schools in the students' neighborhood. For example, in 1997, Rudolph Crew, chancellor of the New York City Board of Education, decided to suspend the school board in Community District 5, which included Ralph Bunche School. The New York City public school system is somewhat decentralized, with many administrative duties falling to smaller neighborhood districts, but Crew had intervened in Community District 5 due to reports of serious problems throughout the district.²²⁴ Responding to this action, a student reporter for the *Computer School News* noted that some schools "didn't even have textbooks, or reading books," and vocalized support for Chancellor Crew's decision. "To have so many children below grade level is not good," the student opined. "This affects their future," the article continued, as underserved students "might not be able to get a good job in their life."²²⁵ The student reporter went on to describe PTA efforts to maintain Ralph Bunche's much higher educational standards, and encouraged more parents to become involved with the school.

In 1996, the *Computer School News* likewise highlighted the letter-writing campaign undertaken by the mini-school students in Donna Stewart's fifth grade class, who were perturbed by New York mayor Rudolph Giuliani's policies toward homeless people. The students were particularly upset by a recent city government action to evict a home-

less community from a long-term settlement in abandoned train tunnels under Manhattan, and the *Computer School News* published a selection of student letters to Giuliani. Student Luisa Nunez had no qualms about telling Giuliani just what she thought. “There are lots of homeless people in New York,” she wrote, “and I think you are doing nothing about it.” Jessica Green likewise expected more sympathy and civic support for those without permanent residences. “I see, almost everyday, signs like this: *I have AIDS and I’m homeless too!*,” Green reported, and she suggested that the mayor “come down here to see for yourself” what life was actually like for people living on the streets of New York. “Put some of your money and work on these people, they have rights too,” Green concluded. Student Courtney Davis had a few policy recommendations, asking whether the mayor was “going to make safer shelters for the homeless and the tunnel people,” and if he was going to try and provide “them mental help.” Clearly expressing a sense that Giuliani should acknowledge citizen concerns, Luisa Nunez ended her letter with a request for a reply: “I would also like you to write me back and tell me what kind of help you are giving the homeless people.”²²⁶ Giuliani’s office never did reply to the students, but it was obvious that the mini-school’s frequent interactions with a variety of people outside the school encouraged students to see themselves as active members of society.

Student reporters also followed national events, such as the high-profile 1996 lawsuit against Texaco as a result of pervasive racial discrimination in the company’s offices and hiring practices. Antony Montero reported that his class had taken the case as an opportunity to discuss affirmative action laws and the boycott of Texaco led by Jesse Jackson, which Montero supported but felt would not be “enough to change people’s minds.” Montero believed that there needed to be larger public protests and discussions to address the underlying causes of racism. “It will take a lot of effort on the part of all people,” he wrote, “to change negative thinking about other people who have a different culture and

skin color.”²²⁷ Another student, Courtney Davis, wrote about the conversations she had with her mother about the case. Davis’s mother stressed the fact that “black people do not always stick together and fight the problem in order to make the white people treat them fairly,” and that this case was a good example of the importance of collective action. However, Davis’s mother also suggested that mainstream coverage of the case had emphasized the financial stakes of the lawsuit against Texaco rather than the more fundamental racial problems that continued to plague the U.S. “If we (black people) only fight an issue to see how much money we are going to get out of it,” Davis concluded, “then we are not fighting for the right reasons and the white people (or anyone else) will always be able to keep us oppressed.”²²⁸

This small selection of reports from the *Classroom Computer News* vividly illustrates the ways in which the mini-school curriculum turned contemporary local and national events into valuable learning experiences, and the newspaper showcased students’ confidence and skill as written communicators. Students received complementary lessons working on *KidWitness News*, which was edited and mixed using professional video production software on the school’s Macintosh computers, and featured student interviews with such figures as Canadian prime minister Brian Mulroney, astronaut Mae Jemison, and the singer Julio Iglesias, all of whom visited the computer mini-school in person.²²⁹ Students working on *KidWitness News* also received periodic mentoring and professional advice from students in Columbia University’s journalism department, who would give pointers on things such as interviewing techniques and camera operation.²³⁰ One student who worked on the video program commented that her mother wanted her to pursue a career in politics, but that she was personally entertaining the idea of becoming a news anchor “like Tom Brokaw” as a result of her experiences on *KidWitness News*.²³¹

The mini-school therefore produced a remarkable body of qualitative evidence to substantiate teacher contentions that students in the program were using computer technologies in diverse and exciting ways that would clearly help prepare them for a variety of future opportunities. While the student-produced projects would have been impressive in any school, news media and politicians were particularly eager to seize on the computer mini-school at Ralph Bunche as an unlikely success story given the setting of the school and the socioeconomic backgrounds of students. In the *New York Times*'s rather sensationalistic description, for example, Ralph Bunche was "surrounded by the problems of inner-city life," such as "guns, gangs and crack," and the paper reveled in drawing dramatic contrasts between the high technology in the school's classrooms and the urban decay outside.²³² But as policymakers looked for ways to replicate the successes of the computer mini-school, Reese was determined to convince them that computer technologies were not the key ingredient. "[T]he Ralph Bunche School has become famous for its technology," Reese said in testimony before the U.S. Congress, "[b]ut its real fame is unsung, and that is the dedication of a corps of seven or eight teachers...who care about the children that they work with and hold the children that they teach to the highest level of performance and expectation." He continued, "It is not the technology that has made the students in our school excel. It has supported the process of the teachers in our school, but it does not drive that process."²³³

It was a refrain Reese often repeated, even when he was being recognized explicitly for his work advancing computer education. When talking with Apple employees during a site visit to the mini-school, for example, Reese said, "When you talk about school restructuring, it's not just about the technology. Basically we created a community that's supportive [for teachers and students]—a common approach."²³⁴ And when a journalist asked Reese whether technology bore primary responsibility for the visible improvements

in teaching and learning at the mini-school, his response was unequivocal. “It’s really not about computers,” Reese insisted. “It’s about good teaching, and smaller classes, and the kids’ involvement in what they’re learning. They have higher motivation because they feel a sense of ownership. Clearly the kids who leave here have an excellent grasp of technology, but that’s not what accounts for our success.”²³⁵ Likewise, in an interview with *Electronic Learning*, Reese maintained that the biggest obstacles to improving education were that teachers tended to “feel isolated in their classrooms” and “many of them feel overwhelmed by the class size.”²³⁶

It may have seemed ironic that Reese placed more emphasis on giving teachers greater control over the curriculum, more opportunities to teach in teams and collaborate with colleagues, and smaller class sizes, rather than on extending student access to technology, considering that computers clearly played a key role in many of the mini-school’s most impressive projects. But Reese was well aware of the difficulties of procuring the necessary supplies and support for a computer-intensive curriculum. For one thing, Reese noted that the mini-school was able to launch many programs “without spending huge amounts of money” because the high visibility of the Ralph Bunche School helped Reese win numerous grants, and even inspired some unsolicited donations.²³⁷ However, Reese acknowledged that the overall funding landscape for technology was immensely competitive, and few schools were likely to receive the level of outside support that the mini-school had enjoyed. Moreover, it was chiefly due to Reese’s personal dedication, along with support from a handful of students, that kept all the technologies in working order. “If this were a business application, we’d have at least four full-time techies on staff, for repair, software applications, troubleshooting,” Reese told one reporter, but he noted that in terms of tech support at Ralph Bunche, “Basically, I’m it!”²³⁸ Few technology grants included any funds for additional technical support, and Reese had discovered in his role as

technology coordinator for the broader community school district that few teachers were willing or able to take on the burden of maintaining computers and troubleshooting equipment problems. Without technologically dedicated teachers, programs that made intensive uses of technology were unlikely to last long, and the Ralph Bunche computer mini-school failed to convince teachers at neighboring schools to take on the technological training needed to launch a similar effort.²³⁹

Beyond funding and maintenance problems, there were basic infrastructural limitations to expanding programs such as the computer mini-school. Ralph Bunche School, like many schools in New York, was housed in an old building, and outfitting a computer lab had required relatively extensive rewiring projects. Due to all of the equipment and reduced class sizes, the mini-school was also a space-intensive undertaking—as assistant principal John Diopoulos noted, it took three classrooms to service the same number of students in the mini-school as could be taught in just two classrooms in the regular school. “Right now we’re at a critical stage where I can’t add another classroom,” Diopoulos reported, a problem exacerbated by extensive water damage that had forced the school to stop using one classroom, which the assistant principal ruefully noted might take years to fix due to bureaucratic unresponsiveness at higher levels in the public school system.²⁴⁰ Thus, while Ralph Bunche administrators and teachers greatly wanted to expand the mini-school, and despite the international spotlight focused on the school, they found themselves unable to secure the funds or support necessary to revamp physical facilities. Hopes for expanding the mini-school at Ralph Bunche languished.

But while broken windows, a crumbling school roof, and the water-damaged classroom remained unaddressed for years, the city of New York did prove willing to continue investing in technology at the school. Toward the end of the school year in 1999, “Stanley Michels, a member of the New York City Council, came to the Ralph Bunche School

to see the progress we have made on our computers,” reported the *Computer School News*. “He picked this school and made arrangements for us to get \$100,000 for our new computers,” an impressive endorsement of more than a decade’s hard work by the mini-school’s teachers and students.²⁴¹ Although the New York City public school system seemed reticent to absorb Reese’s arguments about the importance of smaller classes and collaborative teaching arrangements, it at least seemed like the mini-school would continue to make a difference in its students’ lives for many years to come. Moreover, since Ralph Bunche would be using the grant to buy a new suite of Apple products, the company was finally seeing some direct monetary returns as a result of its long-term investments in the program. A more twisted fate, however, awaited the computer mini-school at Ralph Bunche.

The demise of the mini-school exemplified both the profound failings of public school administration and the distinct limits of Apple’s commitments to achieving lasting changes in public education. Apple’s education grants program, journalistic coverage of the mini-school, politicians’ praise for computer efforts at Ralph Bunche, and Reese’s and his colleagues’ assessments of the mini-school emphasized the overall improvements they could observe in the quality of students’ work and behavior. They pointed to the sophisticated writing visible in the *Classroom Computer News*, students’ impressive mastery of scientific concepts through activities such as collecting and analyzing weather data, and the clear boosts in student esteem and self-confidence that came through meeting and interviewing politicians and other public figures or presenting their work at national education conferences. Nevertheless, due to mounting national concerns about problems in the public education system, standardized tests had become increasingly popular during the 1980s and 1990s amongst lawmakers as a tool to measure school performance, and by the late 1990s, these tests exerted a great deal of influence over school policy.²⁴² Although

Reese and his colleagues argued that standardized tests provided a far too limited picture of student performance, because they typically failed to measure higher-level skills such as real-world problem-solving or scientific reasoning, students in Earth Lab and the computer mini-school did consistently perform better than their peers on state-mandated standardized tests.²⁴³ It therefore came as a surprise when student scores on these tests dipped significantly during the 1998–1999 school year.

Students at the Ralph Bunche mini-school were not the only ones underperforming that year. Many public schools in New York City posted results far below expectations, and facing significant political pressure and public hostility, top administrators in the city's public school system panicked. They rapidly set in motion a sweeping set of educational reforms, causing immense upheaval in schools across the city. The computer mini-school was one casualty—Ralph Bunche School was forced to dissolve the program, and a number of teachers who had worked in the mini-school were fired or forced into early retirement. Reese lost his classroom position, but was retained as the technology coordinator for the community school district. Ralph Bunche was, however, allowed to keep the \$100,000 grant from the city council to buy new Apple computers—following national policy trends, it was ironically easier for the city to spend large amounts of money on technology than to sustain more comprehensive school reform efforts that had shown clear signs of success.²⁴⁴ It was a rather distressing commentary on the volatility of public school policy that more than a decade's worth of impressive results and international attention were not enough to buffer the mini-school through one year of less than stellar test scores. But an even crueler irony unfolded in the coming months. Later in the school year, the investigative reporter Todd Oppenheimer reveals, “the company that administered the tests (CTB/McGraw-Hill) admitted that it had made a massive scoring error,” and it “turned out that the New York City students hadn't done as poorly as everyone

thought.”²⁴⁵ In fact, students at the mini-school had continued to exceed expectations on standardized tests, meaning the closure of the mini-school had been entirely unjustified.

Throughout this debacle, Apple and the lawmakers and journalists who had heaped attention on the Ralph Bunche computer mini-school for more than ten years were nowhere to be found. Despite extensive efforts to find coverage of the mini-school’s closure, I could not discover a single newspaper article mentioning the fate of the program. Apple, moreover, made no public or private efforts on behalf of the mini-school when it faced closure or after McGraw-Hill’s test scoring mistake came to light. The company thus missed an important opportunity to hold lawmakers and school administrators accountable for truly misguided policy actions, a failing which was a direct betrayal of the company’s promise to be a true ally of the teachers it supported through its educational programs. But from a business perspective, Apple’s silence made all too much sense. It was, after all, the city of New York, not the Ralph Bunche computer mini-school, which provided the largest possible customer base for the company, and Apple would still benefit from the \$100,000 sale of computer equipment to the city’s public school system, even though those computers would no longer be going to the mini-school. It would hardly do for Apple to publicly criticize a school system that might continue to purchase computers in large numbers, especially given Apple’s larger financial struggles in the late 1990s, when educational sales were the only bright spot in an otherwise bleak commercial landscape for the company.²⁴⁶ Indeed, whereas Apple had seen teachers as important advocates and customers throughout the 1980s, by the late 1990s, more than two decades of national policy had encouraged school computerization, and most school systems left computer-purchasing decisions with top administrators. In 2001, for example, Apple signed an \$18.5 million contract to lease laptops to an entire school district in Virginia.²⁴⁷ The new

economics of school computerization therefore required Apple to cultivate institutional customers much more than teacher allies.

The economics might have made sense, but it was a rather chilling turn for a company that, as recently as 1995, had publicly proclaimed that was determined to use its strong market position in schools “to play a role in how education evolves and improves throughout the world.”²⁴⁸ That same year, Michael Spindler, then Apple’s CEO, had likewise proclaimed that “[b]y providing Apple technology to the agents of change in society,” especially teachers, “we are helping fulfill the vision that still drives the company—that people learn and work with more impact, creativity, and productivity using the power of personal information tools.”²⁴⁹ In the same publication, which highlighted Apple’s philanthropic efforts, the company specifically emphasized its aim to use education grants to support teachers in their efforts to “restructure and redesign the educational process.”²⁵⁰ Yet the company’s track record in the real world belied this promise. Rather than demonstrating determined commitments to helping teachers make meaningful changes to their schools, the company revealed a much stronger determination to secure large, lucrative contracts from school administrators, who often appeared profoundly disconnected from the educational realities teachers faced on the ground.

But Apple’s shifting emphasis in education was all the more disturbing given that a number of Apple employees had started to question whether computers could truly drive meaningful change in schools. This was nowhere clearer than among the employees who worked in the high-profile Apple Classrooms of Tomorrow (ACOT) program, which paired Apple employees, university researchers, and teachers for a ten-year research project carried out at five public schools in California, Minnesota, Ohio, and Tennessee. Launched in 1985, part of ACOT’s purpose was to simulate a future in which teachers and students would have ready access to computer technologies, so every student and teacher

who participated in the program was given one Apple computer to use in school as well as one for home use.²⁵¹ But the overarching aim of ACOT was to change basic teaching practices, so project leaders pushed teachers to abandon lecture-based instruction, which they saw as encouraging passive learning, and to instead adopt a project-based, collaborative format for student assignments. Drawing on a number of educational theories, Apple researchers hoped that these changes in teaching practices would help students move beyond the simplistic retention and regurgitation of facts by providing “[l]earning environments [that] feel more like real workplaces where problems are solved through conversation, inquiry, trial and error, and constant comparison of one approximate solution against another.”²⁵² Most participating teachers were enthusiastic, and ACOT facilitated extensive collaborations among teachers, Apple employees, and the university professors hired to consult on the project. In spite of this supportive and energetic atmosphere, however, changing teacher practice proved much more complicated than the ACOT team predicted.

First, it took much longer than expected for teachers to become familiar with computer technologies and to find effective ways to use them in their classrooms. Early on, betraying a high degree of faith in the intuitive usability of Apple products, the company simply shipped equipment to the sites without providing teachers with much advance preparation. David Dwyer, the director of ACOT, later recalled that “[v]arious forms of chaos ensued” as teachers had to spend “countless hours...sorting, labeling, investigating, problem solving, and planning” to assemble and install “modems, CPUs, monitors, disk drives, printers, software, blank floppies and cables—miles and miles of cables.... all on top of making sure classes kept progressing and children kept learning.”²⁵³ Even once Apple employees realized that teachers needed more help learning how to use computers and started offering more training and technical support, integrating the technology into the curriculum was still a daunting proposition. One teacher worried that so

much time was being devoted to computers that it was detracting from her ability “to meet all the objectives and all the things that these children will need.”²⁵⁴ Anxieties about meeting certain instructional objectives was particularly pronounced due to the weight of standardized tests and the attitudes of other teachers at the schools who were not participating in ACOT.

For example, one elementary school teacher participating in ACOT faced inflexible “[s]tate mandates...to concentrate heavily on basic skills in math and reading” with her fifth-graders, and concerns about reprisals for low standardized test scores constantly undermined her attempts to pursue more open-ended assignments and lesson plans.²⁵⁵ She often felt that collaborative and self-directed assignments were too “noisy and create[d] too much excitement,” and although she appreciated that such arrangements could generate more engagement and enthusiasm from students, she would periodically grow anxious that her students were not getting enough practice on basic skills and would rapidly curtail classroom freedoms and return to a lecture-based format.²⁵⁶ It was a stressful and difficult situation, made all the worse by the hostility of other teachers, who grumbled about “the incoming resources from Apple Computer” while failing to recognize “the huge investment of time and effort” the ACOT teacher had to commit to the project.²⁵⁷ As a result, the school principal took away certain resources from the ACOT classroom, such as library access, in an effort to appease other teachers. Higher-level district administrators, meanwhile, refused to lighten standardized test demands despite the experimental nature of the program and the possibility that it could produce valuable insights into the learning and teaching processes. As the only ACOT participant at her school, the teacher felt increasingly isolated and antagonized as she struggled to work through the ups and downs of the program, so she decided to stop participating in ACOT after a single year.²⁵⁸

It was a scenario ACOT researchers saw repeated at site after site, year after year. Other teachers would become jealous of the attention and resources given to ACOT classrooms, and principals and school administrators tended to be ambivalent in their support of the program, as they typically felt great pressure from local, state, and federal lawmakers to post high scores on standardized tests. As Dwyer observed in many of the ACOT sites he visited as director of the program, even when “ACOT students demonstrated new learning outcomes such as creative problem solving strategies or heightened abilities to play productive and collaborative roles in the performance of their tasks, their teachers struggled with the problem of translating these demonstrations into quantitative measures” that would be appreciated by school administrators.²⁵⁹ As Apple employees with the ACOT project became more deeply immersed in the politics of school bureaucracies and standardized tests, they became particularly disenchanted with the deleterious effects of high-stakes tests on the teaching profession. “When teachers and administrators became more accountable for student test scores,” ACOT researchers noted, “they increasingly limited instruction to drill and practice of the kinds of skills and disjointed facts that nationally normed tests emphasized,” and as a result, “the classroom demand for higher-order cognitive performance virtually disappeared.”²⁶⁰ Unfortunately, the ACOT program’s emphasis on interdisciplinary learning and complex problem solving rarely spoke to the demands of these standardized tests. As a UCLA research team attached to the project noted, “Accountability measures used in participating school districts demanded teachers’ continued attention to traditional learning goals, regardless of ACOT’s new visions for student learning.”²⁶¹ ACOT researchers therefore began to recognize that truly changing schools would require more concerted attempts to influence basic school policies, a complex effort that would require extensive lobbying and outreach at local, state, and federal levels.

Technology's role in encouraging new directions for teaching and learning was, furthermore, far from clear to ACOT participants. The UCLA research team, for example, claimed, "We did not find sweeping evidence across sites that ACOT qua ACOT was having positive effects on the quality of instruction, on the depth and breadth of student learning, on the attitudes and aspirations of students and parents."²⁶² Moreover, while the UCLA team did see some evidence that teachers had changed their practices according to the ACOT project's goals, their "findings did not reveal a particular role of technology in these changes."²⁶³ Rather, the UCLA team concluded, teachers had altered their classroom behaviors because of extensive prodding from Apple employees. Perhaps the strongest critique of ACOT came from Apple's own Kristina Hooper Woolsey, who was the cofounder and director of the Apple Multimedia Lab, a company department that developed many educational products. Woolsey's greatest concern was that "the huge gap between research demonstrations [such as ACOT] and practical widespread solutions is terrifying."²⁶⁴ In other words, she came to recognize that the interesting gains made in some of the ACOT sites had far less to do with the application of technologies than with the creation of teacher communities, which, much like the computer mini-school at Ralph Bunche, helped educators collaborate to create new learning experiences and opportunities for their students. "Computers are really expensive," Woolsey concluded, and since Apple had not produced "much evidence that significant learning is enhanced with computing systems" after ten years of intensive research and experimentation, she argued that other methods of supporting teachers would be cheaper and more effective at improving public schools.²⁶⁵

Yet Apple's receptivity to these arguments was arguably blunted by the company's financial woes in the mid-1990s.²⁶⁶ In 1996, the very same year that Woolsey published her criticisms, the umbrella organization for ACOT at Apple, the Advanced Technology Group, had produced an internal newsletter informing researchers with the group that

they needed to align their activities more explicitly with Apple's overarching corporate strategies.²⁶⁷ Moreover, while published materials about ACOT detail how the company supported teachers in their efforts to develop free teacher-training programs to help other educators throughout the country expand on the ACOT program's successes and insights, archival materials reveal that the company simultaneously attempted to create its own, monetized classes based on the ACOT teachers' training initiative, placing Apple in direct competition with the teachers it claimed to support.²⁶⁸ Here again was a case where lofty corporate rhetoric diverged from self-interested company practice.

Apple did publish the critical comments and findings of ACOT researchers and employees, despite the fact that they directly challenged the need to place more computers in schools, and the company maintained copies of all the original ACOT research reports on the Apple website until 2010, when the company quietly removed the reports to make way for an updated research initiative called ACOT2.²⁶⁹ While offering continual access to research that was critical of ACOT gives the semblance of corporate transparency, it is equally obvious that criticisms from Apple employees such as Woolsey have had little meaningful impact on Apple's efforts to market computers to schools, despite ongoing questions about the actual benefits of student access to computers. In 2013, for example, Apple was awarded a \$1.3 billion contract, along with software developer Pearson, to provide iPads to every student in the Los Angeles Unified School District.²⁷⁰ After critics questioned the scholastic utility of iPads, which "lack keyboards and other components many students find useful—like drives and USB ports," a formal investigation revealed that the district's superintendent had awarded the contract to Apple and Pearson without going through a legally required open bidding process.²⁷¹ Moreover, much of the Pearson software loaded on the iPads was riddled with flaws and failed to work properly.²⁷² In addi-

tion, *Time* magazine reported, many schools in the district lacked the appropriate Internet infrastructure to allow students to use the devices.²⁷³

While the Los Angeles public schools superintendent lost his job over the debacle, the scandal failed to dent Apple's education business. In 2015, Apple iPads and laptops accounted for 25 percent of the mobile computing devices sold to schools, netting the company \$3.2 billion that year alone.²⁷⁴ Indeed, Apple's only significant losses in educational market share have come through intense competition from the cheaper devices offered by Google and computers running Microsoft Windows, which began to cut deeply into Apple's school business in 2016, reducing the company's educational sales to \$2.8 billion, a loss of some \$400 million compared to 2015.²⁷⁵ But with a total of \$7.35 billion spent on new mobile computing products for schools in 2016, it is clear that the broader commercial market for school computers is robust, while the reign of standardized tests continues unabated, and the collaborative teaching arrangements and teacher-led reforms suggested by the Ralph Bunche computer mini-school and ACOT remain a rarity.²⁷⁶ Thus, although Apple is no longer the clear winner in educational sales of computer products, the priorities first encapsulated in the Apple Bill in 1982 still shape U.S. school computer policy—buying large amounts of computers to ensure student access to novel technologies is a paramount policy goal, but, as the Los Angeles iPad scandal suggests, commitments to making sure those technologies are actually useful, or even usable, are often lacking.

THE INTERSECTION OF PUBLIC AND PRIVATE INTERESTS

Throughout this chapter, I have argued that Apple's aggressive financial goals outpaced—and undermined—the corporation's commitments to improving U.S. schools. I have also striven to show, however, that public indifference to more deeply rooted educa-

tional problems—whether the lack of adequate school funds, troubling federal treatment of Indian reservation schools, the maldistribution of educational opportunities among wealthy and poor students, or misguided obsessions with punitive standardized testing regimes—strongly informed the course of school computerization in the United States. Due in large part to public indifference regarding public education, there was little political will in the 1980s or 1990s to hold Apple accountable for its loftier educational promises. Instead, Apple and other technology companies were given relatively free rein to let their business interests guide their involvement with schools. As I also argued in chapters 1 and 2, the corporate mentalities that currently define understandings of success in the business world—aggressive competition, rapid growth, large profit margins, high stock values, and an intensely productive workforce—provide few internal mechanisms to push companies to balance their own financial interests with more sophisticated understandings of the greater public good. Without a skeptical, vocal, and politically engaged and empowered public, there is little reason to expect U.S. corporations such as Apple to perform meaningful public services or to care deeply about the human costs of their business practices and labor arrangements.

The relative absence of such a critically engaged public is one of the most curious conundrums of recent U.S. history. In 1973, for example, Daniel Bell opined in his magnum opus on deindustrialization, “A feeling has begun to spread in the [United States] that corporate performance has made the society uglier, dirtier, trashier, more polluted, and noxious. The sense of identity between the self-interest of the corporation and the public interest has been replaced by a sense of incongruence.”²⁷⁷ A few years later, in one of his most famous addresses to the American people, President Jimmy Carter similarly reflected, “we’ve discovered that owning things and consuming things does not satisfy our longing for meaning. We’ve learned that piling up material goods cannot fill the

emptiness of lives which have no confidence or purpose.”²⁷⁸ Such statements suggested that the people of the United States were growing disenchanted with corporate capitalism, and were losing faith in the power of consuming commercial products to make them happy. Yet these sentiments did not win the day. Rather than reining in the excesses of corporate activity, the last forty years have seen businesses greatly expand their influence over public life, perhaps best encapsulated in the Supreme Court’s 2010 *Citizens United v. Federal Election Commission* decision, which granted corporations and their wealthy leaders extraordinarily expanded abilities to spend their money to sway the political process.²⁷⁹ Meanwhile, Americans remain avid consumers of commercial products and devoted fans of vast and inhumanly prosperous firms, even though by almost every measure the activities of large corporations have driven U.S. wealth inequality to record highs, profoundly reducing the economic security of the majority of Americans.²⁸⁰

To this day, Apple remains one of the best examples of ardent public enthusiasm for a large corporation. Leander Kahney chronicles families who have trekked hundreds of miles on weekends just to be present at the opening ceremonies of Apple retail stores, while Ian Bogost argues that Apple has conditioned its customers to view luxury-priced iPhones as a seasonal purchase, more fashion accessory than technological tool.²⁸¹ Although I have dug deeply to substantiate my criticisms of the company, it is not terribly difficult to pierce the veil of the company’s airy rhetoric about changing the world or improving society. Yet critical reporting on the company—such as the mainstream press’s extensive coverage of the Los Angeles iPad scandal—seems incapable of rousing much critical debate or resistance among the company’s numerous fans or consumers.²⁸² Perhaps the majority of we Americans are not so different from Apple’s own employees—it is comforting to see the corporation as an unconventional and thrilling success story, and to believe that its products have made our lives better and easier, even when confronted with

evidence that should push us to be much more skeptical of Apple's sway over our existence.

Epilogue.

And Now Let Us Praise Famous Men

In 2015, the *Atlantic* compared Apple, Inc. to “a small country,” citing the fact that the corporation had become wealthier than 75 percent of the nations on Earth.¹ Predictably, the piece cast Apple’s rise to the top of the heap as the surprising triumph of an inveterate underdog, quipping that a mere fifteen years earlier, “Apple was perhaps notable for making colorful iMacs that dotted high-school computer labs, but not much else.”² I don’t, however, see much to celebrate in this story. As I dug into Apple’s history while researching this project, I discovered that the corporation’s famous leaders were an arrogant, self-aggrandizing lot, who made a rather queasy habit of conflating their financial self-interest with public service. The likes of Steve Jobs and John Sculley certainly amassed impressive personal fortunes, but their rise rested in no small measure on pervasive labor abuses, the subversion of worker rights, and unethical dealings with public schools. The bulk of my research focused on Apple’s first two decades, but my investigations of more recent developments at the corporation suggest that many of the patterns established by Jobs, Sculley, and their associates are still in place—the company remains a master of positive spin when it faces criticism, while people closer to Apple suggest that the reality is often less rosy.³ Indeed, now that so much wealth rides on the corporation’s stock values, it seems reasonable to assume that Apple’s leaders face more pressure than ever to aggressively pursue constant growth and profits—in other words, to put the corporation’s financial interests before any other concerns.

So what larger lessons can we draw from Apple’s troubling history? I argued in the introduction that many of the corporation’s murkier aspects are endemic to Silicon Valley

as a whole. Other firms in the U.S. tech industry may not exhibit precisely the same problems, but an extensive enough body of anecdotal, journalistic, and scholarly evidence exists to situate Apple squarely at the heart of Silicon Valley corporate culture. Building on the work of others, I have tried to show that much of that culture rests on dissimulation, in which tech leaders cast their quests for money and corporate power as means to serve the greater public good.⁴ But the U.S. technology industry's relative lack of a determined set of ethical principles can be deduced from tech leaders' anxious flip-flopping in the face of Donald Trump's presidency. For example, the *New York Times* described the mood in Silicon Valley as "beyond grim" the day following Trump's election, with people throughout high-tech claiming profound political differences with the Trump camp.⁵ Even so, tech industry luminaries choked down their professed bile relatively quickly, and they moved rapidly to reach some kind of rapprochement with the new administration. Just a month after the election, leaders from tech heavyweights Apple, Amazon, Google, Facebook, Microsoft, IBM, Tesla, Intel, and a handful of other firms trekked to New York for a summit with Trump, during which both the president-elect and the executives discussed ways they could help each other achieve financial and economic goals.⁶ The tenor of the meeting overwhelmingly indicated that the heads of these companies were willing to set aside their ostensible political qualms about Trump, so long as his policies served their corporate interests. Google, meanwhile, hosted a lavish party at the Smithsonian Arts and Industries building in Washington, D.C. to court Republican lawmakers in early January 2017—a move which the *New York Times* described as a concerted attempt "to change the perception that [Google] is a Democratic stronghold," given that company leaders and employees have donated generously to Democratic candidates in the past, while sending only a miniscule amount of money to Republican campaigns.⁷

Yet many tech executives found themselves backpedaling awkwardly after Trump's January 27, 2017 executive order banning citizens of seven Muslim-majority countries from entering the U.S., including permanent U.S. residents and visa-holders. A week later, the executives at Apple, Microsoft, Facebook, Google, and Uber all signed onto a letter condemning the executive order, initially drawing praise from some corners of the mainstream press.⁸ But the *Intercept* and *New York Times* both reported that Silicon Valley leaders were deeply hesitant to make any public statements against the ban because they feared that their profits might be harmed by political reprisals or antagonistic policy decisions, and it was primarily due to outcry and activism on the part of rank and file employees that the executives finally took a formal stand against the executive order.⁹ Moreover, the *Intercept* pointed out, the tech leaders couched their criticisms in decidedly economic terms, chiefly complaining that the ban would make it more difficult to draw talented, high-performing individuals into the U.S. labor pool.¹⁰ High-tech workers, however, have continued to fight to push their powerful employers to take stronger stands against Trump, and there are a few indications that corporate leaders are listening.¹¹ Perhaps the pressure workers are placing on corporations can be taken as a hopeful sign that some critical faculties are awakening, and that employees—and some sectors of the broader public—are becoming more determined to hold Silicon Valley firms accountable to their airy promises about making the world a better place. These were precisely the sentiments that were lacking at Apple in the 1980s and 1990s, which made it far too easy for company leaders to abuse employees, run roughshod over worker rights, renege on promises to schools, and to prioritize corporate profits above all else.

The political stirrings among Silicon Valley workers are a refreshing departure from the anesthetizing tones uttered by the likes of John Sculley in the 1980s, when he insisted that simply working on Apple's commercial products possessed similar social value

to civic participation, political activism, or organizing alternative communities.¹² Indeed, instead of hoping, like Barack Obama, that a new technology will refresh the American public's desire to engage with political issues and social problems, it seems to me that a much more promising course of action would be to seize on the current moment's strains of resistance, and search for ways to build collective efforts that can sustain the political efforts of different actors who, in isolation, are not likely to accomplish much.¹³ As this dissertation suggests, the history of the technology industry does not offer many strong examples of collective action, and the American public will likely need to look to other moments and settings in U.S. and global history where large numbers of people worked together to demand a more egalitarian, just, and free society.

Those of us who do not work directly for technology firms, however, should not draw too much comfort or satisfaction from our criticisms of Silicon Valley. It is easy to take shots at the U.S. technology industry from the sidelines, because the claims floated by company leaders and corporate publicity machines often fairly reek of pomposity, while Silicon Valley's failure to live up to those promises can be spectacular. It is much more challenging to absorb the lessons of Silicon Valley from a broader labor and business history perspective, which indicates that the corporate practices and structural inequalities of the tech industry are not aberrant diversions from common experience, but are rather emblematic of the larger trends that have remade U.S. work into a much more individualized and precarious enterprise, and which have contributed to the astounding concentration of wealth and political influence in the hands of a very small class of corporate elites.¹⁴ In other words, Silicon Valley firms are not the only powerful corporate actors we need to question or challenge. As Roland Marchand insisted in his history of corporate public relations, "The citizen incessantly addressed as favorite, friend, neighbor, and even family member of the corporation had to develop a prickly, discriminatory wariness in or-

der to resist acquiescence and maintain a realistic sense of conflicting interests.”¹⁵ Yet in David Foster Wallace’s essay about John McCain’s 2000 presidential campaign, he provocatively asserted that the problem went far beyond business activity as such. The self-interested pursuits of “great salesmen and sales pitches and marketing concepts,” he argued, have all but infected American culture at large, and it has become easy, he continued, to “start believing deep down that everything is sales and marketing, and that whenever somebody seems like they care about you or about some noble idea or cause, that person is a salesman and really ultimately doesn’t give a shit about you or some cause but really just wants something for himself.”¹⁶

Wallace granted that this insight could be painful and somewhat paralyzing, but his suggestion was to apply something like Marchand’s “prickly, discriminatory wariness” to the promises uttered on campaign trails, in TV ads and corporate mission statements, or by charismatic public figures—to try, in Wallace’s blunt phrasing, “to stay awake.”¹⁷ What better advice can I offer than to remain skeptical? Skeptical of the numbing pleasures of consumerism. Skeptical of the distance between promises that our work will “change the world” and the lack of collective rights and protections we may face as workers. Skeptical of the glossy guarantees that powerful institutions are socially responsible entities that care deeply about employees, social problems, or the environment, whether those institutions are multinational corporations, Super Pacs, think tanks, influential media outlets, or great research universities. Skeptical of arguments that unfettered market forces can better solve social problems than concerted, collective political debate and action. And to look beyond individualized acts of protest, like sarcastic laughter or critical dissertations, to the other people with whom we might regain a true sense of common purpose.

Notes

Introduction

¹ Barack Obama, “Now Is the Greatest Time to Be Alive,” *Wired* 20, no. 11 (November 2016): 31.

² *Ibid.*, 31.

³ *Ibid.*, 34.

⁴ *Ibid.*, 34.

⁵ David Nye, *American Technological Sublime* (Cambridge, Massachusetts: The MIT Press, 1994), 33.

⁶ *Ibid.*, xiii.

⁷ Richard White, *Railroaded: The Transcontinentals and the Making of Modern America* (New York: Norton, 2011), xxi.

⁸ Langdon Winner, *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (Chicago: University of Chicago Press, 1986), 5.

⁹ Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: The University of Chicago Press, 2006), 1.

¹⁰ Farhad Manjoo, “Silicon Valley Reels After Trump’s Election,” *New York Times*, November 9, 2016, accessed March 7, 2017, <https://www.nytimes.com/2016/11/10/technology/trump-election-silicon-valley-reels.html>.

¹¹ *Ibid.*

¹² Micheal D. Shear and Natasha Singer, “Next Job for Obama? Silicon Valley is Hiring,” *New York Times*, October 26, 2016, accessed March 7, 2017, <https://www.nytimes.com/2016/10/25/us/politics/obama-silicon-valley.html>.

¹³ Sue Dremann, “Kerry: Entrepreneurship Combats Extremism,” *Palo Alto Weekly*, June 24, 2016, 5, 9.

¹⁴ Shear and Singer, “Next Job for Obama? Silicon Valley is Hiring.”

¹⁵ “Former Vice President Al Gore Joins Apple’s Board of Directors,” Apple Inc., March 19, 2003, accessed March 7, 2017, <https://www.apple.com/pr/library/2003/03/19Former-Vice-President-Al-Gore-Joins-Apples-Board-of-Directors.html>.

¹⁶ Tom Foremski, “Google Quietly Drops Its ‘Don’t Be Evil’ Motto,” *Silicon Valley Watcher*, April 1, 2009, accessed March 10, 2017, http://www.siliconvalleywatcher.com/mt/archives/2009/04/google_quietly.php; George Packer, “Change the World: Silicon Valley Transfers its Slogans—and its Money—to Politics,” *The New Yorker*, May 27, 2013, accessed March 9, 2017, <http://www.newyorker.com/magazine/2013/05/27/change-the-world>.

¹⁷ Apple Computer, Inc., “Welcome, IBM. Seriously,” magazine advertisement, 1981.

¹⁸ *Ibid.*

¹⁹ *Ibid.*

²⁰ Andy Hertzfeld, *Revolution in the Valley: The Insanely Great Story of How the Mac Was Made* (Sebastopol, California: O’Reilly Media, 2005), 220.

²¹ Apple Computer, Inc., “1984,” television advertisement, Chiat/Day, dir. Ridley Scott, 1984.

²² See William R. Coulson, “‘Big Brother’ is Watching Apple: The Truth About the Super Bowl’s Most Famous Ad,” *The Dartmouth Law Journal* 7, no. 1 (Winter 2009): 106–115.

²³ Mike Isaac, “Inside Uber’s Aggressive, Unrestrained Workplace Culture,” *New York Times*, February 27, 2017, accessed March 8, 2017, <https://www.nytimes.com/2017/02/22/technology/uber-workplace-culture.html>.

²⁴ Sam Levin, “Startup Workers See Sexual Harassment on ‘Breathtaking’ Scale in Silicon Valley,” *The Guardian*, March 1, 2017, accessed March 8, 2017, <https://www.theguardian.com/world/2017/mar/01/silicon-valley-sexual-harassment-startups>.

²⁵ *Ibid.*

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²⁶ Ibid.

²⁷ Ibid.

²⁸ Thomas J. Misa, "Gender Codes: Defining the Problem," in *Gender Codes: Why Women are Leaving Computing*, ed. Thomas J. Misa (Hoboken, New Jersey: Wiley, 2010), 4, 6; National Center for Women & Information Technology (NCWIT), "NCWIT Fact Sheet," accessed March 8, 2017, <https://www.ncwit.org/ncwit-fact-sheet>.

²⁹ John Sculley, *Odyssey: Pepsi to Apple... A Journey of Adventure, Ideas, and the Future* (New York: Harper & Row, 1987), 132.

³⁰ Ibid., 278–283.

³¹ See Hertzfeld, *Revolution in the Valley*, xxi–xxiv.

³² "Executive Profiles," Apple Inc., accessed March 27, 2017, <http://www.apple.com/pr/bios/>; Adam Lashinsky, *Inside Apple: How America's Most Admired—and Secretive—Company Really Works* (New York: Business Plus, 2012), 9.

As Lashinsky points out, Apple is so secretive about its managerial structure that even employees are forbidden from seeing organization charts for their corporation, so I was not able to find more updated information about the current makeup of Apple's vice presidential staff.

³³ Jodi Kantor and David Streitfeld, "Inside Amazon: Wrestling Big Ideas in a Bruising Workplace," *New York Times*, August 15, 2015, accessed January 12, 2017, <http://nyti.ms/1TFqcOG>.

³⁴ Ibid.

³⁵ Ibid.

³⁶ Simon Head, *Mindless: Why Smarter Machines are Making Dumber Humans* (New York: Basic Books, 2013), 43–44.

³⁷ Ibid., 44.

³⁸ Kantor and Streitfeld, "Inside Amazon."

³⁹ Isaac, "Inside Uber's Aggressive, Unrestrained Workplace Culture."

⁴⁰ Turner, *From Counterculture to Cyberculture*, 260.

⁴¹ Ibid., 260.

⁴² "Mr. Daisey and the Apple Factory," *This American Life*, Chicago Public Media, January 6, 2012, accessed March 27, 2017, <https://www.thisamericanlife.org/radio-archives/episode/454/mr-daisey-and-the-apple-factory>.

⁴³ Charles Duhigg and David Barboza, "In China, Human Costs Are Built Into an iPad," *New York Times*, January 25, 2012, accessed March 27, 2017, <http://www.nytimes.com/2012/01/26/business/ieconomy-apples-ipad-and-the-human-costs-for-workers-in-china.html>.

⁴⁴ Ibid.

⁴⁵ Ibid.

⁴⁶ Manuel Castells, *The Rise of the Network Society*, second edition, (Chichester, United Kingdom and Malden, Massachusetts: Wiley-Blackwell, 2010/1996), 18–19.

⁴⁷ "The United States of Entrepreneurs: America Still Leads the World," *The Economist*, March 12, 2009, accessed December 3, 2012, <http://www.economist.com/node/13216037>.

⁴⁸ Ibid.

⁴⁹ Manjoo, "Silicon Valley Reels After Trump's Election."

⁵⁰ Oliva Solon, "Scraping by on Six Figures? Tech Workers Feel Poor in Silicon Valley's Wealth Bubble," *The Guardian*, February 27, 2017, accessed March 8, 2017, <https://www.theguardian.com/technology/2017/feb/27/silicon-aa-cost-of-living-crisis-has-americas-highest-paid-feeling-poor>.

⁵¹ Ibid.

⁵² Packer, "Change the World."

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⁵³ Solon, “Scraping by on Six Figures?”

⁵⁴ Everett M. Rogers and Judith K. Larsen, *Silicon Valley Fever: Growth of High-Technology Culture* (New York: Basic Books, 1984), 156; David Noble, “Sand Castles,” Introduction to *Behind the Silicon Curtain: The Seductions of Work in a Lonely Era*, by David Hayes (Boston: South End Press, 1989), 12.

⁵⁵ Rogers and Larsen, *Silicon Valley Fever*, 271.

⁵⁶ Michael Moritz, *Return to the Little Kingdom: Steve Jobs, the Creation of Apple, and how it Changed the World* (New York: Overlook Press, 2009), 286.

⁵⁷ Hertzfeld, *Revolution in the Valley*, 233.

⁵⁸ Anonymous [“A Loyal Employee”] to John Sculley, 21 February 1990. Apple Computer, Inc. Records, M1007, Series 2, Box 8, Folder 9, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.; Lashinsky, *Inside Apple*, 47.

⁵⁹ Adrienne LaFrance, “Apple Is Basically a Small Country Now,” *The Atlantic*, February 11, 2015, accessed March 10, 2017, <https://www.theatlantic.com/technology/archive/2015/02/apple-is-basically-a-small-country-now/385385/>.

⁶⁰ Michael Storper, “Lived Effects of the Contemporary Economy: Globalization, Inequality, and Consumer Society,” *Public Culture* 12, no. 2 (Spring 2000): 376.

⁶¹ *Ibid.*, 376–377.

⁶² Chris Benner, *Work in the New Economy: Flexible Labor Markets in Silicon Valley* (Malden, Massachusetts: Blackwell Publishing, 2002), 210–214.

⁶³ Annie Lowrey, “Top 1 Percent take Record Share of U.S. Income,” *Seattle Times*, September 11, 2013, accessed March 8, 2017, <http://www.seattletimes.com/nation-world/top-1-percent-take-record-share-of-us-income/>.

⁶⁴ *Ibid.*

⁶⁵ Danny Yadron, “Silicon Valley Firms Exacerbating Income Inequality, World Bank Warns,” *The Guardian*, January 14, 2016, accessed March 8, 2017, <https://www.theguardian.com/technology/2016/jan/14/silicon-valley-tech-firms-income-inequality-world-bank>.

⁶⁶ Packer, “Change the World.”

⁶⁷ Manjoo, “Silicon Valley Reels After Trump’s Election.”

⁶⁸ Turner, *From Counterculture to Cyberculture*, 3–6.

⁶⁹ Walter Isaacson, *Steve Jobs* (New York: Simon & Schuster, 2011), 33–36, 40–41, 61–62.

⁷⁰ Mike Malone, “Getting Personal: Interviews with Architects of the Personal Computer Revolution,” *Apple: The Personal Computer Magazine and Catalog* 2, no. 1 (1981): 10–12. Apple Computer, Inc. Records, M1007, Series 7, Box 1, Folder 2, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁷¹ Steve Wozniak, “A Note from Steve Wozniak,” preface to *The Apple II Guide: A Complete Resource for Users of Apple II Computers*, by Apple Computer, Inc. (Cupertino, Calif.: Apple Computer, Inc. 1990), vii. Apple Computer, Inc. Records, M1007, Series 7, Box 10, Folder 1, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁷² Isaacson, *Steve Jobs*, 567.

⁷³ Apple Computer, Inc. “Apple Computer, Inc. Corporate Timeline. January 1979 to May 1995,” press release, 5, 14–17. Apple Computer, Inc. Records, M1007, Series 1, Box 1, Folder 7, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁷⁴ Isaacson, *Steve Jobs*, 136.

⁷⁵ Hertzfeld, *Revolution in the Valley*, 220.

⁷⁶ Isaacson, *Steve Jobs*, 136.

⁷⁷ Kimon Keramidas, *The Interface Experience: A User’s Guide* (New York: Bard Graduate Center, 2015), 49.

⁷⁸ Leander Kahney, *The Cult of Mac* (San Francisco: No Starch Press, 2004), 7.

⁷⁹ Isaacson, *Steve Jobs*, 332.

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⁸⁰ Kahney, *The Cult of Mac*, 62.

⁸¹ Adam Clark Estes, “The Personal Tributes to Steve Jobs Around the World,” *The Atlantic*, October 6, 2011, accessed March 10, 2017, <https://www.theatlantic.com/technology/archive/2011/10/personal-tributes-steve-jobs-around-world/337035/>.

⁸² See, for example, “Apple Now Most Valuable Company in History,” *Forbes*, August 21, 2012, accessed March 10, 2017, <https://www.forbes.com/sites/benzingainsights/2012/08/21/apple-now-most-valuable-company-in-history/#30de5508bf67>; Verne Kopytoff, “Apple: The First \$700 Billion Company,” *Fortune*, February 10, 2015, accessed March 10, 2017, <http://fortune.com/2015/02/10/apple-the-first-700-billion-company/>; Farhad Manjoo, “Tech’s ‘Frightful 5’ Will Dominate Digital Life for Foreseeable Future,” *New York Times*, January 20, 2016, accessed March 9, 2017, <https://www.nytimes.com/2016/01/21/technology/techs-frightful-5-will-dominate-digital-life-for-foreseeable-future.html>; LaFrance, “Apple Is Basically a Small Country Now.”

⁸³ Moritz, *Return to the Little Kingdom*, 18.

⁸⁴ *Ibid.*, 18.

⁸⁵ Lashinsky, *Inside Apple*, 41–42.

⁸⁶ Moritz, *Return to the Little Kingdom*, 18.

⁸⁷ Bogost’s arguments about the Apple II are particularly emblematic of his nostalgic tendencies. Relying predominantly on a rhetorical analysis of a handful of early magazine advertisements for the Apple II, Bogost argues that Apple was initially deeply committed to empowering its customers to gain a comprehensive knowledge of computer technologies, empowering them to master the deeper mysteries of the machine by teaching them advanced coding and programming principles. This argument, which does not consider whether Apple’s underlying business strategies matched its marketing promises, tends to take Apple’s advertising rhetoric at face value. See Ian Bogost, *The Geek’s Chihuahua: Living with Apple* (Minneapolis: University of Minnesota Press, 2015), especially chapter 3, “Pascal Spoken Here,” 13–27.

Chapter 1

¹ John Sculley, *Odyssey: Pepsi to Apple... A Journey of Adventure, Ideas, and the Future* (New York: Harper & Row, 1987), 131.

² *Ibid.*, 131.

³ *Ibid.*, 132.

⁴ Steve Wozniak, “A Note from Steve Wozniak,” preface to *The Apple II Guide: A Complete Resource for Users of Apple II Computers*, by Apple Computer, Inc. (Cupertino, California: Apple Computer, Inc. 1990), vii. Apple Computer, Inc. Records, M1007, Series 7, Box 10, Folder 1, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁵ *Ibid.*

⁶ Apple Computer, Inc., “Apple Values,” Apple Bulletin memorandum to Apple employees, 23 September 1981. Apple Computer, Inc. Records, M1007, Series 2, Box 1, Folder 7, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁷ *Ibid.*

⁸ *Ibid.*

⁹ *Ibid.*

¹⁰ *Ibid.*

¹¹ *Ibid.*

¹² Apple Computer, Inc., Corporate Objectives, memorandum [ca. 1979]. Apple Computer, Inc. Records, M1007, Series 1, Box 5, Folder 20, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

¹³ *Ibid.*

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¹⁴ Andy Hertzfeld, *Revolution in the Valley: The Insanely Great Story of How the Mac Was Made* (Sebastopol, California: O'Reilly Media, 2005); Walter Isaacson, *Steve Jobs* (New York: Simon & Schuster, 2011); Michael Moritz, *Return to the Little Kingdom: Steve Jobs, the Creation of Apple, and how it Changed the World* (New York: Overlook Press, 2009); Sculley, *Odyssey*.

Although there is a plethora of popular literature about Apple, I have chosen these four texts because they are the most influential and authoritative accounts of the company. Michael Moritz was hired as Apple's official historian in the early 1980s, and as such was granted unusual access to employees at the company, and his book is the most critical of the popular texts on Apple, offering valuable insights, for example, into the inequitable distribution of stock at the company and the conflicted aspirations of several key employees. Many subsequent accounts of Apple's early years are clearly derivative of Moritz's original work. Jobs likewise hired Isaacson as his official biographer, and Isaacson conducted many original interviews with Apple employees and Jobs's associates—despite its hagiographic overtones, Isaacson's biography does offer the most comprehensive account of Jobs's life and personality currently available. Finally, the inside views offered by Hertzfeld and Sculley are in many instances clearly biased or revisionist, but employees' own mythmaking tendencies are an important part of my analysis.

Interested readers, however, might also consult Lee Butcher, *Accidental Millionaire: The Rise and Fall of Steven Jobs at Apple Computer* (New York: Paragon House, 1987); Frank Rose, *West of Eden: The End of Innocence at Apple Computer* (New York: Penguin, 1989); Michael Malone, *Infinite Loop: How the World's Most Insanely Great Computer Company Went Insane* (New York: Doubleday, 1999); and Steve Wozniak, *iWoz: Computer Geek to Cult Icon* (New York: W.W. Norton & Co, 2006).

¹⁵ Clifford Geertz, *The Interpretation of Cultures: Selected Essays* (New York: Basic Books, 1973), 6–10.

¹⁶ Sculley, *Odyssey*, 123. See also William Whyte, *The Organization Man* (New York: Simon and Schuster, 1956).

¹⁷ *Ibid.*, 123–124.

¹⁸ *Ibid.*, 125.

¹⁹ *Ibid.*, 98.

²⁰ *Ibid.*, 124.

²¹ Apple Computer, Inc., "Apple's Business Goal and Apple's Values," memorandum, 1987. Apple Computer, Inc. Records, M1007, Series 1, Box 6, Folder 11, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

²² Daniel Bell, *The Coming of Post-Industrial Society: A Venture in Social Forecasting* (New York: Basic Books, 1973), 26, 127.

²³ *Ibid.*, 158.

²⁴ Jackson Lears, *Fables of Abundance: A Cultural History of Advertising in America* (New York: Basic Books, 1994), 236.

²⁵ Arne L. Kalleberg, *Good Jobs, Bad Jobs: The Rise of Polarized and Precarious Employment in the United States* (New York: Russell Sage Foundation, 2011), 22–23.

²⁶ *Ibid.*, 13, 31.

²⁷ *Ibid.*, 22.

²⁸ Frederick Winslow Taylor, "Fundamentals of Scientific Management," in *Working in America: Continuity, Conflict, and Change in a New Economic Era*, 4th ed., ed. Amy S. Wharton (New York: Routledge, 2016), 17–24. See also Nik Chmiel, *Jobs, Technology and People* (London: Routledge, 1998), 18–21.

²⁹ Graham S. Lowe, *Women in the Administrative Revolution: The Feminization of Clerical Work* (Oxford: Polity Press, 1987), 123. See also Sharon Hartman Strom, *Beyond the Typewriter: Gender, Class, and the Origins of Modern American Office Work, 1900–1930* (Urbana and Chicago: University of Illinois Press, 1992), 174, 183.

³⁰ Taylor, "Fundamentals of Scientific Management," 17.

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- ³¹ Max Weber, "Bureaucracy," in *Working in America: Continuity, Conflict, and Change in a New Economic Era*, 4th ed., ed. Amy S. Wharton (New York: Routledge, 2016), 11–12.
- ³² Nikil Saval, *Cubed: A Secret History of the Workplace* (New York: Doubleday, 2014), 164.
- ³³ Shoshana Zuboff, *In the Age of the Smart Machine: The Future of Work and Power* (New York: Basic Books, 1988), 403–406.
- ³⁴ Saval, *Cubed*, 159.
- ³⁵ Thomas Frank, *The Conquest of Cool: Business Culture, Counterculture, and the Rise of Hip Consumerism* (Chicago: The University of Chicago Press, 1997), 4, 9.
- ³⁶ *Ibid.*, 56–57.
- ³⁷ Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: The University of Chicago Press, 2006), 238.
- ³⁸ *Ibid.*, 12.
- ³⁹ Frank, *The Conquest of Cool*, 9. See also Turner, *From Counterculture to Cyberculture*, 4, 18.
- ⁴⁰ Zuboff, *In the Age of the Smart Machine*, 241.
- ⁴¹ *Ibid.*, 241.
- ⁴² Sculley, *Odyssey*, 85–86.
- ⁴³ *Ibid.*, 85.
- ⁴⁴ A substantial vein of American criticism is dedicated to identifying and challenging the excesses of corporate power. Although their arguments and conclusions are not always explicitly applicable to my analysis of Apple, I list here a number of key works that have greatly influenced my critical orientations toward Apple through their exhaustive enumerations of how executive greed and the aggressive pursuit of corporate profits have corrupted democratic politics, undermined labor rights and protections, manipulated consumers and other publics, or directly contravened the common good: Richard White, *Railroaded: The Transcontinentals and the Making of Modern America* (New York: W.W. Norton & Company, 2011); Edwin Black, *IBM and the Holocaust: The Strategic Alliance Between Nazi Germany and America's Most Powerful Corporation* (New York: Crown Publishers, 2001); Thomas Sugrue, *The Origins of the Urban Crisis: Race and Inequality in Postwar Detroit* (Princeton, New Jersey: Princeton University Press, 1996), especially chapter 4, "The Meanest and the Dirtiest Jobs," and chapter 6, "Forget about Your Inalienable Right to Work"; Roland Marchand, *Creating the Corporate Soul: The Rise of Public Relations and Corporate Imagery in American Big Business* (Berkeley: The University of California Press, 1998); Steve Coll, *Private Empire: ExxonMobil and American Power* (New York: Penguin, 2013); Bethany McLean and Peter Elkind, *The Smartest Guys in the Room: The Amazing Rise and Scandalous Fall of Enron* (New York: Portfolio, 2003); and Ralph Nader, *Unsafe at Any Speed: The Designed-in Dangers of the American Automobile* (New York: Grossman, 1965).
- ⁴⁵ Zuboff, *In the Age of the Smart Machine*, 401.
- ⁴⁶ *Ibid.*, 401.
- ⁴⁷ Melissa Gregg, *Work's Intimacy* (Cambridge: Polity Press, 2011), 4, xi.
- ⁴⁸ *Ibid.*, 5, xii.
- ⁴⁹ *Ibid.*, 15.
- ⁵⁰ Zuboff, *In the Age of the Smart Machine*, 405.
- ⁵¹ Dennis Hayes, *Behind the Silicon Curtain: The Seductions of Work in a Lonely Era* (Boston: South End Press, 1989), 119.
- ⁵² *Ibid.*, 58.
- ⁵³ *Ibid.*, 61.
- ⁵⁴ Christoph Hermann, "Laboring in the Network," *Capitalism Nature Socialism* 17, no. 1 (March 2006): 67.
- ⁵⁵ Everett M. Rogers and Judith K. Larsen, *Silicon Valley Fever: Growth of High-Technology Culture* (New York: Basic Books, 1984), 138.
- ⁵⁶ Hertzfeld, *Revolution in the Valley*, 196.

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⁵⁷ Rogers and Larsen, *Silicon Valley Fever*, 154.

⁵⁸ Moritz, *Return to the Little Kingdom*, 254.

⁵⁹ *Ibid.*, 278.

⁶⁰ *Ibid.*, 263.

⁶¹ Chris Benner, *Work in the New Economy: Flexible Labor Markets in Silicon Valley* (Malden, Massachusetts: Blackwell Publishing, 2002), 204.

⁶² *Ibid.*, 213.

⁶³ *Ibid.*, 213.

⁶⁴ Kalleberg, *Good Jobs, Bad Jobs*, 33, 36.

⁶⁵ *Ibid.*, 28, 36. See also “Corporations are Putting the Squeeze on Working Families,” *Communications Workers of America News* 76, no. 4 (winter 2016): 3, which reports based on data from the U.S. Bureau of Labor Statistics and the Organization for Economic Co-operation and Development that the ratio of CEO pay to average worker pay has climbed from 46:1 in 1983 to 335:1 in 2015.

⁶⁶ Apple Computer, Inc. “Corporate Timeline. Apple Computer, Inc. December 1988,” press release, 6. Apple Computer, Inc. Records, M1007, Series 1, Box 1, Folder 3, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁶⁷ Mike Cassidy, “Unsung Man Gave the Valley its Nickname,” *San Jose Mercury News*, October 29, 2001, 1B.

⁶⁸ Paul Ciotti, “Revenge of the Nerds,” *California Magazine* (July 1982): 74, 128.

⁶⁹ Isaacson, *Steve Jobs*, 22–23.

⁷⁰ Moritz, *Return to the Little Kingdom*, 58–59.

⁷¹ *Ibid.*, 127–129.

⁷² *Ibid.*, 129.

⁷³ Isaacson, *Steve Jobs*, 12.

⁷⁴ *Ibid.*, 33–36, 40–41.

⁷⁵ *Ibid.*, 42–43.

⁷⁶ Moritz, *Return to the Little Kingdom*, 80.

⁷⁷ *Ibid.*, 84.

⁷⁸ *Ibid.*, 84.

⁷⁹ Isaacson, *Steve Jobs*, 29.

⁸⁰ Moritz, *Return to the Little Kingdom*, 86.

⁸¹ Isaacson, *Steve Jobs*, 53.

⁸² *Ibid.*, 53.

⁸³ *Ibid.*, 118.

⁸⁴ *Ibid.*, 53.

⁸⁵ *Ibid.*, 54.

⁸⁶ *Ibid.*, 565.

⁸⁷ Kalleberg, *Good Jobs, Bad Jobs*, 7.

⁸⁸ Sculley, *Odyssey*, 183.

⁸⁹ “System/360 Model 25,” press fact sheet, 4 January 1968, IBM, accessed 28 October 2016, http://www-03.ibm.com/ibm/history/exhibits/mainframe/mainframe_PP2025.html.

⁹⁰ Moritz, *Return to the Little Kingdom*, 116.

⁹¹ *Ibid.*

⁹² Isaacson, *Steve Jobs*, 60.

⁹³ *Ibid.*, 61.

⁹⁴ *Ibid.*, 62.

⁹⁵ Sculley, *Odyssey*, 58.

⁹⁶ Isaacson, *Steve Jobs*, 67.

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⁹⁷ Ibid., 62.

⁹⁸ Paul Kunkel, *AppleDesign: The Work of the Apple Industrial Design Group* (New York: Graphics Inc., 1997), 8.

⁹⁹ Moritz, *Return to the Little Kingdom*, 186.

¹⁰⁰ Isaacson, *Steve Jobs*, 77.

¹⁰¹ Kimon Keramidas, *The Interface Experience: A User's Guide* (New York: Bard Graduate Center, 2015), 33.

¹⁰² Mortiz, *Return to the Little Kingdom*, 238–242.

¹⁰³ Apple Computer, Inc. “Apple Computer, Inc. Corporate Timeline. January 1979 to May 1995,” press release, 15. Apple Computer, Inc. Records, M1007, Series 1, Box 1, Folder 7, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

¹⁰⁴ Moritz, *Return to the Little Kingdom*, 218.

¹⁰⁵ Ibid., 219.

¹⁰⁶ Ibid., 219.

¹⁰⁷ Isaacson, *Steve Jobs*, 84.

¹⁰⁸ Ibid., 81–82.

¹⁰⁹ Ibid., 82.

¹¹⁰ Apple Computer, Inc. “Corporate Timeline. Apple Computer, Inc. December 1988,” 3–4.

¹¹¹ Moritz, *Return to the Little Kingdom*, 276.

¹¹² It would become apparent in 1985 that uncritical investor enthusiasm had created a speculative bubble that flooded the market with a surfeit of indistinguishable personal computers. The bursting of the bubble in 1985 sent many computer manufacturers into bankruptcy and heralded the beginning of a nationwide economic recession. See, for example, Andrew Pollack, “Computer Makers in a Severe Slump,” *New York Times*, June 10, 1985, A1.

¹¹³ Moritz, *Return to the Little Kingdom*, 252.

¹¹⁴ Ibid., 254.

¹¹⁵ Ibid., 276–277.

¹¹⁶ Hertzfeld, *Revolution in the Valley*, xxi–xxii.

¹¹⁷ Moritz, *Return to the Little Kingdom*, 252–253.

¹¹⁸ Ibid., 253.

¹¹⁹ Isaacson, *Steve Jobs*, 101.

¹²⁰ Moritz, *Return to the Little Kingdom*, 330.

¹²¹ Ibid., 329.

¹²² Isaacson, *Steve Jobs*, 107.

¹²³ Sculley, *Odyssey*, 276–284.

¹²⁴ Hertzfeld first composed the stories for *Revolution in the Valley* on a public website with substantial input and contributions from other Macintosh employees, and the book provides a multifaceted account of the creation of the Macintosh, the working environment of the project, and Jobs's role as the Macintosh team's leader. Hertzfeld's original website is still accessible at www.folklore.org.

¹²⁵ Isaacson, *Steve Jobs*, 113.

¹²⁶ Moritz, *Return to the Little Kingdom*, 22.

¹²⁷ Hertzfeld, *Revolution in the Valley*, 7.

¹²⁸ Isaacson, *Steve Jobs*, 110.

¹²⁹ Ibid., 136.

¹³⁰ Raskin, quoted in Owen W. Linzmayer, *Apple Confidential: The Real Story of Apple Computer, Inc.* (San Francisco: No Starch Press, 1999), 71.

¹³¹ Moritz, *Return to the Little Kingdom*, 272.

¹³² Ibid., 271.

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- ¹³³ Mike Scott to Ken Zerbe, [Mike] Markkula, and Steve Jobs, 17 July 1981, emphasis original. Apple Computer, Inc. Records, M1007, Series 1, Box 5, Folder 14, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.
- ¹³⁴ Isaacson, *Steve Jobs*, 116.
- ¹³⁵ Moritz, *Return to the Little Kingdom*, 273.
- ¹³⁶ Hertzfeld, *Revolution in the Valley*, xvii.
- ¹³⁷ *Ibid.*, xviii.
- ¹³⁸ *Ibid.*, xviii.
- ¹³⁹ *Ibid.*, 16.
- ¹⁴⁰ David Casseres, quoted in *ibid.*, 20.
- ¹⁴¹ *Ibid.*, 17.
- ¹⁴² *Ibid.*, xviii.
- ¹⁴³ *Ibid.*, xviii.
- ¹⁴⁴ *Ibid.*, xviii.
- ¹⁴⁵ Steve Wozniak, Foreword to *Revolution in the Valley: The Insanely Great Story of How the Mac Was Made*, by Andy Hertzfeld (Sebastopol, California: O'Reilly Media, 2005), xv.
- ¹⁴⁶ Apple Computer, Inc., *New Employee Orientation Leader's Guide* (Apple Computer, Inc., February 26, 1986), Missions and Goals 2, emphasis original. Apple Computer, Inc. Records, M1007, Series 2, Box 5, Folder 8, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.
- ¹⁴⁷ Wozniak, paraphrased in Mike Malone, "Getting Personal: Interviews with Architects of the Personal Computer Revolution," *Apple: The Personal Computer Magazine and Catalog* 2, no. 1 (1981): 12. Apple Computer, Inc. Records, M1007, Series 7, Box 1, Folder 2, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.
- ¹⁴⁸ *Ibid.*, 132–133.
- ¹⁴⁹ Sculley, *Odyssey*, 133.
- ¹⁵⁰ Apple Computer, Inc. Employee Stock Purchase Plan, Ninth Offering Period, memorandum, 29 December 1984 Through June 21, 1985. Apple Computer, Inc. Records, M1007, Series 2, Box 7, Folder 1, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.
- ¹⁵¹ Rick Auricchio, quoted in Moritz, *Return to the Little Kingdom*, 276.
- ¹⁵² Apple Computer, Inc. *The Benefits of Working at Apple*, undated memorandum. Apple Computer, Inc. Records, M1007, Series 2, Box 6, Folder 14, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.
- ¹⁵³ See Hertzfeld, *Revolution in the Valley*, 223, and Sculley, *Odyssey*, 270.
- ¹⁵⁴ Kalleberg, *Good Jobs, Bad Jobs*, 8.
- ¹⁵⁵ Sculley, *Odyssey*, 374.
- ¹⁵⁶ *Ibid.*, 373.
- ¹⁵⁷ Moritz, *Return to the Little Kingdom*, 139.
- ¹⁵⁸ *Ibid.*, 141.
- ¹⁵⁹ *Ibid.*, 159.
- ¹⁶⁰ Hertzfeld, *Revolution in the Valley*, 14.
- ¹⁶¹ Sculley, *Odyssey*, figure 21.
- ¹⁶² Hertzfeld, *Revolution in the Valley*, 27.
- ¹⁶³ Sculley, *Odyssey*, 132.
- ¹⁶⁴ Apple Computer, Inc., "Apple's Business Goal and Apple's Values."
- ¹⁶⁵ Turner, *From Counterculture to Cyberculture*, 4, 18; Frank, *The Conquest of Cool*, 9.
- ¹⁶⁶ Isaacson, *Steve Jobs*, 134.
- ¹⁶⁷ Hertzfeld, *Revolution in the Valley*, 68.

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- ¹⁶⁸ Ibid., 68.
- ¹⁶⁹ Isaacson, *Steve Jobs*, 134.
- ¹⁷⁰ Moritz, *Return to the Little Kingdom*, 141.
- ¹⁷¹ Isaacson, *Steve Jobs*, 112.
- ¹⁷² Hertzfeld, *Revolution in the Valley*, 24.
- ¹⁷³ Moritz, *Return to the Little Kingdom*, 252–253.
- ¹⁷⁴ *Revolution in the Valley*, 19.
- ¹⁷⁵ Ibid., 20.
- ¹⁷⁶ Ibid., 76.
- ¹⁷⁷ Ibid., 76.
- ¹⁷⁸ Rogers and Larsen, *Silicon Valley Fever*, 139.
- ¹⁷⁹ Hertzfeld, *Revolution in the Valley*, 40.
- ¹⁸⁰ Moritz, *Return to the Little Kingdom*, 23.
- ¹⁸¹ Linzmayer, *Apple Confidential*, 72.
- ¹⁸² Hertzfeld, *Revolution in the Valley*, 135.
- ¹⁸³ Ibid., 166–167.
- ¹⁸⁴ Sculley, *Odyssey*, 131.
- ¹⁸⁵ Ibid., 158.
- ¹⁸⁶ Ibid., 160.
- ¹⁸⁷ Ibid., 158.
- ¹⁸⁸ Ibid., 161.
- ¹⁸⁹ Ibid., 158.
- ¹⁹⁰ Ibid., 159, emphasis original.
- ¹⁹¹ Apple Computer, Inc., *Inside Apple* (Cupertino, California: Apple Computer, Inc., 1984), 2. Apple Computer, Inc. Records, M1007, Series 2, Box 5, Folder 1, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.
- ¹⁹² Apple Computer, Inc., *Welcome to the World of Apple* (Cupertino, California: Apple Computer, Inc., 1985), 1. Apple Computer, Inc. Records, M1007, Series 2, Box 5, Folder 1, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.
- ¹⁹³ Moritz, *Return to the Little Kingdom*, 268.
- ¹⁹⁴ Ibid., 141.
- ¹⁹⁵ Ibid., 142.
- ¹⁹⁶ Donn Denman, “Make a Mess, Clean it Up!” in *Revolution in the Valley*, by Andy Hertzfeld, 168.
- ¹⁹⁷ Ibid., 168.
- ¹⁹⁸ Ibid., 168.
- ¹⁹⁹ Hertzfeld, *Revolution in the Valley*, 142.
- ²⁰⁰ Ibid., 143.
- ²⁰¹ Ibid., 144.
- ²⁰² Ibid., 229.
- ²⁰³ Ibid., 24.
- ²⁰⁴ Ibid., 24.
- ²⁰⁵ Isaacson, *Steve Jobs*, 119.
- ²⁰⁶ Ibid., 121.
- ²⁰⁷ Ibid., 119–120.
- ²⁰⁸ Ibid., 120.
- ²⁰⁹ Ibid., 121.
- ²¹⁰ Ibid., 122.

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- ²¹¹ Ibid., 122.
- ²¹² Hertzfeld, *Revolution in the Valley*, 278.
- ²¹³ Ibid., 274.
- ²¹⁴ Isaacson, *Steve Jobs*, 124.
- ²¹⁵ Ibid., 122.
- ²¹⁶ Hertzfeld, *Revolution in the Valley*, 232.
- ²¹⁷ Ibid., 248.
- ²¹⁸ Ibid., 249.
- ²¹⁹ Ibid., 249.
- ²²⁰ Ibid., 249.
- ²²¹ Sculley, *Odyssey*, 143.
- ²²² Isaacson, *Steve Jobs*, 122.
- ²²³ Ibid., 565.
- ²²⁴ Hertzfeld, *Revolution in the Valley*, 72.
- ²²⁵ Ibid., 73.
- ²²⁶ Isaacson, *Steve Jobs*, 141.
- ²²⁷ Hertzfeld, *Revolution in the Valley*, 230.
- ²²⁸ Ibid., 230.
- ²²⁹ Moritz, *Return to the Little Kingdom*, 42.
- ²³⁰ Sculley, *Odyssey*, 270.
- ²³¹ Ibid., 241, 143.
- ²³² Ibid., 270.
- ²³³ Isaacson, *Steve Jobs*, 192.
- ²³⁴ “Apple Takes the Handy out of Handicapped,” Apple Bulletin memorandum, 24 August 1983. Apple Computer, Inc. Records, M1007, Series 6, Box 1, Folder 22, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.
- ²³⁵ Hertzfeld, *Revolution in the Valley*, 252.
- ²³⁶ Keramidas, *The Interface Experience*, 47.
- ²³⁷ Isaacson, *Steve Jobs*, 186.
- ²³⁸ Keramidas, *The Interface Experience*, 47.
- ²³⁹ See, for example, Moritz, *Return to the Little Kingdom*, 330–333; Rose, *West of Eden*, 324–326; Adam Lashinsky, *Inside Apple: How America’s Most Admired—and Secretive—Company Really Works* (New York: Business Plus, 2012), 10–17; Leander Kahney, *The Cult of Mac* (San Francisco: No Starch Press, 2004), 254–255.
- ²⁴⁰ Isaacson, *Steve Jobs*, 194–195.
- ²⁴¹ Sculley, *Odyssey*, 228–229.
- ²⁴² Isaacson, *Steve Jobs*, 194–206, 212–213.
- ²⁴³ John Sculley to Apple employees, 14 June 1985. Apple Computer, Inc. Records, M1007, Series 2, Box 1, Folder 7, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.
- ²⁴⁴ Isaacson, *Steve Jobs*, 217.
- ²⁴⁵ Moritz, *Return to the Little Kingdom*, 15.
- ²⁴⁶ See Peter Bartolik, “Industry Downturn Looms,” *Computerworld*, March 4, 1985, 103; Andrew Pollack, “Computer Makers in a Severe Slump,” *New York Times*, June 10, 1985, A1; “America’s High Tech Takes a Tumble,” *Sunday Mail* (Queensland, Australia), September 29, 1985.
- ²⁴⁷ Mitch Betts, “Economists Predict Industry Slump will Persist into 1987,” *Computerworld*, July 28, 1986, 6. See also Rogers and Larsen, who report, “If one is laid off during a Silicon Valley depression like 1971,

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1975, or 1982, the prospects of finding another job soon are not good.” Rogers and Larsen, *Silicon Valley Fever*, 150.

²⁴⁸ John Heilemann, “The Countercapitalist,” *New York*, October 7, 2011, accessed December 3, 2016, <http://nymag.com/news/politics/powergrid/steve-jobs-2011-10/>.

²⁴⁹ *Ibid.*

²⁵⁰ Lashinsky, *Inside Apple*, 21.

²⁵¹ *Ibid.*, 17–23.

²⁵² Ian Bogost, *The Geek’s Chihuahua: Living with Apple* (Minneapolis: University of Minnesota Press, 2015), 54.

²⁵³ Farhad Manjoo, “In ‘Steve Jobs,’ Tolerating Tech’s Unpleasant Visionaries,” *New York Times*, October 9, 2015, accessed December 4, 2016, <http://www.nytimes.com/2015/10/12/technology/in-steve-jobs-tolerating-techs-unpleasant-visionaries.html>.

²⁵⁴ *Ibid.*

²⁵⁵ *Ibid.*

²⁵⁶ Jodi Kantor and David Streitfeld, “Inside Amazon: Wrestling Big Ideas in a Bruising Workplace,” *New York Times*, August 15, 2015, accessed January 12, 2017, <http://nyti.ms/1TFqcOG>.

²⁵⁷ *Ibid.*

²⁵⁸ *Ibid.*

²⁵⁹ *Ibid.*

²⁶⁰ *Ibid.*

²⁶¹ *Ibid.*

²⁶² “The United States of Entrepreneurs: America Still Leads the World,” *The Economist*, March 12, 2009, accessed December 3, 2012, <http://www.economist.com/node/13216037>.

²⁶³ *Ibid.*

²⁶⁴ Isaacson, *Steve Jobs*, 105.

²⁶⁵ Gilles Deleuze, “Postscript on the Societies of Control,” *October* 59 (Winter 1992): 4–5.

²⁶⁶ Rogers and Larsen, *Silicon Valley Fever*, 149–150, 271; Hayes, *Behind the Silicon Curtain*, 27, 58–61.

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¹ See Mitch Betts, “Economists Predict Industry Slump will Persist into 1987,” *Computerworld*, July 28, 1986, 6; and John Gantz, “DEC’s Raucous March to Glory Takes Advantage of High-, Low-End Saturation,” *Info World*, February 2, 1987, 30, which reported that Digital Equipment Corporation and Apple were the only two personal computer manufacturers to post steady profits and growth throughout the 1985–1987 computer industry slump and national recession.

² Katherine M. Hafner and Geoff Lewis, “Apple’s Comeback,” *Business Week*, January 19, 1987.

³ *Ibid.*

⁴ John Sculley, *Odyssey: Pepsi to Apple... A Journey of Adventure, Ideas, and the Future* (New York: Harper & Row, 1987), 278.

⁵ John Sculley, *Direction for the Nineties: Seven Speeches by John Sculley* (Cupertino, California: Apple Computer, Inc., 1988), 17. Apple Computer, Inc. Records, M1007, Series 1, Box 7, Folder 3, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁶ Sculley, *Direction for the Nineties*, 18.

⁷ *Ibid.*, 18–19.

⁸ *Ibid.*, 19.

⁹ *Ibid.*, 19.

¹⁰ *Ibid.*, 19.

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¹¹ Ibid., 20.

¹² Ibid., 20.

¹³ Ibid., 20.

¹⁴ Sculley, *Odyssey*, xiv.

¹⁵ Melissa Gregg, *Work's Intimacy* (Cambridge: Polity Press, 2011), 4.

¹⁶ Michael Moritz, *Return to the Little Kingdom: Steve Jobs, the Creation of Apple, and how it Changed the World* (New York: Overlook Press, 2009), 331.

¹⁷ Walter Isaacson, *Steve Jobs* (New York: Simon & Schuster, 2011), 152.

¹⁸ Ibid., 157, 194.

¹⁹ Frank Rose, *West of Eden: The End of Innocence at Apple Computer* (New York: Penguin, 1989), 326.

²⁰ Peter Bartolik, "Industry Downturn Looms," *Computerworld*, March 4, 1985, 103; Andrew Pollack, "Computer Makers in a Severe Slump," *New York Times*, June 10, 1985, A1.

²¹ Sculley, *Odyssey*, 90, 116.

²² Ibid., 255.

²³ Ibid., 116, 133.

²⁴ Ibid., 133; Rose, *West of Eden*, 91.

²⁵ Sculley, *Odyssey*, 255.

²⁶ Tracy Kidder, *The Soul of a New Machine* (Boston: Little, Brown, 1981). Since its publication, Kidder's book has gone through numerous English editions and been translated into Japanese, Chinese, German, Dutch, Finnish, and Korean; see OCLC WorldCat, accessed January 18, 2017, <http://www.worldcat.org/title/soul-of-a-new-machine/oclc/7551785/editions>.

See also National Book Foundation, "National Book Awards – 1982," accessed January 18, 2017, <http://www.nationalbook.org/nba1982.html>; and Evan Ratliff, "O, Engineers!" *Wired*, December 1, 2000, accessed January 18, 2017, <https://www.wired.com/2000/12/soul/>.

²⁷ See Andy Hertzfeld, "The Little Kingdom," Folklore, accessed December 3, 2016, http://www.folklore.org/StoryView.py?story=The_Little_Kingdom.txt.

²⁸ Sculley, *Odyssey*, 323.

²⁹ Ibid., 133.

³⁰ Ibid., 246.

³¹ Moritz, *Return to the Little Kingdom*, 229–230.

³² Ibid., 231–232.

³³ In a 1985 interview about the U.S. tech slump, Morgan Stanley vice president Stephen Roach contended that new industries often enjoyed periods of early, uninterrupted growth that seemed to operate independently of larger economic trends and conditions, and he drew parallels between personal computing's favorable run in the late 1970s and early 1980s and historic booms enjoyed by industries such as railroads, steel, and automobiles during their emergent periods. However, Roach continued, these industries eventually became integrated into the "aggregate" economy, and he interpreted the 1985 tech slump, which presaged a broader national recession, as evidence that high-tech companies had become part of the aggregate economy were no longer "immune to macro-economic pressures." See "America's High Tech Takes a Tumble," *Sunday Mail* (Queensland, Australia), September 29, 1985.

³⁴ A March 1985 industry report in the magazine *Computerworld* detailed the investor enthusiasm for computer companies in the early 1980s due to the underperformance of many other parts of the U.S. economy, but did note that William Zachman, a prominent Wall Street analyst, predicted that the computer industry was headed for a slump that year. See Bartolik, "Industry Downturn Looms," 103.

For more on general economic conditions in the early 1980s, see PBS, "The 1982 Recession," *American Experience*, accessed February 27, 2017, <http://www.pbs.org/wgbh/americanexperience/features/general-article/reagan-recession/>.

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³⁵ Pollack, “Computer Makers in a Severe Slump.”

³⁶ Ibid.

³⁷ David E. Sanger, “Corporate America in Turmoil: Takeover Fears Spur Change; I.B.M.’s Rivals: A Joining of Hands,” *New York Times*, December 29, 1986, D4.

³⁸ Pollack, “Computer Makers in a Severe Slump.”

³⁹ Sculley, *Odyssey*, x, 248.

⁴⁰ Ibid., 248.

⁴¹ Even the Macintosh engineers’ original target price point, \$1,995, was quite expensive, translating to approximately \$4,630 in 2016 dollars. 1984 to 2016 dollar equivalents calculated using the U.S. Bureau of Labor Statistics Consumer Price Index Inflation Calculator, <http://data.bls.gov/cgi-bin/cpicalc.pl>.

⁴² Sculley, *Odyssey*, 273.

⁴³ Ibid., 273.

⁴⁴ Ibid., 273.

⁴⁵ Ibid., 329.

⁴⁶ Ibid., 330.

⁴⁷ Ibid., 329.

⁴⁸ Moritz, *Return to the Little Kingdom*, 18–19.

⁴⁹ Technologic Partners to John Sculley, 10 June 1985. Apple Computer, Inc. Records, M1007, Series 6, Box 1, Folder 22, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁵⁰ Ibid.

⁵¹ Sculley, *Odyssey*, 255.

⁵² Ibid., 256.

⁵³ Ibid., 323.

⁵⁴ Ibid., 324.

⁵⁵ Sculley, *Direction for the Nineties*, 18.

⁵⁶ Sculley, *Odyssey*, 277.

⁵⁷ Ibid., 279.

⁵⁸ Ibid., 279, emphasis original.

⁵⁹ John Sculley to Apple employees, 23 August 1988, 1. Apple Computer, Inc. Records, M1007, Series 2, Box 8, Folder 6, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁶⁰ John Sculley to Apple employees, 23 August 1988, 1.

⁶¹ Ibid., 1.

⁶² Ibid., 1.

⁶³ Sculley, *Odyssey*, 96.

⁶⁴ Ibid., 330.

⁶⁵ Ibid., 331.

⁶⁶ Ibid., 331.

⁶⁷ Ibid., 331.

⁶⁸ Ibid., 98, 126. See also Apple Computer, Inc. Compensation Strategy, memorandum, July 1984. Apple Computer, Inc. Records, M1007, Series 2, Box 7, Folder 1, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.; Apple Computer, Inc. Employee Stock Purchase Plan, Ninth Offering Period, memorandum, 29 December 1984 Through June 21, 1985. Apple Computer, Inc. Records, M1007, Series 2, Box 7, Folder 1, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁶⁹ Sculley, *Odyssey*, 342.

⁷⁰ Ibid., 343–345. For Jobs’s early perspective on Windows, see Isaacson, *Steve Jobs*, 178.

⁷¹ Sculley, *Odyssey*, 96.

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⁷² Roland Marchand, *Creating the Corporate Soul: The Rise of Public Relations and Corporate Imagery in American Big Business* (Berkeley: University of California Press, 2000), 100–102, 108–117.

⁷³ Apple Computer, Inc., *Welcome to the World of Apple* (Cupertino, California: Apple Computer, Inc., [1983]), ii. Apple Computer, Inc. Records, M1007, Series 2, Box 5, Folder 1, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁷⁴ Apple Computer, Inc. *Welcome to the World of Apple* [1983], ii.

⁷⁵ *Ibid.*, ii.

⁷⁶ Apple Computer, Inc., *Inside Apple* (Cupertino, California: Apple Computer, Inc., 1984), 1. Apple Computer, Inc. Records, M1007, Series 2, Box 5, Folder 1, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁷⁷ Apple Computer, Inc., *Inside Apple*, 1.

⁷⁸ *Ibid.*, *Inside Apple*, 1.

⁷⁹ Apple Computer, Inc. *Welcome to the World of Apple* (Cupertino, California: Apple Computer, Inc., 1985), 1–2. Apple Computer, Inc. Records, M1007, Series 2, Box 5, Folder 1, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁸⁰ Apple Computer, Inc. *Welcome to the World of Apple* (1985), 2, 9.

⁸¹ *Ibid.*, 6.

⁸² Apple Computer, Inc. Compensation Strategy, memorandum, July 1984, 1.

⁸³ Apple Computer, Inc., *Inside Apple*, 2.

⁸⁴ Apple Computer, Inc., “Apple’s Business Goal and Apple’s Values,” memorandum, 1987. Apple Computer, Inc. Records, M1007, Series 1, Box 6, Folder 11, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁸⁵ Apple Computer, Inc. *The Benefits of Working at Apple*, undated memorandum. Apple Computer, Inc. Records, M1007, Series 2, Box 6, Folder 14, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁸⁶ *Ibid.*

⁸⁷ Sculley, *Odyssey*, 98; Sculley, *Direction for the Nineties*, 20.

⁸⁸ Apple University’s Charter, undated printout, printed March 10, 1992. Apple Computer, Inc. Records, M1007, Series 5, Box 10, Folder 8, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁸⁹ Apple Computer, Inc., *Apple University* (Cupertino, California: Apple Computer, Inc., 1985), i. Apple Computer, Inc. Records, M1007, Series 2, Box 8, Folder 36, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁹⁰ Apple Computer, Inc., *Apple University*, i.

⁹¹ *Ibid.*, 1.

⁹² *Ibid.*, 1.

⁹³ *Ibid.*, 5.

⁹⁴ *Ibid.*, 5.

⁹⁵ *Ibid.*, 6–7.

⁹⁶ *Ibid.*, 1.

⁹⁷ *Ibid.*, 1.

⁹⁸ “Voluntary Education Center: Enrollment Form,” anonymous memorandum. Apple Computer, Inc. Records, M1007, Series 6, Box 1, Folder 31, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

⁹⁹ *Ibid.*

¹⁰⁰ I was able to track this course listing through the Internet to its apparent source, Ted Middleton, an Australian man who worked in a variety of fields including real estate, but who had no apparent direct connection to Apple. See “Lists #1,” accessed January 18, 2017, <http://www.aripper.com/lists.htm>.

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¹⁰¹ “Prescription for Achieving Excellence,” memorandum, [1985]. Apple Computer, Inc. Records, M1007, Series 2, Box 6, Folder 17, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

¹⁰² “Prescription for Achieving Excellence,” memorandum, [1985].

¹⁰³ *Ibid.*

¹⁰⁴ Gregg, *Work’s Intimacy*, 13.

¹⁰⁵ *Ibid.*, 13.

¹⁰⁶ HotLinks employee discussion, employee burnout, April 1988. Apple Computer, Inc. Records, M1007, Series 6, Box 1, Folder 22, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

The HotLinks conversations took place in an informal online message board. I have therefore transcribed the posts exactly as they appear in the printouts in the archives at the Stanford University Libraries, preserving their distinctive textual features, such as all-caps passages, multiple punctuation marks, unusual usage, etc. However, to make quotations more readable, I have corrected minor typos when the author’s original intent is unmistakable, such as substituting “its” for “it’s” where appropriate. Because HotLinks kept the identities of posters anonymous by default, and any named persons commenting on the message board were self-identified, I have chosen to not reveal the names or any other personally identifying information about the participants in these conversations.

¹⁰⁷ HotLinks employee discussion, employee burnout, April 1988.

¹⁰⁸ *Ibid.*

¹⁰⁹ *Ibid.*

¹¹⁰ *Ibid.*

¹¹¹ *Ibid.*

¹¹² *Ibid.*

¹¹³ *Ibid.*

¹¹⁴ *Ibid.*

¹¹⁵ *Ibid.*

¹¹⁶ *Ibid.*

¹¹⁷ *Ibid.*

¹¹⁸ *Ibid.*

¹¹⁹ *Ibid.*

¹²⁰ *Ibid.*

¹²¹ *Ibid.*

¹²² *Ibid.*

¹²³ *Ibid.*

¹²⁴ *Ibid.*

¹²⁵ Dennis Hayes, *Behind the Silicon Curtain: The Seductions of Work in a Lonely Era* (Boston: South End Press, 1989), 116. Hayes also writes that Apple management considered staffing an on-site psychotherapy center, but I could not find evidence whether the company ever carried out this plan.

¹²⁶ HotLinks employee discussion, employee burnout, April 1988.

¹²⁷ *Ibid.*

¹²⁸ Apple Computer, Inc., Compensation Strategy, 2.

¹²⁹ *Ibid.*, 2.

¹³⁰ *Ibid.*, 11–12.

¹³¹ *Ibid.*, 12.

¹³² Sculley, *Odyssey*, 98.

¹³³ *Ibid.*, 126.

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¹³⁴ Apple Computer, Inc. Employee Stock Purchase Plan, Twelfth Offering Period for Paychecks Distributed July 3, 1986 through December 26, 1986, memorandum. Apple Computer, Inc. Records, M1007, Series 2, Box 7, Folder 1, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

¹³⁵ Isaacson, *Steve Jobs*, 295–296.

¹³⁶ Sculley, *Odyssey*, 274.

¹³⁷ Apple Computer, Inc., “Apple’s Business Goal and Apple’s Values,” memorandum, 1987.

¹³⁸ *Ibid.*

¹³⁹ Sculley, *Odyssey*, 331–332.

¹⁴⁰ *Ibid.*, 332.

¹⁴¹ *Ibid.*, 132.

¹⁴² Apple Computer, Inc., *New Employee Orientation Leader’s Guide* (Apple Computer, Inc., February 26, 1986), Welcome 1. Apple Computer, Inc. Records, M1007, Series 2, Box 5, Folder 8, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

¹⁴³ Apple Computer, Inc., *New Employee Orientation Leader’s Guide*, Welcome 1.

¹⁴⁴ *Ibid.*, Welcome 1.

¹⁴⁵ *Ibid.*, Welcome 1.

¹⁴⁶ Sculley, *Odyssey*, 187.

¹⁴⁷ *Ibid.*, 187.

¹⁴⁸ *Ibid.*, 187.

¹⁴⁹ *Ibid.*, 187.

¹⁵⁰ *Ibid.*, 187–188.

¹⁵¹ *Ibid.*, 283.

¹⁵² *Ibid.*, 280.

¹⁵³ *Ibid.*, 188.

¹⁵⁴ HotLinks employee discussion, dress code, February 1989. Apple Computer, Inc. Records, M1007, Series 6, Box 1, Folder 22, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

¹⁵⁵ HotLinks employee discussion, dress code, February 1989.

¹⁵⁶ *Ibid.*

¹⁵⁷ *Ibid.*

¹⁵⁸ *Ibid.*

¹⁵⁹ *Ibid.*

¹⁶⁰ *Ibid.*

¹⁶¹ *Ibid.*

¹⁶² *Ibid.*

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¹⁰ Biddle, "Silicon Valley is Letting Trump Get Away with It."

¹¹ For example, Travis Kalanick, Uber's CEO, left his position as an adviser to Trump after employees and members of the public criticized the nature of his role. See Mike Isaac, "Uber C.E.O. to Leave Trump Advisory Council After Criticism," *New York Times*, February 2, 2017, accessed March 11, 2017, <https://www.nytimes.com/2017/02/02/technology/uber-ceo-travis-kalanick-trump-advisory-council.html>.

For a more general overview of growing worker activism in the U.S. tech industry, see Cora Currier, "Outrage over Donald Trump is Spurring Activism in Silicon Valley," *The Intercept*, March 17, 2017, accessed March 29, 2017, <https://theintercept.com/2017/03/17/outrage-over-donald-trump-is-spurring-activism-in-silicon-valley/>.

¹² John Sculley, *Odyssey: Pepsi to Apple... A Journey of Adventure, Ideas, and the Future* (New York: Harper & Row, 1987), 85–86.

¹³ See Barack Obama, "Now Is the Greatest Time to Be Alive," *Wired* 20, no. 11 (November 2016): 34.

¹⁴ I have tried to reiterate and substantiate this argument throughout this dissertation, but to aid readers looking for further sources on the deterioration of worker rights, mounting income inequality, and the expanding political influence of corporations, I include here citations for some of the works that have most influenced my thinking on these topics: Arne L. Kalleberg, *Good Jobs, Bad Jobs: The Rise of Polarized and Precarious Employment in the United States* (New York: Russell Sage Foundation, 2011); Michael Storper, "Lived Effects of the Contemporary Economy: Globalization, Inequality, and Consumer Society," *Public Culture* 12, no. 2 (Spring 2000); John Ehrenreich, *Third Wave Capitalism: How Money, Power, and the Pursuit of Self-Interest Have Imperiled the American Dream* (Ithaca, New York: Cornell University Press, 2016); Zephyr Teachout, *Corruption in America: From Benjamin Franklin's Snuff Box to Citizens United* (Cambridge, Massachusetts: Harvard University Press, 2014); Angus Burgin, *The Great Persuasion: Reinventing Free Markets since the Depression* (Cambridge, Massachusetts: Harvard University Press, 2012); Jamie Peck, *Constructions of Neoliberal Reason* (Oxford and New York: Oxford University Press, 2010); Wendy Brown, *Undoing the Demos: Neoliberalism's Stealth Revolution* (Cambridge, Massachusetts: The MIT Press, 2015); George Packer, "Change the World: Silicon Valley Transfers its Slogans—and its Money—to Politics," *The New Yorker*, May

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¹⁵ Roland Marchand, *Creating the Corporate Soul: The Rise of Public Relations and Corporate Imagery in American Big Business* (Berkeley: University of California Press, 2000), 362.

¹⁶ David Foster Wallace, "Up, Simba: Seven Days on the Trail of an Anticandidate," in *Consider the Lobster and Other Essays* (Boston: Back Bay Books, 2006), 227.

¹⁷ *Ibid.*, 234.

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