LUCASFILM Ltd & ATARI

Creative partners

by MICHAEL CIRAOLO, Editorial Assistant

On June 6, 1982, Lucas-film Ltd. and Atari, Inc. announced a breathtaking collaboration, joining creative forces to produce home and arcade video games designed by the wizards of Lucasfilm. The stir this announcement created is imaginable, and now, two years later, the first two games are here.

Over a millenium later—you are a player in the greatest championship of all time. You control a rotofoil, a craft capable of reversing thrust at 600 meters per second as you play a soccer-like game. Except that the "ball" is about a half meter in diameter and weighs 1,000 kilograms. Except that the laws of physics belong to a different world, a set of laws that is consistent within the game, but not with your experience.

As you face your screen, the view from your rotofoil is the playing field. You also see your opponent's view, regardless of whether you're playing the computer or another human.

The team of five programmers and artists who brought you this magical sport belong to the Lucasfilm Computer Division Games Group. When they started two years ago, the team set out to create a game that maximized all of an Atari's resources—graphics, sound, hardware. The goal: a game that was fun, challenging, and imaginative. It had to be set in an unusual but realistic world in which real people could interact with their opponents. Finally, it wouldn't need complicated instructions.

"The original concept of the game was to have two (or many) objects attracting in the realistic world, using invisible forces based on realistic models," explains game group leader Peter Langston. "Although they may not be exactly what we experience in our world, the physical laws (in **Ballblazer**) are internally consistent and they make sense. And, as a result, when you play the game, you learn them and it feels good; you can predict what's going to happen in something that you've never tried before."

Langston, whose extensive game-writing background includes experience with the multi-user Unix system, said "The computer should be a medium to connect people together to play games. The real fun comes from playing with other people."

Although a player can choose to play the computer in Ballblazer, the game is primarily designed for two people. Ballblazer forces the player to think about his or her opponent. "It's hard because it's a sport," Langston said.

The realistic nature of Ballblazer rests on its internally consistent physics, its obvious relation to soccer or similar sports, and its familiar music—a fast-paced jazz score. The sound for Ballblazer was produced by Langston, a musician

Model of Rescue on Fractalus game built by Lucasfilm.

with experience arranging and performing jazz, rock and American folk music. "One reviewer, an eminent jazz player, said it sounded like John Coltrane did it. I think that's my best compliment so far."

Ballblazer's design came mostly from David Levine, who studied electronic art and computer science at the University of Illinois' Computer Education Research Laboratory. "I saw games writing as the ideal field that allowed me to experiment with programming, graphics, sound, human interaction with the machines—it encompasses everything. Everything you can do with a computer, you have to do to write a good game. You have to do it well."

Levine conceived of the rotofoil, the playing field and the concept of

the sport. "I've always been fascinated by invisible force fields—electromagnetic—electric and magnetic fields," he commented.

"Everything about the game is based on what graphic resources the Atari offered us," said Langston.

As you sit at the controls of your Valkyrie fighter, you contemplate your mission. You will be flying at speeds up to Mach 7.2 through hostile mountain territory and a poisonous atmosphere above a planet rotating once every nine minutes. You are well armed and well defended. Your mission: rescue comrade pilots stranded on the surface of Fractalus.

Welcome to **Rescue on Fractalus**, the second game from

Lucasfilm. As you play, you're drawn into another world, as captivating and real as Luke Skywalker's final assault on the Death Star in *Star Wars*—except that this time, you're not watching a movie. You're in the middle of a Lucas film. The ever-changing graphics take you to another world, and your mission, which demands empathy and compassion, forces you into a new universe.

Play starts on level one and increases to a possible level 99, although even its creators haven't gotten beyond level 28, and don't think it's possible to approach 99. The longer you play—and the better you get—the more the game changes: higher levels contain higher risks and greater challenges.

Rescue on Fractalus is the brainchild of David Fox, whose experience includes extensive animation work on Ataris and writing several programming books.

One of Fox's goals in designing the game was to create "a credible, alternate universe."

Rescue's realism comes in part from the ever changing mountainous terrain the player must fly through. Extremely lifelike, the graphics were the idea of Loren Carpenter, the Lucasfilm guru of computer graphics whose credits include sequences in *Star Trek* and *Return of the Jedi*.

Carpenter, not actually a member of the games group, brought the team the concept of using fractal geometry to create realistic mountains.

"Fractal shapes have a nice characteristic that, when you look at them closer up, they look very similar to the fractal shape at a distance. If you look at a little patch of the sky, you see it dotted with stars. If you take a little area of that and blow it up, you see something that looks very similar. It's called self-replicating," explained Langston.

The games team found fractals particularly useful, because instead of describing every terrain detail, fractal programming would fill in

any specified range with an interesting, natural-looking shape. The mountains look natural, but never identical—the programming can generate a total of 256 to the 256th power different scenes.

When a player crashes into one of these scenes, the game sounds a dirge. If a player completes a level, he or she receives a musical fanfare. The music for Rescue was composed primarily by Charlie Kellner, whose programming accomplishments include the Alpha Syntauri sound synthesizer. "Most of the time, I knew what I wanted to make it sound like. It was a matter of finding the right combination of sound effects with the machine (the Atari sound registers)," said Kellner, who brought to the group four and a half years experience with Apple computers and the 6502 processor, the same processor at the heart of the Atari.
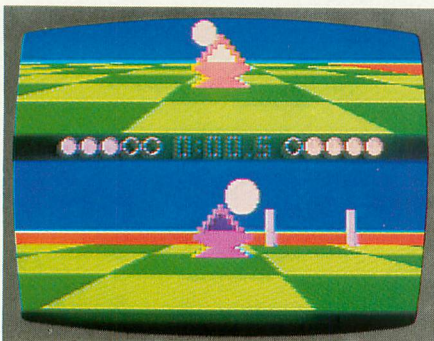
Sample screen from Ballblazer.

Two years ago, Lucasfilm hired Langston with an open charter— do something interesting in the games industry. By that time, Langston already had a reputation for developing games on the Unix system.

"I started hiring people who struck me as individuals who would go beyond what's already been done and who would have interesting, new ideas. And, in the process, we started looking at the industry and came up with all kinds of things we thought were being done wrong and should be done better," Langston said.

"When I hired these people, I didn't look for a particular quality. I looked for people who were real excited about what they were doing and had some certain thing that stood out—some view of the world that was different," said Langston. "I think that's the kind of

Lucasfilm's game programmers (left to right) Charlie Kellner, David Levine (seated), Peter Langston, David Fox, Loren Carpenter (of the Graphics Department) and Gary Winnick.

thing you can develop and go with; people will take a chance on educating you to the specifics of a particular job, because what they want is your creative excitement. If you learn to show that, then people will want to make you fit into what they're doing.

In putting together his team, Langston hired programmers (Fox, Levine, and Kellner). But the team included two musicians—Langston and Kellner—and one artist. This final team member was Gary Winnick, originally a commercial artist. Winnick worked at Atari before joining the Lucasfilm team and had a background in film animation, graphic arts and pixel art.

Langston's team decided to develop a couple of "throwaway" games— games taken through all the steps to help teach the team how to produce a video game. Prior to the design of those two throwaways—Ballblazer and Rescue on Fractalus—no one on the team had ever produced a video game.

"We made conscious design decisions to include or exclude things, and the fact that something seemed impossible to do was never a design criteria over and above wanting to do it, because everything seems impossible to do," Langston explained.

"Some of the things we did were things people told us were impossible. One of them was point-of-view games," said Langston. "We said, 'What do you mean, point-of-view games don't work?' We said that these games do work— they're the way we conduct our lives," said Langston.

Clearly, nothing's impossible. It takes the right combination of experience, imagination and art. Lucasfilm team

members offered some insights into their trade and the talents a computer artist must have to rise to the top—say, a position in Lucasfilm.

For anyone interested in making an excellent contribution to a field, "You have to be very familiar with what has
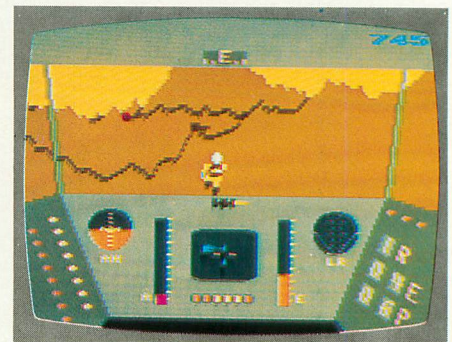
Sample screen from Rescue on Fractalus.

already been done, or you end up re-inventing the wheel," suggested Kellner.

"Find out what your abilities are— what you do well and what you enjoy doing. Then polish and perfect it," counseled Fox.

"Then, learn how to communicate back to a computer, using the methods of technology," added Levine, "because you have to be able to teach the computer what you do so well. There is an attention to detail in our games—quality —perfectionism."

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