

1. Immaterial Labor: A Workers' History of Videogaming

Working-Class Hero

Mario, hero of the most famous video game series in the world, is a worker—an overall-clad, cloth-capped industrial artisan who liberates Princess Toadstool by overcoming a series of bosses. He is, it is often observed, the quintessential “little guy.” As such, Mario invites identification from every child pitted against the big world of adults (Kinder 1991), but his adventures also invoke the plight of every wage slave striving to beat a capricious, powerful, and frustrating system. Mario’s “working-class hero” (moviebob 2007) status is also, however, significant in a more complex, contrapuntal way. Part of the charm of Mario games is the whimsical contrast between the weighty, industrial materiality of our hero’s ostensible trade, plumbing (underlined by the prominence of pipes as a mode of transportation), and the weightless, leaping, running, bouncing, acrobatic, explorative exuberance he can, with sufficient player skill, be made to display as he hurtles from platform to platform. Mario was originally “Jumpman.” The contrast, we suggest, crystallizes a moment of cultural transition between two epochs. One is the era of mass industrial work, often known as Fordism, when to be an everyman was to face a life committed in one way or another to a world of manufacturing production, factories, heavy machineries, and assembly lines. The other is the postindustrial, post-Fordist life of jobs mediated by computers, networks, and virtuality.

This shift occurred in North America, Europe, and Japan over the very period of Mario’s climb to fame, from *Donkey Kong* in 1981 to

Super Mario Galaxy in 2008, and, more broadly, spans the rise of videogaming as a whole, from the 1960s to the present. As kids' play, an activity that young people "got" as they mastered the game console while parents were left bemused and clumsy, Mario games were a symptom of this tectonic shift. Their chaotic, colorful celebrations of virtual joie de vivre were a playful promise to generations of new, upcoming post-Fordist workers—a promise of escape from the hard, soulless Fordist labor their parents or grandparents suffered into a world of digital freedom and possibility. That this virtual promise has, in actuality, largely been betrayed is something we have plenty to say about later: it is, indeed, the point of our analysis. What we want to highlight here is the link between virtual games and a new kind of work—immaterial labor.

Immaterial labor is, according to the theorists who devised the term, work that creates "immaterial products" such as "knowledge, information, communication, a relationship or an emotional response" (Hardt and Negri 2004, 108; Lazzarato 1996, 2004; Virno 2004). It is not primarily about making a material object, like the work that makes a car roll off an assembly line or extracts coal from a mine. Rather, immaterial labor involves the less-tangible symbolic and social dimensions of commodities. There are various subcategories of immaterial labor: high-technology work manipulating the codes on which computers and networks run; affective work, generating emotion of, say, ease or excitement; and work involving social coordination and communication in a wide range of neomanagerial tasks. Immaterial labor is less about the production of things and more about the production of subjectivity, or better, about the way the production of subjectivity and things are in contemporary capitalism deeply intertwined. Immaterial labor is, Hardt and Negri (2000) say, the leading or "hegemonic" form of work in the global capitalism of Empire. This ascendancy is not quantitative—they recognize that not everyone works with computers or in a creative industry—but qualitative: immaterial labor is the activity that advanced capital depends on in its most dynamic and strategic sectors.

Though theorists of immaterial labor sometimes overstate their case, we agree that a new constellation of technological, affective, and communicational work is a feature of twenty-first-century capital. The video game offers a telling site for its critical exploration. One only has to think of how the development of a *Mario* game involves the advanced technological skills necessary in making hardware and pro-

gramming software, the affective skills of many kinds of artists, from animators to musicians to concept designers, and the coordination of all these activities in collaborative studio teams to see how closely such work corresponds to the definition of immaterial labor. The ultimate product of this labor is, no doubt, material—once a game cartridge, today a disc—but its success or failure as a commodity depends on the creation of a relationship: the willingness of a player to identify, perhaps for hours, perhaps over the span of an entire lifetime, with a diminutive, running, jumping, red-capped plumber. Making and playing digital games involve combining technical, communicational, and affective creativity to generate new, virtualized forms of subjectivity. This is not the only sort of work involved in making games—later we will encounter some all-too-material labor far from the game studio, in electronics factories, e-waste dumps, and coltan mines—but it is a crucial element in their creation.

So in this chapter we present a short history of the video game from the perspective of immaterial labor. What distinguishes the concept of immaterial labor from theories about postindustrialism, knowledge work, or a creative class is its link to ideas of autonomy and struggle. It comes from a line of thought that emphasizes not the right and power of corporations to control life in the name of profit but the way workers' desires exceed, challenge, and escape that control (see Dyer-Witthof 1999). Capital's attempts to constrain this autonomy within the limits of profit lead to recurrent cycles of struggle. It is actually often these struggles that drive capital forward to new horizons as it attempts to crush, or co-opt and capture, resistances, deploying new technologies, trying new organizational forms, and seeking new global locations in a frantic flight into the future that, however, only creates conditions for fresh conflicts.

Immaterial labor emerges from one such cycle of struggle—that of the labor, student, and social movements of the 1960s and 1970s. This worldwide turbulence was marked by an eruption of new subjectivities, desires, refusals, and capacities: students who wouldn't submit to teachers, soldiers who wouldn't fight in Vietnam, factory workers who wouldn't watch their lives pass by on assembly lines, women who walked out on household drudgery. It was also a period of experiment with new techno-cultural forms—music, drugs, and strange digital machines. These interweaving resistances destabilized power. They drove corporations to restructure their technologies, replacing assembly lines with robots and networks; to switch managerial techniques,

encouraging (limited) “participation” rather than dumbed-down routine; to leave old industrial heartlands in search of exploitable sites offshore; and to recuperate many of the themes of radical counterculture into new commodities, corporate stylings, and political creeds. This restructuring is variously described as a shift from industrial to information capital, from Fordism to post-Fordism—or from the centrality of material labor (in the factory) to a focus on immaterial labor (in the network).

In ways often insufficiently acknowledged, virtual play was an invention of, and ingredient in, the radical counterculture of the sixties and seventies. It was only subsequently, and after dramatic failures, assimilated into a business model that grew vast for-profit game empires. Even in the commodity form, however, games have continued to depend for their vitality on a constant infusion of energies from a do-it-yourself player-producer culture that embodies the autonomous capacities of the new echelons of immaterial labor. The protagonists of our snapshot video game history are therefore not so much companies or technologies or individual artists but creative assemblies of immaterial labor: the hacker clubs of the 1960s that liberated games from the Pentagon; the long-haired labor force of gaming’s 1970s golden age, who drove the suits mad; the delinquent *manga* artists that animated Japan’s revival of a burned-out American industry in the 1980s; the outsider female players and developers who challenged the old boys’ game networks in the 1990s; the do-it-yourself culture of micro-innovators, modders, massively multiplayer online (MMO) game populations, and machinima artists who by 2000 were a major force driving game culture—and game company profits. We conclude by reviewing how, approaching 2010, games are increasingly being applied to training myriad other kinds of immaterial labor. What we want to suggest is how, in virtual play as in other aspects of life, “Empire is a mere apparatus of capture that lives off the vitality of the multitude” (Hardt and Negri 2000, 62).

Midnight Phenomenon

In 1972 the maverick futurist Stewart Brand wrote in *Rolling Stone* of an “irrepressible midnight phenomenon” at Stanford’s Artificial Intelligence laboratory (Brand 1972). Among “the freaks who design computer science,” at “any nighttime moment” hundreds were “locked in life-or-death space combat . . . joyously slaying their friend and

wasting their employers' valuable computer time." They were playing a computer game—one of the very first, with an oscilloscope screen on which players could navigate rudimentary spaceship-blips and fire virtual space torpedoes at one another. *Spacewar* was “part of no one's grand scheme” and “served no grand theory.” It was, Brand observed, “heresy, uninvited and unwelcome,” yet also a “flawless crystal ball of things to come” in computer use: “interactive in real time,” graphic, encouraging user programming, “a communication device,” promising “richness and rigor of spontaneous creation and human interaction,” and “delightful.” *Spacewar* announced “computer power to the people” (Brand 1972).

This radical innovation emerged from an unlikely context. All contenders for the title “inventor of the video game”—William Higginbotham, who made a simple tennis game on an analog computer in 1958, Steve Russell, who created *Spacewar* in 1961, and Ralph Baer, who in 1966 devised the first TV-connected game console—were employees of the U.S. military-industrial complex. These workers were among the first mass draft of immaterial labor, the highly educated techno-scientific personnel recruited to prepare, directly or indirectly, for nuclear war with the Soviet Union. Their workplaces were academic research centers at Stanford University, the Massachusetts Institute of Technology (MIT), and other universities, to which the Department of Defense streamed military funds through channels such as the Advanced Research Projects Agency (ARPA); the nuclear National Laboratories of Lawrence Livermore, Los Alamos, and Brookhaven; and the massive defense-contracting system, in which the giants of U.S. corporate power, including information and telecommunications companies such as IBM, General Electric, Bell Telephone, Sperry Rand, Raytheon, and RCA, prepared for doomsday (Edwards 1997; Halter 2006a; Lenoir 2000). In this military-academic-industrial complex, computing science, born in the code breaking, ballistics calculations, and atomic programs of World War II, grew up in “a closed world, within which every event was interpreted as part of a technological struggle between the superpowers” (Edwards 1997, 44).

Computer simulations were integral to this closed world, a crucial means to calculate the options of nuclear strategy, to think the unthinkable. “Red versus Blue” war games were by the late 1960s starting to be computerized on the massive mainframes of the day, playing out the mega-death scenarios of nuclear exchange, not to mention the many subsidiary hot conflicts of the Cold War (Allen 1987; Edwards

1997; Halter 2006a). But simulations could also be a diversion from working on mass death if they were cut loose from serious application, enjoyed for their technical “sweetness” and oddity without instrumental purpose, transformed into play. Such escapes were possible because the military allowed its immaterial workers a lot of latitude. Computer scientists and engineers were the only people who understood the new digital machines. Transgressing standard procedures, fooling around with computers, was at least tolerated because that was the way to discover new uses and options (Kline, Dyer-Witheford, and de Peuter 2003). Such transgressions included making games.

All the first virtual games were unofficial, semiclandestine, or off-the-cuff projects. Higginbotham, an engineer who had worked on the first atomic bomb before becoming head of Brookhaven (he would go on to become prominent in Science for Peace), concocted *Tennis for Two* for an annual visitors’ day display, where it featured alongside a duck-and-cover exhibit, “Methods of Protection against Nuclear Radiation” (Poole 2000, 29)—and was then promptly consigned to the archives and forgotten. Ralph Baer created his console by hijacking the resources of the five-hundred-person department he directed as chief engineer for Sanders Associates, a large military electronics firm, loyally filing patents in his employer’s name but telling his managers nothing, working on the project in complete secrecy until it was completed. Russell’s *Spacewar* was made on a PDP-1 minicomputer produced by Digital Equipment Corporation, a company specializing in military cybernetics, in an MIT department saturated with funding for air-defense systems.

Higginbotham’s game preceded Russell’s; Baer’s invention had greater commercial significance. But it is *Spacewar* that is regarded as the ur-video game. This is surely because it was such an integral expression of the culture of computer-science “freaks”—a culture often at odds with the military institutions that funded it. At MIT, access to the PDP-1 was heavily monitored. Getting access was the mission of the Tech Model Railroad Club (TMRC), which brought together students for what they began to call “hacking.” No political-activist collective, TMRC members nonetheless “believed in a cooperative society and . . . a utopian world in which people shared information, sometimes without regard for property rights” (Kent 2001, 17). Circulated via the Internet’s precursor, the military ARPANET, *Spacewar* proliferated across campuses and wired labs, where people within and outside Russell’s circle added features and graphics, mak-

ing it an early instance of participatory design, freeware, and open-source development.

This digital experimentation tied in to a counterculture of psychedelic drugs and of political dissent. As campus protests against the Vietnam War rose toward a bloody crescendo with the Kent State shootings, disaffection was at near-revolutionary levels. Military computer laboratories were assisting electronic battlefield projects like Operation Igloo White, the remote-control B-52 bombing of the Ho Chi Minh trail, but the students in those labs were resisting the war. When Brand (1972) observed *Spacewar* at Stanford, he noted the “anti-Establishmentarianism” of the students who played it in a setting plastered with “posters and announcements against the Vietnam War and Richard Nixon.” *Spacewar* was just one instance of a “counter-computer” movement in “moonlight mode” whose other manifestations included programmed letters supporting strikes against the war, computerized coordination of demonstrations, and projects for “investigative work on corporations, assisting free health clinics, community computer education,” aiming, as Brand put it, “to plant dynamite in the very heart of the Combine.”

There were thus *two* red scares at work in the origin of virtual games: the external threat of the Kremlin, inspiring the Pentagon to an escalating trajectory of digital research, and the internal subversion of counterculture where hacking met the New Left. John Markoff (2005) has traced this interweaving of hacking with political radicalism through forums such as Ted Nelson’s 1974 *Computer Lib* (its cover sported a power-to-the-people clenched fist on a black background and the imperative “You Can and Must Understand Computers NOW”) and organizations such as the San Francisco People’s Computing Company (PCC), founded by programmers involved in the Berkeley Free Speech and War Resisters League, whose philosophy was “You make the software available for free, and anyone could do anything they wanted with it” (Markoff 2005, 262). PCC founders wrote one of the first DIY game design manuals and held “game nights” where the many successors of *Spacewar*—*Hurkle*, *Snork*, *Mugwump*, digital versions of *Star Trek*, and, most famously, *Hunt the Wumpus*—were devised, played, and swapped for free in the same space that political organizing proceeded apace (Markoff 2005, 268).

Watching the Stanford computing science students, Brand (1972) thought “something basic is going on.” Retrospectively, many social theorists have agreed, selecting the year he observed *Spacewar*—1972—as

a convenient point at which to date the transformation from industrial to postindustrial era, from Fordism to post-Fordism (Harvey 1989). Hardt and Negri pick that very year to locate the military, monetary, and economic crises that marked “the shift of hegemony of economic production from the factory to more social and immaterial sectors” (2004, 39). In this process, military power was, they suggest, essential, “adopt[ing] and extend[ing] the technologies and forms of large scale industry and add[ing] to them the new innovations of social and immaterial production . . . primarily through communications and information technologies” (40).

These innovations proved, however, impossible to control. In the hands of the immaterial laborers who made them, the communications and information technologies created for the military-security state were subverted into playful expressions of digital delight. The irony, however, was that in liberating computers, and games, from the Pentagon, “deterritorializing” them from the realm of nuclear death, hackers inadvertently set the stage for their “reterritorialization” by capital in pure commodity form (Deleuze and Guattari 1987).

You Are About to Be Captured

It was 1979, the golden age of video games, the epoch of classic arcade hits and the first deliriously addictive console games. One programmer was already disenchanted. He had worked exhausting hours transforming a text-based adventure game into virtual form, creating a digital labyrinth filled with fearsome foes and magic loot, a task his supervisor had said was impossible. He had done it anyway. Now the game was completed. But success would bring little recognition or reward. His employer, the most famous and profitable company in the newly booming video game business, had recently been bought by a huge media conglomerate. It refused to give designers royalties for games or even name credits on the game boxes, a clear move to reduce the bargaining power of a workforce whose strange technical powers its managers could barely comprehend. The programmer reflected and made one finishing touch. In the depths of a gray catacomb, he coded a single-pixel dot, the same color as the game’s background. If a player detected and picked up the dot, it would allow access to a secret room. No one would find the room for quite a while, far too late to recall the thousands of game cartridges that had already been sold. On a wall of the secret room, running down the middle in flash-

ing letters, the programmer wrote “Created by Warren Robinett.” Then he quit.

Robinett’s addition to Atari’s *Adventure* is legendary in game culture as the first “Easter egg,” a secret feature designed into a game awaiting player discovery (Connelly 2003; Gouskos with Gerstmann 2008). Such surprises soon became a staple feature in game design. That they originated in an act of protest not only demonstrates how capital gets some of its best ideas from the resistance it provokes but, more broadly, shows the problems that attended the conversion of hacker games into a for-profit industry driven by a new type of wage labor.¹

A decade after *Spacewar*, video games had become a six-billion-dollar business, rivaling the music industry of its day, amassing profits from a stream of quarters. The counterculture that had confronted the military-industrial complex was morphing into a cyberculture whose “Californian ideology” of digital utopianism mixed with free-market fever fit smoothly into an America about to elect Ronald Reagan president (Barbrook and Cameron 1996). This process had many moments, from Bill Gates’s appropriation of homebrew hacker culture as the basis of his Microsoft millions to the conversion of utopian “virtual communities” such as Stewart Brand’s WELL (Whole Earth ’Lectronic Link) into a global business network (Turner 2006, 7). For games, the process ran through an enterprise named Atari, which in the Japanese game of *Go* means “you are about to be captured.”

Atari arose on the border of two worlds that defined the future of virtual games—computing science and the entertainment industry. Its founder, Nolan Bushnell, was an engineering undergraduate at the University of Utah who frequented the laboratories of its military funded graphics-interface computer program (Lenoir 2000). But as a holiday worker in the fairgrounds of Salt Lake City, he was familiar with the midway ball toss, coin-op electronic amusements, and a business model that profited from expensive machines by a relentless drip of coins. Little surprise that when Bushnell discovered *Spacewar*, he “saw commercial opportunity” (cited in DeMaria and Wilson 2002, 16). He spent his California evenings in 1971 re-creating a version of the game to run on a stand-alone arcade machine, using components stolen from the engineering companies where he and his friends worked (Kent 2001). *Computer Space* sold few units. But Bushnell was further inspired when he saw a demonstration of the Magnavox Odyssey, the first commercial version of Baer’s console idea, and sampled a simple ball-and-paddle game harking back to *Tennis for Two*.

Bushnell's next appropriate tour de force was the release of *Pong*, the first epic arcade success. In one of the intellectual property disputes that would characterize the game industry, Magnavox sued, but by the time the suit was settled out of court in 1976, Bushnell was the world's premier video game capitalist (Festinger 2005).

The company he founded, Atari, put joysticks in the grip of tens of millions of young North Americans, first luring them to the arcades, then entering their homes with its famous "2600" TV-connected console. Within a decade it was the "fastest-growing company in U.S. history" (Kent 2001, 52). Traditional American businesses, like the automobile industry, were flagging in the economic crisis of the 1970s. Capital was seeking new strategies that "put a premium on 'smart' and innovative entrepreneurialism" (Harvey 1989, 157). Atari was a technological innovator at the heart of a burgeoning Silicon Valley computer culture. The future founders of Apple computing, Steve Jobs and Steve Wozniak, made games at Atari before departing to make their fortunes in personal computing. The young, highly educated Californians Bushnell employed were a mutation in the workforce, a new stratum of techno-scientific creativity.

The student movement had rejected the prospect of monotonous jobs in industrial plants and offices. Atari paradoxically made this "refusal of work" its key to commercial success. With a "work smart, not hard" philosophy, an Aquarian constitution ("a corporation is just people, banding together"), a legendary lack of bureaucracy, small development teams who "bid" on games they wanted to design (and were rewarded by result), and parties awash in drugs and alcohol, Atari promised "play-as-work." The fusion of counterculture and corporate capitalism soon, however, revealed its contradictions. From the start, Bushnell had difficulties balancing the play-as-work formula. Atari made both hardware and software: there were tensions between the freewheeling "immaterial" ethos of game programmers and the routinized tedium of minimum-wage workers assembling arcade machines and consoles: after the assembly workers failed in a unionization attempt, "the theft was incredible," Bushnell remembered (Kent 2001, 52).

In 1978, seeking an infusion of cash to manufacture Atari's new in-home console system, Bushnell sold the company to the giant media corporation Warner Communications for twenty-eight million dollars. Soon after the sale, Atari's founder, manifestly unable to discipline his anarchic workforce, became one of the first victims of the takeover: he

was dismissed as manager and replaced by a Warner-installed executive with a background in textile manufacture. What followed was a clash between traditional management and immaterial labor, a civil war between “suits” and “ponytails” (Cohen 1984). The new regime tightened security and subjected Atari to industrial cost-benefit practices. This aggravated programmers who were used to high levels of autonomy. Minor rebellions—from satiric self-made movies to T-shirts poking fun at Warner—erupted; as we have already seen, Robinett took discontent over wages and recognition into the game itself.

Resistances galvanized the next step in the expansion of the video game business. A number of Atari employees defected to start their own game companies. One, Activision, made cartridge games to play on its former employer’s hardware. Since Atari was selling hardware at cost and making profit only on the software, it was threatened by this strategy and sued Activision every six months or so. Nonetheless the company was an enormous success and added a whole new arm to the structure of the video game industry, the “third-party” game-development sector separate from console manufacture (Kent 2001, 227). Atari’s problems were, however, much larger than Activision. Hundreds of rival companies had entered the market. The same free-booting genius that had served Bushnell so well was glutting the market: in 1982 there were fifty companies making games for Atari’s 2600 (DeMaria and Wilson 2002). Bootlegged software—an ineradicable legacy of hacker culture—was rampant, quality control nonexistent, and the mounting involvement by Hollywood studios and giant toy companies resulted in a series of embarrassing failures, the most notorious being the bathetic *ET* video game based on the film by Steven Spielberg.

In 1983 the mix of incompetent management, employee discontent, overproduction, and rampant piracy exploded. When Atari failed to reach projected profits, its stock fell—and the company abruptly plunged toward bankruptcy. It carried with it the entire industry it had previously drawn upward on its ascent. Toy stores and amusement arcades that a year before had been enraptured with games now as suddenly declared them terminally passé. As trailer loads of surplus game cartridges were bulldozed into landfills like so much radioactive waste, the North American game industry annihilated itself in one of the most complete sectoral disasters of recent business industry, a demonstration of the volatility of emergent digital industry that foreshadowed on a smaller scale the larger dot-com boom and bust that

would come years later. Atari and its imitators had captured the playful genius of immaterial labor but failed to find the organizational and disciplinary forms to contain it: that discovery would have to come from somewhere else.

Media of a New Humankind

A second Pearl Harbor; a foreign invasion; a yellow peril! New machines playing games featuring entrancing entities in bizarre stories were infiltrating American homes, hearts, and minds. Digital play was being saved by *Asian* immaterial labor. The outlines of the Japanese video game coup that in the 1980s aroused protectionist panic among U.S. capitalists (though certainly not among U.S. children) can be summarized quickly. In 1985 Nintendo, a Japanese company with a foothold in the U.S. arcades, defied the conventional wisdom that digital play was dead, and released its Nintendo Entertainment System console in New York. The machine's superior graphics and *Mario* platform games won instant success. For a few years, Nintendo enjoyed a near monopoly of virtual play, until it was challenged by another Japan-based enterprise, Sega. The Sega-Nintendo "game wars," fought with rival mascots (Sonic versus Mario), waves of ever-higher-powered consoles, and lavish marketing, restored videogaming as a major entertainment business. This attracted the attention of a third Japanese company, one of a whole new magnitude, the multinational electronics and media giant Sony. The launch of Sony's PlayStation console in 1994 initiated a brief period of triangular warfare. Sega plummeted to disaster, Nintendo was demoted to a niche in children's games, and Sony emerged as the world-dominant console maker for the remainder of the twentieth century.

What was remarkable about this revival of virtual play was that it came not only from outside the United States but from a country that had experienced America's power in its most annihilatory form. Video games were rescued not by the military-industrial complex from whence they had sprung but by the victims of its atomic bomb. Nintendo, Sega, and Sony all made or remade themselves under conditions of Japan's post-Hiroshima "disrupture, defeat, and despair" (Allison 2006, 11) and amid the forced internationalization of U.S. occupation. Originally a maker of traditional Japanese playing cards, Nintendo adapted to the new conditions by printing Disney characters on its cards before moving into electronic games. Sega (an ab-

breviation of Service Games) changed hands between American and Japanese owners as it supplied arcade amusements for GIs. The founders of Sony, returning from war work as weapons researchers to rebuild their bombed Tokyo factory, turned to repairing radios damaged by American bombs or Japanese censors, then to manufacturing electric rice cookers, and finally, while U.S. companies researched military applications of transistors, to making consumer electronics.

The irony of U.S.-Japanese postwar relations was that the defeated culture excelled in adopting the victors' techno-cultural innovations. In the 1970s, as industrial reconstruction flagged, Japan took the idea of a "postindustrial society" as a policy guide, sponsoring "fifth-generation" artificial-intelligence research, producing the world's largest national population of robots, making itself an upstart global cyborg laboratory. In this context, video games spread rapidly. Namco and Taito licensed console production from Atari. Then domestic game developers emerged. In late 1970s, Tokyo "bowling alleys, pachinko parlors, and even small vegetable stores" replaced their inventory with rows of coin-op machines playing Taito's *Space Invaders*: production of 100 yen coins was temporarily quadrupled to meet demand (Kohler 2004, 21).

Japan's game artistry transformed the new media. U.S. games, made primarily by computer scientists and engineers, had created lively, diagrammatic worlds of stick-figure shooters, mazes, sports, and puzzles. But from the moment of *Pac-Man*, the first game with an identifiable *character*, Japanese developers added something else: graphics and narrative. These images and stories came from a distinct tradition: *manga*—broadly, Japanese comics. *Manga* art is characterized by iconic figures, clear genre conventions, and strong story lines filled with "small real world details" and "emotionally expressive" graphic effects (McCloud 2006, 216). While *manga* content ranges from the innocently childish to the demonically violent and sexually sublime, its worlds are usually chimerical, full of fantastic organic/machine, animal/human, natural/supernatural hybrids. It was perfect for games.

Japanese *manga*, like American hacking, was a suspect subculture. Though originally a children's medium, it attained prominence among Japanese youth born during postwar reconstruction, the *shin jinrui* or "new humankind" separated from authority and tradition by the trauma of Hiroshima (Yoshimi 2000, 210). This was a generation that in the 1960s and 1970s was a hotbed of student radicalism, Marxism, anti-Vietnam War protest, and anti-nuclear-testing activism. *Manga*

was “‘border art,’ a new type of democratic medium accessible by cultural amateurs” (Kinsella 2000, 5). Enabled by cheap, portable offset printing and photocopying, urban migrant workers and radical students made *manga* a “shadow cultural economy” that incited the same sort of “condescension and loathing” among the Japanese establishment as “far-left political parties and factions . . . in the USA” (Kinsella 1998).

Video games absorbed *manga* talent. “Where American game designers were culled from a group of computer hobbyists,” Chris Kohler observes, “Japan searched for computer tinkerers but also *manga* fans” (2004). *Manga*’s iconic conventions suited low screen resolution: “small, cute characters had fewer pixels per inch” (Herz 1997, 162). Even so, for years, consoles could not do justice to *manga* graphics. But box art and advertisement could. *Manga* influenced game designers such as Toru Itiwani (*Pac-Man*), Tomohiro Nishikado (*Space Invaders*), Akira Toriyama (*Dragon Quest*), and, most famously, Shigeru Miyamoto, the designer of the *Mario* and *Zelda* series that made him the world’s most famous game auteur and a Nintendo corporate powerhouse. Miyamoto was at college when his “eyes opened to *manga*” (Kohler 2004, 26); he took courses in industrial design and went to work for Nintendo only because he feared failure as a professional *manga* artist (Kohler 2004, 281). Miyamoto’s work derives mainly from children’s *manga* traditions rather than the darker adult strains. But even his games display not only *manga*’s fantastical inventiveness but also the populist sensibility of the *Mario* games that pit “a manual laborer who works very hard” against difficult “bosses” (Kohler 2004, 56).

Japanese media corporations, aided by a nationalist promotional apparatus, eventually “made a market of the new intellectual interests and aesthetic tastes of postwar Japanese youth” (Kinsella 1998). From the mid-1980s, *manga* was changed from an anti- to a pro-establishment medium (after this commercial absorption, amateur *manga* once again became a target of suspicion and censorship in the panics about “antisocial” *manga otaku*, or “*manga* nerds,” that swept Japan in the 1990s). Companies such as Nintendo were part of this recuperation and normalization of *manga* dissidence, which was smoothed out within the highly disciplined machinery of Japanese game studios. When Ken Kutaragi, designer of the PlayStation, first came to work at Sony, he looked at the red flags of the “spring labor offensive,” symbol of the labor militancy with which *manga* had once been associated, with incomprehension and distaste (Asakura 2000).

The Japanese video game companies, however, showed much greater sophistication than their American counterparts in managing immaterial labor. They recognized the primacy of designer creativity by perfecting the razor-and-blades model that gave consoles away at or below cost to make money on games; they recognized the affective appeal of *manga*-based mascots like Mario and Sonic and made them central to ambitious marketing and promotional efforts; and they celebrated their most talented artists—the status Nintendo bestowed on Miyamoto, for example, contrasts with Warner’s crass attempt to deny Atari game makers name recognition. Nintendo also learned from Atari’s catastrophe to exercise much greater attention to quality control, with detailed vetting of games by committees of designers, and it waged a relentless war on the piracy that had glutted North American markets, both through technological locks on its cartridges and with a notoriously aggressive legal department (Sheff 1999).

The stylistic vitality of *manga* thus continued to fuel the productions of Japanese studios. Though the popularity in North America of “Japanimation” only exploded in the 1990s with films like *Akira* and *Princess Mononoke*, “video games were the can opener” (Kohler 2004, 11). To see the abiding influence of *manga* on virtual play, and perhaps even a faint, residual trace of its dissident politics, one only has to think of the exquisitely wrought and massively successful *Final Fantasy* role-playing game series. Its world of fantastically good-looking ideal characters in romanticized neofeudal settings seems the extreme of spectacular gaming beloved of large-scale corporate game studios. The famous seventh game in the series, however, revolves around a conflict between a group of disaffected youth and a multinational conglomerate, Shinra (“New Rome”), a weapons developer whose attempt to drain the planet’s vital energy sources makes it both a world government and the cause of massive ecological destruction—a saga that strangely connects the postnuclear legacy of the dissident *shin jinrui* to today’s anticorporate movements.

Gaming was the first media in which U.S. post-World War II hegemony over global culture was decentered toward a more complex, diffuse capitalist order. Anne Allison (2006), writing of the international *Pokémon* craze of the 1990s, specifically links the success of Japanese *manga*-inspired toys and games, with their “endless bodies, vistas, and powers that perpetually break . . . [and] reattach and recombine,” to Hardt and Negri’s account of Empire. She attributes *manga*’s “polymorphous mutability” to two factors—an atomic-bomb-bred sense of

mutation, literal and metaphoric, and the pell-mell pace of Japanese postwar high-tech development. Both, she argues, fed an imaginary “of mixed up worlds, reconstituted bodies, and transformed identities” (Allison 2006, 11).² In the closing decades of the twentieth century, however, this imaginary “assumed the cutting edge in popular play aesthetics” because its popular culture spoke to the “millennial” condition of *global* techno-capital where “everything is at once fluid and boundless . . . a lived world of flux, fragmentation and mobility.” This is the world of immaterial labor, of which Japanese video games were the first transnationalized expression.

Becoming Woman?

While virtual play culture was triumphantly encircling the planet, it was running into problems on the home front. In 1995 an Australian feminist group, VNS Matrix (“Venus Matrix”) launched *All New Gen*, an online art piece and political polemic presented as a prototype computer game (Galloway, n.d.; Breeze, 1998). In a “transplanetary military industrial imperial data environment,” the Renegade DNA Sluts do battle with the forces of Big Daddy Mainframe. Guided by Oracle Snatch, they must overcome Circuit Boy, a “dangerous techno-bimbo,” and disarm him by removing his detachable penis and turning it into a cellular phone. This piece, a companion to VNS Matrix’s “Cyberfeminist Manifesto for the 21st Century” (1991), was a contribution to a much-wider digital dissidence linking women in academia, the art scene, and new media—a revolt of *female* immaterial labor that in the 1990s took as one of its major targets the masculine dominance of virtual play.

In the same year *Spacewar* was invented, the birth control pill was released in North America. A decade later, as Bushnell debuted *Computer Space*, Betty Friedan and Gloria Steinem started the National Women’s Political Caucus. Atari and *Ms.* magazine were both founded the following year. First-wave video games and second-wave feminism were contemporaries. From the start of virtual games, there were women game makers and girl players.³ Yet despite this, the history of hackers, *manga* artists, and game developers is mainly a tale of men and boys. If, as Gilles Deleuze and Félix Guattari (1987) suggest, sexual subjectivities, rather than being naturally given, emerge in a process of “becoming” that combines not only bodies and social codes but also technologies, the game console has been very much part of the appa-

ratus of “becoming man,” and not of “becoming woman.” No topic in the sociology of games has been more discussed than this gendered division of play; we will not attempt to review all its dimensions here, just to open some windows on it from the perspective of immaterial labor.

In the 1960s and 1970s, a generation of women walked out on unpaid toil—the bearing and raising of children, the cooking and cleaning, the caring for the young, sick, and old that were the hidden requirement of an industrial capitalism that put men in the factory and kept women in the home (Dalla Costa and James 1972; Federici 2006; Fortunati 1995). Leopoldina Fortunati (2007) relates the “machinization” of immaterial labor to this exodus. While domesticity involves material chores, much of it, she notes, is “reproductive immaterial labor”—“affection, consolation, psychological support, sex and communication,” or, in short, “care labor” (140). With children, such work often involves media and toys: “fairy stories, read to send them off to sleep, or toys that serve to sustain games.” In advanced capital, these supports increasingly become technological devices, by means of which “reproductive immaterial labor [is] machinized and industrialized” (140). This tendency, begun with radio and television, was, Fortunati suggests, accelerated by the feminist revolt of the 1970s. The refusal of women to do domestic work and the reluctance of men to take it over created conditions where “the grand offensive of the economic system” was to produce machines to “replace at least in part the immaterial domestic labor that was no longer carried out” (149). The video game console was part of this “grand offensive,” the perfect latchkey-kid-care techno-device for a world of working women, double-income families, and single-parent households.

This machinization of unpaid domestic labor was accompanied by a new gender split *within* the world of waged work. While the decline of manufacturing jobs sent young men toward computer-related industries, capital’s reply to women’s domestic rebellion was to turn the activities they had performed for free into jobs in the service sector. Both service work and high-technology jobs can be defined as forms of immaterial labor; technology jobs, Hardt and Negri (2000, 2004) say, mobilize cognition and intellect, and service work often involves affect, caring, and serving—what feminist theorists have long defined as “emotional work” (Hochschild 1983). But the common categorization obscures real differences. Service jobs are usually worse paid, less prestigious, often more physically demanding—more material—than information work, and they are differently gendered. The old divide

between male production work and female homework, apparently superseded, was reconstituted inside immaterial labor. If Pac-Man went to program in Silicon Valley, Ms. Pac-Man was more likely to end up cleaning his office or working at the front desk (see Mathews 2003).

In the 1970s and 1980s, some women made careers in high technology, and more in professional or managerial positions. But the mass of women in service jobs were subordinated within the new information order. They might work in digital networks, as teletypers or call-center operatives, but with a much less playful relation to computers than male programmers, system administrators, and technology developers, “enveloped” in digitization, not “directing” it (Menzies 1996). There was also a huge residue of household tasks waiting at home, with millennia of gender socialization prompting women, not men, to a “second shift” of unwaged work (Hochschild 1990). Women had less free time at home for hacking at the Commodore 64 or mastering moves on the Sega Genesis. This was reflected in the socialization of girls, who, looking to their mothers and sisters for example, saw video games clearly on the list of “guy things.”

While elsewhere male prerogatives were being challenged, virtual games thus congealed as a sphere of cultural “remasculinization” (Kim 2004). As late as the mid-1990s, 80 percent of players were boys and men (Cassell and Jenkins 1998). The military origins of simulations, the monasticism of hacker culture, the bad-boy arcade ambience, testosterone niche marketing, developers’ hiring of experienced (hence male) players, game capital’s risk-averse adherence to proven shooting, sports, fighting, and racing formulae—all combined to form a self-replicating culture whose sexual politics were coded into every Game Boy handheld, every *Duke Nukem* double entendre, and every booth babe at industry conferences, where women appeared only as imperiled princesses and imperiling vixens, a male head-start program, building and consolidating the gender stratification within immaterial labor (Haines 2004a, 2004b; Krotoski 2004).⁴ Even when virtual play did acknowledge women, it was in a tellingly stereotypical way. In 1996 Mattel’s *Barbie Fashion Designer* computer game, computer-printing dresses for its famous doll, sold a half million copies in two years. Girls perhaps now knew enough about new media to be targeted as a market, but Ken would clearly be the dot-com millionaire.

The cyberfeminism of the 1990s, of which VNS Matrix was one instigator, took fire from the increasing familiarity of young women with the Internet and was part of a wider “third-wave” feminism that

built on previous movements but also reacted against their limitations (Fernandez and Wilding 2002, 17). In the world of virtual games, it took two directions. Girl Games (Cassell and Jenkins 1998) was a project of female entrepreneurialism to make commercially successful, nonsexist games for girls, predicated on the belief that there were identifiable “female-friendly” game features (a position that sometimes drew criticism for reinforcing the idea of stable gender identities). Grrl Gaming was a more kick-ass affair, appearing in the hyper-violent world of online shooting games through the amateur player production of female “skins” or avatar identities (by both male and female players) and the formation of female game clans such as PMS (Psycho Men Slayers) or Babes with an Attitude. It was aggressive, provocative, and campy, mixing virtual transvestism, separatism, and violence, sometimes with a dash of anticapitalist hacktivism and free software thrown in (Schleiner 2002).

Both movements altered the trajectory of the game industry, though not necessarily in the way either anticipated. Girl Games fizzled out after the collapse of its flagship company, Brenda Laurel’s Purple Moon. But Jenkins (2003) argues that its “gender specific” goals were obliquely realized in the “gender equity” of one of the most popular games of all time, *The Sims*, whose domestic simulation of personal relationships, family formation, child raising, and household consumption appeared in 2000. *The Sims* was produced by a studio, Maxis Games, that boasted a majority of female employees, and the game attracted roughly equal numbers of female and male players. Grrl Gaming, on the other hand, may have engendered the Lara Croft character (Schleiner 2004). Eidos Interactive’s 1996 release of *Tomb Raider*, with its “a heroine for women to want to be and men to want to be with” (Deuber-Mankowsky 2005), certainly appeared just after player culture had put female warriors into cyberspace. She was followed by a bevy of combat-ready female protagonists—Samus Aran, Aya Brea, Joanna Dark, and many others. By the turn of the century, some sectors of the game industry seemed to be celebrating the demise of virtual patriarchy with a festival of lethal heroines and unisex domesticity.

The game industry’s recuperation of cyberfeminism also, however, stripped out the most radical elements of its revolt. There was not much trace of the Renegade DNA Sluts’ battle against Big Daddy Mainframe left. Rather, women were included *within* the transplanetary military industrial imperial data environment. The gender-neutral world of *The Sims* is driven by commodity consumption: sexual equality means

universal shopping. The new mainstream game “sheroes” (Richards and Zaremba 2005) are corporate-military professionals, death-dealing, punishment-absorbing exemplars of what Camilla Griggers (1997) terms “becoming-women who kill”—avatars for an era of female national security advisers and an equal-combat-opportunity U.S. Army. The protests of Girl Games and Grrl Gaming had been captured in the virtualities of an imperial feminism compatible with militarized capitalism.

At the same time, the place of women and girls in video game culture remained strangely equivocal, at least in Europe and the United States. The Entertainment Software Association (ESA 2008b) has claimed since 2003 that roughly 40 percent of North American players are female, a doubling over the last decade. But other research suggests that men continue to be the primary owners of consoles and play more persistently than women, and that female gaming is concentrated around specific genres of games, such as “casual” games and online card and board games, often regarded by the industry as peripheral to its main action (Kerr 2006, 106–28). The employment of women by game companies continues, despite exceptions such as Maxis, to mark an abysmal extreme of the “underrepresentation” of women in technology industries (Cohoon and Asprey 2006).

This continuing gender bias seems to throw into question our claim that virtual games are exemplary media of Empire. How can they claim such representative status if, despite slow change, they remain a predominantly male domain? In our view, however, it is precisely this asymmetrical sexual composition that makes virtual play so perfectly fitted to global capital. The world market is a dynamo at drawing people into the circuit of production and consumption, but it neglects, to a catastrophic degree, social and ecological reproduction—care for households, community, and environment. The ongoing sexism of virtual play mirrors this imbalance. Reproductive work, material and immaterial, has historically been performed overwhelmingly by women, and this, even after successive waves of feminism, still largely continues to be the case. The virtual play industry addresses itself to an ideal male subject, a “digital boy” (Burrill 2008, 15) who can spend hours at game play and game production, and positions women, if not now as completely invisible other, still as a subsidiary participant, a “second sex,” making the dinner, sustaining relationships, and gaming occasionally, “casually.” It is precisely this non-universality, this prioritization of consumption and production over

social and ecological reproduction, that makes virtual play so symptomatic of Empire.

Playbor Force

The way players created female avatars for online games before the game industry provided them, and the manner in which the industry subsequently and profitably adopted the innovation, highlight a process that has become increasingly prominent in virtual play: the mobilization of the players themselves as immaterial labor. As the console side of virtual play became a carefully guarded proprietary oligopoly, the open architecture and networked connections of the PC fostered a culture of enthusiasts who prototyped, modified, circulated, and repurposed games for free. This volunteer activity, generated from adolescent experimentation plus cheapening technology, was initially a highly autonomous, semi-illicit activity. But such “participatory culture” (Jenkins 2006a) was soon recognized by game capital as a source of ideas that could be harvested, and by the turn of the century it was reaping these fields with increasing thoroughness.

Theorists of immaterial labor suggest one of the characteristics of intellectual and affective creation is a blurring of the boundaries between work and leisure, creating a continuum of productivity, and of exploitability, that is “beyond measure” (Hardt and Negri 2000, 356). Tiziana Terranova (2000), building on such autonomist theory, has pointed to the prevalence of “free labor” in digitally based cultural industries that rely on fan excitement and user-generated content. Nowhere is this more pronounced than in virtual play. Julian Kücklich (2005) has termed this gamer do-it-yourself activity “playbor”—a neologism that perfectly captures the hybrid of work and enjoyment. We will examine four aspects of the emergence of a “playbor force,” roughly in chronological order of their appearance: microdevelopment, modding, MMOs, and machinima.

Virtual play began in the free invention of hackers. As the digital game industry grew, it continued to benefit from voluntary prototypes. A striking example is *Tetris* (Sheff 1999, 292–349). The famous falling-block puzzle originated in the 1980s, in sight of the Kremlin, with Alexey Patjinov, an employee of the Moscow Academy of Science, who created it on an archaic Electronica 60 microcomputer entirely in his spare hours. Given its visuals and adapted for IBM machines by a sixteen-year-old hacker friend of Patjinov’s, the brainteaser circulated

for free around the computing laboratories of a crumbling state socialism. In the closing years of the Cold War, *Tetris* became booty for speculative capital. A Hungarian black marketer sold the “rights” to Robert Maxwell’s British media empire, triggering a chain of commercial claims that culminated in a bizarre three-way intellectual property dispute between the Maxwells, Atari, and Nintendo. The Japanese company won and made *Tetris* a flagship game for its immensely profitable handheld Game Boy. Patjinov, who initially got nothing for the game, eventually immigrated to the United States as a Nintendo employee, just as the whole Soviet Union underwent the same privatization as his game, but he never matched the brilliance of his initial creation.

Millions of young men, however, yearned to achieve the celebrity Patjinov finally attained. Game making was a line of flight for digitally adept youth seeking escape from the tedium of service or industrial jobs. Well before the dot-com boom, games were generating a rush of desperate ventures financed by whatever means were at hand—day job, credit card, university grant. A handful became famous companies: id Software, makers of the first-person shooters *Castle Wolfenstein*, *Doom*, and *Quake*; Cyan, creators of the art-hit *Myst*; Origin, the producer of *Ultima* role-playing games—these and others brought their garage inventors fame and fortune, though many of these enterprises would eventually be bought up by big publishers. But these successes rose out of an invisible, seething ferment of immaterial micro-innovation in which most projects crashed and burned, perishing only to provide an emergent industry with a critical mass of free creations from which a handful of winners could be picked.

The companies that did succeed relied increasingly on networks of immaterial work reaching far beyond the studio and the waged development team. One aspect of this was “modding.” Players of PC games modified games by altering the programmed code to change characters’ skins, adding weapons, creating fresh missions, even building whole new games out of old engines. The resulting mod then circulated for free, with or without the cooperation of developers. Modding was only truly popularized in the 1990s, with its first famous success being the conversion by preadolescent boys of id Games’ Nazi-hunting shooter *Castle Wolfenstein* into a gnome-slaughtering parody, *Castle Smurfenstein* (Kushner 2003). When id later released its bloodcurdling *Doom*, it took account of fans’ demonstrated capacity to alter its software and included editing tools for them to make

their own scenarios, or levels, which could be shared on the Internet. This generated near-inexhaustible interest in the game and also supplied it with a voluntary pool of production talent, which its recruiters soon learned to tap by checking the work of admired modders and phoning them with job offers.

Other companies followed suit. Modding history was made when a player-adapted game won more success than the original. Valve's *Half-Life* pitted the sole survivor of a laboratory disaster against hideous mutants and sinister security forces. A Canadian computer science student, Minh Le, son of immigrants fleeing the Vietnam War, adapted it to create *Counter-Strike*, a terrorist/antiterrorist game played online by networked teams. *Half-Life* was a smash hit, but *Counter-Strike* became the most popular online game in the world. Minh Le went to work for Valve, which bought the rights to his game. Within a decade, games such as the role-playing fantasy *Neverwinter Nights* were as much an editing tool kit as a stand-alone experience, and a game failing to release development tools to players was "more worthy of comment in a review than a game that does" (*Edge* 2003, 57). Game companies routinely bought back successful mods and hired the teams that created them, and some hosted modding competitions with lavish cash prizes (Todd 2003).

A larger-scale, more-complex mobilization of the playbor force occurred in MMOs such as *Ultima*, *EverQuest*, and *World of Warcraft* (Castronova 2005a; Taylor 2006a; Dibbell 2006). Prototypes of these games include text-based Internet MUDs (multiuser domains) and online *Dungeons and Dragons*-type games (such as Robinett's *Adventure*) with typed-in text commands. These were volunteer creations, played for free, experiments in self-organized virtual community. In the 1980s, some MUDs experimented with graphics interfaces requiring software both expensive to develop and easy to charge for, a change that laid the basis for profitable entrepreneurship. As a wider commercialization of the Internet gained momentum, MUDS became MMOs, in which tens of thousands of networked players interacted in persistent virtual worlds with elaborate avatars and exotic landscapes, at a price.

Meridian 59, the first commercial, 3-D massively multiplayer game, was published in 1996. Its more famous successor, *Ultima Online*, suffered persistent problems (Kline, Dyer-Witheford, and de Peuter 2003). In 1997 the game experienced a "peasant revolt" in which players used their avatars to protest the unrestrained killing of novice players,

lagging servers, and catastrophic world crashes. Scores of serfs invaded the virtual castle of Lord British (a.k.a. Richard Garriott, the self-made game millionaire who was now only a corporate vassal to the game's publisher, Electronic Arts), drank their master's wine, ate his food, danced naked in the halls, and vandalized his chambers while loudly presenting their grievances. These were simultaneously pursued in a real-world class-action suit against Electronic Arts (Brown 1998). Three years later, another class-action suit was initiated by an *Ultima* player who claimed that in volunteering as an in-game community leader, answering questions and offering guidance to novices, she had unwittingly been performing a full-time, unpaid job (Brown 1998). Though all these challenges were unsuccessful, they highlighted the degree to which MMO management depended on the cooperation of its playboring populations.

Later MMOs, preeminently Sony's *EverQuest*, perfected a revenue model that turned the energy of these populations into a lucrative open-ended profit stream. Players not only purchased the initial software and paid monthly subscriptions, as well as expansions and add-ons, but also through their social interaction provided much of the game content. MMOs are thus a "co-creation" of player communities and corporate developers (Taylor 2006a, 155). This ambivalence has provoked considerable debate about who actually "rules" the worlds. While some suggest that publishers depend on player associations to sustain their games' interest and profitability (Jakobsson and Taylor 2003; Lastowka 2005; Taylor 2006a), others see MMOs as a co-optative triumph for game capital, which appropriates the "immaterial, affective, collective production" of their virtual population (Humphreys 2004, 4). As we will see when we look closely at *World of Warcraft* in chapter 5, this activation of MMO playbor power is not without problems for publishers; but phenomena such as the large-scale illicit "gold farming" in such games are a logical, if antisocial, response to the harvesting of MMO activity by game capital.

A more recent manifestation of playbor ingenuity is machinima—cinema made from games. In the 1990s, players realized that the graphics and engines of *Quake* or *Unreal* could create quick, cheap films (Lowood 2005). A digital camera could be programmed to operate from the point of view of an in-game character, with voice and music dubbed in later. The most famous machinima creation is *Red vs. Blue*, made from Microsoft's science-fiction-combat console game *Halo*, featuring sardonic exchanges between bored soldiers waiting for battle and

released on both the Web and DVDs for retail sale. In the United States, machinima creators filming from a game without permission could be prosecuted for EULA violations. Many game companies have, however, been willing to accommodate and profit from machinima. Microsoft distributes *Red vs. Blue*, clearly believing that, however irreverent, the spoof increases the cultural cachet of *Halo*. Id has allowed the *Quake II* engine to be converted to open-source software, providing machinima artists a valuable resource. After 2000 games such as *The Sims Online* and *The Movies* were being produced with machinima capacities as a featured attraction, and full-length machinima features tour film festivals, machinima music videos rotate on MTV, and machinima sections play on cable gaming channels (Kahney 2003).

Playbor continues the tradition of hacker culture from which games sprang, transforming it from esoteric art into a more general capacity for autoproduction, networked collaboration, and self-organization (Himanen 2001; Wark 2004). But while hacking was initially a subversive threat to corporate control of digital culture, the game industry has increasingly learned to suck up volunteer production as a source of innovation and profit. When we later examine Microsoft's Xbox console, released in 2001, we will see that a feature of this corporate giant's campaign to invade the video game market was the porting of do-it-yourself computer game practices into the console side of the business—encouraging networked play, machinima making, and homebrew game development in ways that outflanked its rival Sony. Commercial game production today culls the prototypes of micro-enterprises, buys back mods, assimilates machinima, and makes MMOs a source of endless subscription. This capture is not seamless; the capacities that make playbor so productive also make it troublesome. We argue in chapter 7 that piracy and other intellectual property border wars, disputes between MMO publishers and populations, and the emergence of an activist, anticorporate world of tactical gaming and politicized machinima all mean that the dance of capture and escape persists. But one side of this process is the conversion of virtual play into measureless immaterial labor, a tendency that now extends into new dimensions.

Back to Work: From *Spacewar* to Seriousity

At the start of their history, virtual games were a refusal of work: they signified leisure, hedonism, and irresponsibility against clock punching, discipline, and productivity. The first commercial appearances

of virtual play were in dubious male refuges from toil—bars and arcades—and then, as the console entered the home, as machines for children and adolescents, devices on the border between innocence and delinquency, but in either case not at all serious business. Playing games on the job was seen by managers as the most corrosive habit of a computerized labor force. There were tales of weeklong dips in U.S. economic productivity immediately following the release of new versions of *Doom*, and *Tetris* came with a “boss key” on its menu that would draw a spreadsheet over the screen “to protect office workers who might be playing the game at their desks and need a quick rescue in case the boss walks by” (Bogost 2006a, 108).

As video game culture advanced into the new millennium, however, a strange reversal occurred. Games turned their coat, transforming from workplace saboteur to managerial snitch. Once again, the incubator was war. We have seen that virtual play was a spin-off from Pentagon planning. Though *Spacewar* liberated it from these grim purposes, games never fully shook off this genesis: in chapter 4, we will see how the U.S. military has followed the tracks of its runaway virtual slave, run it down, and reenlisted game culture into the business of training people for effective killing. In the 1970s, other sectors of the state, from city planners to air traffic controllers, were also exploring the possibilities of simulator training. And by the 1990s information-era capital had latched on to games as a means of preparing all kinds of immaterial labor for the digitized workplace.

One of the most enthusiastic adopters was the financial sector. In 1997 a junior trader working for German finance house posted an offering of 130,000 bond futures contracts online. Training in a game-like workplace simulator, he believed the virtual gambit was just an exercise. But the play was for real. He had “pressed the wrong button . . . a mistake easy to make, according to traders” (Associated Press 1998). His firm, contractually obliged to carry out the transaction, took a loss of some US\$16 million. At around the same time, the stockbroker Ameritrade created *Darwin: Survival of the Fittest*, a game distributed free to customers to teach online trading—just in time for them to participate in the 2001 dot-com stock market crash. In 2004 the BBC reported that Geneva Trading, a Chicago-based house speculating on “anything from Brent crude to precious metals and pork bellies” and monitoring “small fluctuations in the market, easily missed on a bank of trading screens filled with fast moving numbers,” required applicants to complete a video game exercise (Logan 2004).

The company president observed, “It is unlikely that we would hire someone who didn’t show good proficiency at a Game Boy or online poker or similar video-type game” (cited in Logan 2004).

By 2007, putting games to work had become an industry in itself, with the market for corporate e-learning estimated at US\$10.6 billion (Michael and Chen 2006, 146). The Serious Games Initiative movement was exploring the applications of simulations to a wide variety of settings (Michael and Chen 2006). These included a wing of socially activist and politically critical games that we will discuss in chapter 8. The majority, however, were aimed at workplace training of differing kinds, sometimes integrating gamelike simulations with electronic hiring tools, psychometric personality tests, and cognitive skills measures. Corporations like video games for these purposes because they are cost-effective. Simple games are, by industry standards, cheap to make and cheaper to use: “Why pay for someone to fly to a central training campus when you can just plunk them down in front of a computer?” a *Business Week* journalist rhetorically inquires; even better, “employees often play the games at home on their own time” (Jana 2006).

Virtual training pushes all types of work toward immaterial labor. Since 2000 the fashion company L’Oréal has used an online, game-like simulation in which players “invested in research and development, debated about how much to spend on marketing and looked for ways to cut production costs” to competitively select management candidates from twenty-eight countries: recently this was linked to a TV game show (Johns 2006). Canon, the digital reproduction multinational, has repairmen play games in which they must drag and drop parts into the right spot on a copier; a light flashes and a buzzer sounds if they get it wrong. More inventively, Cisco prepares its workers for on-call corporate crisis management by having them game fixing a network in a virtual Martian sandstorm. A California ice cream chain has a training game in which players practice scooping cones against the clock and perfect “portion control”; the company claims that more than eight thousand employees, about 30 percent of the total, voluntarily downloaded the game in the first week of its release. “‘It’s so much fun,’ says one manager, ‘I e-mailed it to everyone at work’” (Jana 2006). And games also engage the affective dimensions of immaterial labor. Cyberlore, now Minerva Software, is developing a training game to teach customer-service workers to be more empathetic. The basis of the simulation is Cyberlore’s *Playboy Mansion*

game, set in a lavish Hugh Hefner–esque pad, where gamers had to “persuade” models to pose topless; the new, workplace version simulates a store, complete with point-of-purchase display, and requires players use the art of persuasion to sell products (Jana 2006).

Business enthusiasm for virtual play extends, however, beyond training simulations and serious games. It is now *all* games—silly games, time-wasting games, fantastic orc-slaying and alien-blasting games—that are seen as beneficial for an immaterial labor force. Scientists studying the effects of game playing on sixty employees in a Dutch insurance firm concluded that “playing simple computer games at the office could improve productivity and job satisfaction” (BBC 2003a). In *Got Game: How the Gamer Generation Is Reshaping Business Forever*, the hipster management theorists John C. Beck and Wade Mitchell (2004) argue, on the basis of a few dozen interviews with Harvard MBAs, that the content of games, be it carjacking or dragon slaying, is merely the occasion for intensive skill acquisition in multi-tasking, flexible role play, risk evaluation, persistence in the face of setbacks, inventive problem solving, and rapid decision making—all, of course, precisely what corporate employers claim to want. Playing on the office computer was once an audacious escape from tedium: now a high score at *Space Giraffe* is de rigueur for the up-and-coming careerist. A corporate consultant claims that it is “increasingly common . . . to list things such as running *World of Warcraft* guilds in applications” and for employers to “recognize the organizational, managerial and inter-personal skills such experience bring[s]”; devices that tabulate gaming scores, such as the Xbox 360 Gamer Card, widgeted to a personal blog, “will give a future employer a great deal of information on how much time someone spends gaming, how skilled they are, how obsessive, how collaborative, how determined” (Robertson 2008).

Prospects for an even more complete absorption of games into work are offered by schemes such as Amazon.com’s Mechanical Turk experiments. These aim to create an online, on-demand precarious workforce for quick or ephemeral jobs such as transcribing podcasts and labeling photos, to people around the world. The workers would process the tasks for a few pennies per minute or item and, it is suggested, will be able to perform them “in lieu of watching TV or fooling around on MySpace” (Hof 2007)—or, presumably, playing games. Incorporating labor process elements into a game, so that work is indistinguishable from play, has already been done. In the so-called *ESP Game*, a player, gaming with either a human or computer

partner, strives to agree on words that match images within a set period of time—an activity harnessed to optimizing search engine performance indexing online pictorial content (Gwap 2008). Ventures such as the ominously named Stanford University spin-off Seriosity proudly declare their ambition to “steal sensibilities from games and virtual worlds and embed them into business” (Hof 2007). Observing that people in online role-playing games such as *Star Wars Galaxies* “spend countless hours carefully doing what looks like a job” not only battling Empire troops but also “building pharmaceutical manufacturing operations and serving as medics,” the company is testing the possibility of “having players view real medical scans inside the game to find signs of cancer,” which, its owner reassuringly asserts, “gamers could do as well as an actual pathologist” (Hof 2007). Virtual play, after what may in retrospect seem a brief early period of childhood innocence and teenage delinquency, is being sent back to work.

From its origins in the nocturnal digital experiments of the 1960s to the vast twenty-first-century entertainment complex, virtual play has required extraordinary digital skills and new capacities for cultural creativity—immaterial labor. This has not been easily or automatically converted into drive power for a commercial motor. It has often escaped, temporarily propelling other social machines, some politically radical, many seeking to escape the limits of commodified culture. Nonetheless, over its short history, the playful energies of immaterial labor have increasingly been subsumed by capital, and virtual games transformed from rebel innovation to vital relay in the planetary work machine.

It will be useful to recap a few key points about our use of the term “immaterial labor.” As we said earlier, in our view some of the autonomist theorists who introduced the idea of immaterial labor overstate their case and overlook the material labor on which capitalist production continues to rely (see chapters 4 and 8). Nonetheless there are important differences between the labor that is performed in a game studio and that on, say, an assembly line. Immaterial labor is defined both by the cognitive and affective aspects of the commodity produced and by the production processes characteristically involved: for example, a high degree of communicative cooperation, use of networked technologies, and a blurring of the line between labor and leisure time. According to Hardt and Negri’s hypothesis, these forms of immateriality are becoming hegemonic. What they mean is that features of immaterial labor are beginning to reshape more traditional

forms of work as well as broader aspects of social life. Think of how, in recent years, the language of networks has come to permeate and reconfigure sociality. Unlike terms such as “knowledge worker,” which carry a certain elitist tinge, immaterial labor is something in which a broad swath of people are engaged, in ways not limited to paid employment but extending to everyday life activities that are productive but nonetheless unpaid.

There is, however, more at stake in the concept of immaterial labor than just production processes under contemporary capitalism. It is bound up with political questions—of antagonism, of alternatives to capitalism—that are not immediately posed by mainstream terms such as “knowledge work,” “creative class,” or “digital labor” that attempt to describe similar terrain. Hardwired into the category of immaterial labor is the premise that resistance actively alters the course of capitalist development. When capital increases its reliance on this type of labor and commodity, it unwittingly creates tools for autonomy (as we saw with mods) and becomes more vulnerable to attack (as with piracy), albeit in ways that are hardly pure in their outcome. We will return to the implications for combating Empire throughout this book, but for now, the way this chapter has presented its history of games displays the conflict between autonomous invention power and capitalist co-optation intrinsic to immaterial labor.

This conflictual process has followed three main routes in the history of gaming. The first was the corporate recruitment of hacker invention and *manga* artistry to provide the basis of an internationalized video game workforce, producing virtual games as a commodity. The second was the deepening involvement of various forms of free, voluntary, immaterial playbor as a costless means of renewing industry profits. The third is businesses’ adoption of digital play as a generalized form of work preparation for immaterial laboring, through simulations and training, but also generically as a benchmark of virtual skills. All these stages have been marked by gender asymmetries, with the women and girls whose work is still so heavily required for reproductive labor being absorbed into the new corporate game machine of play-production and play-consumption far more slowly and unevenly than men and boys. Despite this, the envelopment of virtual play by capital is increasingly comprehensive. From New York to Tokyo, Moscow, and Beijing, virtual play is becoming a medium in which Empire excites, mobilizes, trains, and exploits its new planetary workforce. We started our history with videogaming’s working-class hero,

Mario. But it seems this is a game in which he can't beat the bosses. Do the Marios and Princess Toadstools of immaterial labor still have a chance for liberation? That is a question we return to later in the book. For the moment, we'll press on, deeper into the lair of their antagonists, into the palace of the Koopas, the abode of big virtual-game capitalism.