

An exclusive excerpt from...

DROIDMAKER

George Lucas and the Digital Revolution

Michael Rubin

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[act three]

This is just a taste of the whole story. For more on games, the development of avatars, RPGs, Maniac Mansion, as well as the true story of the birth of Pixar, you'll want to read all of DROIDMAKER.

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A Hole in the Desert

[1982–1983]

One of the most difficult tasks men can perform, however much others may despise it, is the invention of good games. And it cannot be done by men out of touch with their instinctive values.

—CARL GUSTAV JUNG (1875–1961)

AS STAR WARS was still hitting theaters, Atari, the “wondercompany” that had started the videogame craze with *PONG*, ran out of money. Founder Nolan Bushnell had badly miscalculated how long and hard the road would be to stay up with the rapidly changing technology.

Only a few years earlier, when Atari was still a hot company, Bushnell was riding the wave: “We treated programmers like mini-gods. We gave the best ones private offices. Then we put a hot tub in the engineering building. We hired the best-looking secretaries we could find for that department. Atari beer busts—the all-night parties we’d throw to celebrate revenue goals—had already become legend. Were there planning sessions where we smoked pot? Absolutely. Did we have some incredibly crazy parties? “Probably true. Was the company probably the hardest-working company in the world? Probably true as well.”

Bushnell had been working on a secret project called “Stella,” which involved making a custom chip and combining it with a graphics display, sound synthesizer and an adaptor for the TV set.¹ The most radical feature was that it would run from cartridges, making Stella an open platform able to play a never-ending variety of games.

In spite of its potential, Stella development was constantly confronting bad news. The game market appeared to be in decline. And to make matters worse, Fairchild Semiconductor (the company that invented the semiconductor) had just developed a cartridge-based system they called their Video Entertainment System, or VES, and they were about to be first to market. If Atari wanted to minimize the damage, they needed to reach consumers quickly.

¹ The chip was based on the MOS Technology 6507.

For the manufacturing and distribution of Stella, Atari needed millions of dollars, which Nolan Bushnell couldn't seem to find anywhere. He tried to raise money from Disney. Then from MCA. He reached out to investors. He was running out of options.

One day Manny Gerard, a Warner Communications executive, got a call from an investment broker: "Would you be interested in a technology-based entertainment company, growing rapidly?"

The notion of a programmable videogame blew him away. In a day, Gerard was on the phone with Bushnell. "It wasn't a game company," said Gerard. "It was an entertainment company. It seemed to me like a business we should be in." Bushnell liked the synergy with Warner's films and music. Gerard soon visited Atari in Silicon Valley, to see a demonstration of the Stella prototype. When he returned to Warner's he penned a short memo: "I've seen the future and it's called Stella."

After discussing the matter with Warner boss Steve Ross—a big gambler at heart—Gerard got the green light. Still, Gerard was concerned about giving the young engineers so much money. "There'd be no way to motivate them," he worried. "I have to keep them tied up." Warner purchased Atari for \$28 million; but it was a deal carefully constructed to keep the core engineers on board.² When it was done, Nolan received about a million dollars in cash and an unsecured note for another eleven million. If Atari ever died, the note was worthless.

And so Stella was funded and headed into production.

At the time Warner acquired Atari, it was a remarkably unstructured company. "Smoke dope, chase women," quipped Gerard.

Gerard soon became frustrated with Bushnell, who was scarcely seen after he and his associate Joe Keenan were paid off. "You can't disappear and walk in six months later and say, 'Let's do this.'" Bushnell felt that Gerard was trying to take his company away from him. They clashed often.

As the Consumer Electronics Show (CES) approached, Atari looked for a release name for Stella. They chose Video Computer System, or VCS.

Fairchild responded by changing the name of their VES to Channel F. Channel F released with twenty-one available cartridges, but graphics were poor and the games were universally detested. One reviewer wrote that the entertainment value in the racing game was like "losing a toe in an industrial accident."

By the end of 1977, Atari had sold 250,000 consoles, fewer than they had hoped. But they had launched with no advertisements, no press. Some of the VCS games were incredibly good, but a few were problematic. Reports were that the chess game, for instance, blanked the screen while it thought about its move—sometimes for hours.

² After paying off the outside investors, the deal stipulated that around 10% of the price was in cash, and the balance in Atari debt. There was also a bonus program, giving engineers 15% of the after-tax profit, but the earlier years had never had much profit and the old guard hardly considered that a perk.

It was no wonder that customers weren't buying—from Atari *or* Fairchild. Not only were the games imperfect, people were still burned out from *PONG*, and were uninterested in dropping another \$200 for yet another toy that would likely be in the closet in six months. Many people still had their five-year-old Magnavox Odyssey consoles—the product that preceded Atari but never quite captured the market's imagination—collecting dust.

Another problem for Atari was that Apple Computer had just been formed to sell a home microcomputer, and even more products were competing for the same geeky dollar. There was Altair's classic computer kit. There were new inexpensive "personal" computers from Commodore and Radio Shack.

After Warner spent more than a hundred million dollars developing the VCS, Bushnell showed up at an executive meeting in New York three weeks before Christmas and announced, "It's over for the VCS. We've saturated the market. Sell off the inventory and let's get out of here. We're going to get killed!" He seemed irrational.

Warner CEO Steve Ross was nervous at the pronouncement. The next morning he called Gerard into his office, who recalled him saying, "Look, the guy I bought this company from just told me I'm fucked. What's going on here?"

Gerard suggested that there was no point in responding until after the holiday numbers were counted. "In twenty-three days we'll know one way or the other. I think it's going to be a hit. If I'm wrong, we're fucked anyway, and if I'm right, we're going to have a very big year."

Were games dead?

By the end of 1978, Atari had sold 550,000 units, clearing out every game on the shelves of every store in the United States. Unhappy with Bushnell, Gerard hired Ray "The Czar" Kassar as president of Atari's new "consumer division."

"Ray," explained Gerard, "brought discipline to the table."

Kassar wanted to go in the direction of Apple and Commodore and sell one- or two-thousand-dollar microcomputers. Bushnell wanted to focus on the few-hundred-dollar console market, and build a better console.

"Guys, we have to do things the way I want, or I'm out of here," announced Bushnell.

"Nolan, you're out of here," Gerard responded.

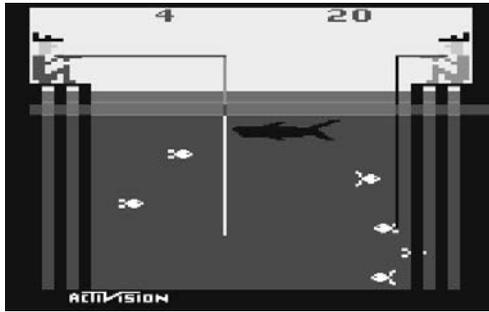
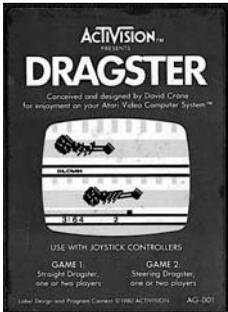
Ray Kassar, in his dark imported three-piece suits and flashing cufflinks, took over as CEO of Atari. Though not much taller than anyone around him, he carried himself regally, his silver hair neatly trimmed and always impeccable. No sooner was Bushnell out the door than massive changes swept over the company. Security was ratcheted up. It was no longer easy to wander around and visit friends in other parts of the campus. There was more internal

paperwork. Discipline and dress codes were enforced. There were layoffs. People who weren't fired were quitting.

Focus shifted away from research and toward marketing and sales. The company created a home computer division and kept employees segregated from the guys in home games. They announced the Atari 400 and Atari 800 personal computers at the January 1979 CES show. The Atari marketing engine made the bold move to advertise the VCS year-round and introduce new games year-round, and not just in the holiday season.

The programmers at Atari didn't like the corporate environment. Word on the street was that Kassar had called them "high-strung prima donnas." More people quit.

Early Activision games.
Left: Dragster. Right:
Fishing Derby.



In the summer of 1979, *Space Invaders* reached America and changed the face of arcades and public videogame consciousness. It was impossible to walk into a pizza place or sub shop without being confronted by the electronic thumping of the game. *Space Invaders* had been released two years earlier by

Taito, an electronics company

in Japan. There, the game was so popular that entire arcades were opened exclusively for it, rumored to have caused a nationwide shortage of "yen" coins until the mint quadrupled the supply.

After that, Atari's coin-op developments accelerated and in August they produced the first arcade game with vector graphics, *Lunar Lander*. Vector graphics were sharper and crisper than the jaggie raster graphics in *Space Invaders*.³

By November 1979, Atari released a second game with vector graphics, *Asteroids*.⁴ It became a major hit and in just a few months dethroned *Space Invaders* as the king of the arcades. In time, Atari sold 56,000 *Asteroids* machines to arcades.

Meanwhile, Atari programmers were hard at work developing dozens of titles that only worked on the VCS. And consumers were buying them. By the end of 1979, only a year after Bushnell left Atari, the VCS was the hottest Christmas gift on the market, with sales of over a million units. Atari negotiated for the exclusive U.S. rights to distribute *Space Invaders* on the VCS; it released in January 1980. Its success catapulted the VCS and Atari into the economic stratosphere. Videogame fever encased America.⁵

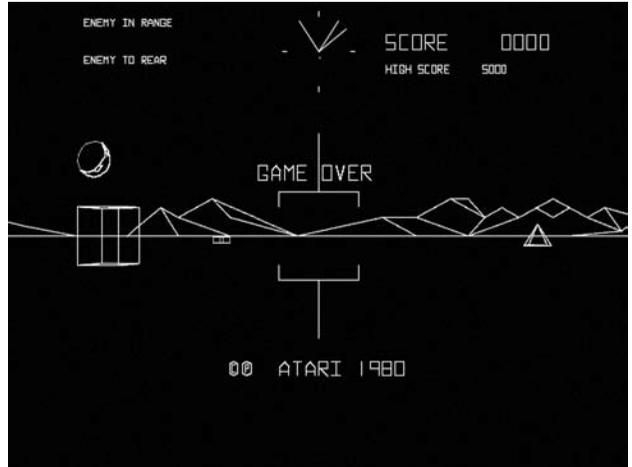
³ Vector graphics harkened back to the original computer game invented in the '60s at MIT, *SpaceWars!*, played at 2AM by computer scientists on industrial strength DEC computers.

⁴ *Lunar Lander* was designed by Jack Burness; programmed by Rich Moore; vector graphics by Howard Delman. *Asteroids* was designed by Lyle Rains; programmed by Ed Logg; sound and vector graphics by Howard Delman.

⁵ Fairchild couldn't compete and quit the business (and soon closed up all operations in California), and the hundreds of thousands of VCS consoles in homes plugged into Atari's new pipeline of games.

At Atari, game designers got little public credit. They received royalties for successful arcade games, but nothing from the home game versions. Four disgruntled programmers left the company and formed Activision, to compete with Atari in developing titles for the VCS platform. They produced some of the first innovative games for the VCS, and proved the system could support more interesting games than Atari itself was creating. Atari sued them, claiming they were violating non-disclosure agreements.⁶

Meanwhile, Atari's arcade group came out with another smash, *Battlezone*, using the vector graphics they were getting good at producing, and providing the first game with 3-D graphics.⁷ It gave the player a point of view over a highly geometric wireframe landscape, very much like a military tank simulator.⁸



Screen from Atari's *Battlezone*, the first videogame with 3-D graphics.

By the end of 1980, Atari had made hundreds of millions in profit, which represented more than a third of Warner Communications' annual income. Many believed Atari to be the fastest growing company in the history of America. The party had begun.

"It was a gusher," reported Gerard. "When Atari popped, it was a gusher. \$345 million in operating income. Unbelievable."

The firehose of cash allowed Atari to develop one of the largest research divisions in Silicon Valley. It acquired Cyan Engineering, the think tank from Grass Valley, California that produced Stella. Cyan had a reputation for creating innovations "from glue and bailing wire." Their productivity was astonishing. When Atari execs flew up to Grass Valley to visit the research team, their plane was met by two guys in jeans with enormous bushy beards.⁹ "They look like the Smith Brothers," Gerard's wife commented, referring to the icons from the cough drop box.

In time, Atari moved everyone to Silicon Valley. They hired Alan Kay, the father of the "personal computer" (from Xerox PARC) to become their chief scientist. Kay was given an unlimited budget to follow two directives: from Gerard, to take risk, and from Kassar, to dream. They had dozens of secret projects.

Alan Kay had expected to be able to do whatever kind of research interested him, usually referred to as "blue sky research," but Atari quickly wanted

⁶ Activision prevailed two years later.

⁷ By Howard Delman, Roger Hector, and Ed Rotberg.

⁸ Around 15,000 were sold. Atari produced a modified version for the U.S. army.

⁹ Steve Mayer and Ron Milner.

more concrete development. Almost from the get-go, there was contention about the scope of their projects. As a result, Kay was often absent from the lab, either spending his time on the road or back at MIT. The lab ebbed and flowed between periods of organization and disorientation.

Manny Gerard was a hero at Warner Brothers; the Atari division propped up the communications giant. But it was swerving out of control.

“From \$75 million, to \$432 million, to a billion-one.... It’s very hard to manage growth that fast,” said Gerard later, “especially when the culture you’re starting out with—and I’m only slightly exaggerating—is a bunch of guys smoking dope.”

Stories of Atari’s opulence were rampant. For instance, at the CES show, Atari served catered meals with thirty-thousand-dollar mounds of chilled shrimp. And whenever Kassar arrived at the Atari campus from the airport, the parking lot was cleared of cars; a helicopter would land, pick up Kassar, and deliver him to a limo that would drive him the few hundred feet to the building’s entrance.

The Atari execs built themselves a hall of expensive office suites that was called “mahogany row.” They ate together in a corporate dining room, with its chef imported from a New York restaurant (rank and file employees never saw the fabled dining room). At a time when Silicon Valley companies were still cubicles and pocket-protectors, Kassar’s Atari was like Hollywood. Lavish. Staggering.

“I say this for myself and for everybody involved—massive success breeds arrogance,” commented Gerard in hindsight. “I don’t give a shit who you are. I don’t care what you say. It just does. That was one of the problems.” During Atari’s explosive growth phase, whenever they had an executive who wasn’t working out, they’d just assign him to something new, something they’d call a “special project.” Eventually there were special projects all over the place.

“At that time,” recalled Atari researcher Doug Crockford, “we were already a deeply sick company, but an extremely successful one. Still, there was no external feedback about how sick we really were. That was the context when we were trying to do this [advanced videogame] research.”

By 1981, the arcade videogame world was reaching a feverpitch—it was impossible for anyone to imagine it continuing, and yet it grew month after month.

Atari released *Tempest*, the original vector display game, with color—a new feature. But all else was eclipsed by a game from Japan, *Pac-Man*. Distributed in the U.S. by Midway, the pinball giant, *Pac-Man* became a

cultural phenomenon. The yellow character, originally called “Puck-Man” from the Japanese *paku-paku* meaning “to eat,” not only dominated in arcades, it was soon found on lunchboxes, board games, and hundreds of other products.¹⁰

Home games were not met with the same obsession as arcade games, but they made money. In spite of poor graphics and controls, the market had grown to just over a billion dollars in 1981 and two billion in 1982. In both years Atari dominated the field, selling more than five million VCS units. Atari now delivered half of Warner’s revenues and two-thirds of its earnings.¹¹ After just a few short years Atari was a brand name with significant value. Some of the billboards in the movie *Blade Runner*, set in 2019, even sported Atari logos.

When Atari licensed *Pac-Man* for release on the VCS and manufactured twelve million cartridges, Wall Street analysts predicted \$200 million in sales.¹² There were only about ten million VCS units in consumers’ homes; Atari had expected that not only would every VCS owner buy the game, but that new consoles would be sold on the strength of the game alone.

But VCS *Pac-Man* had poor graphics, poor sound, and gameplay that was totally unlike the successful arcade original. After the 1981 Christmas season, an impressive seven million cartridges of *Pac-Man* had been sold. But many were returned, joining the unsold millions in a warehouse in Texas. Atari’s reputation as a game leader was tarnished and the company badly needed to follow up with a hit.

Everyone at Atari knew that something was happening in Marin. Manny Gerard and Ray Kassir felt they needed to learn more about the research Lucasfilm was doing. At their request, Bob Greber invited them up to San Rafael.

The Atari brass couldn’t get a tour of ILM (the building was on tight pre-*Jedi* security). About the only thing Greber could show Atari was some of their earlier work with fractals and ray tracing.¹³ “They had their socks blown off” recalled Greber.

As the group toured the offices in C Building, they were met with the most realistic images anyone had ever seen on a computer display. “Those are computer generated?” asked the execs incredulously. “Unbelievable!”

“These guys have terrific technology,” thought Gerard, “and we ought to be in business with them.”

But George was not convinced; he thought it might be a distraction. Greber lobbied for the plan. Games were big money, and it seemed crazy not to get into that action. Ultimately, Lucas conceded, as long as Atari funded the project. By June 1982, Bob Greber announced a deal.

¹⁰ It was followed up with arcade game sequels, *Ms. Pac-Man* in 1981 and *Super Pac-Man* in 1982.

¹¹ At the time, Atari home computers represented 40% of the PC market.

¹² Atari guarded its *Pac-Man* property closely. They sued, and won, against Magnavox for their *Odyssey 2* game called *K.C. Munchkin*. It was a fairly obvious rip-off of their game, albeit one with far more impressive design.

¹³ Scenes from the “Genesis Effect” were just finishing, but were completely off-limits.

“The venture is the first of its kind between a videogame and home computer maker like Atari and a movie company,” reported the *Wall Street Journal*. Other movie studios and game developers quickly followed suit. There was simply too much money to be made to ignore it.¹⁴

Lucasfilm licensed Atari to produce an arcade game of *Raiders of the Lost Ark*.¹⁵ But when it came to home games, the distinctions between arcade games and toys played at home got a little gray.

In the months before *Star Wars* was released in 1977, Fox and Lucasfilm had agreed to an exclusive license with a small toy company, Kenner Products.¹⁶ Their deal was broad, for “toys and games.” It was for a lot of money, and at the time was considered “a precedent-shattering master toy license.” It stood as the principle income-generating deal in Lucasfilm’s pocket—more than from books; more than from lunch boxes.

Kenner interpreted “games” to include board games that could be delivered by sister company Parker Brothers.¹⁷ There was no reason for Lucasfilm to argue. There was probably no better partner than Parker Brothers, owners of some of the most popular board games of all time: Monopoly, Risk, and Clue.

It took time for Parker Brothers to fully realize the value of its deal with Lucasfilm. They had exclusive rights to develop games from the *Star Wars* series, and while they didn’t know much about the relatively new world of video games, they were determined to learn. Parker Brothers quickly released a game called *Empire Strikes Back* (played on the Atari VCS), one of the top ten sellers that year, and a tribute to the intense value of the *Star Wars* brand in the videogame market. They also started work on another game, *Star Wars: Jedi Arena*.

There was concern at Lucasfilm about the overlap of the “toys” rights held by Kenner, “games” rights held Parker Brothers, and the oddly evolving world of videogames—particularly in arcades. Was a videogame a toy? After some assuaging of concerns and a bit of bartering, Parker Brothers relinquished some of their exclusivity, and Atari was given license to produce an arcade version of *Star Wars*.

They rapidly modified the design and graphics of *Battlezone* to represent Luke Skywalker’s point of view out of his X-wing fighter while attacking the Death Star in the climactic scene of the original movie. The vector graphics, though now in color, were similar to the state-of-the-art vector graphics Larry Cuba had used for the simulation of Skywalker’s attack pathway, back in 1977. The sit-down cockpit style of the game and immersive action made it popular. Parker Brothers continued to generate home games for the Atari platforms using the intellectual property from *Star Wars*.

¹⁴ In 2004, the videogame market (software and hardware) was estimated at \$21 billion.

¹⁵ It was released in the fall of 1982.

¹⁶ Kenner was best known as the creator of Play-Doh and Spirograph, but had a hit with their 1975 license of the *Six Million Dollar Man* in the new world of “action figures.”

¹⁷ Parker Brothers was purchased by General Mills in 1968, a few months after General Mills acquired Kenner.

But the games from Parker Brothers and Atari were licensing deals, not entirely different from lunchboxes or posters. Lucasfilm had, after all, some of the greatest computer minds in the world all gathered together in Marin. It seemed natural to the Atari executives to apply that talent to games.

Atari had a letter of intent to fund a \$1+ million Lucasfilm development effort for new and innovative games. These new games would be, according to Greber, “a completely different new type of home entertainment product.”

Ray Kassar was quoted in the *Wall Street Journal*: “Lucasfilm is a highly talented, creative bunch, and they know how to use technology to entertain.” Lucasfilm’s position, as reported by Greber, was that they intended to “dramatically affect the evolution of the electronic entertainment industry.”

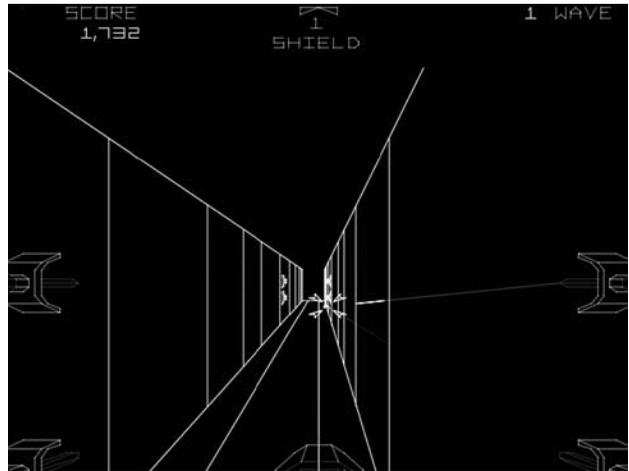
Alan Kay and some of his top Atari researchers, were invited to Lucasfilm to visit the computer labs. “I was really impressed,” recalled Doug Crockford, one of the engineers. “It was the smartest, most focused R&D operation I had ever seen. We were not nearly as well organized.”

All this mutual adoration was wonderful and exciting, except that the brilliant Lucasfilm computer scientists in Bel Marin Keys knew nothing about videogames. It was with a little shock that Greber informed Catmull that he should start putting together a videogame effort within his group.

In the late summer of 1982, Ed Catmull found Peter Langston at a blue-chip Wall Street law firm. Peter had joined the firm as the in-house UNIX guru.¹⁸

Langston was an unlikely member of the legal team. While at Reed College in Portland in the late ’60s, he had been in the folk-rock band Entropy Service. (He had studied chemistry but wasn’t all that interested in it.) After graduation, he stayed in Portland to play with the band, which was fun; they were performing at all the best spots in town.

Unlike most liberal arts colleges in the ’60s, Reed had a computer center. Langston needed a job, and found one managing the center. In the process, he taught himself something about computers. For him it was a short step to begin writing computer games. Within a year he had built a range of unusual games.¹⁹ Most significantly, he created a global simulation “game” he called *Empire*, done with strings of text commands and data in tables.



The Star Wars arcade game from Atari.

¹⁸ Langston was hired at Davis-Polk after one of the partners thought that instead of buying massive IBM mainframes to track casework and organize client information, they should try a new minicomputer.

¹⁹ His creations ranged from intricate simulations of artificial worlds to a dog-fight-in-space game called “Star Dreck,” a parody of the television show.

Empire players controlled variables of population, military, technology, energy, infrastructure and, of course, money. It was a real-time game in which people—usually other computer science students in the lab—managed nations, “kind of like *Risk*,” said Langston. Like the board game, it was played with multiple human players simultaneously. “My approach to programming is intuitive,” said Langston. “I don’t approach game design as a conscious problem.”

The Hackers Dictionary defines “Empire” as “any of a family of military simulations derived from a game written by Peter Langston many years ago. Modern ‘Empire’ is a real-time wargame played over the Internet by up to 120 players. Typical games last from 24 hours (blitz) to a couple of months (long term). The amount of sleep you can get while playing is a function of the rate at which updates occur and the number of co-rulers of your country.”



PETER LANGSTON

Hometown: NYC. **Interests:** playing games, playing music, playing computers, playing art, playing around. **Sign:** multiple Aquarius with a Libra moon; you come here often? **Employment history:** Consumer’s Union; Dance Notation Bureau; Robert Joffrey; Yelping Hill Assoc.; Cheshire Academy kitchen crew; Peter, Paul & Fink; Reed College Computer Center; Portland Zoo Electric Band; National Science Foundation; Puddle City; Evergreen State College; Entropy Service; Smithsonian Astrophysical Observatory; Harvard Science Center; Metropolitan Opry; Davis Polk & Wardwell. In that order.

[1984 LFL Yearbook]

When Entropy Service hit the local glass ceiling, the band decided to move to Boston. Langston secured a UNIX computer account at Harvard University. (In 1974, Harvard was trying to get its university email system working with the new computers as it joined the new-and-growing Internet.) In short time, he developed “Peter’s Post,” the mail server at Harvard, and he continued developing games on the University’s facilities. By then, *Empire* had a life of its own, drifting through academic institutions, all the while getting refined by the people at each lab.

Langston had become a bona fide UNIX genius. His reputation at Harvard helped him get drafted by law firms, first in Boston, then in New York, all trying to get computerized. He always made a condition of his employment that he’d get to spend some time on their computer working on his games. No one ever seemed to mind.

When Catmull found Langston at Davis-Polk, a prestigious Wall Street law firm, he had already heard that Langston was a star. Catmull told Langston that Lucasfilm was starting a new division.

“We want to look at ways of using high tech stuff outside of the film industry,” Catmull told him. “It looks like games are going to be a big part of that.”

Langston went to California to look around. But he enjoyed New York. He really didn’t have to work that hard, he had plenty of time to play music, and the Lucas project sounded like a big undertaking. Ultimately, the romance of working with George Lucas was overshadowed by the romance of being a fun-loving, highly-paid UNIX whiz kid. Langston declined the offer.

“Well, we really think you’re the person,” Catmull said, in the ensuing conversations. “How about this: we’ll fly you back to New York every two weeks. Half a month here, half a month there.”

“Eventually I said yes,” recalled Langston. “Who was I to say no?” So Peter moved to Marin. There was excitement being associated with Lucas. “It was always interesting to go into a video [or] equipment store in Marin and be treated like a kid; and then when they found out you worked for Lucasfilm, they’d want to lend you stuff. George was magic. That was the fun part.”

Peter Langston, with his fluorescent-light-induced pale skin and long brown hair pulled back into a ponytail, was not a typical game developer. *American Film* magazine referred to him as a “jazz” programmer, a guy who just sat at a keyboard and improvised.

Langston understood that Atari wanted a bit of the Lucasfilm magic. “That magic,” he said later, “consisted of two parts: an uncompromising attention to detail (leading to a sense of involvement and realism even in the most unrealistic of situations) and the use of high-tech tools to make possible the creation of formerly impossible sequences and images.”

Langston’s job, as Catmull had described it, involved games, but it was broader than that. George Lucas was interested in “interactive entertainment”; games were really only the smallest part of his fascination with the Atari project—he was curious if there was potential in using those interactive tools for education. He had a fascination as well for the interface between people and machines.

With Atari’s capital, Langston needed to find games developers who weren’t the typical type starting to grow in Silicon Valley. He wanted “boy wonders” in terms of technical ability and who were, in his words, “a little bit visionary.” Because he cared little about being a manager, he wanted a self-motivated team, “I wanted co-workers rather than employees.”

And so Peter Langston set up in a little office upstairs in C Building, down the hall from Alvy and the guys working on high-resolution graphics, above Andy who was trying to build a digital audio signal processor, around the corner and below Ralph who was trying to get the editing system to accurately control a laserdisc player.

Peter Langston arrived at Lucasfilm the same day as Bob Doris. While Langston made himself at home, Doris tagged along with Greber and Faxon, attending discussions relating to the computer group. They handed Doris the letter of intent they had worked out with Atari and asked him to finalize whatever was required. He spent time with Catmull trying to get his head around the projects they were developing, the obstacles they still faced, his realistic impressions of who else might want these devices and when something—*anything*—might be able to generate some revenue.

Within the week, Langston began scouring the hills for the kinds of programmers he needed. Everyone in C Building handed over suggestions of people they had met, or worked with, or gone to school with. He started

discussions with a few prospects and planned to meet others at that fall's Siggraph conference.

Atari proudly announced their new relationship at the Consumer Electronics Show (CES) in Chicago. In the late '60s the CES was where new TV sets and stereo systems were debuted by electronics manufacturers; by 1982, it was going Hollywood. Not only was Lucasfilm entering the game business, but so was Paramount, Fox, and MCA.

Steven Spielberg told the *Hollywood Reporter* that videogames were his favorite form of entertainment. "I play at the end of every day to unwind," he said.

Though videogames were a dominant force at CES, the vibe on videodiscs was strong, both in connection with videogames and as a stand-alone format to deliver entertainment. Philips—which marketed the Magnavox and Sylvania disc players—had a major presence at the show. The *Hollywood Reporter* quoted one industry analyst: "History will show that the five breakthrough developments of 20th century electronics were audio recording, radio, TV, computers, and the videodisc."

The Lucasfilm graphics guys were proud of their contribution to *Star Trek II*, but they didn't have time to develop any presentations about it for the 1982 Siggraph conference in Boston. They did, however, spend time there chatting with an affable guy named David Fox, who was writing a book about computer graphics. *Computer Animation Primer* was going to include a large section on state-of-the-art computer animation, including illustrations from *Star Trek II* and Loren Carpenter's *Vol Libre*.²⁰

David Fox had worked as a counselor, and he deeply believed that games were an interesting way to teach people about themselves. In 1977, David and his wife Annie founded the Marin Computer Center, a non-profit community access space where locals could drop in and learn about the wonders of technology for a few bucks an hour.²¹

As a freelancer, Fox had done game conversions for software publishers. He had also designed one original game, *Mix and Match Muppets*, for Sesame Place, a theme park from the Children's Television Workshop.

When Fox heard through the Marin grapevine that a games group was forming at Lucasfilm, he quickly reached Peter Langston. Fox pointed out that the second half of his soon-to-be-released book included a tutorial for novices on how to make reasonably sophisticated animation on the Atari 800. He had admittedly done only a tiny bit of game design, but he was enthusiastic, accomplished, and clearly self-motivated to work on the Atari platform, expertise Langston would need. And he was local. Peter hired him.

²⁰ The book was published later in 1982.

²¹ Using one of dozens of microcomputers on-site.

On his arrival, Fox settled into C Building offices already filled with teams working on graphics and hardware. He doubled up with Loren Carpenter, a videogame fan who had enjoyed his time with Fox at Siggraph.

Carpenter, who was still reveling over the success of his fractal software that made the *Star Trek* “Genesis Effect” possible, found himself in a lull. He had been working on a refined renderer, a new REYES package, with Rob Cook, but the version needed “massive reworking,” and that was best done by one person alone rather than a team.

Within hours, Loren and David were brainstorming. Loren was interested in how games were built. David immediately immersed himself into the company culture and began wondering aloud if there was overlap between the high-end research and home computers.

“I wish we could have those cool fractal landscapes generated in a game,” Fox said, as the two of them gazed into their respective terminals.

“I don’t see why you can’t,” replied Loren pleasantly.

David looked up. “Because we’re using a 6502 CPU with about 1.79MHz and 48K of RAM. Not a VAX. How would you ever do the math that quickly?”

“I think it could be done, even at pretty low resolutions.” Loren turned and looked out the window. “I wonder what it would look like?”

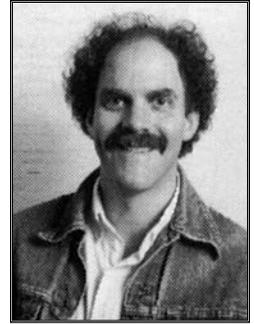
Loren went home and pondered the question for the weekend. When he returned he announced that it struck him as possible. The “3-D” landscape might look a little like cardboard cutouts of mountains, but it could work.

Within days, Loren and David outlined a little game that capitalized on their fractal mountains. David produced a typical Lucasfilm white paper on the game’s development.

“Rebel Rescue,” as he began referring to the idea, was this: “The player is operating a high-speed X-wing-like craft. The object is to fly over rugged terrain while trying to locate a missing Rebel pilot and his downed plane on an enemy-infested planet. The point of view is from the cockpit. To create the sense of moving over the terrain, horizontal fractal lines will be used.”

The new employee had many questions, including whether he could even use the word “rebel” since it sounded like a *Star Wars* term and might result in licensing problems. He asked in one report “I know we can’t use *Star Wars* characters, but can we use *Star Wars* places? Vehicles? Weapons?”

Peter Langston was still searching for new members for his team. A rather interesting candidate came via Tom Duff. While “laundering” himself between NYIT and Lucasfilm, Duff had spent time at a software company called Mark Williams, outside of Chicago. A co-worker, Dave Levine, a serious and often somber engineer, was doing UNIX-like programming but pining for something more interesting. When Duff heard that Langston was searching for game developers, he remembered Levine and gave him a call.



DAVID FOX

Hometown: Los Angeles, but escaped to No. Cal. before permanently damaged.
Family: happily married to Annie, 3½ year old daughter Jessica. *Schools:* UCLA, Cal State Univ. Sonoma. *Interests:* Science-fiction, bike riding, good films, good music, chocolate. *Sign:* Capricorn.
Employment history: 1977 co-founded with Annie the Marin Computer Center, the first public access microcomputer center. Co-authored 3 books, *Pascal Primer*, *Armchair Basic & Computer Animation Primer*. *Other info:* Wants to create an “interactive amusement park” where the rides are convincingly real.
 [1983 LFL Yearbook]



DAVID LEVINE

Hometown: Chicago. *Family:* symbiont. *Schools:* intuition. *Interests:* music making, ice skating, flying, reality control, debauchery. *Sign:* detour. *Employment history:* Itty Bitty Machine Co.; Gimix, Inc.; Mark Williams Co. *Other info:* Taught Yoda everything he knows.

[1983 LFL Yearbook]

Years earlier, Levine had developed a custom frame buffer—probably the first—for high quality black-and-white graphics on the dominant microcomputers of the day: the Altair and the original IBM PS/1. In spite of the various technical odd jobs he held over the following years, his interests remained in computer software and, in particular, simulations.

“I had been writing reactive, interactive things on computers for a few years,” he recalled. The job at Mark Williams—a systems job—was a bit of a fluke. But even there, Levine wrote games for fun, much as Langston had, for the engineers to play on the VAX.

Langston, not particularly interested in the managerial aspects of his job, was hiring slowly and cautiously. He decided to wait and see how David Fox worked out before hiring anyone else. Dave Levine wanted the job, and moved from Chicago to San Francisco in hopes that the bold step would lead somewhere. Still, it took months of persuasion to get Peter to hire him.

By October, Peter finally called. Dave moved into a bed and breakfast in San Rafael called the Panama Hotel, and there he met another engineer—David Salesin—who had just graduated from Brown University’s computer science department and already had a reputation as a gifted mathematician. Salesin would be joining the graphics group as Levine joined games.²²

Langston was trying to build a department with visionaries and academics, purposely avoiding experienced game programmers. “I think I turned away more good people than I should have,” he figured. But the people he was after, solid computer scientists, viewed his projects cautiously.

“It’s funny, often the people I went after—if they had any sort of standing in the computer community—were very nervous about a job associated with the word *games* in it. A number of people who would’ve been great, and I think would’ve really distinguished themselves, were afraid to be involved in something that seemed to be so frivolous.”

It took time for Langston to be able to describe the projects “so it sounded,” as he put it, like “a legitimate enterprise.” The people who were ready to sign on were already a little rebellious. Neither David Fox nor Dave Levine cared about legitimacy—Fox, the idealist, because he had such a positive attitude about everything; and Levine, the iconoclast, because he couldn’t care less about what others thought.

Games and computer graphics were at that time two extremes on a digital continuum. Games started at one end, with the most common, affordable computer hardware available, and then made as good an experience as possible by using the smallest number of computations, the fewest bits. The games programmers were sometimes called “bit hackers,” a derogatory term. Everything on the screen had to be drawn and redrawn in real time. The faster

²² The Panama Hotel had been a brothel in the early part of the century, and retained its quaint funkiness, lush courtyards, and romantic balconies. “We regularly put up visitors and prospective employees there,” said Ralph Guggenheim, “because we liked the non-conformist feel of the place.” It had a bar and good restaurant and quickly became a favorite watering hole and lunch spot for the software teams on Kerner, a few minutes away.

that things could regenerate on the screen (which usually meant poor detail), the more action to the game.

At the other end was high-end computer graphics, realistic looking imagery using the most sophisticated kinds of mathematics, the most powerful computers, and often taking hours or days to generate frames. Alvy Ray Smith and Ed Catmull had what amounted to a solemn blood oath when they formed the graphics group that they'd never let a jaggie out the front door. Videogames were all about jaggies.

"The best graphics to come out of a game," Alvy later said, "were the worst graphics ever to come out of Lucasfilm."

When it didn't seem like another engineer could fit into the offices in C Building, the games guys moved into the spacious rooms in yet another addition to the Lucasfilm campus: E Building, next door. No more doubling up on space, now everyone had his own office. While E Building was only a few feet from where they had been, it was segregated from the rest of the Computer Division. Bob Doris felt the move served a number of practical functions, not the least of which was to keep the projects from distracting each other.

"We didn't want the games guys messing around with computer graphics, and we didn't want the graphics group getting too involved with games," recalled Doris. "It was a big temptation."

E Building was lightly industrial, only slightly modified from when the structure had been part of some sort of retail strip mall. The far end of the building was still filled with the Lucasfilm research library—hundreds of books and magazines that the departments in ILM used to help visualize scenes.²³ The library was scheduled for relocation to the Ranch when it was completed, but for the time being it was at one end of E Building. Games was on the other end.

Once Games was moved into E Building, Atari shipped over some arcade videogames on the back of a flatbed truck. The guys were excited to see Atari's new *Star Wars* game, mimicking the climactic scene from the movie where Luke is racing down the Death Star corridor trying to shoot the vent and blow the thing up.

The Lucasfilm research library in E Building.



²³ When a matte painter wanted to know what the mountains looked like on the west side of the Andes, for example, the librarians could locate a dozen issues of *National Geographic*, or an old mountaineering guide handbook, and deliver them to ILM.

Peter Langston, exploring the details of the Atari service manual, found a setting whereby the game graphics and spaceship speed could be frozen (still allowing for normal targeting and shooting) whenever a certain pair of wires were crossed. While it was difficult to enter this mode (you had to keep getting into the cabinet to reset the jumper on the chip), once it was turned on it was impossible to miss a target or get hit by enemy fire.

Langston ran a wire from deep inside the console to the front panel by the coin slots, and attached a big red videogame button to the front, to access the mode. A week later, someone added a label above the button. It read “The Force.” Flying along at hundreds of miles per hour, if you panicked, you hit The Force and you were on top of the game. Press the button again and you’re back flying. It was a favorite of the employees who came around to play in E Building’s mini-arcade.

No one ever saw Lucas there, but Spielberg frequently came to play. He was next door on the C Building stage, shooting some blue screen elements for *Indiana Jones and the Temple of Doom*. He quickly discovered the *Star Wars* game. In no time he was addicted, and asked that the machine be set up near the stage so he could play it there. When there was any break from the shooting, Spielberg would be hidden in the *Star Wars* cockpit, slamming the fire button, dodging the obstacles, and when all else failed, smashing The Force button.

When *Indiana Jones* wrapped, Steven was apparently disappointed to be leaving the *Star Wars* game behind. No sooner was he back in L.A. than he had someone in his office call over to Atari, asking for his own *Star Wars* game. It was shipped out immediately. Word of ensuing events spread like wildfire throughout the games group: it was late afternoon in Atari’s offices in Sunnyvale when the call from Spielberg came in.

“Where the hell is my Force Button?!”

“What are you talking about?” came the nervous voice on the other end of the line.

“The Force Button! I can’t play without The Force.”

Dave Levine wanted to pursue a game that brought real-world physics to bear upon the players. “I wanted something that players would find fully immersive.” Levine believed that for a game to be great the playing field needed to be level, giving opponents equal equipment and letting it be fought purely on skill. He designed *Ballblazer*.

In his game, two ships are floating above a checkerboard-like field, each trying to throw a sphere (held by a tractor-beam) through a goal. What made *Ballblazer* unique was that both players would have simultaneous first person views of each other. Key to Levine’s vision was that it wasn’t man versus machine, but rather a two-player game.

“Then it becomes a social interaction—the computer is a neutral concurrent medium of interaction between two people. You do not play against the computer or test your skills against a program, but you have an opportunity to play against another person.”

In addition, the universe they played in would have all the physics of the real world, with inertia and mass and friction. “I’ve always wanted to build a device that allowed people to play with invisible forces, such as magnetic fields,” said Levine. No one was sure if the Atari could deliver this experience in real time.

By late fall, everyone was doing a lot hacking around with their projects; Levine was figuring out the physics of his world, and Fox was still developing “Rebel Rescue.” Finally they got some Atari equipment to experiment with. They were supposed to be designing for the VCS, but they all knew a more advanced machine was in the pipeline from Atari, built with the same innards as the Atari 800 home computer.

“It’s the age-old problem,” said Levine. “Design for the platform with the huge installed base and try to push the state of the art, or forge new territory for the more capable new platform but with a small user base and smaller market.”

David Fox grabbed Peter Langston and they wrestled up a spare Atari 800 computer and a couple of ring-bound volumes on programming the 6502 chip. Loren Carpenter went home again. Three days later he came in to the office beaming.

“I want to show you something,” he said to Fox, who pulled his chair over to Loren’s computer. He had done it. He had recreated, in primitive form, the fractal generation of mountains, just as he had done in *Vol Libre*, just as he did as an element in the Genesis Effect, but in real time.

“I was curious to see how much of a fractal I could get out of that thing,” he said. “You needed to be able to fly around, which meant turn and bank, and you needed to be able to pitch up and down and change elevation.” The resolution was pretty poor, but it was better than anything ever seen out of the Atari 800.

“The hard part isn’t necessarily the fractal generation of the surface,” Loren said, “so much as doing the hidden surface work in real time.”

It was remarkable that it could be done at all. Fox pulled Langston and Levine into the office and showed them the real time 3-D mountains that Loren had them flying over.

“Think we have a game?” asked Fox.

“Absolutely.” Langston replied.

The small games group was gaining in their comfort with the Atari, and all agreed that the new, more powerful computer was the platform to use.

Fox knew well the issue of taking games written for one platform and porting them to another platform. It was always a pain. Together they strategized that the holy grail of game design would be to write a game at a very high level of code with no regard for the computer it would eventually be played on, and then plug it in to a magical compiler that would rejigger all the parts and rewrite them to fit whatever game device was required.

The guys spent months wrestling with the idea.

After *Star Wars* there were about a half dozen Lucasfilm employees. By the end of 1982, a majority of the 350 employees were new. Adding the ILM and production staff working on *Jedi* and other films, there were more than 600. With so much frenetic indoor activity, the company worked at getting everyone outdoors. There were maybe nine softball teams that played near the Ranch construction (including the “EEE Wacks,” and the “Force Fielders”). Umpteen volleyball teams.²⁴ Whale watching and river rafting trips. A new thirty-foot sloop, christened “Seawalker,” was purchased; employees could take it out of the harbor at Corte Madera and sail around the Golden Gate Bridge, assuming George or his friends weren’t using it.

²⁴ “I still have my volleyball trophy from the year that we were first,” recalled Langston. “I also have my softball trophy from the team that George and I were on. George played second base and I played first; we never got a double-play but we kept trying.”

²⁵ Where it might have cost around a million to develop a new game.

²⁶ The object was to help E.T. find all the parts of his phone and get home, accomplished by jumping into pits and then, if no FBI agents were around, slowly *slowly* climbing out.

²⁷ Developed by Mystique/American Multiple Images. Mystique released two more X-rated games, *Beat ‘Em, Eat ‘Em* and *Bachelor Party*. They closed operations soon after the release of *Bachelor Party*.

Lucasfilm couldn’t know how deep the problems were at Atari. The company showed unprecedented profits rolling in on their income statement. Sure, there were corresponding expenditures, but it truly appeared that Atari was on top of the world and could do no wrong.

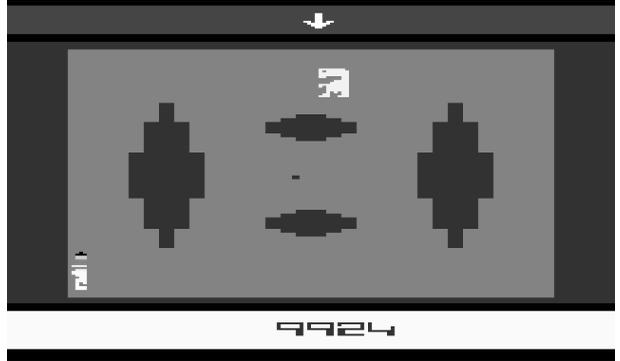
In late summer, Atari managed to buy the rights to *E.T.* from MCA-Universal and Steven Spielberg for \$25 million.²⁵ They planned to release it as a game on the VCS (now renamed the VCS 2600) in time for the Christmas 1982 buying season. The plan was to follow quickly with an arcade version.

But there were major problems with the game, and they weren’t all the game designers’ fault. The VCS 2600 had been engineered to have a lifespan of a year or two, and now it was going on five. Moreover, the programmers had been told to develop and produce the game in about six weeks; much of it was based on code from another game, so all they had to do was rework graphics and gameplay.²⁶ But its graphics were embarrassing. Gameplay was frustrating. In the end, the *E.T.* game on the 2600 was described by many as the *worst videogame of all time*.

If this wasn’t bad enough, Atari was deflecting rage at a third-party 2600 game called *Custer’s Revenge*, which showed General Custer running from arrows and getting points for raping an Indian woman tied to a pole.²⁷ Hundreds picketed at its debut in New York.

And then, to make matters worse, before the end of the year the company was embroiled in a scandal. On December 7, 1982, at 2:41 PM, Ray Kassar sold

5,000 shares of his stock in Warner Communications. At 3:04 Warner Communications made its fourth quarter earnings announcement, revealing to the world the scope of the missed expectations at Atari.²⁸ Warners stock dropped 33 percent in one day. The following week Kassar and another Atari executive found they were under investigation for insider trading. By the end of 1982, Atari had hit the wall; Warner stock was in the toilet.²⁹



Atari's E.T. videogame.

Greber and the senior executives at Lucasfilm were shocked by the news from Atari, but relatively unscathed. "We had a right-of-first refusal deal with them," recalled Greber. If Atari wasn't going to be around to distribute Lucasfilm's games, someone else would.

The home games market, once dominated (and thus standardized) by the Atari 2600 format, was fragmenting rapidly. Atari updated the VCS 2600 and named it the 5200. The 5200 would come out with its own arcade hit of *Galaxian* and the megastar *Pac-Man*. Of course, the success of the VCS 2600, with 70 percent of the market, directly competed with the 5200. Atari's new cartridges were not going to be compatible with the older machines. Atari's biggest new competitor was Atari.

Mattel tossed its hat into the ring by introducing a game unit called Intellivision. A distant second to Atari, they represented 15 percent of the market.

And then Coleco released ColecoVision. Their strategy was based on offering home versions of all the arcade hits they could acquire, including *Donkey Kong*, *Zaxxon*, and *Turbo*.

Already wrestling with more than five million unsold or returned *Pac-Man* cartridges, Atari added *E.T.* cartridges to the pile and arranged to have them all taken to the desert outside of Alamogordo, New Mexico and buried. That spring, fourteen trailer trucks hauled the contraband to a giant landfill pit. To keep people from digging them up, the IRS insisted they pour concrete over the top. Ostensibly destroying "defective product," they buried their problem and moved on to other, more pressing issues.

By the spring of '83, Bob Doris had a pretty good feeling for what was happening in the Computer Division, and one place where he didn't like what was happening was in Games. It just didn't feel like Peter Langston was managing the project. Even though there were games under development, progress was slow and unfocused and it seemed like Peter was at fault. On the other hand,

²⁸ Instead of the 50 percent increase in sales projected, they reported 5 percent.

²⁹ Imagic, a spinout of disgruntled Atari engineers in the vein of Activision, had set up shop in Los Gatos in the summer of 1981. By 1982, they had solid profits on projected \$50 million in sales and were gunning for an IPO (initial public offering). They were in the midst of their IPO roadshow when the Warner announcement hit, virtually eviscerating the golden games market and wiping out interest in their offering.

Peter never wanted to manage the games projects and felt he had made this clear to Ed when he was hired. If things weren't being well managed, well, that was too bad.

By the time Peter hired his third teammate, Charlie “the dragon” Kellner, Bob Doris had taken it upon himself to instill some discipline in the group. They began to have regular project meetings and decided to focus entirely on *Rebel Rescue* and *Ballblazer*, and abandon the dreamy idea of a master game compiler.

“[A master game compiler] was a blue sky notion,” said Bob Doris, “that would have been great if it could have been done. Of course it couldn't be done, and never really has been done.” Dave Levine reluctantly agreed. “It was an idea...but soon we had to give it up.”

For the next few months considerable progress was made on both fronts and the first pair of games took shape.

Charlie Kellner, a sci-fi fanatic, had been one of the early employees at Apple computer. He was known as a brilliant Apple II programmer, and a multi-talented perfectionist. While he was in the education department at Apple, he designed a music synthesizer and wrote a classic bowling videogame for the Apple II. Like Dave Levine, Kellner believed that immersive computer simulations were important, particularly for education.

“After all,” Kellner said, “a physics lab is nothing more than a simulation, and this can be done on a computer.” In 1982, Kellner moved to a new Apple project called the Macintosh, developing the “boot beep,” the famous start-up sound of the Mac, before moving on.

“When I heard that George Lucas was starting a game division...that was it.”

David Fox really enjoyed the fact that *Rescue* was an exciting game that didn't have the typical guns-shooting-at-aliens thing happening. Players were pilots, flying their rescue ship down along the planet to pick up other pilots downed by enemy fire. It was tricky maneuvering, but the Atari 5200 came with an analog joystick that offered 360 degrees of rotation, far better than the up-down-left-right constraints of the digital joystick on the 2600.³⁰

Dave Levine and David Fox were prepared for a visit from George Lucas. George wasn't a game player, but he had an uncanny sense for entertainment and knew the value of a compelling storyline.

Lucas and Levine saw differently on *Ballblazer*. Being deeply into the subplots and storylines of the games, George didn't like the pair of somewhat identical ships—referred to as “rotofoils”—as the characters.

³⁰ The same joystick was also shipped with the Atari 800 computer.

“He wanted some kind of fancified alien craft,” recalled Levine, “that had different personalities. Not unreasonable at all, but for me it was absolutely essential that the game be a virtual sport—with everything identical mechanically—mind against mind, skill against skill. This was my agenda at the time.”

George begrudgingly accepted the young programmer’s wishes, and moved on to visit David Fox. Fox demonstrated the *Rescue* game, flying around, picking up pilots. Lucas was impressed with the graphics the tiny computer was able to generate. After a minute his face registered something amiss. Fox recalls their discussion:

“Where’s the fire button?”

“What?” replied Fox.

“Where’s the fire button?” repeated Lucas. Fox looked at the game and back at George, and pursed his lips.

“Well, there is no fire button. To destroy the enemy, you have to get them to follow close behind you, then you head toward a mountain and swerve at the last second. They’ll then crash into the mountain. In the game, all the guns were removed to make room for more pilots.”

“Is there no shooting because of game play reasons or philosophical reasons?” George asked, turning to David, who looked him in the eye and thought about how to reply.

“Well, um, I guess it’s more philosophical.”

“Great,” replied George. “Put in a fire button. I want to shoot at things.”



David Fox testing his prototype of “Rebel Rescue.”

Lucas made a story suggestion to make the game more interesting: why not have some of the pilots be aliens in disguise. That way, instead of just flying around picking up pilots and avoiding getting shot, there was dramatic tension when a pilot ran up to the ship. If it was an alien you'd have about a second to hit your shield to zap him. David was jazzed and made some notes.

And like most interactions between George and his troops, he was gone almost as quickly as he had arrived.

Langston got to exercise his musical talents on the games, on *Ballblazer* in particular, building on his background in a range of music, from jazz to rock to folk. This was the kind of thing Langston loved. He and Levine agreed that a jazzy score would augment the dynamic game.

“One game reviewer, an eminent jazz player, said the score sounded like John Coltrane did it,” commented Langston. “I think that’s my best compliment so far.”

“Peter’s primary focus is on fun,” commented Levine. “To him fun is serious business. It’s something I always admired about him.”



The games programmers packing in to Millipede while Ed Catmull checks his watch—a comic scene staged for the company yearbook, but not far from a typical event.

In May 1983, Lucasfilm was finishing the release details for *Revenge of the Jedi*. The company was generally dominated by feelings of goodwill and excitement. Over the prior months everyone in the production divisions, in the licensing groups, in the fan club, even in the Skywalker Ranch development group, had been working feverishly to prepare for the final episode of the trilogy. Now that it was almost done, the future of Lucasfilm was bright even if it was still a little vague.

What would happen at the company after the films were done?

Everyone knew that George was looking forward to a break. He'd been working virtually nonstop on the *Star Wars* films since 1975. The Ranch wasn't done so he could refocus his attention on its completion, which would be possible once there was money from the final film.

Even as the *Jedi* company screening and wrap party were being orchestrated from George's office, Bob Doris was orchestrating his own little party. Early prototypes of the first two games were ready to show to the anxious brass at Atari. Ray Kassar (still onboard in spite of securities allegations) and Manny Gerard needed these games to be hot, and Doris was looking forward to displaying the radical work Langston and the boys had generated.

The demonstrations were as good as could be expected of prototype software. Manny Gerard liked *Ballblazer*. "Wow, this is really amazing," he said, playing the two-person point-of-view game. He was less thrilled about *Rebel Rescue*; it was not as exciting a game concept, but it was stylish, the graphics were interesting, and it was certainly innovative.

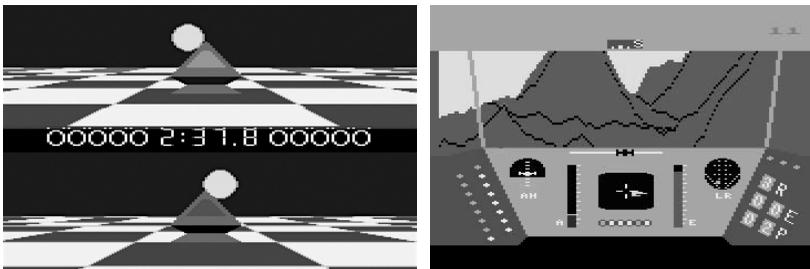
"These are really great!" Gerard announced at the end, and everyone breathed a sigh of relief. The engineers were beaming.

"Well, I came up with some ideas for packaging treatment..." began Bob, when he was interrupted by Manny.

"Whoa, they may have told you. I'm a particular maven with this stuff."

Though Atari was technically responsible for product packaging, the Lucasfilm team took it upon themselves to come up with some ideas they liked. Doris had taken the liberty of having Chris Werner, a production artist at the company, mock up some boxes.³¹ Each was unique, but all were solid white with various forms of embossed lettering.

"I asked George to come look at the options before the meeting," said Doris, "because the worst thing for us would be to show this to Atari and not have had George see it first." George came by for a few minutes, looked things over, and picked one of the white boxes. George didn't have any training in marketing, but he always had confidence in what he liked.



Screen shots of *Ballblazer* (left) and *Rebel Rescue* (right).

³¹ Director of Creative Services at Lucasfilm, beginning in 1982.

Bob Doris lined up the product boxes for the group to look at after the games demonstrations. Gerard, picking up the white box, began to launch into Bob Doris. Doris recalled the events of that meeting with clarity:

“I think this is terrible!” Gerard announced defiantly. “This won’t work. There is no way we can go to market with this sort of stuff.” And in a moment all the other Atari execs chimed in with comparable criticisms, about how it would get smudged and show fingerprints. (According to the lore of consumer marketing, an all-white package is a bad idea.)

“Holy shit,” Doris thought, “what have I gotten myself into...”

“Well, I like it,” said a quiet voice in the back.

No one saw the sleight man in jeans wander into the room and take a position by himself in the corner.

Everyone spun around to see who had crossed swords with Gerard.

“I like it white. I think we ought to use *that* one,” pointing at a box, said the man.

It was George. Gerard looked him over and took a breath.

George continued in his quiet way, “I think it looks better.”

And being the consummate businessman he was, Gerard backpedaled. “Well, *you* know consumer marketing.” Doris and the rest of the Lucasfilm team exhaled quietly, and the festivities returned to their earlier level of ebullience.

For the time being, the box would be white.

This is just a taste of the whole story. For more on games, the development of avatars, RPGs, Maniac Mansion, as well as the true story of the birth of Pixar, you'll want to read all of DROIDMAKER. Available now on Amazon

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THE QUOTATION BIBLIOGRAPHY is online at www.droidmaker.com/biblio.html. The web page is searchable, and contains attributions as well as hyperlinks to web sources, only some of which are included below in the book.

This story was largely gathered from oral histories (predominantly telephone interviews) all of which are listed below. Not listed here are countless follow up emails with most of the subjects. On the following pages are the other bibliographic materials, grouped by topic. The topics overlap slightly, but seem to be a useful and concise way to introduce material to other investigators.

Author Interviews

- Neftali Alvarez, 3/19/04
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