

Fashioning the Military-Entertainment Complex

On Independence Day, the traditional summer blockbuster date in the entertainment industry, the U.S. military released its new video game, *America's Army: Operations*. Designed by the Modeling, Simulation, and Virtual Environments Institute (MOVES) of the Naval Postgraduate School in Monterey, California, the game, intended as a recruiting device, is distributed free on the Internet. Produced with brilliant graphics and the most advanced commercial game engine available, at a cost of around \$8 million, the game is a first-person multiplayer combat simulation that requires players to complete several preliminary stages of combat training in an environment mirroring one of the military's own main training grounds—a cyber-boot camp. On the first day of its release, the military added additional servers to handle the traffic, a reported whopping 400,000 downloads of the game. The site continued to average 1.2 million hits per second through August. *Gamespot*, a leading review, not only gives the game a 9.8 rating out of a possible 10, but also regards the business model behind the new game as itself deserving an award.

As the military's new blockbuster video game illustrates, the military-industrial complex, contrary to initial expectations, did not fade away with the end of the cold war. It has simply reorganized itself. In fact, it is more efficiently organized than ever before. Indeed, a cynic might argue that whereas the military-industrial complex was more or less visible and identifiable during the cold war, today it is invisibly everywhere, permeating our daily lives. The military-industrial complex has become the military-entertainment complex. The entertainment industry is both a major source of innovative ideas and technology, and the training ground for what might be called posthuman warfare. How has this change come about?

In the 1990s, with the end of the cold war came an emphasis on a fiscally efficient military built on sound business practices, with military procurement interfacing seamlessly with industrial manufacturing processes. The Federal Acquisitions Streamlining Act of 1994 directed a move away from the DOD's historical reliance on contracting with dedicated segments of the U.S. technology and industrial base. In Secretary of Defense William Perry's newly mandated hierarchy of procurement acquisition, commercially available off-the-shelf alternatives should be considered first, while choice of a service-unique development program has lowest priority. In effect, these changes have transformed military contracting units into business organizations. In keeping with this new shift in mentality, "company" websites now routinely list their "product of the month."

This shift in policy radically transformed the fields of computer simulation and training. Throughout the 30-year history of these fields, developments in computer graphics, networking, and artificial intelligence had always been driven by demands of military and aerospace contractors because of the importance of simulation

technology to military training. Currently, in fact, the simulation budget alone constitutes 10 percent of annual U.S. military spending. In this context, the shift in procurement policy had immediate consequences for the relations between military contractors in the simulation business and the entertainment industry. From the late 1980s through the mid-1990s, the game industry (including video console games, p.c. games, and arcade games) was growing at a brisk pace. A number of high-end military contractors decided to spin off some of their products into the game market. Evans and Sutherland, for instance, a major producer of stand-alone flight and tank simulators, repurposed some of its simulators as arcade games. Silicon Graphics made a major move in contracting with Nintendo to produce the graphics boards for the Playstation and the extremely successful SuperMario game series. So successful was this venture that Silicon Graphics management admitted that while their heart was still in the business of scientific and medical simulation, company revenues were mainly flowing from the game console market. The largest military contractor, Martin Marietta, spun off Real 3D, a company founded on several of Martin Marietta's major patents in graphic chip design. Real 3D contracted with Sega to produce its next-generation arcade game platforms.

The new policies resulted in a flow not only of technology from the military to the entertainment industry but of highly talented people as well. Steven Woodcock, a chief designer of AI components for the military simulation network, SIMNET, moved to Real 3D, where he designed several popular games, including *Thundering Death*, which used AI to generate the first-ever learning opponent in a video game. Two other SIMNET warriors, Warren Katz and John Morrison, founded Mäk Software, specializing in constructing simulation training environments as well as commercial games.

An illustration of the new era of open collaboration between military and commercial sectors, Mäk produced a war game called *Spearhead* under contract to the Marines, which was simultaneously released as a commercial game differing only in certain classified details.

This flow of technology has been bidirectional. Upholding its new policy to use off-the-shelf technology, the military has adapted game software to its own purposes. The reason is obvious: The game industry has advanced rapidly in the past five years, taking advantage of hardware developments to produce spectacular, realistic graphic displays and games with increasingly sophisticated AI components. Game software now outstrips the best the military has to offer. Consider the military's adoption of *Falcon 4.0* as the training program for its F-16 fighter pilots. *Falcon 4.0* mimics the look and feel of real military aircraft and allows users to play against computer-generated forces or, in a networked fashion, against other pilots, thus facilitating team-training opportunities. This video

game's extreme realism led to work with Spectrum HoloByte Inc. to modify the *Falcon 4.0* flight simulator game for military training.

Just as the military has leveraged the commercial sector for advanced technology, the game industry has pursued the open-source community for some of its hottest developments. This pattern began with id Software's release of the code for its pathbreaking first-person shooter game, *Doom*, so that shareware gamers could modify the game by adding new rooms and levels (called "mods"). Id followed this innovative step by making available the scripting language for its hit game *Quake*, which radically changed the level of interactivity in games. A large shareware community of gamers has evolved, contributing tools from level editors to scripting languages for creating new environments and even changing the look and feel of the game. Other developers have followed suit, allowing players to alter their computer opponents in direct fashion through scripts and code plug-ins. This entire development has spilled over into the production of networked games, such as *Counter Strike*, that host upwards of 165,000 players. These developments have had enormous implications for the industry and raise some interesting security issues as well.

The U.S. military has joined the fun of modifying games as well. In 1996 a group of Marine simulation experts from the Marine Corps Modeling and Simulation Management Office acquired the shareware version of *Doom* and adapted it as a military fire team simulation with software tools developed by shareware *Doom* gamers on the Internet. Real-world images were scanned into the game files so that 3-D scans of GI-Joe action characters replaced the stock game monsters. The game was also modified from its original version to include fighting holes, bunkers, tactical wire, "the fog of war," and friendly fire. *Marine Doom* trainees used Marine-issue assault rifles to shoot it out with enemy combat troops in a variety of terrain and building configurations. The simulation was later reconfigured for a specific mission in the Balkans immediately prior to engagement.

Such developments encouraged several top officials in the military simulation command to seek more formal collaborative relations with the video-game and entertainment industries. In December of 1996, the National Academy of Sciences, acting on the initiative of Professor Michael Zyda, a computer scientist specializing in artificial intelligence at the Naval Postdoctoral Academy in Monterey, hosted a workshop on modeling and simulation to investigate the possibility of organized cooperation between the entertainment industries and defense. Zyda's report and follow-up proposal stimulated the Army in August 1999 to give a \$45 million, five-year grant to the University of Southern California to create a research center, the Institute for Creative Technologies, to support collaboration between the entertainment and defense industries; to apply entertainment-software technology to military simulation, training and operations; and to leverage entertainment software for militarily relevant academic research. The ICT's mission is to enlist film studios and video-game designers in the effort, with the promise that any technological advances can also be applied to make more com-



elling video games and theme park rides. Although Hollywood and the Pentagon may differ markedly in culture, they now overlap in technology: War games are big entertainment. In opening the new Institute for Creative Technology, Secretary of the Army Louis Caldera said, "We could never hope to get the expertise of a Steven Spielberg . . . working just on Army projects." But the new institute, Caldera said, will be "a win-win for everyone."

As part of the drive to leverage the entertainment market, the ICT is working on commercial games. Two games, *Combat System XII* and *C-Force*, are scheduled for release by the end of 2002. Designed for Microsoft's Xbox, the games are intended to have the same holding power and repeat value as mainstream entertainment software and will be available commercially as well as for military training. The goal of the ICT games project is to create immersive, interactive, real-time training simulations to help the Army teach decision making and leadership rather than combat skills, so it is unlikely they will enjoy the success of *America's Army*.

The rise of the military-entertainment complex is not without a certain irony. Military-supported games, it turns out, are considerably less violent than their competitors. *America's Army: Operations*, for instance, renders only a puff of blood when a player is hit. *Real War*, a game commissioned by the Office of the Joint Chiefs of Staff, released by Rival Interactive, Inc., and published by Simon & Schuster in October 2001, is based on an official military simulation called Joint Forces Employment. The only difference between the two versions is that the official one contains more learning objectives and the player has only a finite number of military resources—tanks, planes, and battleships. Visually, the game-play is nearly identical. *Real War* is particularly notable for its premise—a U.S. war against terrorism—created entirely before September 11. In the game, players can assume the role of the U.S. military or the terrorist organization. Just to even the odds, the latter has a military strength comparable to that of Washington. *Real War* is rated "Teen" because of its lack of gore. Although Rival Interactive's president, James Omer, defends the game as a strategy challenge, not an actual simulator, several online game reviews have criticized Rival's product for not

being realistic enough, calling the movements jerky and cartoonish. *Gamespot* gave the game a 3 out of 10.

What scores a 10 in the game community? Games like Rock Star Games' *Grand Theft Auto*, a role-playing game in which the player, betrayed and left for dead, carries favor with mob bosses and crooked cops while avoiding a lethal street gang, or *Max Payne*, where a fugitive undercover cop framed for murder is hunted by the mob. To date, the ICT has not followed the game-industry strategy of opening its game editor and level design software to the mod-developer community, but if their intent is truly to leverage the commercial market for military interests in the new era of cyberwarfare, that step cannot be far behind. Indeed, it may not even be necessary: The Unreal game engine used by the MOVES Institute for *America's Army* has spawned a very large mod community of its own, visible, for instance, on the PlanetUnreal.com website. One group currently recruiting there is developing a mod based on the Unreal engine called *Terrorism: Fight for Freedom*, expected to be completed in early 2003. The architects of this multi-player Web-based game—a distributed multinational group—describe their project in an update from August 11, 2002, as “a modern-day, small-scale warfare Total Conversion for Unreal Tournament 2003. The mod is based upon wars that are currently occurring in the world.”

The military is using newly minted best practices of game design and business models to compete in the arena for young, highly trained cyberwarriors. In a post-9/11 world where distributed collaboration in a military context has come to signify “terrorist cells,” the potential mods based on the Unreal engine conjure up an all-too-frightening potential *reality*. No doubt, somewhere, either in the game industry itself or among the worldwide community of mod builders, a group is currently developing a cyberterrorist game based on attacking the computer infrastructure of a country, disabling its power grid, infiltrating its financial networks, and hacking into mainstream news media such as the *New York Times* to confuse the public about what's going on. Will this be a market in which the U.S. military can choose (or afford) not to compete?

— Timothy Lenoir

Between HAMMER and ANVIL

It was Sunday morning after 9/11. My editor called from Copenhagen to discuss the situation, and I told him that the attack was an earthshaking event we would have to deal with for a very long time.

To my surprise, I sensed that he disagreed and I felt compelled to clarify: “What do you expect the Americans to do? Take it sitting down? No, they'll go to war.” He sighed and suggested I was exaggerating the importance of 9/11, a terrorist act like many others before, of which Europe has had its full share.

This conversation marked the start of a turbulent, at times emotionally trying, period in my work as U.S. correspondent for the left-of-center Danish daily *Information*—in which I would eventually be denounced as a CIA agent by a Danish author. Having covered the U.S. on and off for more than fifteen years, I understood and identified with Americans' reaction to the first attack on their territory since Pearl Harbor and felt it was my duty to explain that viewpoint to my readers.

Many other Europeans felt in solidarity with the U.S. in those days. “We are all Americans” was a popular refrain on the other side of the Atlantic coined by a front-page editorial in *Le Monde*. But as I gradually discovered, the European left's rather simplistic view of America was more deeply rooted than I had supposed just after 9/11.

Obviously, the Bush administration's go-it-alone style and occasionally arrogant rhetoric significantly aided the prompt revival of old clichés. No shock there. What surprised me was the emergence of an emotional kind of anti-Americanism so prejudiced that facts, circumstance, and historical context seemed to have lost importance for many of my friends and colleagues at home and across Europe. September 11 seemed to trigger an explosion of pent-up frustration with America many had felt but had not wanted to express.

I suspect that many U.S.-based foreign correspondents faced a similar conundrum, caught between their awareness of the human tragedy before their eyes and the swell of anti-Americanism among their home audience.

From the first days of reporting on 9/11 in *Information*, it became clear to me that the editors and reporters pursuing the story from our Copenhagen office almost exclusively sought out those Americans, Europeans, and Arabs who espoused the line: The U.S. had it coming. . . .

Those voices too should be heard. But the excessive shrillness of their blame game seemed offensive. *Information's* front- and back-page lead editorials, usually written by editors, staff reporters, and correspondents, hewed to the European leftist interpretation of the terror attacks.

To my great surprise and distress, I was not asked to write a single editorial. Between September 11 and November 3, I wrote only one leader, published three days after 9/11.

This may sound petty. Many colleagues wanted to air their views. Like many European newspapers, *Information* has a long tradition of letting staff reporters—not just editors—write leaders; indeed, it is a standard part of their job, particularly when the area they cover is at the center of attention.

That the paper's U.S. correspondent should not write editorials after an event of this magnitude was unusual in the extreme. I think I know why it happened. A couple of weeks after 9/11, I started criticizing my fellow reporters' work in the newspaper's internal electronic debate forum. I insistently remarked that a newspaper founded by pluralistic Danish resistance to German occupation in World War II