JoyStik ®

HOW TO WIN AT HOME, COMPUTER & ARCADE GAMES

WINNING STRATEGIES FOR DRAGON'S LAIR

EXPERT'S TIPS ON JOUST

BEATING BUMP 'N' JUMP

A few months ago, a new Atari 2600 cartridge (Texas Chainsaw Massacre from Wizard Video Games) arrived at our offices for review. Phrases on the cartridge box like "Let your most wicked fantasies go wild!" and "Know the total pleasures of destruction" aroused my curiosity. Although I don't like the idea of a game selling itself on violence alone (or violence at all, for that matter), I do like intense action games, and decided to give Texas Chainsaw Massacre an objective try.

I was disappointed. The movie Texas Chainsaw Massacre is very intense, but the game is lifeless. It's a little like Frogger, but without the entertaining background music (the best part of Frogger), and I gave it one star out of a possible five in the Home Front section of this issue. The game is very violent symbolically, with Leatherface and his chainsaw making a bloody mess out of anyone that happens by, but it certainly doesn't have the so-called "violent" appeal of games like Asteroids, Berzerk, and Defender. You just watch various objects move across the screen and occasionally hit the fire button; Texas Chainsaw Massacre (the video game) is, in a word, boring.
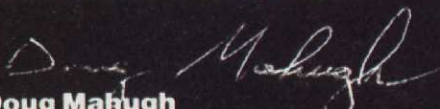
So what went wrong? Why doesn't this exciting (albeit offensive) theme make an exciting video game? Well, it seems to me that the makers of Texas Chainsaw Massacre made a mistake when they assumed that vicarious violence is an integral part of the thrill of video games. (Sure, anti-game fanatics have been saying that for years, but I didn't think anyone had been listening to them.)

The ability to control what you see on the screen is the real thrill of playing video games. This is why interactive laser disk games have been creating so much excitement lately— they give the player control over detailed animation and imagery unlike anything that has appeared on game screens before. (It doesn't even matter very much what the imagery is—Dragon's Lair, for example, is a cartoon that most players would be embarrassed to admit they watch.) The appeal of a good game, then, isn't the result of vicarious or imaginary feelings—a good game is fun because of the *real* feeling of control that it gives you. Texas Chainsaw Massacre didn't give me that feeling at all.
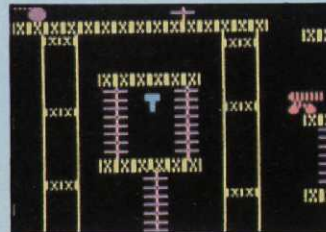
Doug Mahugh
Managing Editor

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STRATEGY REVIEW

In your July 1983 issue you say you can get any back issues of JoyStik® for $2.95 plus 75 cents postage per copy. Can you please send me a list of the issues that contain information on playing Q*bert and Pac-Man?

Sammie Bankhead
Temple, TX

We get many requests about strategy articles in previous issues, so we've compiled the following list of coin-op game strategy articles for readers interested in ordering back issues. The articles marked with an asterisk (*) are Winning Edge articles.

Centipede (Jan. '83*)
Defender (Sept. '82, Nov. '82*)
Dig Dug (Nov. '82, Sept. '83)
Donkey Kong (Nov. '82)
Donkey Kong, Jr. (Jan. '83)
Food Fight (Sept. '83)
Galaga (Apr. '83)
Joust (Jan. '83)
Ms. Pac-Man (July '83*)
Omega Race (Sept. '82)
Pac-Man (Sept. '82*, Apr. '83)
Pengo (Apr. '83)
Phoenix (Sept. '82)
Pole Position (July '83)
Popeye (July '83)
Q*bert (Apr. '83)
Qix (Nov. '82)
Reactor (Nov. '82)
Robotron (Sept. '82)
Sinistar (Sept. '83)
Star Trek (July '83)
Tempest (Sept. '82*, Apr. '83)
Tron (Jan. '83)
Tutankham (Nov. '82)
Xevious (July '83)
Zaxxon (Sept. '82)

If you're interested in even more strategies for currently popular arcade games, pick up a copy of How to Win Arcade Video Games *by the Editors of JoyStik® Magazine at your local bookstore. It contains detailed strategies and difficulty settings for Dig Dug, Donkey Kong, Jr., Galaga, Joust, Ms. Pac-Man, Q*bert, Robotron, Sinistar, Tron, Xevious, Food Fight, Front Line, Pole Position, Popeye, Time Pilot, Zaxxon, and Zookeeper.* How to Win Arcade Video Games *is also available directly from us for $2.95 (plus 75 cents postage and handling).*

SHARP EYES

You have a great publication with great artwork, upcoming game news, and strategy tips that have increased some of my scores tremendously. Keep up the great work!

While I was reading your article "Playing to Win at the Sequel Game" in the July 1983 issue, I noticed that the power pills in the Pac-Man/Ms. Pac-Man layout were missing and the dots surrounding them are not eaten. How is this possible? I am a serious gamer and have poured many tokens into Pac-Man and Ms. Pac-Man, but have never been able to accomplish this feat.

Steve Spatucci
Mt. Laurel, NJ

Well, Steve, we can't tell you how to get the energizers without eating any of the surrounding dots, but we can tell you how to take a picture that makes it look
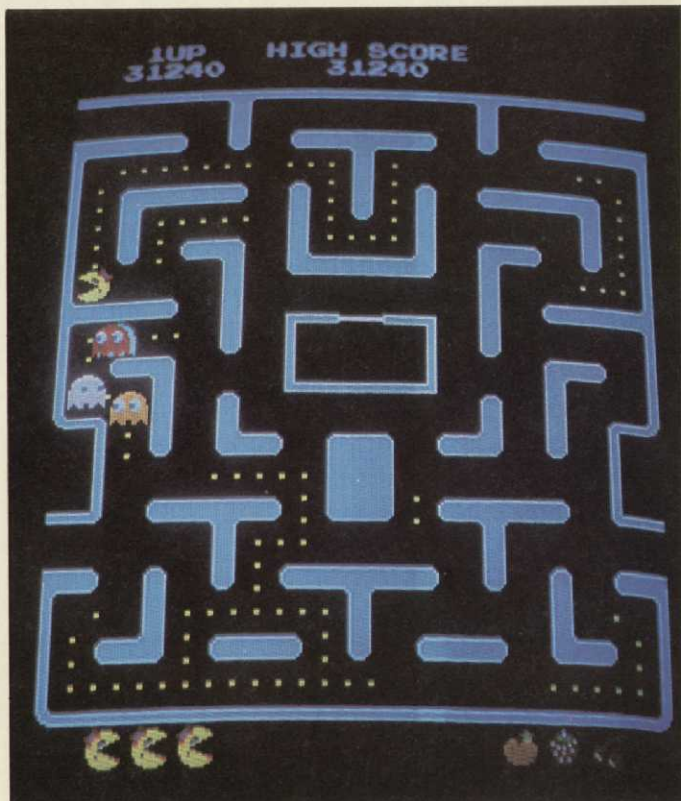
What happened to the energizers?
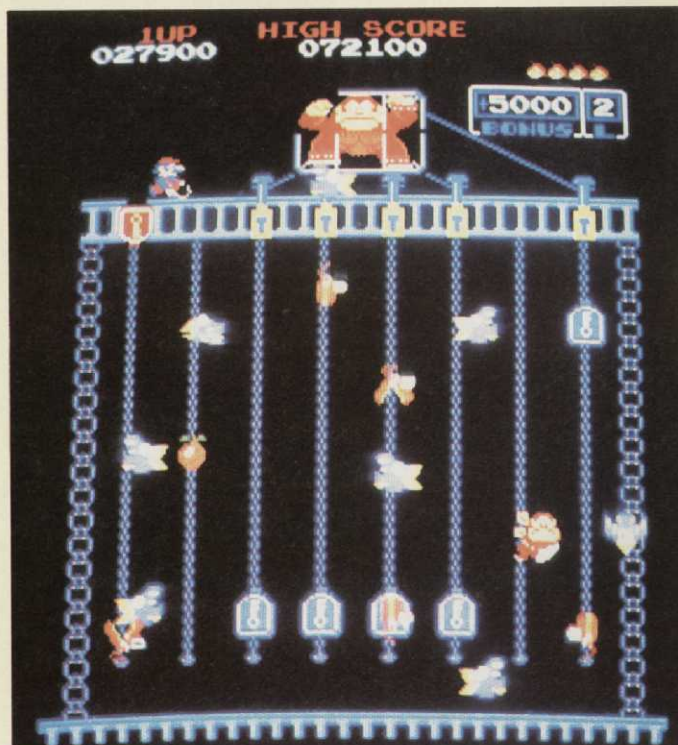
A Nitpicker flying below the chains.

Which player is snatching victory from the jaws of defeat?

Find out fast. Jungle Hunt is so much like the arcade, you can't go in green. Like the player on the left. He'll get snapped up by the crocodile with the wide open mouth. But get the croc with the partly open mouth and score 200 points, like the player on the right.

Only Atari makes Jungle Hunt for use with the ATARI® 2600™ Game, Sears Video Arcade† systems, and a version exclusively for the ATARI 5200™ SuperSystem.

So explore the stores for Jungle Hunt. And learn it like a native.

Here comes Jungle Hunt* from Atari.

A Warner Communications Company

like you did. Since the energizers are constantly flashing on and off, just take your picture during the fraction of a second when the energizers have disappeared (like we did). We're surprised at the number of readers that noticed this effect. Good game players (i.e., JoyStik® readers) seem to be just as observant when they read as they are when they play.

DONKEY KONG, JR.
In your Donkey Kong, Jr. article (Jan. '83 issue), you neglected to mention that on the second and following chains, the Nitpickers fly all the way below the chains. Also, on the leftmost chains, if you avoid the apple and then start to push the next two keys up (about to the apple), two to four Snapjaws will go down the chain with the apple. Then simply drop the apple. This makes it much easier to finish the board.

Robert Springer
Greeley, CO

Thanks for the tips, Robert.

RAIDERS TIPS
I'd like to make a few comments about Rob Leachman's article on Raiders of the Lost Ark in the July 1983 edition of JoyStik®. First of all, every photo in it was backwards. Second, upon entering the Temple Treasure Room, you can always get the Ankh by waiting until the watch is at 6 o'clock, 5 to noon, or 5 past noon before taking the money bag.

Getting to the Black Market is easy. Give the Chai to

the Black Sheik in the Marketplace, and you will be transported to the Black Market in front of the raving lunatic. Drop a money bag next to the lunatic and you can pass.

Also, the Capstone is really just a pile of dirt, not real stone, which is why it's brown and you can dig down through it. For more information, you can obtain a free illustrated step-by-step pamphlet describing exactly what to do from Atari by calling their Customer Service Center's toll-free number at 800-538-8543 (800-672-1404 in California) during business hours.

G.P. Thomas
Ypsilanti, MI

Thanks for the strategy tips. You're right about the backwards pictures, and we apologize for the error.

POLE POSITION
In your July 1983 issue, the tips you gave for Pole Position are great. One thing, though, is that when you're about to go around that very sharp turn, take your car close to the left side unless there is a car already there. Stay in high gear, get a good grip on the steering wheel, and spin the wheel to the left as fast as possible. You will skid, but you should make it around the turn. Since I learned this strategy I have been able to get Pole Position every time.

Chris Evans
Bethlehem, GA

Although your approach will work, there are other

ways to handle the hairpin turn (fourth turn) that are more efficient. One is to stay to the right, at top speed, and then turn all the way to the left so that you slide across the track and come out of the turn on the left side. This approach is very quick, but it won't work if other cars are coming through the turn with you. A safer approach is to drive off the left side of the track just before the turn and then slide back onto the track as you come out of the turn. This way you avoid the other cars completely and only need enough clear space to slide back onto the track. Regardless of how you play it, the hairpin turn is definitely the most crucial part of each lap.

MR. DO!
I am very interested in the game Mr. Do! and would like to see some strategies for that game.

Andy Page
Charles City, IA

You've got it—next issue, we'll be including two pages of Eric Ginner's Mr. Do! strategies. Until then, avoid falling letters and eat all your cherries.

BUCK ROGERS, ASTRON BELT AND DRAGON'S LAIR
In your April 1983 issue, I

saw a picture of Buck Rogers battling treaded robots in the trench scene. I have got 73,000 on Buck and I wonder how far you have to go to reach them.

Also, when will Astron Belt go into the arcades? I have seen pictures of it and I am hoping it will be out soon. On a news program on TV, I saw a game like Astron Belt but it was animated. It was called Dragon's Lair, and I was wondering when it will be out.

Andrew Laird
Radnor, PA

The order of the screens in Buck Rogers was changed after the 1982 AMOA show (where we took the picture you mentioned). So, although the tread robots will eventually appear in the trench scene, it happens at a much later point in the production game than in the AMOA version.

Astron Belt has already been released in Europe and Asia, but it was only out at test locations in the U.S. when this issue went to press. Dragon's Lair, on the other hand, is already out and is featured in a 6-page article beginning on page 32 of this issue.

NEW WAVES

Prostick 2002

THE PROSTICK

Newport Controls introduces Prostick 2002, a direct replacement for TI 99/4 and 99/4A Home Computers, with an interface unit included. The joystick is equipped with four-way and eight-way switchable controls and two fire buttons. Suggested retail price is $29.95.

MOVE OVER, MICKEY

The irrepressible Pac-Man and Ms. Pac-Man characters have found time for another product spin-off. Pac-Man Watch Sales of Florida has introduced watches and clocks featuring fully animated graphics in the same color schemes as the video games themselves. The minute and second hands traditionally found on timepieces have been replaced with gobbling jaws, gulping down the ghosts and power pills scattered about the dial. The products are marketed in the U.S. by Executive Sales Associates.

SCORING

Finally, from an outfit in New Jersey comes a solution to the pesky problem of keeping track of all those high scores you amass in the arcades and at home. The Video Gamesman Scorebooks come in two sizes, one designed to fit in your pocket and the other to sit on a coffee table, in close proximity to your game console. Besides allocating spots for your scores, Dad's scores and Mom's scores, the home version also includes a set of Video Game Wiz Kid of the Week certificates. Information is available from Video Gamesman, P.O. Box 9120, Morristown, NJ 07960.

Video luggage

VIDEO TO GO

Pack up your troubles, and your Atari 5200, and head for places unknown with the new carrying case designed by Southern Case, Inc. of Raleigh, NC. The storage and travel unit holds a console, nine game cartridges, AC power adapter, and a TV switch box and is the size of a portable typewriter. Suggested retail price is $29.95.

Southern Case also has models to hold Atari 2600, Hewlett Packard, Timex/Sinclair, Commodore 64 and Commodore VIC-20 systems.

BASEBALL VIDEO

A line drive single and another run scores. The crowd cheers. It's Champion Baseball from SEGA Electronics, and it's as American as—Japan?

Thousands upon thousands of these arcade games have been shipped to Japan, and it was this phenomenal success of the American pastime overseas that led to SEGA's decision to market the game at home as well.

SEGA claims their Champion Baseball game "has created nationwide excitement not seen since the Space Invaders craze of several years ago."

The game can be played by one or two players, and features isolated close-ups, pinch hitters and relief pitchers. Players will be able to do everything that happens in a real baseball game. Is there a free agent button?

Q*BERTOONS

The unique Q*bert character has leaped out of the arcades and into Saturday morning children's television. The Ruby Spears-produced series, "Saturday Supercade," airs on CBS. Starring in the series are Mylstar Electronic's Q*bert and a gaggle of friends including Q*ball (voted most likely to create trouble), Q*tee (the star's honey), Q*bit (his little brother), and the totally awesome Q*val. The show runs on Saturdays at 8:30 a.m. EST.

INTRODUCING MYLSTAR

D. Gottlieb & Co., the coin-op manufacturer who brought you Q*Bert, has changed its name to Mylstar Electronics, Inc. According to the company's president, Boyd M. Browne, the name change reflects "plans to grow in the coin-operated field as well as . . . other high-technology segments of the entertainment industry."

ATARI UNVEILS ARABIAN

Taking you back in time is Atari's latest adventure coin-op video game: Arabian.

You take on the role of a prince, who must complete four different levels (or "pages," as Atari calls them), each offering different challenges. Your goal: to rescue the lovely princess held captive in a castle tower.

On page one, you must climb to the crow's nest at the top of a ship. On page two, you're on the shore, and must crawl through a cave. On page three, you're at the gates of the castle and get to the top via flying carpets. On page four, your final level, the princess calls to you from her lonely perch. Flying carpets and ropes are your devices for getting to her. All levels feature dandy opponents: Roc Birds dive at you, Oscars chase you, and Genies throw snowballs (snowballs?) at you. You are awarded bonus points for collecting brass jugs spelling out the word ARABIAN.

Which player is about to hit the jackpot?

Think quick. This two-fisted Kangaroo is a ringer for the one in the arcade. So don't pull your punches. Like the player on the right. He'll only score 100 points for punching a <u>thrown</u> apple. But the player on the left will score twice as many for punching a <u>falling</u> apple.

Only Atari makes Kangaroo for the ATARI® 2600™ Game, Sears Video Arcade† systems, and a version exclusively for the ATARI 5200™ SuperSystem.

So get Kangaroo. It's a knockout.

Here comes Kangaroo* from Atari.
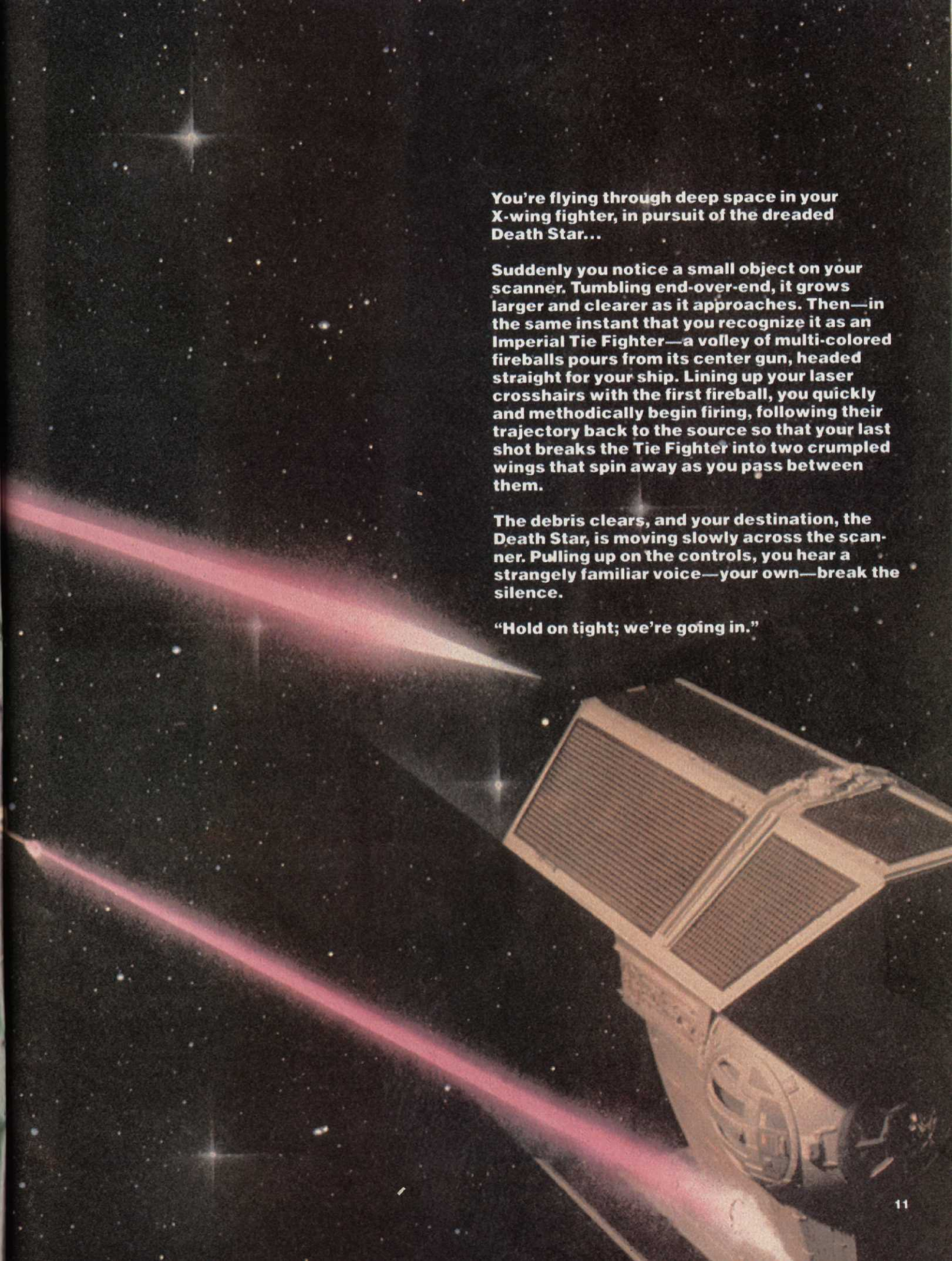
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STAR WARS

THE ARCADE GAME
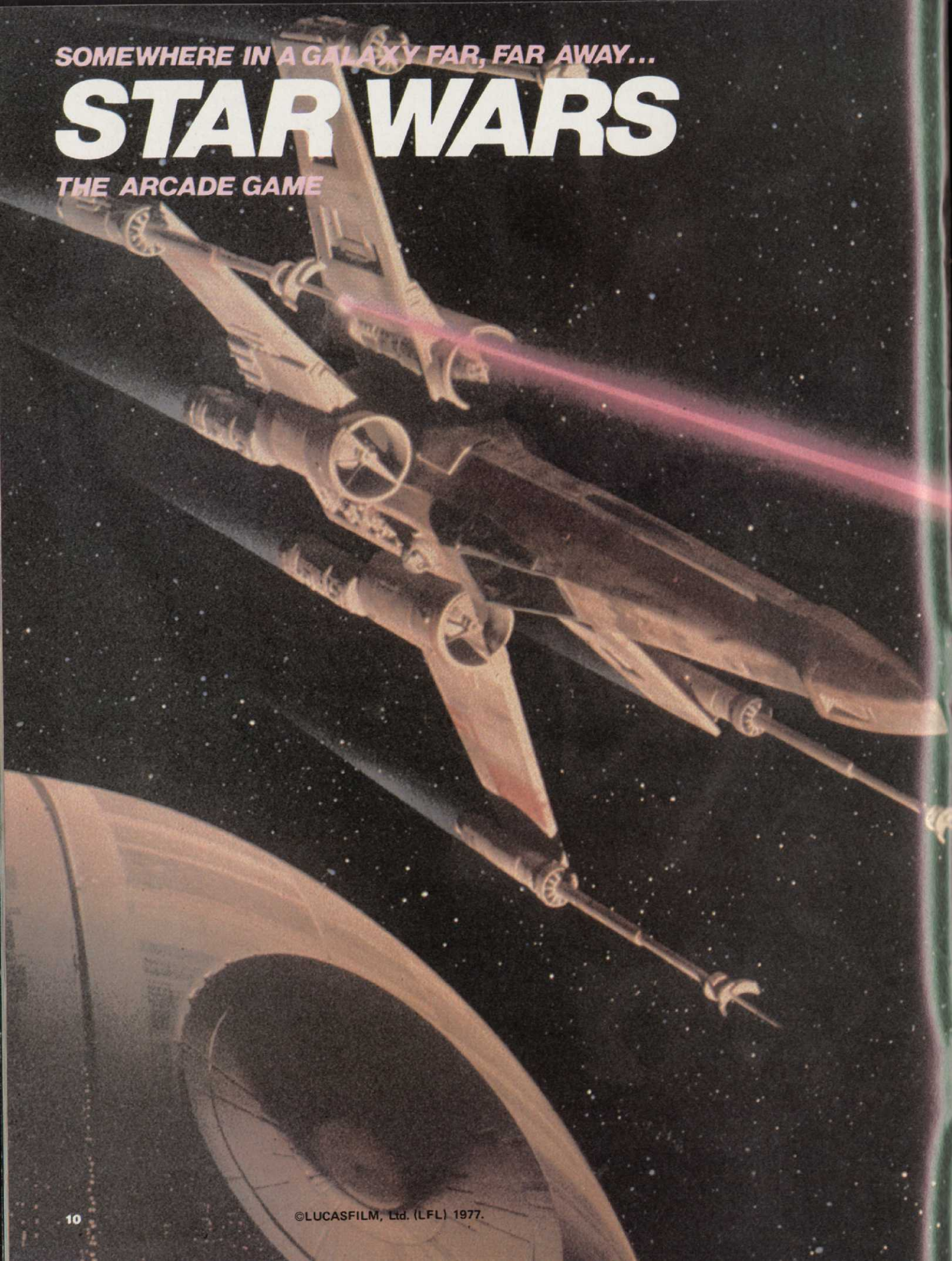
You're flying through deep space in your X-wing fighter, in pursuit of the dreaded Death Star...

Suddenly you notice a small object on your scanner. Tumbling end-over-end, it grows larger and clearer as it approaches. Then—in the same instant that you recognize it as an Imperial Tie Fighter—a volley of multi-colored fireballs pours from its center gun, headed straight for your ship. Lining up your laser crosshairs with the first fireball, you quickly and methodically begin firing, following their trajectory back to the source so that your last shot breaks the Tie Fighter into two crumpled wings that spin away as you pass between them.

The debris clears, and your destination, the Death Star, is moving slowly across the scanner. Pulling up on the controls, you hear a strangely familiar voice—your own—break the silence.

"Hold on tight; we're going in."

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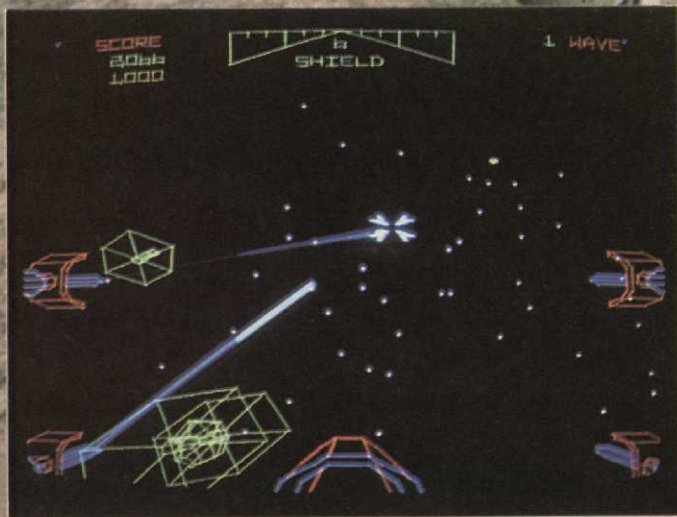
Battling Wave 1 Tie Fighters in deep space.
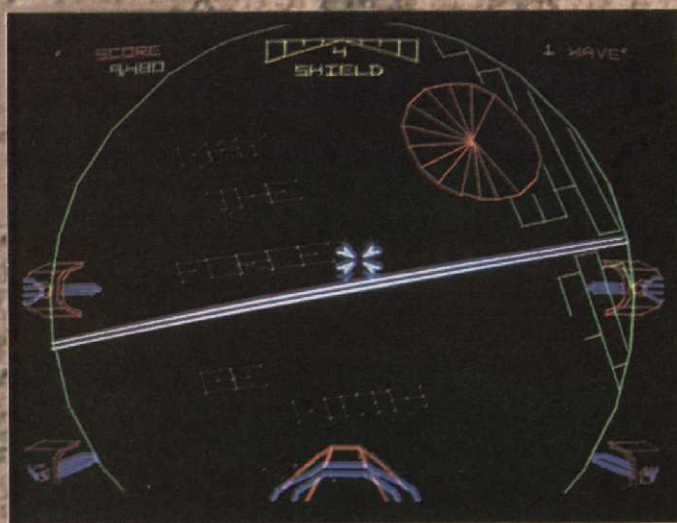
A close-up view of the Death Star, while "going in."
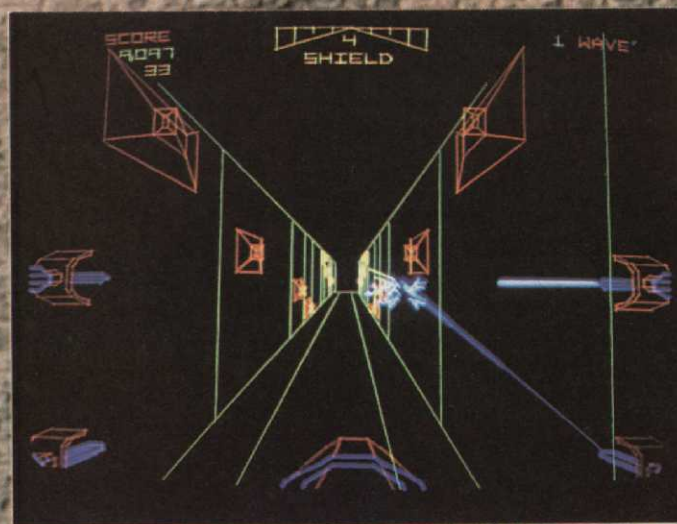
Watch for the reactor's exhaust port in the trench.

It's interesting to compare Atari's Star Wars to Sega's Star Trek. Both games are based on famous space adventure movies. Both games feature true three-dimensional perspective and eight-color vector graphics. But there the similarities end. Sega tried to produce a strategy game, with multiple screens and subtle interplay between game elements. Atari, on the other hand, went for pure entertainment; from Obi-Wan Kenobi's "use the force, Luke" to the spectacular explosion of the Death Star, Star Wars is non-stop action and fun.

You play the part of Luke Skywalker at the controls of an X-wing fighter. The screen represents a view forward from your ship, and two handgrip controls are used to move a crosshair around the screen. (Note that the controls don't actually determine your path through space—they just position your crosshairs.) Squeeze triggers on either handle fire a laser blast through the position of the crosshairs, so opponents are destroyed by positioning the crosshairs over them and squeezing the trigger.

You start the game with six shield units. One shield unit is lost each time you run into something (e.g., Tie Fighters, fireballs, Darth Vader's ship, etc.). When all of your shield units have been lost, the game is over. You can tell when you lose a shield unit by a white flash that lightens everything on the screen momentarily.

There are three areas across the top of the screen that show you what is going on in the game. The leftmost area displays your score, the center area tells how many shield units you have left, and the rightmost area tells which wave you are currently on. Also, just below your score, the value of the last object to be destroyed is displayed. At the start of the game, you'll find yourself flying

through space battling Tie Fighters. Tie Fighters can shoot fireballs at you, but you can destroy the fireballs with your laser guns. It is best, however, to try to destroy Tie Fighters while they are still small and far away, before they get a chance to shoot fireballs.

After you have battled the Tie Fighters for a certain length of time, the Death Star will appear. It is a large yellow disc with a white band (the trench) through the center and a small red circle on one

floor of the trench, but you must battle fireballs (fired from square targets on the walls) until you reach the exhaust port. The exhaust port is your most important target in the trench, because you must hit it—thereby destroying the Death Star— before you can return to space to battle the next wave of Tie Fighters.

Along the walls of the trench, there are two types of targets: green squares and red squares. Green squares are harmless, but red squares shoot fireballs at your ship. Like the Tie Fighters, red squares should be destroyed as soon as you spot them, before they begin shooting fireballs.

Wave 2 Tie Fighters, with the Death Star in the distance.

Destroying a bunker on the surface of the Death Star.
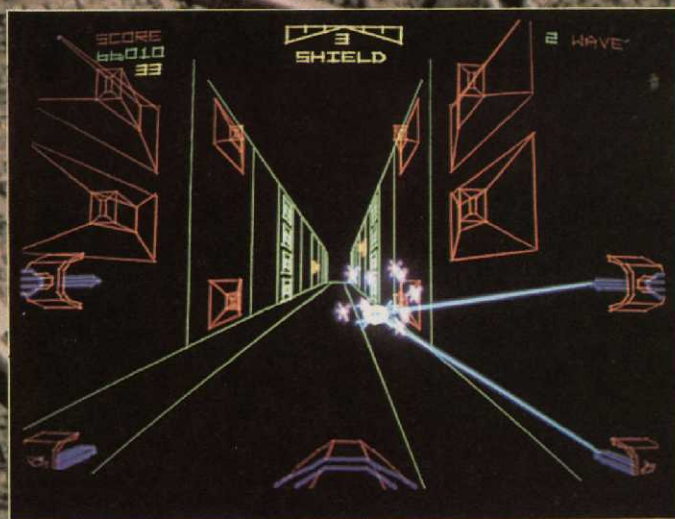
Approaching the exhaust port. Note the green targets ahead.

side. A voice will warn that you're "going in," and then your X-wing will dive down to the surface of the Death Star.

On wave 1, your ship immediately appears in the trench after diving to the Death Star. (On higher waves, you must first fly across the surface of the Death Star, as described below.) It is impossible to run into the walls or the

Long rows of green squares appear at the bottom of the trench walls just before the exhaust port appears. When you see these squares, get ready to fire

Destroy Wave 3 Tie Fighters as quickly as possible.

Watch for the Death Star, but don't let it distract you.

Stop the fireballs early, and you won't have this problem.

your guns through the exhaust port: push the controls full forward, center the crosshairs, and fire rapidly. If for some reason you miss the port, your ship will hit the wall directly behind it, costing you one shield unit. You will then be returned to the beginning of the trench to try again.

When the Death Star has been destroyed, a wave has been cleared and you will reappear in space, facing the next wave of Tie Fighters. Bonus points are awarded for the destruction of the Death Star, and 5000 points are awarded for each remaining shield unit. You will also receive one extra shield unit, providing that the maximum of six is not already in storage. (The maximum number of shields can be adjusted by the operator from 1 to 9, but 6 is the factory setting.)

Wave 2 Tie Fighters are more aggressive than those in wave 1; there are more of them, and they shoot more fireballs. After coming in from space in wave 2, you must skim the surface of the Death Star, shooting red bunkers. These bunkers will also shoot fireballs, so shoot them as soon as possible. After the bunkers comes the trench scene, and then every wave after wave 2 will have this same Space/Bunkers/Trench progression.

Once in the wave 2 trench, you'll notice another change. There are now catwalks across the top and bottom of the trench. You can—and must—fly under the top catwalks, and you must pull back up on the con-

trols to pass over the lower ones. Hitting a catwalk costs you one shield unit, and although sometimes you can crash through two catwalks in quick succession and only lose one shield, it's still better to weave up and down to avoid them.

In wave 3, the Tie Fighters tend to fire long, continuous streams of shots. If necessary, ignore trying to shoot the fighters and concentrate instead on shooting their fireballs. This will protect your shields, although you'll score much lower than if you shoot the Tie Fighters.

Beginning with wave 3, there are tall yellow towers with white tops among the bunkers on the surface of the Death Star. A 50,000 point bonus is awarded if you can shoot all of the white tops off the towers, so the tops of the towers are worthwhile targets. Shooting at the tops of the towers takes you above the level of the bunkers, however, so be careful of fireballs.

An important point to remember here is that before reaching the trench you will pass through the same set of towers several times. Therefore, you can blow the tops off a few towers each time through, remember which ones you missed, and plan on hitting some of those the next time around. Your ship will begin moving faster as it approaches the trench, so try to get as many tower tops as possible on the first few passes, while it is still a relatively easy thing to do.
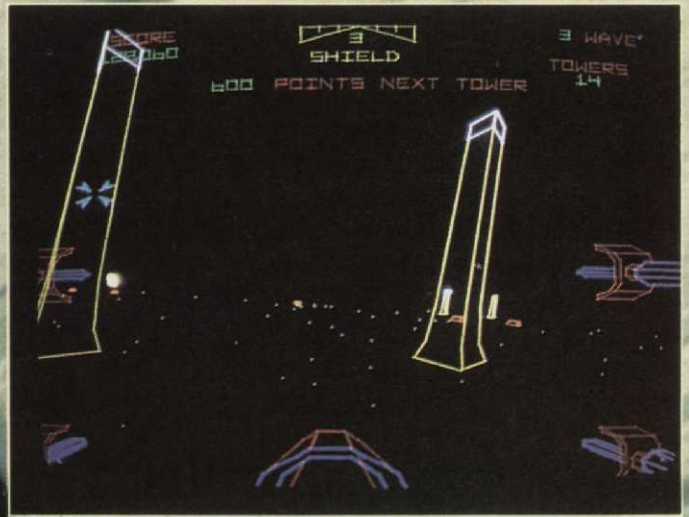
Yellow towers on the surface of the Wave 3 Death Star.

Pay close attention to which towers have been hit already.
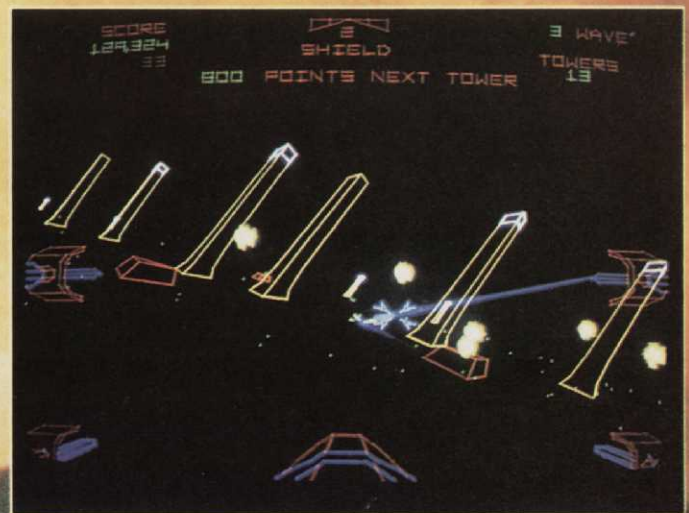
Firing low protects you from the bunkers' fireballs.

BUMP 'N' JUMP

by Mike Ternasky
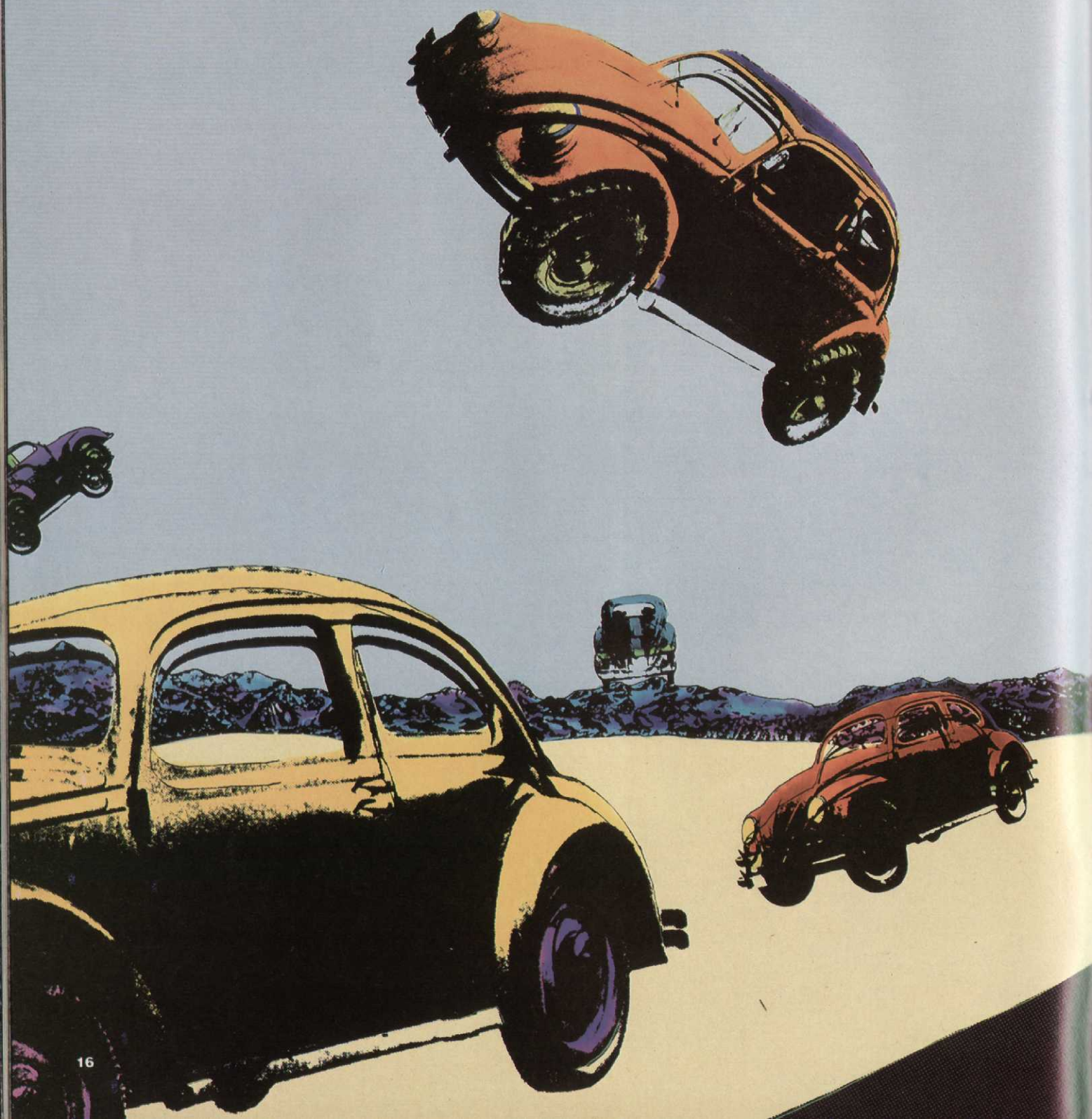
Bump 'N'Jump is a new car racing game, similar to Monaco Grand Prix and Turbo, in that a changing terrain scrolls down the screen, and the car moves vertically across it. Unlike Monaco and Turbo the car is controlled by an eight-direction joystick, which eliminates the need for a gas pedal. Bump 'N'Jump's car has two added abilities, it can "bump," and it can "jump." The purpose of the game is not to try and go as far as you can in a given amount of time, but to try to complete as many courses as possible. There are 32 courses to master. Unlike other racing games, Bump 'N'Jump is started with five extra cars. An additional car is awarded every 30,000 points.
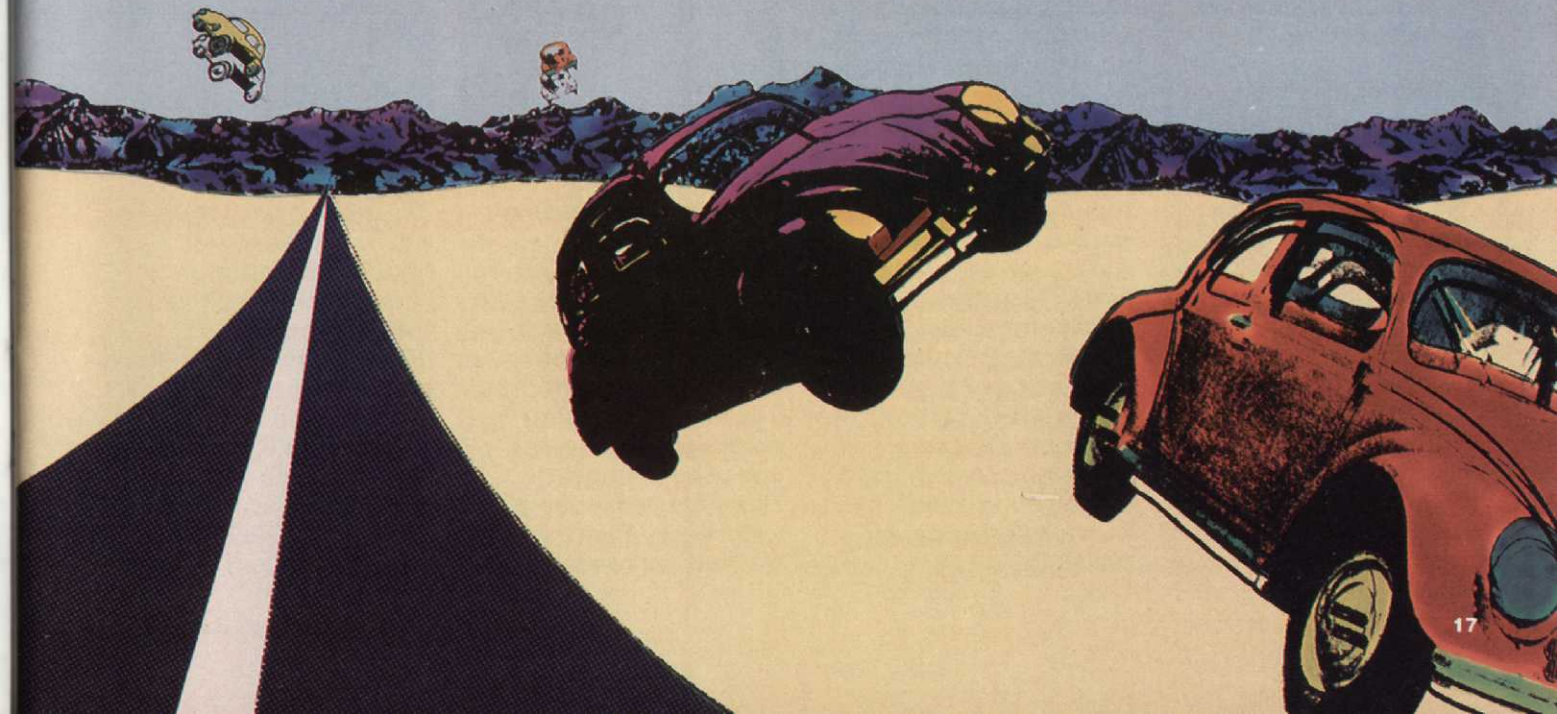
BUMPING

Finally there is a racing game with a car that can hold its own with the other cars in the race. You can bang into other cars. Better than that, you can even smash them off the road for extra points. The first impulse when you find that your car has this ability is to try and smash every car you can. This, however, can be very dangerous because both cars in a collision lose control for a second. Beware! The other cars can and will smash you into the rocks or water if they have the chance.

JUMPING

What do you do when your car is surrounded by other racers who are about to smash you into the wall? You "jump." Jumping is achieved by simply pressing the jump button next to the joystick. Your car must be traveling 100 mph to jump. The jump itself is proportional to the speed you are traveling which makes speed an important factor in the game play. Luckily there is a speedometer on the top right-hand portion of the screen with a flashing sign that says, "Jump OK" if you are traveling 100 mph or faster. Jumping is necessary to clear waterways in the road and is helpful in avoiding other cars, so it is important to keep your speed over 100 mph.

OPPONENTS

There are a variety of other cars in the race and all are out to get you. The most dangerous opponent is the dump truck. The truck can go faster than your car and dump deadly rocks in your path. You must either avoid or jump these rocks. Deathmobiles are the second most dangerous foe on the course. They are black cars with skulls and crossbones on them. They are as fast as you and are intelligent too. Watch out because they will try to gang up on you. Blue cars are also as fast as you but they are not as smart as the Deathmobiles. Yellow and green cars are slower than you and are easily bumped off the road. They are your easiest foe. Although tanks are in this race, they are very slow and not particularly dangerous. Tanks can rarely be bumped off the road due to their weight, so avoid bumping them.

COURSE

The course itself will cause you more trouble than the other cars because of its jagged rocks, narrow bridges and long waterways. The rocks form difficult terrain through which you must maneuver your car. These rocky sections of the course are where bumping can be hazardous so try to avoid bumping other cars if possible.

If there is water on your left and right, you're on a bridge.

Bridges are half as wide as normal roadways and appear suddenly so be ready to swerve or jump if necessary. You know you are on a bridge if you can see water to your left or to your right. Bridges are hazardous because maneuverability is limited and waterways are common.

Water jumps have a narrow bridge on the left and islands in the middle.

Waterways are areas of the road which are washed over by water. To traverse a waterway, you must jump over it successfully. When you are approaching a waterway, a yellow exclamation point appears to warn you of a coming jump. There are two types of waterways. The first is a washed out roadway.

These water jumps have a narrow bridge on the left-hand side and islands in the middle. Always go left on these jumps and land on the bridge. The bridge is only one or two car lengths so jump off it as soon as you see the end of the waterway. The length of these jumps vary so learn to recognize the rectangular island which will always appear before the end of the waterway. The other islands are large and square but the rectangular island is much smaller. When you see this island it is safe to jump off the bridge because the waterway will end.
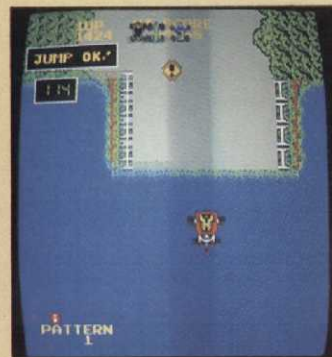
A washed out bridge jump is more difficult than a road jump.

The other type of waterway is a washed out bridge. These bridge jumps are more difficult than the road jumps because there is no bridge on the left or scattered islands in the water. To successfully cross these hazards you must jump after you see the exclamation point while having sufficient speed.

STRATEGY

The key to playing Bump 'N' Jump is not to kill a single enemy car for an entire set. If you successfully complete a set without smashing another car you will be awarded a 50,000-point bonus. This sounds easy but it can be very difficult. In fact you may have to kill yourself to keep from landing on or smashing another car. It is worth killing your own car for the points because you will be awarded a bonus car for every 30,000 points you receive.

A rock barrier will separate the road in certain areas after level 3. Always go to the left, just as you would on a jump from the rocky roadway. If you are in trouble on a rock set, jump; and if it is not possible to jump, simply pull back on the joystick until you come to a complete stop. Your enemies, with the exception of the tanks, will drive past you. You must regain your speed before you can jump, so only use this as a last resort.
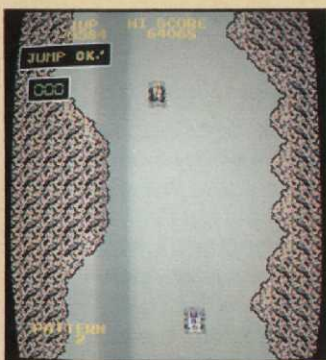
Rock funnels appear before a jump from a rocky roadway.

Rock trucks can be used to your advantage if you learn to watch them until they are about to drop their rocks. Simply wait behind them until the last possible second (this will draw the other enemy cars closer) then jump. Usually the other cars will run into the rocks and die. Be careful when driving next to dump trucks because all you must do to smash one is touch it. This can ruin a 50,000 point run very quickly.

Learn to recognize your signals, such as the sound the exclamation point makes and the rock funnel your car will go through before a jump from a rocky roadway. The funnel is always the signal of a jump. Whether you're on the ground or in the air move left when you see it. Listening for the high beep made by the exclamation point allows you to tell when a jump is coming without making you look up at the exclamation point and take your eyes off the road.

If you accidentally or purposely kill a car, continue killing them because you will be given bonus points for each car killed. When smashing a car, you will travel opposite the direction of the collision. Try not to hit cars in front of you because you will go backwards and lose speed. It is best to wait until you are in front of the car, then slow down and hit it. You will

regain the speed you lost from slowing down when you bounce off the other car. If you are in a collision and lose control, jump to regain it. If you are landing on a car it is best to jump again when you hit it to keep from losing control.

Try to learn the courses. Each time you complete a course try to remember it. If you die in a certain area remember it so you don't make the same mistake again. Luckily you can start a game from the point you finished if you put another quarter in fast enough. This will help you memorize a course you always die on.

To use the following strategies you must be able to complete the first three levels easily.

Although the first three levels are fairly simple, here are some tips that may help your score. Level 1 has only short jumps and dump trucks will not drop rocks. Therefore you need only wait until you see the water before jumping. Then stay in the middle of the screen until you clear the jump. You will only see one island on these jumps. This is the island which appears before the end of a jump from land in later sets. When you are on the narrow bridge and spot this island it is always safe to jump and move to the center of the screen.

On a narrow bridge, jump and move to the center of the screen.

Level 2 has two long jumps from land. Make sure to recognize the rock funnel before the long jumps then move left to the bridge. When you see the rectangular island, jump from the bridge back to the road. The bridge jumps in this level are short.

When you see the rock funnel, move left to the bridge.

Level 3 will introduce you to a split, which is simply a part of the road where the rocks cut it into two segments. The portion of the road on the left is narrow almost like the bridge from a land jump. The right-hand side of the road is half as wide as the normal road, which is about the same width as a normal bridge over water. The easiest

way to traverse these splits is to simply jump and land on the narrow lane to the left. Follow this lane until you see the end of the split and then jump again.

Level 4 is where the real strategy to mastering the game comes in. The first three levels are unique, meaning you will not see them for the rest of the game. After level 3, a pattern of five repeating patterns begins. If the important characteristics of these patterns are learned the game is easily mastered. In other words, if you learn patterns for levels 4, 5, 6, 7 and 8; you have learned the patterns for the rest of the game, as they keep repeating in order.

The screen changes color depending upon the season. The seasons are not important with the exception of summer. In the summer, the dump trucks usually will not drop rocks. Level 4 is a summer set so remember you can drive behind the dump trucks as much as you like.

Beware the Deathmobiles.

There are four kinds of jumps in these levels. Jumps one and two are short and long jumps from a rocky roadway. The short jump has only the rectangular island and can be cleared without using the narrow bridge to the left. The long jumps from the rocky roadways differ in length and have many square islands. You must use the bridge to the left on these jumps. These two jumps henceforth will be referred to as roadway jumps short and

A short jump has only the middle island.

long. The other two jumps are from normal bridges. There is a short jump which can be cleared very easily. The long bridge jump is a little more difficult due to its length. To clear this jump you must be traveling 180 mph and jump at the last possible second. It is best to try to have your speed at 220 mph when approaching these jumps so you won't have to wait until the last second to jump.

A rock funnel in the summertime.

Level 4 is the easiest of the five repeating patterns. It begins with a split, then a long roadway jump, another split and another long roadway jump. Then you will come to a bridge. Do not jump once you are on this bridge because a short bridge jump is coming soon. When you hear the exclamation point, jump, and be prepared to jump again soon. The short segment of bridge you will land on is not long enough for you to jump and land on again. This type of jumping with only a short interval in between is called a double-jump because of the two consecutive jumps. After the double-jump, you can relax while you drive on a bridge for a short while. It is safe to jump here if necessary. When you leave the bridge, jump and go left because a split is approaching. Stay on the left side of the split until you are near the end, then jump. You will fly over a rock funnel and land at the entrance of a short roadway jump. Jump again and stay in the middle of the screen.

When you land do not jump because there is a long bridge jump approaching. It is important to be in the center of the road so you do not get killed when the road becomes a bridge. Gain speed and wait until the last possible second before jumping. The screen will speed up if you make this jump: do not panic or think the set is over because there will be a short bridge jump right after the long one. This is called a long-short double-jump.

When you leave the bridge, jump and move left.

Level 5 is almost identical to level 4 except that after the second long roadway jump you will come directly into a rock funnel. This funnel leads into a very short roadway jump. The rest of the course is identical to level 4.

Level 6 is unique. Forget all previous rules when learning this course. Just learn it and remember it. It is not that difficult, but it is much different than the other courses. The course will begin with a rocky roadway, then open up to a full road. Do not be fooled because

you are driving on a complete road, because double-short roadway jumps are approaching.

The rocky road gives way to open driving.

You will notice that neither of these jumps has the rock funnel possessed by all the other roadway jumps in the game, and the second doesn't even have the rectangular island. Just as you complete these two jumps prepare for a long roadway jump without a funnel. A short distance after this jump, another short roadway jump appears. This one has a rock funnel but ends in a roadway split. If you are on the left side (as you should be), this will be no trouble for you. You will drive through more rocky roadway before coming to a bridge. It is safe to jump at the beginning of this bridge if necessary, but do not jump once you have been on it for a few seconds because a short bridge jump is approaching. Again you will drive through some rocky roadway until you approach another long roadway jump without

a rock funnel. It is important to jump off the narrow bridge on the left side as soon as you see the rectangular island because at the end of this jump is a short bridge with a short bridge jump at the end of it. After the short bridge jump you will approach a rock funnel which leads into a short roadway jump. Soon after this jump, you will come to the only rock funnel in the game that does not lead to a roadway jump. Instead, it simply funnels into a bridge. The rest of the course is roadway until you come to the final jump. This is another short roadway jump without a rock funnel.

On Level 6, this rock funnel leads to a bridge.

Level 7 starts out with a double-bridge jump, so don't jump at the beginning until you see the water; then wait until you see the water again. There is one long roadway jump a short distance after the double-jump. This jump ends on a bridge, so be sure to jump off the narrow bridge on the left when you see the rectangular

island. This bridge does not lead into a jump, so it is safe to jump if necessary. The course will cross one other short bridge which does not lead to a jump. It will be to your advantage to notice when you cross this bridge because the next one has a triple-short bridge jump. It is identical to the double-jump series on levels 4 and 5, except it has one more segment. This is followed by a long stretch of rocky roadway with many splits. Often you will jump out of a split and see another. Attempt to land on the left-hand side of the next split if possible. The last jump of this set is a short roadway jump.

Level 8 is difficult, but if you can consistently complete it you will have mastered the game. The course starts out with a rocky roadway leading to a standard long roadway jump. After this jump, the course will go through a series of splits. Try not to jump unless it is necessary because you will need your speed for the upcoming jumps. After the third split, the road will come to a bridge which leads to a long bridge jump. This jump is difficult because you have to land on a small island. To reach the island you must be traveling 180 mph and jump at the last second. If you are traveling 200 mph or more, you must jump about two car lengths before the end of the
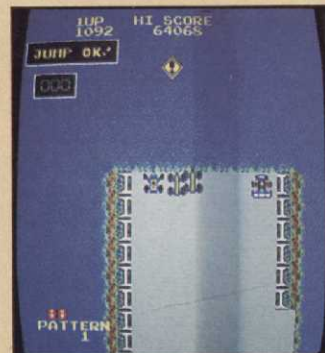
Prepare to jump.

bridge. After landing on the bridge, you must jump immediately or you will crash. You will then land on a bridge which leads quickly into a long bridge jump. This one is standard but difficult, because you don't have much time to bring your speed back up to 180 mph before jumping.

The rest of the course is comprised of rocky roadway with many splits. The course ends with a short roadway jump.

The close of a winter scene.

MILLIPEDE: A SEQUEL WITH STYLE

by Brad Mahugh

In the near-beginning, Atari created Centipede, and it was good. Now they've made Millipede, and it's even better than the original—a rarity among coin-op game sequels. Millipede has retained the 12-part creature and the mushroom forest setting, and for beginning players much of what worked in Centipede works here. But Millipede is much more than a flashier version of Centipede.

Yes, that creature with 12 heads looks familiar, but what's this? A beetle crawling across the bottom of the screen? A kamikaze dragonfly? A bee wave?

You need only to watch Millipede a few seconds to see that comparisons to Centipede are limited. Millipede extends far beyond the humble domain of spiders, fleas, scorpions, and centipede segments (the elements of Centipede) into new territory. Beetles, mosquitoes, dragonflies, bees, inchworms, and earwigs have been added to the game, and each of these new opponents has its own peculiar behavior.

In addition to the new insect competition, Millipede has some interesting strategical changes. DDT bombs, when detonated, exterminate all opponents within range of their toxic fumes. And the once-stationary mushroom field drops one row whenever a beetle is hit, and rises one row whenever you shoot a mosquito.

CONTROLS

The original Centipede track ball and fire button have remained intact. The track ball allows you to move your archer (shooter) anywhere within the bottom six rows of the screen, and the fire button can be used for single-shot fire or held down for automatic repeat (a new shot comes out when the previous shot hits something).

Beware of Bees—they're fast when they're mad.

BEES

These little hummers exist mostly as a means to fill the screen with mushrooms and are similar to the fleas in Centipede. They drop straight down from the top of the screen and leave a line of mushrooms behind them.

You shouldn't have much problem with bees by themselves. Make sure you are directly underneath when you wish to shoot and calmly fire at least two shots up at the approaching bee. The first shot only makes him angry—and angry bees speed up—so be careful not to move in between shots.
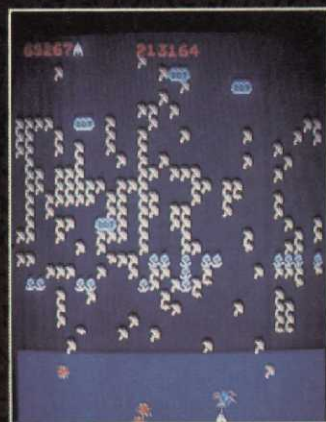
Shoot spiders during breaks in the action.

SPIDERS

These treacherous arachnids are not much different from the ones found in Centipede, except that after you reach 30,000 points you will have to contend with more than one on the screen at a time. They come onto the screen from either side and bounce across the bottom to exit on the opposite side. Spiders are worth from 300 to 1200 points, depending upon how close you are when you shoot one.

In later waves, as many as eight spiders can be on the screen at once. A good place to be when this occurs is near the bottom of the screen in the space between "S" and "A" in the "NEXT BONUS AT..." message. If you stay near this spot, the spiders are fairly easy to avoid.

The best place to be when hunting Spiders.

BEETLES

Beetles are worth 300 points, but that isn't much compared to the trouble you could take trying to shoot them. A beetle's path is basically to come out of the side of the screen about one-fifth of the way up from the bottom, descend to the bottom row, travel across the bottom of the screen, ascend to the row in which he appeared, and exit on the opposite side of the screen.

Since a beetle spends a fair amount of time in the bottom row, it isn't often you have an opportunity to shoot him. If you don't know this about beetles already, you'll want to find out right now: they never travel the full width of the screen in the bottom row. There are three ways to handle a beetle: jump him while he's in the bottom row, shoot him when he moves up, or (if you're quick) you can shoot him when he appears from the side.

A tempting reason to shoot the beetle is that when he runs across a mushroom he coats it with his shielding slime, making the mushroom

invincible to your shots. Let him have the mushrooms. As a rule, avoid beetles—they're more trouble than they're worth.

A clear lower screen during a Mosquito Bombing Wave.

MOSQUITOES
If you heed the wisdom of avoiding beetles, then you'll want to become proficient at shooting mosquitoes. Mosquitoes look like little darts and ricochet off the sides of the screen at about 45 degree angles. Each one that you shoot raises the mushroom field one row.

After you have successfully completed your first mosquito bombing wave (you must learn to master bees and dragonflies since those

waves come first), you will notice that the mushrooms that were at the bottom of the screen have been lifted up many rows. This leaves the bottom portion of the screen clear of mushrooms. As soon as the next millipede enters, bees will be busy dropping mushrooms to fill up the screen. Until the bees catch up with you, you'll have an open field to work in.

Dragonflies are worthwhile targets almost any time.

DRAGONFLIES
Dragonflies are tricky to learn how to shoot. They do not follow a straight line down the screen (like bees), so you'll need to be attentive when you reach a dragonfly wave. Get to the side and watch

for how wide they swerve back and forth. Position yourself in the middle, directly beneath them, adjust your aim, and fire. Dragonflies, like bees, leave mushrooms in their paths. Another good reason to shoot dragonflies is the fact they're worth 500 points apiece. And, unlike earwigs and DDT bombs (which are worth more), it's a lot easier to decide when you want to shoot one.
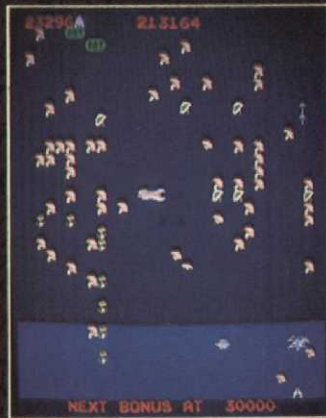
Can you find the "invisible" Earwig?

EARWIGS
Earwigs are poorly disguised scorpions from Centipede. They are rated at 1000 points and scurry across the top of the playing field, poisoning all mushrooms that they touch. Millipede

players should not concern themselves with trying to shoot earwigs, unless they are an easy shot. Earwigs are the "invisible" bugs, because normally by the time they start to appear, you're so busy watching the bottom of the screen you don't even see them.

The lowly inchworm can slow the pace down.

INCHWORMS
The Millipede inchworm has one thing in common with his earthly prototype, he's forever underappreciated. At 100 points, the inchworm doesn't affect your score much, but when hit, he slows the action down for three seconds, while you clear mushrooms and remove any insects that are close by.

Anticipate the Millipede's motion when using DDT.

DDT BOMBS

DDT bombs appear randomly in the mushroom field and scroll up and down the screen with the surrounding mushrooms. Shooting a DDT bomb will detonate it, and the resulting cloud of smoke destroys everything it touches. Opponents destroyed in this manner are worth three times their normal value.

Unfortunately, it's rather hard to find a DDT bomb at the bottom of the screen—where you need them most—because most DDT bombs are accidentally detonated by stray shots long before they scroll to the bottom of the screen. When one does make its way to the bottom of the

screen, it serves well if you can use it. DDT bombs come in handy later in the game, when you need to clear mushrooms from the bottom and don't have time to shoot them all before being overcome by other creatures.

Another good time to use a DDT bomb is just after finishing a mosquito bombing wave, when the mushroom field is scrolling down. (Normally the mushrooms drop one row after each wave, but after the mosquito bombing wave—which raises the field considerably—the mushrooms begin to scroll down row after row.) Detonating a DDT bomb will stop the downward scrolling.

Shooting DDT will save this wide-open playfield.

MUSHROOM FIELD

The most important difference between Millipede and Centipede is that Millipede's mushroom field never stays in the same shape for long. In Centipede you could set up a channel or a trap in the mushrooms to guide centipede segments into your line of fire, but in Millipede the entire mushroom field is replanted every 12 waves.
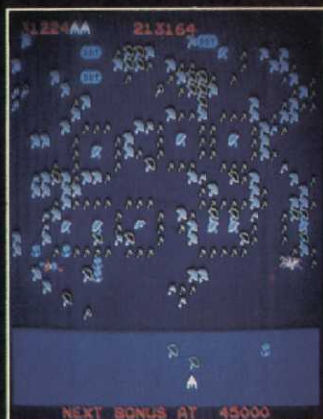
The Mushroom Field regenerating after Wave 3.

After the field of blue mushrooms (the third wave of each set of 12), the mushroom field is regenerated. Although the change appears to be random, the mushrooms are actually replaced by a set of simple rules: (1) Any mushroom that is touching fewer than two other mushrooms dies

from underpopulation; (2) Any mushroom that is touching more than three other mushrooms dies from overpopulation; and (3) Any mushroom adjacent to a poisoned mushroom dies.
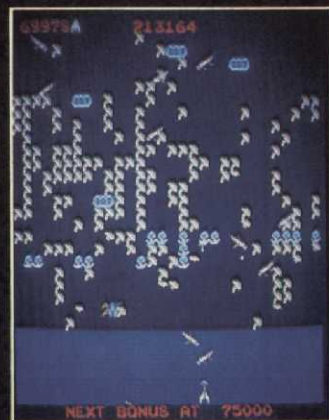
Bombing Waves can be worth big points.

BOMBING WAVES

After the first three millipede screens, a shower of bees comes pouring down at you. This is the first "bombing wave." Between every two to four millipede waves, a bombing wave appears as an interlude before resuming play on the millipede. On these bombing runs, bees, mosquitoes, and dragonflies can be worth up to 1000 points each, making these treacherous waves potentially very lucrative.

The order of the five bombing waves goes: bees, dragonflies, mosquitoes, dragonflies with bees (and very few mosquitoes), and all three together on the fifth wave. After the fifth bombing wave has been reached, the millipede returns to its wholly intact state and the order repeats.

STRATEGY
Some of the techniques used by successful Centipede players will work for Millipede, but many others don't apply. For example, the "clear the bottom, fill the top, do this so more fleas will drop" approach used by many Centipede players will not work in Millipede because the mushroom field itself moves and changes. In fact, none of the Centipede mushroom strategies (building traps, loops, and blocks of mushrooms) works well for Millipede.

Your first priority throughout the game should be to clear the bottom of mushrooms. This keeps you, the archer, free to move your bow and arrow around the lower fifth of the screen.

Keep the lower six rows clear.

The infamous Side Feed— don't let this happen to you.

After mushrooms, the millipede is your next priority. If you let it reach the bottom row and turn around, new millipede heads will begin appearing from the sides, and you won't have much time before the bottom of the screen is filled with them. Always try to completely eliminate the millipede before any segments reach the bottom.

Don't chase Beetles unless you have nothing to do.

It's best to avoid beetles and spiders, unless you have some spare time to deal with them. When they appear at one side, try to move to that side of them as soon as possible, so that they will be moving away from you.

Don't waste your time on beetles, but a spider is usually worth taking a moment to shoot, especially when he's blocking your movement.
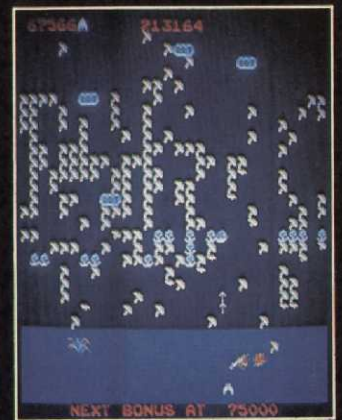
Mosquitoes are worth a little effort.

Shooting mosquitoes and avoiding beetles are the two most important objectives in Millipede. The motivation behind these two practices is to keep the level of mushrooms just above your field of movement. If you work to increase upward scrolling (shoot more mosquitoes), and attempt to decrease downward scrolling, the mushrooms will be out of your way and in your line of fire.
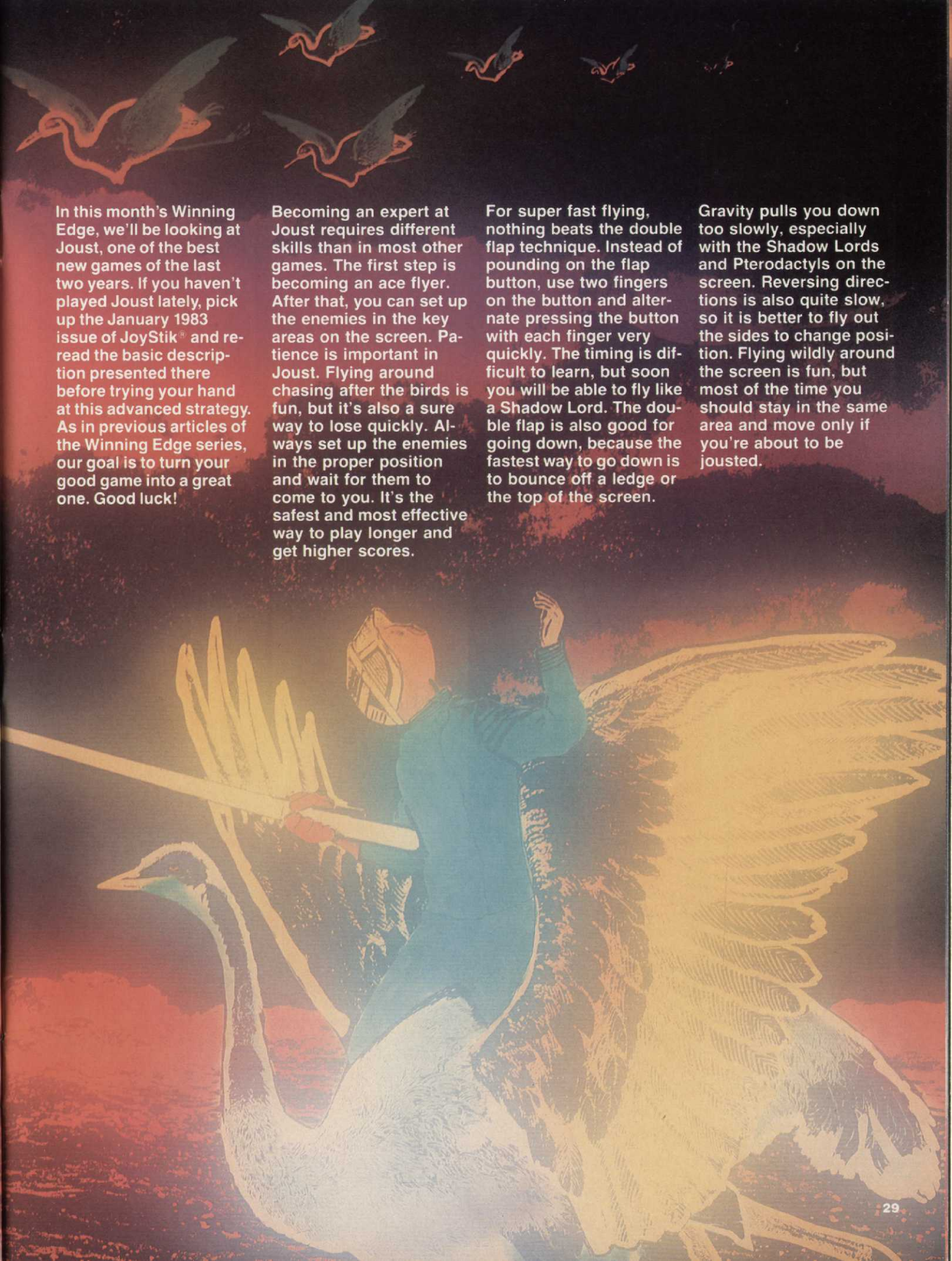
JOUST
TOP·FLIGHT STRATEGIES
by Eric Ginner
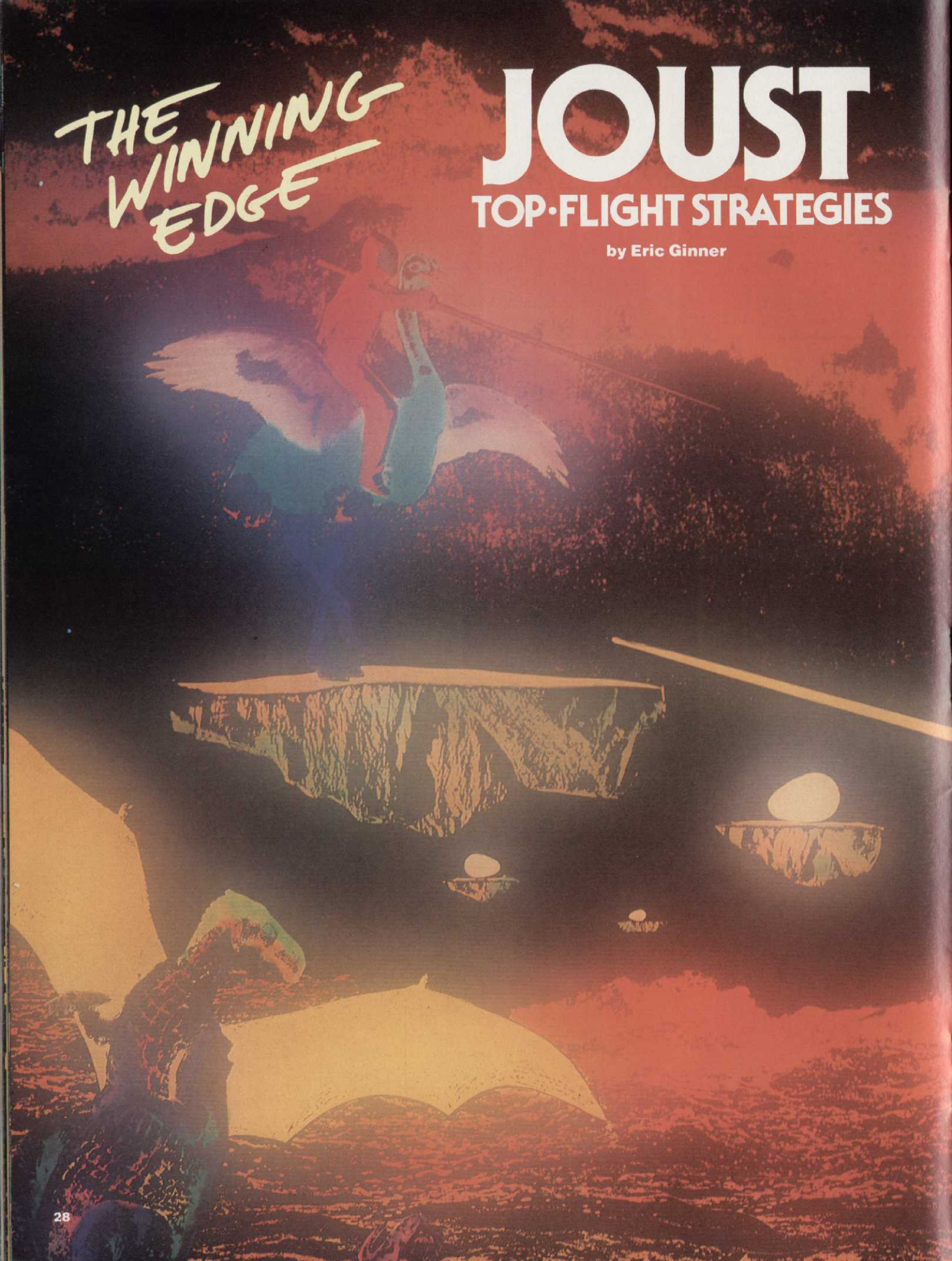
In this month's Winning Edge, we'll be looking at Joust, one of the best new games of the last two years. If you haven't played Joust lately, pick up the January 1983 issue of JoyStik® and re-read the basic description presented there before trying your hand at this advanced strategy. As in previous articles of the Winning Edge series, our goal is to turn your good game into a great one. Good luck!

Becoming an expert at Joust requires different skills than in most other games. The first step is becoming an ace flyer. After that, you can set up the enemies in the key areas on the screen. Patience is important in Joust. Flying around chasing after the birds is fun, but it's also a sure way to lose quickly. Always set up the enemies in the proper position and wait for them to come to you. It's the safest and most effective way to play longer and get higher scores.

For super fast flying, nothing beats the double flap technique. Instead of pounding on the flap button, use two fingers on the button and alternate pressing the button with each finger very quickly. The timing is difficult to learn, but soon you will be able to fly like a Shadow Lord. The double flap is also good for going down, because the fastest way to go down is to bounce off a ledge or the top of the screen.

Gravity pulls you down too slowly, especially with the Shadow Lords and Pterodactyls on the screen. Reversing directions is also quite slow, so it is better to fly out the sides to change position. Flying wildly around the screen is fun, but most of the time you should stay in the same area and move only if you're about to be jousted.

Always be sure to clear the eggs before they hatch.

EGG WAVES

Wave 5 and every fifth wave after that is an Egg wave. Twelve eggs are randomly placed on the ledges. The best strategy is simply to get all of the eggs right away and advance to the next wave. Waiting for the eggs to hatch will get you more points, but you risk losing a life. The extra time required also makes the Pterodactyl come out. Eventually the eggs will hatch so fast that it's impossible to get them all before the birds pick them up. In that case, just clear off two rows of eggs and move to safe ground. Egg waves always have every ledge on the screen, so play the fast hatching Egg waves like a normal wave with all the ledges.

Pterodactyl wave with the middle ledge.

PTERODACTYL WAVES

On wave 8, then every fifth wave, Pterodactyls appear at the beginning. Only one Pterodactyl appears on early waves, but the maximum of three will appear in later Pterodactyl waves. Avoiding the Pterodactyl and jousting the other warriors is difficult, but it's usually unnecessary. The early Pterodactyls can be killed from one of two spots. When the middle ledge is present, stand on it before the Pterodactyls come out. The Pterodactyls will appear on the bottom and fly right up into your lance. On some waves, the warriors will come after you before you can hit the Pterodactyls. It's all right to jump up a little to avoid them. The Pterodactyls go to the same place as long as you're standing on the ledge before they come out.

Pterodactyl wave without the middle ledge.

When the middle ledge is missing, stand on the bottom ledge directly above the hundred-thousand digit in the first player's score. You have about an inch of space in which to kill the Pterodactyls. This time, the Pterodactyls enter from the middle and come down to you. While you're standing there, no Buzzards will enter from the bottom ledge. Any Hunters coming down from the right will buzz right over your head and sink into the lava. Once the Pterodactyls are gone, move back to the center and play the wave normally.

NORMAL WAVES

The first 15 waves consist of only Bounders and Hunters. In wave 16 the Shadow Lord makes his first appearance. More Shadow Lords are added each wave until there are only Shadow Lords in every wave. Surviving these waves consistently is the mark of a Joust wizard. Shadow Lords are fast, but they are very predictable. Always try to kill the Hunters before dealing with the Shadow Lords. Fortunately, Shadow Lords take a long time to energize, which gives you a chance to kill the Hunters.

Two different strategies are required after wave 15. The middle ledge is the key. When the ledge is there, stand on the energizing area right under it. When Hunters approach from the side, fly up and kill them. Shadow Lords usually drop down from the side ledges. As long as you're on the ground, they will stay on the ground. When one runs toward you, fly up just before he hits you. You will kill him and also catch his egg in the air. When the middle ledge is not there, play it like a Pterodactyl wave. Stand on the bottom ledge over the first player's score. Hunters coming from the right will drop into the lava. Hunters coming from the left will be caught by the Lava Troll. After the Hunters are gone or trapped, go back to the middle. The basic idea is always the same—let the enemies kill themselves by coming to you rather than chasing after them.

Fly above the lower energizing platform on Shadow Lord waves.

SHADOW LORD WAVES

Wave 37 is the first to consist solely of Shadow Lords. After that, only Egg waves and the waves immediately after the Egg waves have Hunters. After wave 60, every wave is all Shadow Lords. All Shadow Lord waves are actually quite easy because they are so predictable. Again, strategy is determined by the middle ledge. Standing under the middle ledge is no longer advisable; it takes too long to wait for the Shadow Lords to drop down to the bottom. Instead, hover at the top of the screen, directly over the right energizing area. Most of the Lords will appear underneath you and fly straight up. The others will bounce along the top of the screen. You might have to move a little to adjust to their bounces. After they're all gone, quickly go around and collect all of the leftover eggs.

When the middle ledge is missing, hover directly above the bottom energizing area. Hover just high enough to allow the Shadow Lords to appear underneath you. Let them fly up into you and kill themselves. As soon as you see which way they are facing, move over in that direction to make sure they hit you. Always stay below the Shadow Lords on the side ledges. After all of them have come out, drop down to the bottom. When one of the remaining Shadow Lords drops down from the side, hover where the end of the middle ledge would be. He will drop right past you, then come up under you.

TWO-PLAYER STRATEGY

When two play simultaneously, many different strategies are available. Usually, both players team up against the enemies. The best way is to have each player cover his own side of the screen. Use the same strategies as in a one-player game. The only difference is that you have to avoid the other player. Greed doesn't pay off in doubles. Both players going for the same bird or egg usually causes a fatal collision. Always allow the player with fewer lives to get the extra points (on Egg waves for example). This will keep both players playing as long as possible.

The Pterodactyl waves are the same as in a one-player game. Both players should stand on the middle platform. If threatened by an enemy, one can jump up to protect both players. Without the middle ledge, both players should be on the bottom, one on each side. The player on the right should be on the extreme right edge.

On the Hunter and Shadow Lord waves, both players should play the bottom, with one player under each edge of the middle ledge (even when it isn't there). Kill the Hunters first, then get the Shadow Lords. When one player is killing a Shadow Lord, the other player should be standing on the bottom. Otherwise, the Shadow Lord may go after him and kill the first player in doing so. With only Shadow Lords, both players should hover side by side above the bottom energizing area and kill all but the ones standing on the sides and on top. When the middle ledge is there, both players should play the top. One should be directly over the right side energizing area. The other should be between the top middle and top left ledges, or directly over the left energizer.

Killing a Pterodactyl at the end of a wave.

PTERODACTYL HUNTING

Original Joust machines were often victimized by the infamous Pterodactyl hunters. A technique was quickly developed which allowed players with very little skill to play one game forever. You could catch the last enemy in the hand and stand on the middle ledge while the Pterodactyls would rise from the bottom and fly up to you. You could stand there all day and kill Pterodactyls as the last enemy was still stuck in the Lava Troll's grasp. A new chip was quickly provided to correct the problem, but there are still some old chip games in circulation.

With the new chip, mass slaughter of Pterodactyls isn't possible, but hunting single Pterodactyls can still be done. Attacking one from the air is an excellent test of your flying prowess. The best time to go after one is when there are a lot of warriors flying around. You get a slow motion effect, which gives you a better chance to spear the Pterodactyl right in the mouth. An easier way to kill one is to take a cheap shot at the end of a wave. When the Pterodactyl leaves the screen at the end of a wave, he leaves on one of three levels. When he goes off the middle of the screen, you can kill him by standing on one of the side ledges (the lower one on the right side). Another way is to stand on the extreme right edge of the bottom ledge on a wave with the middle platform. When the Pterodactyl comes out from the middle platform let him come to you. Just before he reaches you, flap once and you'll jump up and kill him.

NEO:
DRAGON'S LAIR

FEATURING PROVEN STRATEGIES FOR THE SIXTEEN TOUGHEST SCENES

BY JOE MENOSKY
STRATEGY BY TAD PERRY

It's been a long time since a truly exciting new arcade game has come out. Sure, there have been some good games in the past year, maybe even a great game or two. But a good game isn't necessarily exciting (or vice versa), and not since Joust has there been any real excitement in the arcades.

That is, until Dragon's Lair. Ever since Cinematronics showed a prototype version of the game at last spring's AOE show in Chicago, operators and players have been talking about the exciting possibilities of interactive laser disk games. And as the first application of this revolutionary technology, Dragon's Lair represents a turning point in video game design.

Because of the unique nature of Dragon's Lair's game play, you'll have more success (and more fun) if you understand how the game responds to your moves. On pages 34 and 35, Joe Menosky explains what is happening when you play the game and how this should affect your approach. Then, on pages 36 and 37, Tad Perry provides helpful hints for the 16 most difficult scenes in the game. The easier scenes have been left out, so that you can enjoy the thrill of discovering the solutions yourself.
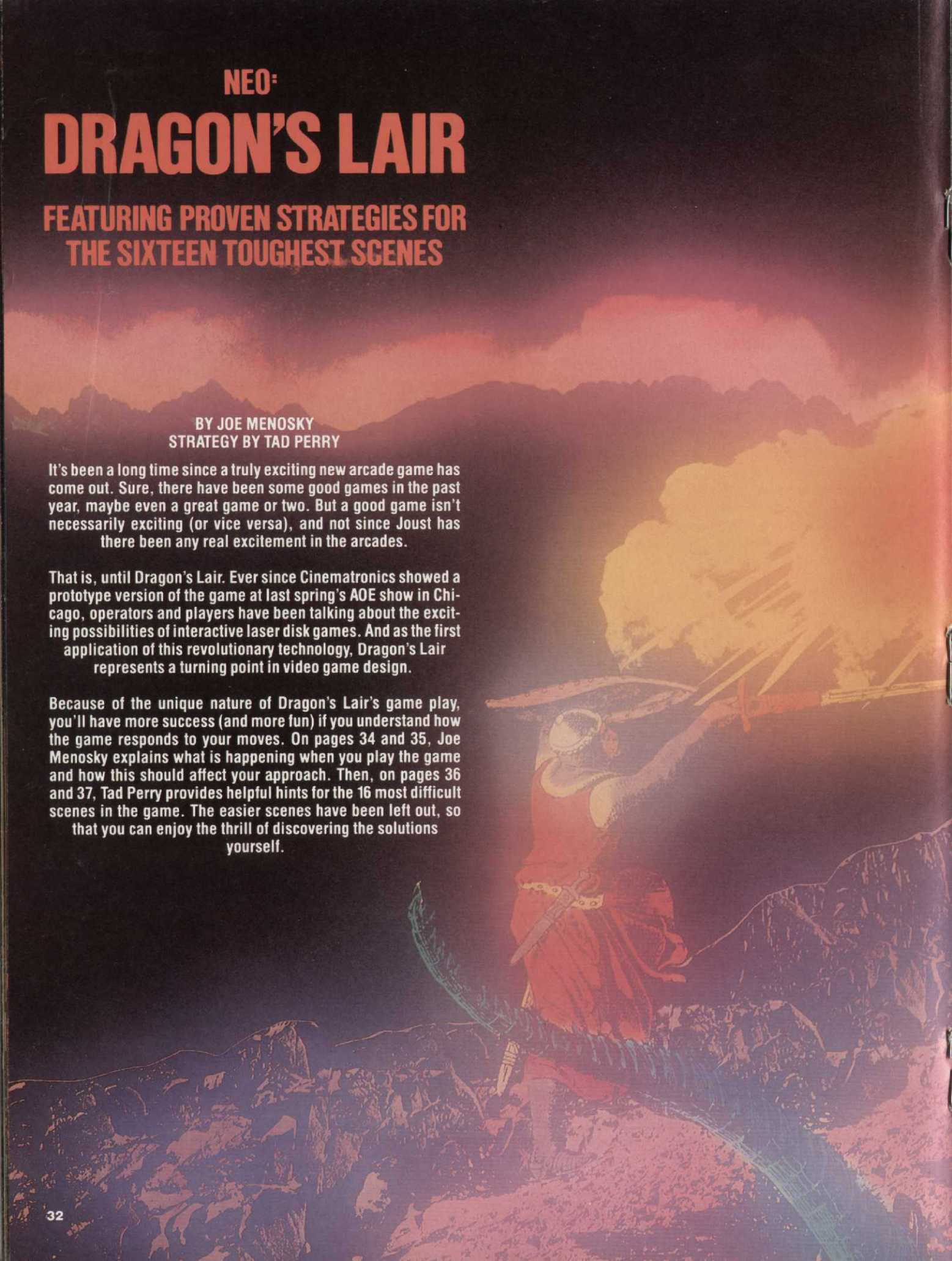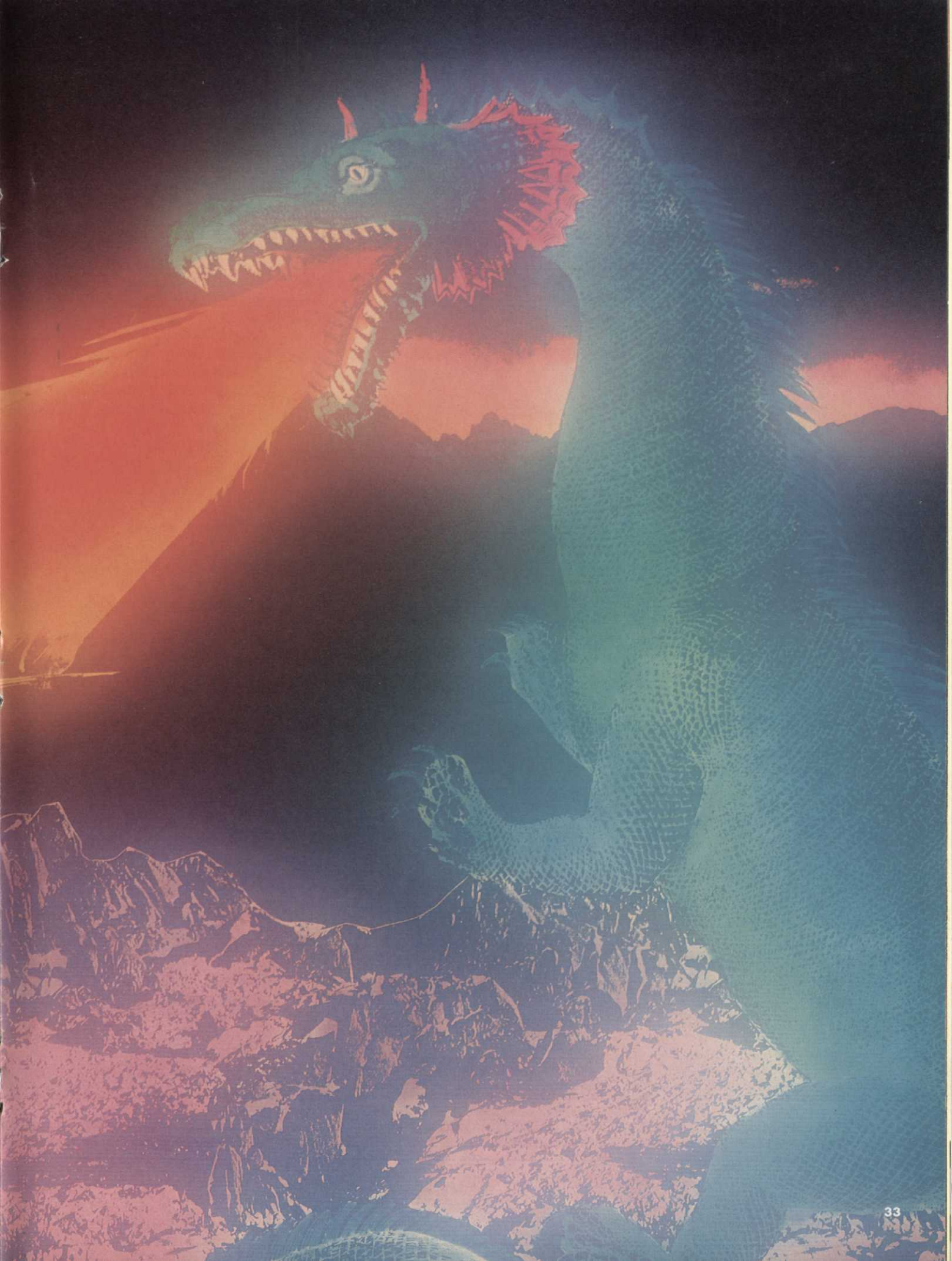
At an arcade in Denver the quarters were lined up all the way across the display and along the floor for ten feet. And with good reason. After all the uninspired reruns we've had to put up with over the past year, Dragon's Lair—the world's first laser disk video game — promises something more.

Dragon's Lair was created by Southern California based Starcom, animated by ex-Disneyite Don Bluth and his group, manufactured and marketed by Cinematronics, and was a full six years in the making. It certainly shows. The incredible visuals and sound effects aren't even half the story. Dragon's Lair forces the player to explore completely new ways of thinking about strategy and play, and the technology behind the game could mean a completely new direction for the arcade. Starcom, Don Bluth, and Cinematronics will be coming out with a second laser disk game (a "superhero outer space adventure") in October, and other manufacturers are scrambling to follow suit. If you've been moping around with the "just-one-more-sequel-game-and-I'll-go-back-to-pinball" blues, then Dragon's Lair and its spawn may be exactly what you need.

The Dragon's Lair story line is nothing to get excited about. A dippy-looking knight, Dirk the Daring, has to make his way through an evil wizard's castle to rescue the lovely Princess Daphne, who is being held captive by your typical fire-breathing dragon. But this less than original tale is told in a revolutionary way. The game is literally a feature film quality animated cartoon that you control.

You are standing in a very large stone floored room. A low wall of fire surrounds you on three sides. Far overhead, in defiance of gravity and all laws of reason, hovers a flaming sword. At once, it makes its move, straight for your heart. And you make yours — striking it harmlessly away with your own sword. A hovering mace takes its place above you, but again, you successfully parry the attack. Then, without warning, a glowing anvil lifts off the floor in front of you and screams across the air. You jump, but too late. The anvil smashes into your midsection, taking your broken body along as it punches through a wall, leaving behind nothing but an outline in the stone: you and the anvil, in deadly embrace.

We're talking some serious mayhem here. By using a sword button and an eight-position joystick, you have to safely guide Dirk through 40 such locations or "episodes" of varying difficulty before reaching the dragon's lair and the unfortunate Daphne. Mistakes are punished by a graphically brutal (though invariably amusing) death.

Dirk starts out with a limited number of lives (usually three to five, but it's adjustable) that are quickly lost until you get used to the new style of play. The big difference between a laser disk driven game such as Dragon's Lair and previous video games is that in a laser disk game all possible actions are contained within the game itself. You don't really control Dirk's movements. What you're doing is telling the game's computer to go to the video disk (basically just a Pioneer laser disk player sitting in the cabinet), pick out a certain piece of stored animation, and run it on the screen. The beauty of the laser video disk is that these different scenes can be accessed so quickly that there isn't a significant break in the action. The occasional "blackouts" in the game mostly occur between episodes rather than within them, which isn't too distracting.

Dragon's Lair has about 800 decision points, or "nodes," and each episode is a series of these nodes linked together by sequences of animation. At each node a number of alternative sequences can be called by pushing the joystick in various directions, but only one allows you to safely move along. Hitting the joystick in just the right time and direction or correctly punching the sword button will invoke the proper piece of animation. This, in turn, will show Dirk successfully dispatching some drooling foe or otherwise continuing unharmed to the next decision point. Each time this happens, your score increases and you get closer to the lair. A wrong decision and Dirk gets appropriately fried, smashed, drowned, or eaten.

Strategy, then, becomes a matter of keeping the proper scenes rolling right along. This is done by discovering the correct joystick and button commands for each particular decision node and then getting the timing down.

The game actually helps you do this in a couple of ways. First of all, a properly executed joystick or button move always corresponds naturally to some real action on the screen. If Dirk needs to move left at a certain decision point, the joystick has to move left. If he has to kill something, the sword button needs to be pushed.

The game also provides direction and timing hints by flashing a light at key desperation points during many episodes. A good general strategy is to follow the light immediately, although in one episode this leads to certain death. You'll just have to experiment.

Usually, though, you're on your own, especially when it comes to timing. In general, move *immediately* away from things that look nasty — fire, chasms, spikes, thorns, etc. At other decision points timing is trickier. It's best to associate the correct moves that you've made (or have seen other players make) with the visual and sound cues in Dirk's surroundings. When you hit that point again, you'll move on cue without wasting time "thinking" about it.

As you descend towards the dragon's lair, timing becomes all-important. Even though the easier episodes show up earlier in the game, there's enough randomness that you're never quite sure where Dirk will find himself next. But when an "easy" episode shows up later in the game, it can be quite a bit more difficult than you've come to expect — the longer you play without dying, the more the machine becomes intolerant of sloppily timed responses.

Another trick the programmers threw in is to present several of the episodes twice (as mirror images of each other). Your timing cues will stay the same, as will moves to the front and back. But all your moves to the left have to become moves to the right, and vice versa. This forces you to pay attention even in familiar territory, and keeps you from sailing through the game on memory alone.

You'll have to go through every episode, including all of the mirrored episodes, in order to reach the dragon's lair. Once there, the real show begins. Princess Daphne is stuck inside a huge crystal ball and the dragon has the key around his neck. Dirk has to pull a magic sword out of a stone (remember that one, Disney fans?) before he can kill the beast.

Once that's done (the best visuals of all), Daphne is freed and the game is over. She leaps into Dirk's arms and whispers something in his ear as a pink heart appears in the background.

Dragon's Lair creator Rick Dyer says that we'll just have to guess what she's telling Dirk. But it's pretty obvious. Daphne may look like the closest thing to a porn star in the annals of the video game, but she's not dumb. She's seen the line of quarters across the floor at the Denver arcade.

"Stick with me, buster. We'll make a mint."

THE SPINNING BALLS

When Dirk's hand goes forward and he reaches the bottom of his crouch, push the joystick forward and he will get beyond the spinning posts. Next will come the Grim Reaper. Just when the thorns grow to surround you, pull the joystick toward yourself. When more thorns surround you, push the joystick forward to exit the door.

THE TENTACLE FROM THE CEILING

As soon as you see the tentacle coming from the ceiling, push the sword button. Next jump forward to the rack of weapons and then right to the blocked door and right again to the stairs. When the stairs become blocked, jump to the left to a low table on the floor and then immediately jump forward out the door.

THE ROOM OF FIRE

The fire will begin to the left, so jump right to avoid it. Then it will begin from behind, so jump forward. Then push the joystick to the left over and over until the game has registered two moves. Dirk will head for a bench lying against the wall — push it aside and exit through a hole in the wall behind it.
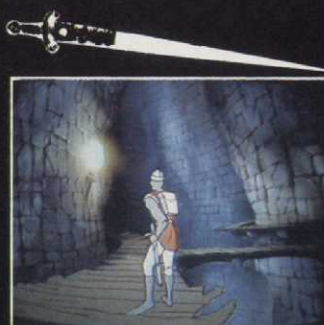
THE CRUMBLING WOODEN WALKWAY

Push the joystick forward until the game registers two moves and you are being attacked by bats. Then keep pushing the sword button until you hear the "move accepted" sound and then push the joystick to the right. Continue to the right until you make it to the rope on the other side of the chasm.

THE LIZARD KING

When the Lizard King first raises his scepter to crown you, go left. All turns after the first are to the right and the Lizard King raises his scepter to strike just before every turn. Soon you will catch up to your sword; push forward to grab it, and then press the sword button to finish off the Lizard King.

THE SMITHIE

When the floating sword comes at you, push the sword button. Then push the sword button just after the enchanted mace begins moving. Move to one side to avoid the anvil, and push the sword button when the view moves from the spear to Dirk. Then, when the Smithie begins to stir, push the sword button.
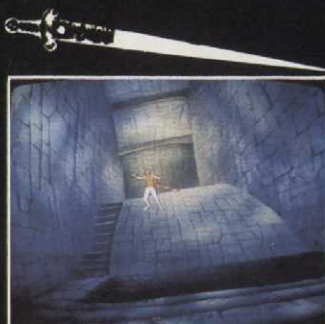
THE SLIDE

Begin pushing left when this scene begins. Next, while on the walkway, push the sword button and then push the joystick to the left. Now you have a choice: the chain or the hole in the wall to the left. Don't go for the chain — it's certain death. Push the joystick left and move to the hole in the wall.

THE POOL

First, move towards the side Dirk's sword is on. Then move forward, and after you land for the second time move away from the wall and jump forward into the pool. Move to the side that you reached the pool from, move forward immediately, and use your sword to kill the spider. Quickly go to the side and forward.

THE OTHER ATTACK BY BATS
As soon as you recognize this scene, start pushing the sword button. Push the joystick left when the stairs fall away before you, and then push left again to jump the gap. A large bat appears in the doorway, so begin pushing the sword button to kill it and then continue to the left and exit through the door.

THE LAVA MONSTERS
When this scene begins, start pushing the sword button. When your sword has ineffectively bounced off the nearest lava monster and has just been returned to its sheath (the timing is critical), push the joystick forward. The next move is forward, the one after that is to the right, and the rest of the moves are all forward.
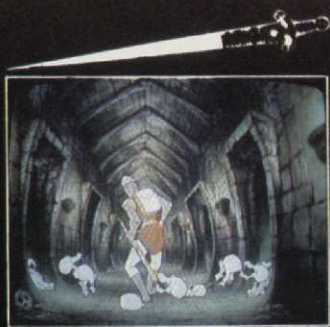
THE SKULLS BOUNCING ON THE GROUND
The skulls will come from the left and the right, so you must jump forward. Next—in anticipation of the hand that will grab you—begin pushing the sword button. After the hand falls completely apart, jump forward again, push the sword button, and exit through the unblocked doorway to one side.

THE KNIGHT ON THE HORSE
This scene is easy once you realize that your sword is permanently stuck by the lightning and can't be used. Avoid the knight and the thorns by diving to the left twice and by going to the right the last time. As you exit through the cave, the Knight will throw his sword at you, but don't worry —he misses.

THE KNIGHT
Dirk is to one side of the Black Knight. Move in that direction. After landing, move back to the side you just came from and then push forward. Your next move is in the same direction as the last move before going forward, the next three moves alternate, and then push the sword button to finish off the Knight.

THE THRONE ROOM
An above view of this room will be given at first, and then a large magnet will pull your sword away. Begin by going right and then quickly forward and quickly right again. You will land in the throne, and your sword will be returned. The throne spins around through the wall, and you must get off by going right.

THE TILTING FLOOR
As soon as you see some of the tiles in the floor fall away, pull the joystick back toward yourself. When Dirk's legs spread apart, push the joystick back to the forward position and then immediately begin pushing it to the left. Don't move forward—a large grate will come down if you do.

THE DRAGON'S LAIR
This is a complicated room. It has the best animation and graphics in the game, and it even has background music. Because it is fun to figure out, you're on your own. The only advice we will give you is: try not to wake up the dragon for a while and once he is awake run from him until you find the magic sword.

THE HOME FRONT

If you're in the market for inexpensive home video cartridges, this month's Home Front is packed full of ideas. In addition to incisive reviews on the latest titles from top cartridge manufacturers, Mark Brownstein has compiled a shopping list of "Bargain Games," complete with prices and details on where to find your favorites. We're also continuing the "Classic Cartridges" index, which recaps comments on games JoyStik reviewers rated with five stars. This issue's Home Front reviews were done by Mark Brownstein, Mike Gussin, Doug Mahugh and Marty Schamus.

Ratings:

* * * * * terrific
* * * * great
* * * good
* * poor
* yucch!

DECATHLON
Activision for Atari 2600
★★★

The decathlon is the most difficult and tiring of all track and field events. In fact, it is really ten different contests, designed to determine the best overall performer. Each of the actual Olympic events is recreated in the Activision version.

Although most video games don't test any physical prowess other than rapid response, Decathlon does reward you for expert timing, coordination, and a fair amount of agility. The object is to score as many points as possible in the contests (including the 100-meter dash, a 1500-meter run, javelin and discus throws, hurdles, long jumps and high jumps).

Each event involves an initial running or spinning motion. Running demands a quick left-right-left motion of the joystick. The faster you move the joystick side to side, the faster your player runs. The trigger button acts as a jump button, although in the pole vault it also releases the pole. In many of the events, timing is critical, and you can expect to scratch until you've played enough. Don't be surprised if you also go through a couple of joysticks playing this game.

Decathlon can be played by up to four players. It keeps a running total of each player's score, and gives you second and third tries on many events. The game is a natural for parties; it truly allows for skill factors and gets better as you do. If you want a good, group participation game or enjoy solitary competition, Decathlon is a nice addition to your library.

—MB
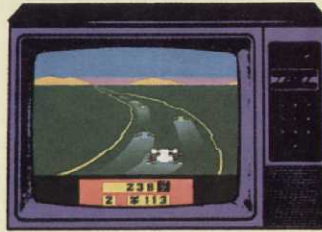
ENDURO
Activision for Atari 2600
★★★★

What do you get when you take a simple concept (a car racing game), a few wrinkles (24 hours driving time, changing climate), and a limited game system (Atari VCS) and assign a gifted designer to develop a new game? If this designer is at Activision, what you get is an excellent game called Enduro.

You are looking at a screen. On this screen is a realistic-looking odometer, a counter indicating how many cars must be passed to qualify for the next round (the number decreases as you pass the cars), and a timer. In front of you is a scrolling landscape, which looks like you are actually driving, and a road filled with formula race cars. The landscape changes the further you get into your day (lasting about three minutes), with the sky turning dark at night.

The game plays a lot like Colecovision's Turbo, and actually seems to be better in some areas. As you drive, you hear the roaring of your engine and maneuver your car around those ahead of you by use of your joystick. Pulling back on the joystick puts on the brakes. Although the action is good during daytime hours, Enduro becomes a definite knockout at night.

When the lights go out, all you have in front of you is the approaching taillights of the cars ahead.

You really have to play this game to appreciate it. From the night scenes to the muffled tire sounds when driving on snow, Enduro translates much of real driving (without the exhaust fumes and high gas prices) to the home screen. If you like driving games, Enduro is definitely worth checking out.

—MB
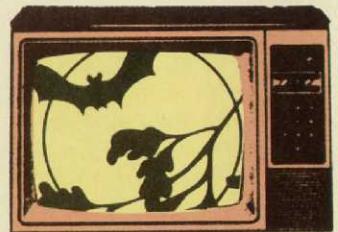
HALLOWEEN
Wizard Video Games for Atari 2600
★★

What do you do on the night HE comes home? Play Halloween, of course. Halloween, another violence-based game from Wizard Video Games, is easily twice the game that Texas Chainsaw Massacre is—hence its hefty two-star rating.

In Halloween, you control a babysitter in a large two-story home, trying desperately to protect five children from a knife-wielding maniac. (Actually, you have an endless supply of children, but you only need to save five of them to advance to the next level of play.) Children are saved by leading them to one of four safe rooms in the house, which earns you 675 points. The only other way to score

points is to find a hidden letter-opener and stab the killer with it for 325 points.

Two stairways connect the upper and lower floors, and a hallway on each floor allows you to move ahead two rooms in a single step. This, combined with occasional blackouts upstairs, gives you room for some fancy maneuvering to avoid the killer.

The best feature of Halloween, however, is the eerie theme music that plays whenever the killer comes onto the screen. The music is simple and compelling, making the attract mode—with the theme music playing while the house flashes through various colors—more interesting than the game itself. The game play improves slightly when you hit the start button, but at the expense of some nice sound effects.

—DM

MINER 2049er
Micro Fun for
Colecovision
★★★★★

Bounty Bob's desperate search through an abandoned uranium mine shaft for a dangerous desperado has the potential of becoming the best game of the year. It is the first cartridge produced for Colecovision that is not manufactured by Coleco and makes Donkey Kong look like a warm up. Other features are the ab-

sence of a time delay in starting and a pause button.

Both a climbing and adventure game, Bounty Bob must survive 11 levels (more than any other version) that include ladders, elevators, slides, horizontal and vertical platforms, pulverizers, and much, much more, while collecting treasures and destroying radioactive mutants. Bounty Bob has only three lives, with bonus lives awarded after 10,000, 30,000 and 50,000 points. He has the ability to run, jump, move forward and backward and climb up or down. To complete a level, Bounty Bob must move over ramps, filling in each section as he travels over it, while in a race against a timer. Any remaining time is added to the points you have already received for collecting treasures and destroying mutants. By touching a treasure, the mutants will turn blue and become vulnerable for a short period of time. Touch one when he is red, or jump too far, and you fizzle. In later levels you must activate elevators and transporters by using your keypad to raise yourself up to various ramps.

In order to include level 11, programmer Mike Livesay has given us only one difficulty level throughout the game. But believe me, it's more than enough. This is a game that will have you thinking and planning strategy hour after hour and wanting to come back for more. Score is secondary and you only lose by making your own mistakes.

—MS

MISSION X
Data East for Intellivision
★★★★

In Mission X you are a pilot flying a World War II attack bomber over enemy territory with day and night missions. Your objective is to bomb as many enemy installations as possible while eluding missiles and fighters trying to knock you out of the sky. Your bomber is a very versatile craft: you control the altitude as well as lateral movement. There are even eight different "looks" to your plane as it climbs and dives, and the engine and airspeed sounds change as well. The ground is equally interesting. You fly over oceans, islands and land masses filled with rivers and inlets.

It wouldn't be any fun if the enemy didn't try to stop you, so many of your possible targets fire guided missiles at you. When flying high enough, you actually see the missiles grow in size and arc toward you as they climb. Occasionally, enemy fighters are dispatched to intercept and destroy you. These are difficult to shoot down, but if you manage to hit one, you earn the highest target value possible.

You can play at any of four difficulty levels which affect your speed and the enemy's accuracy. You start out over a runway and begin flying over possible targets.

The enemy won't fire until you do. After a while, another runway will appear, and you should fly as low as you can over it to gain bonus points.

Mission X is a great looking and sounding bombing simulation for one player, and is one of the best games of its type for Intellivision to date.

—MG

NOVA BLAST
Imagic for Intellivision
★★★

Nova Blast is like a cross between Defender and Atlantis. At the bottom of the screen is a radar display, which wraps around as you go off the edge. The object is to protect the four domed cities under attack by endless waves of enemies. The basic pest is the aerial assault, with the attackers slowly making their way down from the top of the screen. If you don't get them before they reach the bottom, they will destroy the shield and then the city. When you eliminate one assault wave, another appears to replace it. Between waves, you get a bonus for each city still standing.

On higher levels, you can't just sit back and pick off the aerial invaders—a much more dangerous enemy appears. This "water walker" makes his way across the water to destroy the

shield and the city. He also shoots at your defending craft. The only way to stop it is by bombing it, and when you do, you are equally vulnerable to its shots.

When you run low on energy, you can beam up more fuel by maneuvering over an energy station. If you want to protect a city, you can beam down a new shield, but this takes 75 percent of your energy, isn't permanent, and doesn't last very long.

For space game addicts, Nova Blast is the quick fix you've been waiting for.

—MB
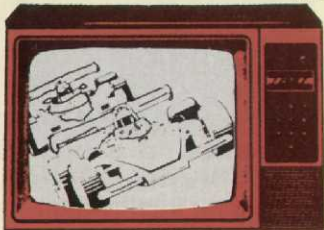
POLE POSITION
Atari for Atari 5200
★★★

First, the good news: Pole Position, the smash arcade hit, is now available for the Atari 5200. What helped make Pole Position a super game was its excellent graphics. Though not as good as the arcade original, the graphics of the 5200 version are very clean.

Now, the bad news: the controller really doesn't do the game justice. Unlike Coleco, which designed a special controller for Turbo and future driving games, Atari chose to stay with its often maligned linear controller. Pole Position would be a much more satisfying game if the controls were better integrated.

The tiny bottom fire button accelerates. The tiny top button is the brake, which

may or may not work. And you have no sense of cruise control—you are trying to accelerate, or you're not. You can push the joystick forward, and the car seems to speed up. But this also works against you since the gear shift is built into the controller. About the only thing that the controller really works for is moving left to right.

The graphics in Pole Position resemble the arcade version. You have a selection of race tracks, (simply a variation of the number of cars), Mt. Fuji scrolls across the background, and there are a variety of signs. In all but the training mode, you have to qualify for the race. Race levels can be suited to your skill level and you can select the number of laps in the race.

Pole Position is fun to play, making you want to keep playing to get a better score. Control difficulties aside (Atari's new 5200 controller just may reduce some of the problems with the original controllers), Pole Position was well worth the wait.

—MB
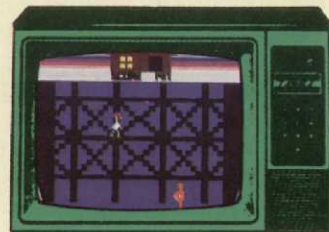
PORKY'S
Fox Video Games for Atari 2600
★★★

Do several bad games make one good game? Probably not, but Midway proved long ago (with Gorf) that several bad games can make one popular game. Gorf was a combination of watered-down

versions of Space Invaders, Galaxian, and other games, and it has been a big hit both in the arcades and at home.

Porky's is a similar game, but the various episodes are tied together with a common underlying theme: PeeWee has been "had," and he's out to get even (with Porky, of course). In the process, he must cross a crowded highway, traverse a swamp, pass through the showers, and climb a scaffold before he gets a chance to blow up Porky's bar. Balbricker and Wendy are there to help him, just like in the movie.

Fox Video Games (the manufacturers of Porky's) claim that "the game features more movement of characters per inch than other games" and that this makes the characters "appear somewhat lifelike and have smoother movements." It's hard to say what they're trying to say by all of this, but the fact is that Porky's (at least the 2600 version) has chunky graphics and simple lifeless animation. The game is fun in spite of the graphics, and not because of them.

—DM
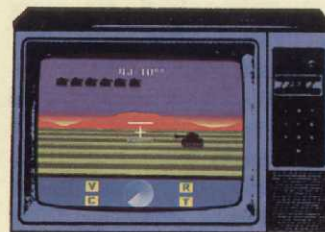
ROBOT TANK
Activision for Atari 2600
★★★

Okay, all you General Pattons, attention! The Mojave Desert is under siege and is our last line of defense before the destruction of Los Angeles. Prepare for battle!

With Activision's new entry you're in control of robot tanks determined to destroy the computer-controlled opposition. The idea behind this game seems simple enough: destroy as many 12-tank squadrons as possible before your army is eliminated by enemy laser fire. You receive a bonus of one tank after each squadron is eliminated.

To the credit of designer Alan Miller, and for those of us who like a good battle, we must wage our war on a day-to-day basis from early light of dawn until pitch-darkness befalls us. If this is not enough, we must contend with changing weather conditions.

As the commander of the tank we have the ability to move forward, backward, left or right, sight our cross hairs and fire away. Shots are directed by moving the joystick after firing. In poor visibility a good tactic is to rotate constantly either left or right until the situation improves. While this cartridge will never become an all-time classic, it is the best of its type for the Atari system. We certainly have come a long way since the introduction of Combat.

—MS

SAFECRACKER
Imagic for Intellivision
★★★★

Your mission, should you choose it, is to recover secret objects and combinations to the treasury vaults hidden in embassies throughout a foreign city. If

you fail, you're apt to spend the rest of your life, or until you push the reset button, behind bars.

Superb graphics and details highlight this fast and furious one player spy chase that offers three skill levels. Your objective as a secret agent is to drive to as many embassies as possible, collect microfilm, keys, chemicals and cameras and learn the combinations to the treasury vault where five gold bars await the taking. Life as a secret agent is not easy and your downfall can result from collisions with other cars, crashing into curbs or bullets being shot at you from secret police cars.

Embassies are indicated by diamond markings and are found by following the screen borders, red/northwest, blue/southwest, etc. Your driving ability is controlled by the use of the disc and the bottom left side button. Better use of the keypad should have been made, as this becomes a bit cumbersome. Once inside, you are in a race against time to obtain the secret objects and treasury vault combinations. Your choices: either work out the combination by spinning the dial, or blow up the safe, in which case you'll set off the alarm and alert the secret police. You must return to your hideout, deposit the cache and repeat the sequence until you have all four combinations. Then drive to the treasury, check your combinations before entering the vault and collect the bullion. Citizens' automobiles become more plentiful and secret police become more aggressive with each round, so remember to always keep on the move.

—MS
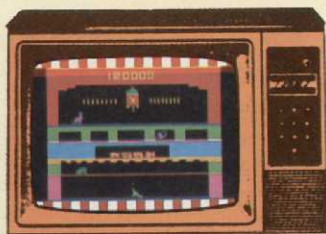
SHOOTIN' GALLERY
Imagic for Atari 2600
★★★★
Imagic promotes this game as "ideal for ages nine and under." The manufacturer is right in this recommendation—but not completely. The game is great for young children, but it's fun for their parents and anyone in between as well.

Since the 2600's graphics are so limited, the game's designers correctly opted for a simple concept. The player manipulates his gun from the bottom of the screen, firing upward at the targets. And what targets they are: seals, frogs, kangaroos, worms, a monkey jumping from window to window, and even a train complete with a caboose.

At the top is a clock and shot counter. In more difficult versions, the clock works against you and you must shoot it before time runs out or lose four shots.

Bonuses make the game interesting and something of a strategic challenge to older players. In order to beat your top score, you have to carefully plan your targets and hit them (not always an easy task). For an adult, reaching higher levels can be habit-forming.

But Shootin' Gallery is one game which a child really can play. Continuous shots will eventually hit something. Each round begins with the gun directly beneath the clock, which can be shot just by pressing the red button; the joystick doesn't have to be touched.

Sound is the least remarkable part of the game. If you hit the caboose, and certain other targets, you get music. Firing a shot makes a sound, and hitting a target makes another. Shootin' Gallery is probably the best game available for those who like cute, non-violent shooting action.

—MB
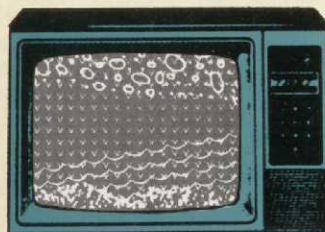
SOLAR STORM
Imagic for Atari 2600
★★★
You're sitting in your laser ship, wave after wave of inhuman objects are attacking and with each second that goes by they are getting closer and closer. If you don't destroy them first, you're doomed.

If the theme sounds familiar, it's because Solar Storm is Imagic's answer to Gorf, Missile Air Defense (M.A.D.), Threshold, etc. But what's strikingly different about this version is its use of the almost forgotten paddle controller giving you incredibly fast reactions in moving left or right, a maneuver needed for the first stage of this game.

The battle begins with you deep in space on a planetary surface under attack by a host of galactic enemies. Every time one is hit, you clear the screen for a brief period and score 50 points. Other fragments and blasters are worth between five and 20 points.

On either side of the screen are heat bar indicators. Every fragment that hits the surface causes radiation to build up. Too much radiation will blow up the planet and send you back to the reset switch. But every time you destroy a fragment you also lower the radiation level.

If you survive the first few waves and reach 500 points (and every 500 points thereafter) you have a chance to earn an additional ship. You are also faced with a bonus clock that counts down in about 15 seconds. You must hit five fleet ships or it's back to the planet for faster and deadlier attackers.

For those of you who do not own any similar games, Solar Storm is worth the purchase. Otherwise, save your money unless you love collecting cartridges.

—MS
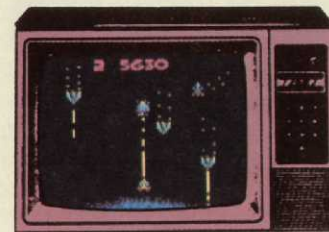
SPACE DUNGEON
Atari for Atari 5200
★★★
The object of Space Dungeon is to maneuver your player through the many rooms and obstacles of a multilevel space dungeon. Along the way, you must pick up certain treasures, which you carry to the transporter room, allowing you to progress to the next level.

The game's two controllers give you more influence over the action than in most other games. While you can move your player from room to room, and any direction within the rooms, you also have the capability of firing your defensive beam in any direction sim-

ply by pointing the joystick on the right. Although it takes some practice, this dual controller arrangement works quite well, and is a challenging test of two-handed, hand/eye coordination.

Space Dungeon is a good game. It's not totally unlike many of the other dungeon-type games, but the controls and game play offer unique appeal. If you can, try it out before you buy a copy. If you don't like it, you'll probably hate it. If you like the game at the store, however, you'll probably love it at home.

—MB
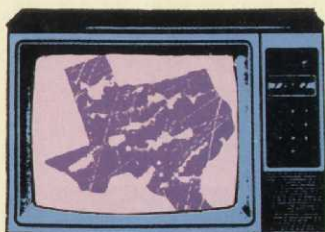
TEXAS CHAINSAW MASSACRE
Wizard Video Games for Atari 2600
★

It's tempting to condemn this game entirely on moral grounds, rather than judging the game play, graphics, and other factors that are usually covered in cartridge reviews. It would be easy to say "This is the kind of trash that gives video games a bad name, so this is a bad game. (Q.E.D.)." Fortunately, that kind of narrow-minded approach isn't necessary; Texas Chainsaw Massacre really is a bad game.

The premise of the game is simple. You control Leatherface, a chainsaw-toting homicidal maniac. Your only goal is to seek out and destroy—by mutilation with a chainsaw, of course— various people that wander across the screen.

The game play is also very simple. Push the joystick left, and the background (people and all) scrolls past to the right; push it right, and the background scrolls left. Leatherface, meanwhile, stays in the center of the screen and moves up and down to align with his victims. Pushing the fire button will shift his chainsaw to high speed for a few seconds; cross over a person during this time, and you'll hear a muffled scream and see a crude red blotch beneath the chainsaw.

And that's the whole game. There are no stunning effects to watch for, no interesting sights or sounds to entertain you, and nothing strenuous (like strategy) to think about. If you find Pong too confusing, Texas Chainsaw Massacre may be just your game. Me, I'd rather play catch with my 2600.

—DM

TRUCKIN'
Imagic for Intellivision
★★

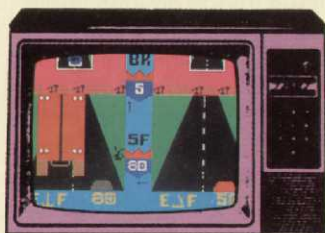Imagine driving an 18-wheel rig across the country. You're racing against time, and maybe against another driver, to be the first to complete your journey and make the most money. To help, you have a road map to follow, a log book, a line to the next cities to see which loads are available, and, of course, a nice loud diesel horn.

If you've seen *B. J. and the Bear*, you might expect the trip to be an adventure.

But in Imagic's game, the potential seems to be more than the design could carry. While simulating many of the aspects of actual driving (rest stops, speed cops, etc.), it becomes quite a challenge to know exactly where you are or where you are going at any given time. The map doesn't help much, and as you drive, the screen is split. You really don't get enough information from the game to play it well—and it hardly seems worth the effort to try to learn it.

Although the concept is good, and the title suggests a fun game, it would probably be best to pass this one up and be happy with your 10-year-old VW instead. It may not be as big or as fast, but at least you know where you are in it.

—MB
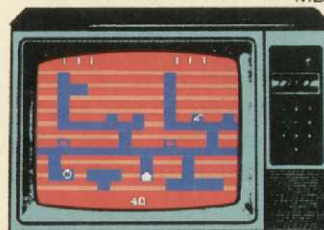
TUTANKHAM
Parker Bros. for Atari 2600
★★

The treasures of Tut, the boy king, have been rumored to be found. But alas, your only hope in discovering if the legend is real is to venture deeper and deeper into the depths in search of keys that unlock doors to the dark chambers. Beware of the curse!

The objectives are simple enough. Score as many points as possible while collecting various treasures that are available to the three archeologists. Not much to it, is there? Wrong. Remember, the tomb has been closed since the 14th

century B.C. After all those many years the crypt has become infested with snakes, scorpions, bats, turtles, jackals, monkeys and who knows what other surprises that are just waiting for a tasty morsel. Your only defenses are your laser gun and laser flash which are both limited. Remember to always keep on the move or you will not be able to activate your weapons. Treasures should also be avoided when in life or death situations, and take advantage of secret passageways when the opportunities present themselves.

At the end of each maze, you will find the door to the next chamber and will be able to continue. If you have forgotten the key, back track and search every nook and cranny until you find it.

Tutankham, with its four difficulty levels, is challenging enough even at the easiest level. Graphics are good, but the only trouble comes with controlling the movements of the archeologists which seem to move on their own at times. With the 2600's limited capabilities, any resemblances to the arcade game are in name and idea only.

—MS

WHITE WATER!
Imagic for Intellivision
★★

In White Water! you control three men in a raft down through the rapids of a powerful river. There are

seven different games for one player: four river rafting games and three combination rafting/treasure hunt games, all with varying difficulties.

You begin in a forest and most of the games are timed. If you lose all three of your men before finishing the race, you receive an incomplete rating.

Run to the right as you start out, as any other direction will cause the demise of one of your rafters. Leave the forest and you're standing on a cliff overlooking a beach where your raft waits. Jump down, climb in, and push off into the river.

There are many dangers to contend with. The game accurately depicts a raging river complete with whirlpools, shoals, rocks, floating barrels and roaring rapids. Your raft can be turned to any direction, but you tend to drift with the current, and if you hit a barrel it can knock you off course. Hit a rock and one of your men will fall out of the raft. Catch him before he hits a barrel, rock or whirlpool and he climbs back in. Miss him and he's gone.

White Water! has very colorful graphics and is a novel idea in a video game, but unfortunately it becomes very tedious to play because control is difficult with the Intellivision disc. Be prepared to lose many games before learning how to maneuver your raft. Try White Water! for a new idea in home video games, but it may leave you all wet.

—MG

BARGAIN GAMES
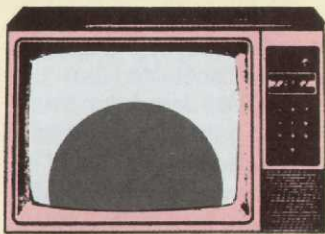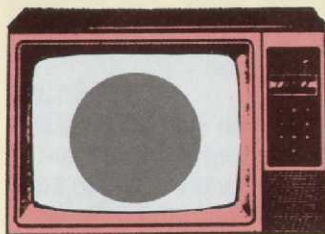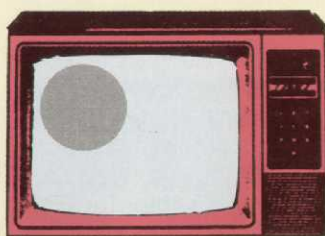
Just a few months ago, you would have been hard pressed to find a game cartridge for your Atari 2600 for less than $15, yet recently we've seen some games for as low as $6.97.
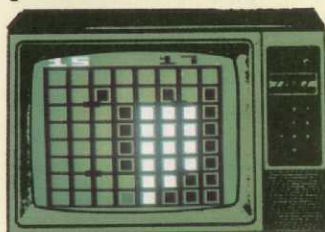
OTHELLO
Atari begins our tour of the inexpensive titles with some recently discounted or discontinued games including **Othello**, a strategy game identical to the tabletop version and called **Reversi** by other software manufacturers. Othello offers differing difficulty levels, one or two player options, and assists you by doing all the token turning after you make your move.

SUPERMAN
Superman is a once highly publicized action adventure game. It sold well at full price, and can provide you with hours of challenge. You have to fly Superman through Metropolis, defeating the bad guys and trying to rescue Lois Lane. At $7 to $8, it's a pretty good buy. Some of the other Atari titles include **Video Chess, Basketball, Football, Dodge 'Em, Golf, Human Cannonball** and **Space Wars.** Since most of these cartridges have been discounted, their availability may be limited now.

The early Atari cartridges were, on the whole, not very spectacular. Atari's graphics consisted mainly of stick figures until Imagic and Activision started pushing the capabilities of the system in a more sophisticated direction. If you can, try to play the game before you buy it— it may only be $7, but if you don't like it, you will still be out the money.
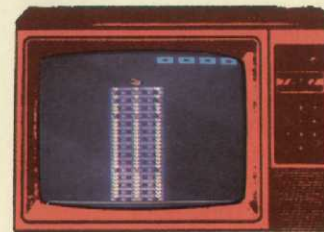
TOWERING INFERNO
With the fiscal failure of U.S. Games and Data Age, all of their cartridges have become available, and many at very low prices. Don't be surprised if you see them retailing well under $10 or so. Some of

the better U.S. Games titles include **Word Zapper**, an entertaining, educational game. **Towering Inferno** is similar to Imagic's **Firefighter,** but much better. Although the graphics in Towering Inferno are not as pretty, game play is quite a bit better. You have to rescue people trapped in the building, while trying to put out a fire.

Many of the U.S. Games titles never even made it onto the dealers' shelves, so, in effect, you are buying completely new games.
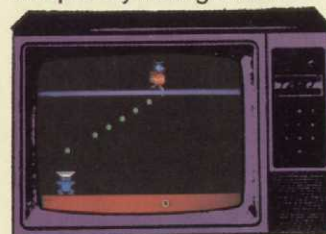
EGGOMANIA
Eggomania is an entertaining, humorous game with a weird bird at the top of the screen dropping eggs to a bear you control across the bottom. The music and graphics are great, and Eggomania is recommended for young children or people looking for nonviolent fun. **Gopher** is another of U.S. Games' family entertainment titles. In this game, you are a farmer, and a gopher toils underground trying to dig up your carrots. The game becomes faster and faster, and finally impossible. Gopher is also a good buy for the money.

Piece O'Cake was never released. The object is to pick up the pieces needed to assemble a cake as it moves down a conveyor belt. The sample we received before U.S. Games stopped production lacked instructions, and without them the game is virtually impossible. But Piece O'Cake may be worth the

gamble. **M.A.D. (Missile Attack and Destroy)** is a space shoot-em-up. Control of the defense system was not done well, and the game is recommended only for the hardcore space game nuts. Other titles from this company include **Entombed** and **Name this Game,** both strategy pieces.

Some of the later Data Age titles are also worth considering. In particular, **Bermuda Triangle** is a fairly good game. In Bermuda Triangle you control a submarine trying to avoid aquatic dangers, while recovering treasures in the triangle. The game plays well, graphics are good, and this one too, seems to be worth the money.
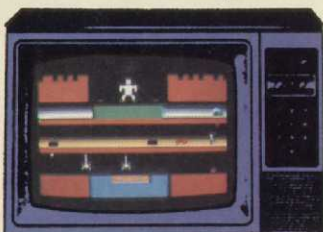
FRANKENSTEIN'S MONSTER

Frankenstein's Monster is a strategy/reflex game. You have to maneuver your character through a three-level castle in order to build a wall around the monster. The game should keep you entertained for a few hours.

JOURNEY ESCAPE

If you are addicted to the rock group Journey, you might like **Journey/ Escape**—otherwise, forget it.

The current owner of all the U.S. Games and Data Age

cartridges is Kandy Man Sales, Inc., in Wichita, KS. Kandy Man Sales doesn't sell to the public, but has purchased a number of Telesys games as well, which should be discounted soon.

Most of the early Fox Video games have been discounted to around $10. Of these, **Alien** (a Pac-Man type of game, with some interesting differences), **Fantastic Voyage** (a trip through a human body) and **Fast Eddie** are among the best. In fact, everything but **Flash Gordon** and **Revenge of the Beefsteak Tomatoes** has been discounted by Fox Video.

STAR VOYAGER

Imagic has also joined in the discounting business. Two of its first three games, **Star Voyager** and **Trick Shot,** have been seen for under the magic $10 figure. In its time, Star Voyager offered a fantastic graphic viewpoint through the cockpit of a space vehicle. The game play and graphics on this game still remain satisfying. Trick Shot is a pool game with many options including versions for one or two players. If you like pool, or want to practice lining up shots, you can kill hours playing Trick Shot.
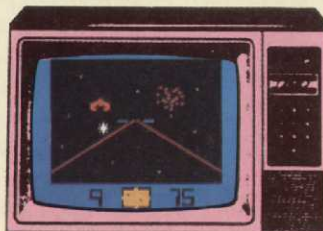

TRICK SHOT

Sega's **Tac Scan** and **Sub Scan** have already fallen below the magic number as well. Of the two, Tac Scan is more playable. Tac Scan is a space game, requiring you to shoot at (or avoid) attacking ships on a scrolling screen.

Since the manufacture and packaging of a VCS cartridge costs only $3 to $5, don't be surprised if other companies try to move their deadwood in a similar manner. The key to buying a new, discounted cartridge is to determine the kind of game you want to play, reading a review of it, and convincing your dealer to let you try it before your buy. Since prices have reached an all-time low, many of the discounted lines are not guaranteed (although there should be no problems with any of them) so you could still end up wasting money on even the cheaper games.

Now that we've talked about the new stuff, how about the used? Throughout the country, used bookstores, record stores, and other types of dealers are setting up cartridge exchanges. The basic operating policy is to buy used cartridges at a low price and sell them for a slightly higher one. For example, you may get around $12 or so (in cash or credit to buy another used game) for a **Demon Attack** cart. The dealer will then try to sell it for around $18. Although these numbers vary and depend almost entirely upon demand for a cartridge, you will find a few common features at most of the used cartridges stores.

The first thing you will notice is that the newer the game, the more it will cost.

Secondly, as we mentioned, the dealer has to make a living too, so don't be surprised if you are offered a price lower than what that same cartridge is selling for.

Trading in a used game also makes sense. If you aren't using it, or haven't played it for a few months, you can recycle a cartridge into something entirely new. In a way, you are also saving money. If that game cost you $25, then letting it sit is costing you the full $25. If you can trade it for $15 credit or cash, the actual price of the cartridge is only $10.

Is buying a used cartridge risky? Generally not. Since there is nothing inside a cartridge that wears out, you can safely assume that if it works in the store, it should work virtually forever. By Christmas, our sources say, you should be able to get many used games for as little as a buck or so. If you don't care about the fancy packaging and clean instruction books, used games are a good way to get plenty of games at minimal cost.

If you want to play a variety of games, the final method we'll discuss may not be quite as inexpensive, but will get you a good selection and also let you try a game before you buy it. Control Video Corporation has recently announced Gameline, a unique way of getting games onto your VCS.

For about $60, you buy a Gameline Master Module, which plugs into the cartridge port of your VCS. The other end of the module hooks into your telephone. When you turn on your VCS, the title screen

comes up, requesting your game choice, options and other information. Once you choose, the machine automatically dials the Gameline Computer (usually a local telephone number) and loads the game. The module keeps track of how many games you play and your scores, and at the end of the month you are billed by Gameline.

Each loading of the game gives you a certain number of plays. It's cheaper than playing in an arcade, and you should have access to the newest games available.

This concept should be good for everyone involved. For the player, the system offers dozens of games (including some not yet released) without having to buy them. For the manufacturer, Gameline helps test and "fine tune" games before the production of the thousands of cartridges needed to make their first run. This can ultimately improve the overall quality of games, and may also save the manufacturer money. The manufacturer is paid each time the game is loaded onto the Gameline machine. Although "try before you buy" may cost sales, the manufacturers will still be making money while you try it.

The dealers who, theoretically at least, may be losing cartridge sales because you are using Gameline, also make money. Each time you use the machine the dealer who sold it to you gets a small commission above and beyond the profit from the original sale. For many people, Gameline may be an ideal method of playing a game and keeping your closets uncluttered.
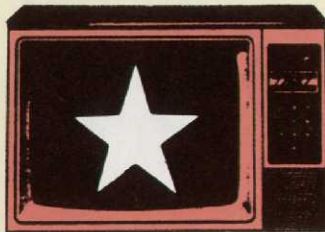
CLASSIC CARTRIDGES

From past reviews of home video game cartridges, JoyStik® offers a summary of the best of what's available. This directory is a regular feature in each issue. All software listed earned a ★★★★★ (terrific) evaluation.

CENTIPEDE
Atari, Inc.
for Atari 5200
The arcade's crawly characters encore in this demanding version.

CONQUEST OF THE WORLD
N.A.P. Co.
for Odyssey2
Fascinating war game combines board and video action.

DONKEY KONG
Coleco, Inc.
for Colecovision
Stunning version of the arcade classic.

FROGGER
Parker Bros., Inc.
for Atari 2600
Excellent music and graphics in this arcade counterpart.

GREAT WALL ST. FORTUNE HUNT
N.A.P. Co.
for Odyssey2
Computerized investment transactions for amateur financiers.

HAPPY TRAILS
Activision
for Intellivision
Innovative maze game pits good against evil in the Old West.

LOOPING
Coleco, Inc.
for Colecovision
Guide your plane through rooms of rockets, balloons and other obstacles.

MINER 2049er
Big Five Software
for Atari 5200
Good graphics and difficult screens set the action for Bounty Bob caught in a cavern.

MS. PAC-MAN
Atari, Inc.
for Atari 2600
Mazes, traps and tunnels challenge home video's "Woman of the Year."

PEPPER II
Coleco, Inc.
for Colecovision
Sets of roving eyes chase Pepper through this challenging maze game.

PHASER PATROL
Arcadia, Inc.
for Atari 2600
Detailed onscreen instrument panel monitors a battle against the aliens.

QUEST FOR THE RINGS
N.A.P. Co.
for Odyssey2
Players work to recover ten rings of power. Good graphics.

RIDDLE OF THE SPHINX
Imagic, Inc.
for Atari 2600
Elaborate quest/adventure for ancient Egyptian treasures.

RIVER RAID
Activision, Inc.
for Atari 2600
Convincing graphics and audio backdrop a jet fighter on mission.

SEAQUEST
Activision
for Atari 2600
Rescue stranded divers in a challenging race against time.

SPACE PANIC
Coleco, Inc.
for Colecovision
Spacemen battle monsters on four levels of challenging grids. Excellent sound.

STAR RAIDERS
Atari, Inc.
for Atari 2600
Hyperwarp between sectors in classic space/combat challenge.
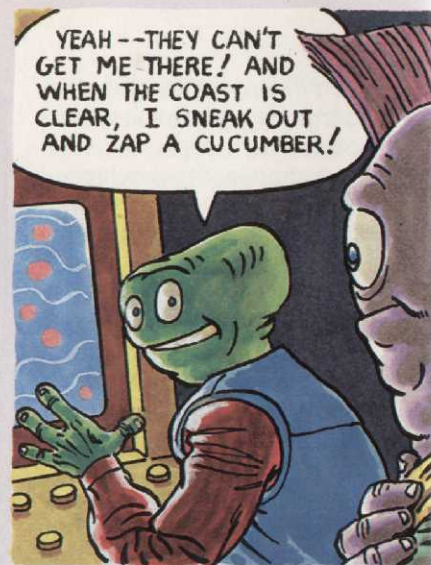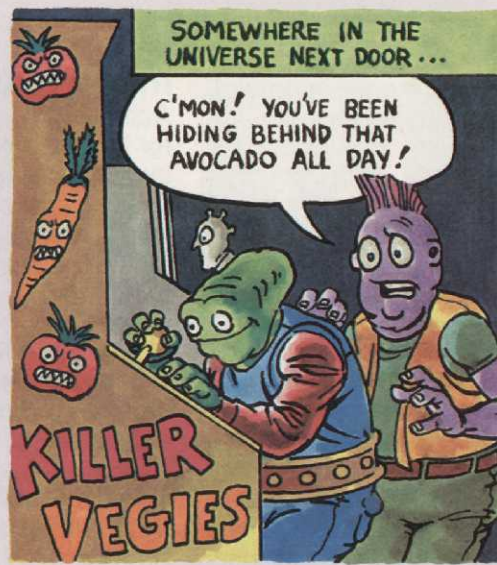
SWORDS & SERPENTS
Imagic, Inc.
for Intellivision
Enchanted swords and medieval wizards guide you through this difficult game.

TROPICAL TROUBLE
Imagic, Inc.
for Intellivision
Detailed graphics add to the excitement on a south seas island.

TRICKS OF THE TRADE

by Doug Mahugh

SOMEWHERE IN THE UNIVERSE NEXT DOOR...

C'MON! YOU'VE BEEN HIDING BEHIND THAT AVOCADO ALL DAY!

YEAH--THEY CAN'T GET ME THERE! AND WHEN THE COAST IS CLEAR, I SNEAK OUT AND ZAP A CUCUMBER!

KILLER VEGIES

Pac-Man after 255 boards are cleared.

WHY 255?

If you can clear 255 boards in Pac-Man, you'll get to a board that looks like the one shown above, and your pattern (if you use one) definitely won't work. Is this an intentional deterrent to high scores — as many players claim — or is it just a problem in the game that shows up when you clear 255 boards? To understand the answer to this question, you need to understand the concept of "rolling over" a byte of computer storage.

All players are familiar with the concept of rolling over a game. To roll over a game means to surpass the highest score that the game can register, so that the score goes back to zero and begins climbing again. For example, if the game can only display six digits of score, it will roll over at 999,999 points, because there is not enough room to display a score of 1,000,000 points. What really happens, of course, is that the score continues to climb over 1,000,000 points but only the six right-most digits of the score are displayed.

The byte rollover is exactly the same phenomenon occuring at another level — instead of rolling over the score display, you are rolling over a single byte (or register) of computer storage. In the Pac-Man split screen, for example, the register that stores the board number has rolled over, and the game program thinks that you are on the "0" board. Since the Pac-Man program was not designed to generate a board numbered 0 (it starts at board 1, the Cherry board), it gets confused and generates the mess depicted above.

Because of the way that computers store numbers (in binary representation), a byte of storage rolls over at 255. In other words, when the game machine adds 1 to 255 it gets a result of 0, in much the same way that scoring 1 point when you have a score of 999,999 in Centipede will give you a score of 0. The reason this happens is that the binary representation of 256 is 100000000, and the computer can only see the eight right-most zeros. (Just as you can only see the six right-most zeros when you score 1,000,000 points in Centipede.)

The byte rollover is a common problem in video games. It's the reason that many games come to a strange and sudden end after 255 boards have been cleared or 255 turns have been earned. If a game does something strange (like the Pac-Man split screen) after 255 boards, it is usually a consequence of the byte rollover and should not be mistaken for an intentional trick by the designer.

By using this pattern, sparks will be trapped.

QIX SPARK LOOP

There are many tricks for avoiding the sparks in Qix, but the one shown above is the best we've found. By building this figure at the center of the top edge of the screen, you can trap all of the sparks in a small loop.

Start out by moving to the top of the screen immediately after appearing on the screen. You must jump over a spark on the way to the top, but don't draw any more than is absolutely necessary.

Once you've reached the top, draw three blocks to form the sides of a rectangle with the top edge as the fourth side. Make the block on the side opposite where you jumped the spark a little larger so that both sparks will get back to the top at the same time. When both sparks are inside the rectangle, close off that area and move to the bottom of the screen. If the trap is set up properly, all additional sparks will go directly into it and you can take as much time as you want to trap the Qix in the lower part of the screen. Just be careful about moving too high up the screen; if you move above the bottom edge of the trap, the sparks will come out of the loop.

YEAH, THATS FINE, BUT LIKE...

...*THEY* WANT TO PLAY TOO!

BARTA '83
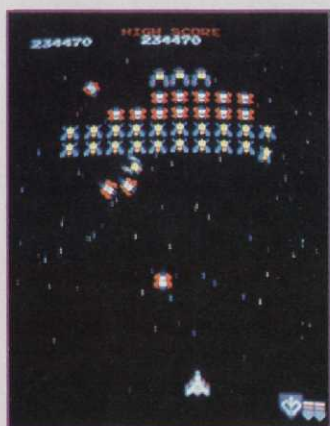
Galaga bugs that can't shoot aren't a threat.

DISARM THE BUGS

In the picture above, none of the Galaga bugs are firing. This isn't just because we took the picture during a break in the action; the Galaga bugs can be made to stop firing for an entire game by the following trick.

Shoot all of the bugs in a wave except for one of the two blue/yellow ones on the far left. You can leave either one or even both, but it is easier to leave just one, because your next task is to avoid the bugs' fire for up to 20 minutes without shooting them.

After you have waited long enough, (anywhere from about five to 20 minutes— we don't know why it isn't always the same), the bug

will stop firing. After he has passed through the top of the screen four times without firing, you can shoot him. From that point on, none of the bugs will fire at you.

Avoiding the bug's shots for 20 minutes can be difficult. One good technique is to stay in the far right corner most of the time. The only shot that can hit you there is one released by the bug while he is off the screen momentarily when he wraps around. If you do get killed, you can just pick up where you left off.

After the bugs have stopped firing, the game is very easy. If you are careful to avoid the bugs that scroll off the bottom of the screen, you should be able to last indefinitely.

If you're in a two-player game, the first player can do the trick and bugs will not fire on the second player's turns either. But after the first player has lost his last turn, the second player's bugs will resume firing.

DONKEY KONG, JR. INFINITE PLAY

This trick allows Player 1 to earn an infinite number of

extra turns, at the expense of Player 2's game. Player 1 just plays a normal game, but each time Player 2 has a turn he must perform a trick that costs him that turn and earns each player an extra turn. If Player 2 can do the trick every time, Player 1 will always have extra turns to play with and Player 2 will always have at least one turn left to perform the trick the next time around.

Donkey Kong, Jr. can be played forever.

At the beginning of the first screen, Junior appears on a platform in the lower left corner of the screen, as shown above. Walk to the right edge of this platform, and move as far right as possible without falling off. Only Junior's heel should still be on the platform.

Wait at the edge of the platform and watch for a blue Snapjaw to come down the first vine to the right. As soon as the Snapjaw leaves the end of the vine to fall in the water, jump toward it. You should hit the Snapjaw at the same time it hits the water.

If you timed your jump correctly, your turn will be over but both players will be awarded an extra turn. You can then play normally (as Player 1) until Player 2's turn comes up again and you must repeat the trick.

THEY'LL NEVER FIND ME BACK HERE...

If you would like to see your favorite trick in this column, write it down and send it to us; for this issue, we extend a special thanks to Desiree McCrorey (for the Qix spark loop) and Tad Perry (for the Galaga and Donkey Kong, Jr. tricks).

INTERACTIVE VIDEO

When the personal computer age was in its infancy, we were subjected to dismal warnings from social experts bemoaning man's inevitable dependence upon machinery. Everything from pocket calculators to digital clocks were suspect, for the passive attitude they generated in their users.

But maturing technology has proven the prophets false, with sophisticated software that demands an active response from the user, whether you're programming it yourself or being entertained by the new wave of laser disk games. In this article on interactive video, we'll explore what is possible now and what lies ahead for users who want to take control of their screens, be it for games or more practical purposes. Laser disk technology makes the options, and your ultimate choices, possible.
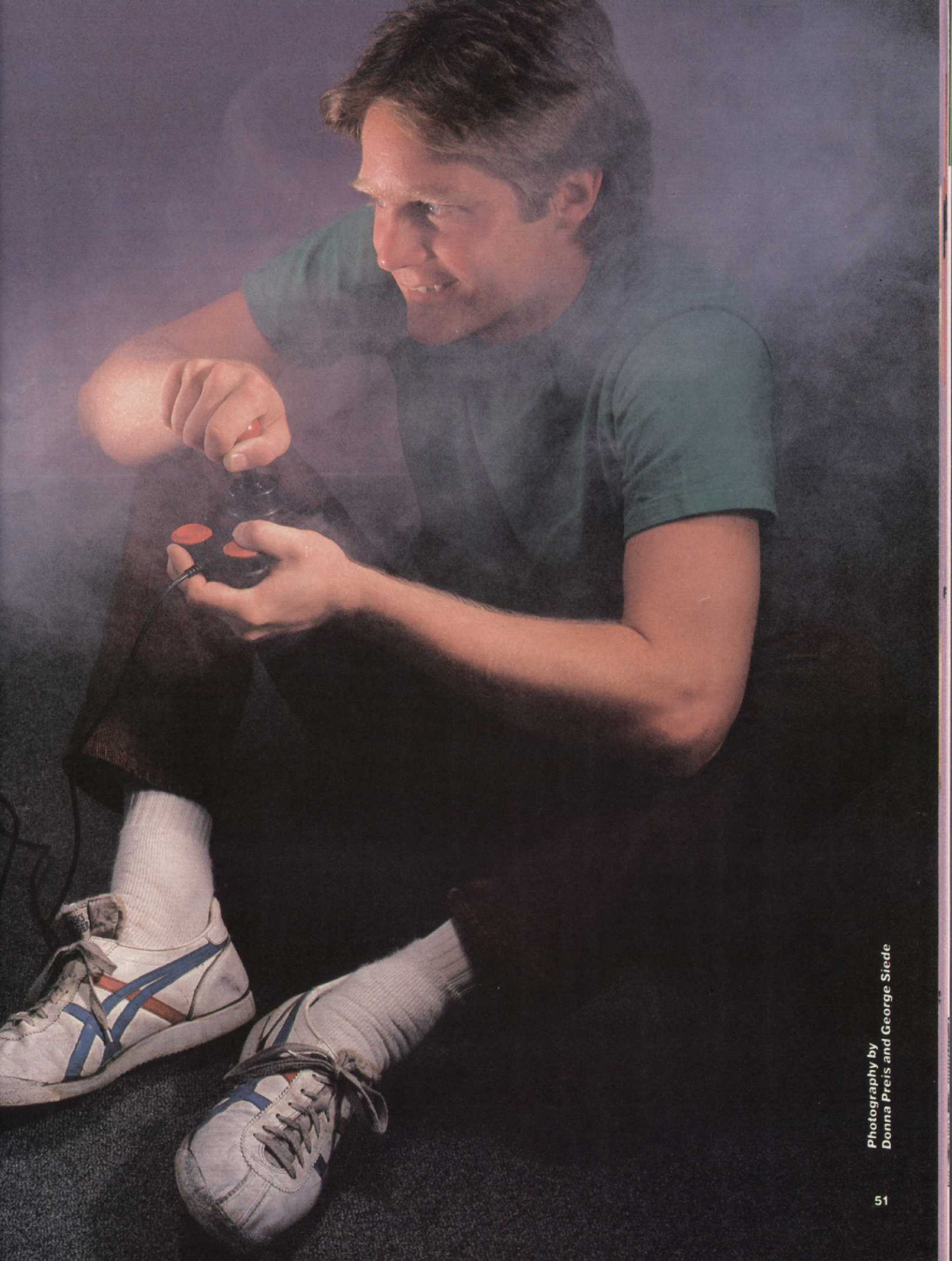
INTERACTIVE VIDEO:

GAMES OF THE FUTURE

In tomorrow's video games, you'll be maneuvering your attack ship over a photographically perfect intergalactic landscape; you'll be Luke Skywalker as he takes on the Empire; you'll be flying the space shuttle as it goes on a mission in space; you'll get all the visual sensations of actually being there, because the picture you'll be watching will be a realistic photographic image.

The amazing games of today will probably seem as graphically exciting tomorrow as Pong is today. How will all this come about? And when?

THE FUTURE IS NOW

The when might be the easier of the two questions to answer. You are seeing it now in your neighborhood arcade. Cinematronics' first interactive optical disk game Dragon's Lair offers something new and different.

Dragon's Lair gives you the ability to move your character (a full-bodied animated medieval warrior) through a number of challenges. Based on your joystick input, the character goes through certain prerecorded outcomes. All the action has the quality of a movie: diagonal lines are true lines, not the collection of large jagged dots on all other video games; and the characters and background have subtle shading and well-defined form. However, since current technology is still in its infancy, the game suffers from relatively slow (about two seconds) access to the appropriate sequence of filmed frames.

Sega also has shown (and is developing) an interactive video game, with rumor circulating that Atari is very close to release as well. Sources at Magnavox and Pioneer (who jointly developed the optical disk which is at the heart of the system), say there may be a number of photographic quality games in the arcades this year.

INTERACTIVE DEFINED

In the early (pre-1984) arcade games, pictures on the video screen were assembled dot by dot by the electronic components inside the game. Drawing an entire TV screen involves much more memory than is available even in the most sophisticated game. The drop in the cost of larger memory devices has improved quality to a corresponding degree, but with a memory-only device, the graphics will always be limited.

In the consumer marketplace, Magnavox introduced a device in late 1978 called a Laser Disk player (now referred to as LaserVision). The system was a remarkable development and provided numerous advantages over any prior video system.

Early models used a disk which held about 30 minutes of video on each side with tremendous flexibility. Disks recorded in that original format gave you a photographic image of each frame of film. Your options included single picture frames, jumping from frame to frame both forward and backward, slow motion (at any selected rate of speed) forward or backward, searching to any frame on the disk, and true, discrete

OPTIONS AND OPINIONS by Mark Brownstein

high quality stereo sound. Although the potential was tremendous, the LaserVision unit was expensive (about $800), and could not record.

Compared to similarly priced or less expensive videotape recorders (which didn't give as good a picture or sound, didn't have all the options, but recorded and didn't require flipping over every half hour), sales of the laser disk players were not good. On top of that, you could rent video tapes, but disks were scarce.

In theory, you could put the entire Encyclopedia Britannica, page by page, onto a single laser disk. All the books required to get through college could be put onto a few disks, and used throughout the entire four year course of study— all for about the cost of one or two of the dozens of required textbooks.

With all that potential, LaserVision has been like a sleeping giant, waiting for an application. In the last year, sales of the players, as well as an increased availability of software has furthered interest in the system. Its tremendous strengths have also been explored by game manufacturers.

HOME APPLICATIONS
An interactive game system is one in which selected sections of the disk are shown, depending on what you do while playing the game. For example, the first interactive disk game, the MysterDisc: Murder, Anyone? takes you through a series of scenes revealing clues to the identity of a murderer. At appropriate points, you are asked to make a decision about

where to go next. Your decision sends you to a specified frame number, where the story continues. In effect, you are writing the story as you go along. In this first, well-received effort, you may create 32 different stories, based upon your choices during the game.

More recently, Optical Programming Associates (a cooperative effort of the major player manufacturers) has released other interactive titles, including a history disk quiz and a guide to martial arts. Each disk guides you to specific frames to see selected material.

For now, this is pretty much the way interactive home applications are going. You come to some kind of crossroads, a point where a decision has to be made, and after you make that decision, you go somewhere else on the disk for the next set of problems. For now, this branching process is slow and rather tedious— you obviously couldn't use a joystick for a fast-action shoot-em-up using a laser disk. You also have to instruct the player to move to the specific indicated frame.

HOME COMPUTER INTERFACE
Home applications are on the verge of a major change. Pioneer, among other companies, has introduced devices allowing computer interface to the LaserVison player. The Pioneer device interfaces with an Apple computer, while others can be used with other computers using standard interfaces. Ultimately the player and the computer actually communicate back and forth. In one of Pioneer's demonstrations, you see an
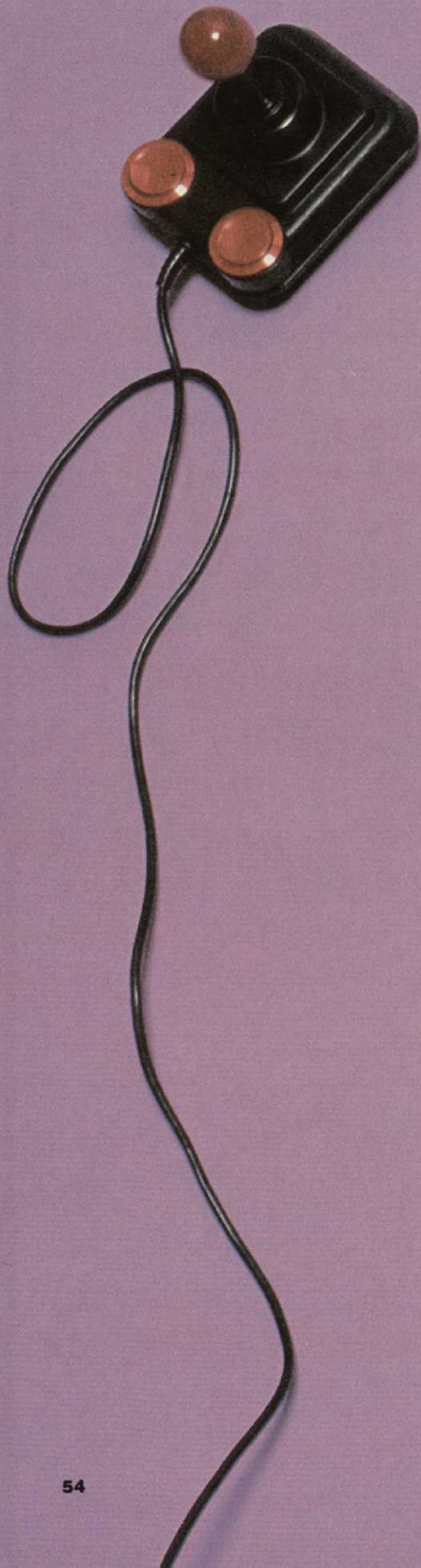
education scene (with Japanese narration), which asks a question. When you answer via the keyboard, the computer automatically tells the player to search to the frame with the appropriate response. Although this is still basically a branching technique, the computer does most of the work.

There are two limitations to this system. The first is that moving from one frame to the disk to another can be very slow. To go from the first frame (the center of the disk) to the last (at the outer edge) can take up to a minute. If you were playing a fast-action game, you couldn't wait a minute to start each time you moved your joystick. Engineers are hard at work on reducing access time, but probably won't be able to totally solve all the bugs, since the laser which reads the disk has to physically move from one spot to another on the disk.

The other limitation is the types of software available. Since you can't record your own disk (yet), you are virtually forced to wait for others to develop it. Disk manufacture is costly, especially in the small numbers which most special game applications will be produced. Although interactive home applications are a noble experiment, it will take a while before there are enough owners of players (with the required infrared remote control jack), who also own computers and interfaces to make special programming profitable.

OPTICAL DISK

Until now, we've been discussing the so-called Optical Disk technology, called optical since a laser optically reads specially encoded pits on the disk, which are converted into a picture and sound signal. In the last few months RCA, developers of the only disk system that is currently competitive with the Laser Disk, has announced an interactive disk system of its own.

The RCA system uses a superfine needle, which reads the disk in much the same way a record player plays a record. Some of the problems with the system are that there is a certain degree of wear, the possibility of skipping if any dust reaches the disk, and a somewhat poorer picture than a laser disk. The new RCA player reportedly has the capacity to search to a page on the disk, and to freeze selected frames. Although not as powerful as the laser system, there is the distinct probability these interactive CED disks are close down the road. Unfortunately for current owners of CED players, in order to use the interactive disks, you will probably have to buy a new player. For about the same money, you could probably buy a year old, full-featured LaserVision player.

THE LASER DISK COMES HOME

If you have a home computer and are wondering if you'll be able to use it with a laser disk player, here's the current state of things. First, you'll need a laser disk player with remote control capabilities. On the back of your disk machine will be a remote control jack, designed to connect with a specific computer interface.

The computer interface controls many of the functions which your remote control provides, including random access frame search, slow or fast motion, and still step in both directions. Pioneer is developing a unit to interface with an Apple computer. Texas Instruments recently introduced an interface for the 99/4A computer which should be available fairly soon.

Apple computers has developed an interface to demonstrate their product. This device should become commercially available for Apples and compatible laser players. Unfortunately, the interface is expected to work only with the Apple.

There are also devices from smaller independent developers which use standard computer interfaces. If your computer has a standard RS-232 port, an IEEE serial port, or can be upgraded to use one or the other, there should be a compatible device available in the near future to provide the intelligent connection between your computer and laser disk player.

Panasonic may have an interface available around the middle of next year for use with their home computer. In addition, Panasonic is reportedly working on a rapid access laser disk to sell for less than $200. The Panasonic interface will probably be a standard which can be modified to attach to other computer systems.

By tying in a Panasonic Interface, and adding the $200 player, interactive programming may become the next new wave of data processing peripherals. A firm called Micro Fun is reportedly developing an interface for Coleco's Adam computer. This probably will also work on other home computers.

The major problem with interactive optical programming is that there aren't enough systems in homes or offices to make designing new disks profitable. With the reduced price and increased availability of this new technology, the situation may improve rapidly toward the middle to end of next year.
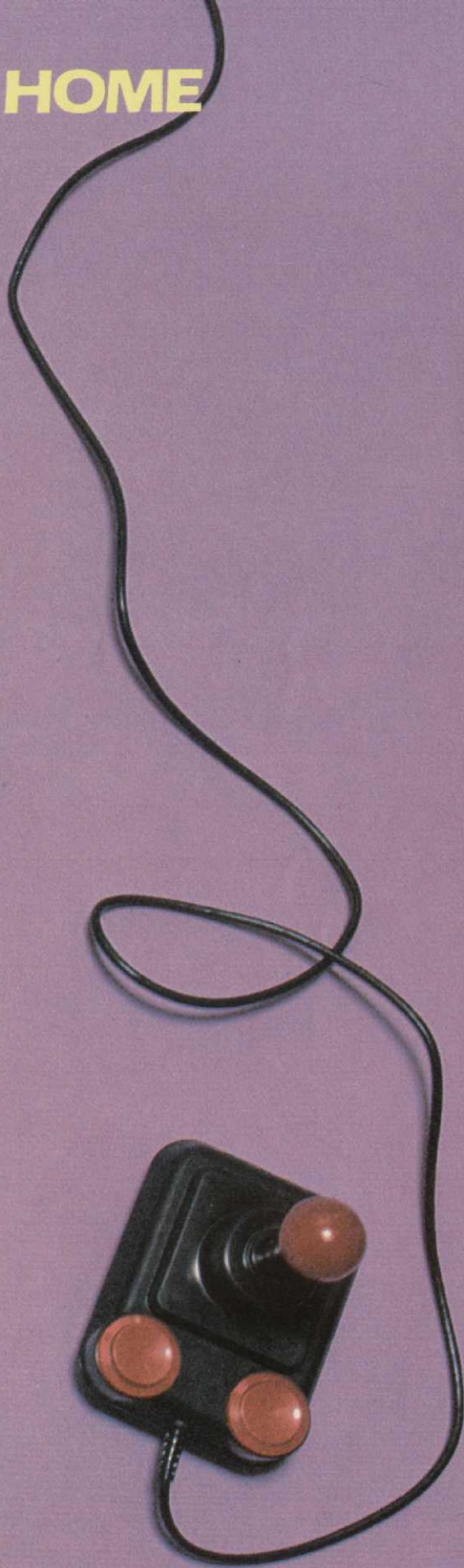
THE LATEST LASER DISKS

If you have a laser disk player and can't wait for computer interactive disks, there's already a fair selection of interactive titles which can be utilized with your present laser disk player and your numeric keypad or remote control. (Unfortunately, many of these programs use auto stop features which weren't built into the originally manufactured units including the Magnavox 8000 or the Pioneer LD 600 machines.)

There are a few companies developing interactive programming. Among these are Optical Programming Associates (a joint effort of Magnavox, Pioneer, and MCA Universal), North American Philips, MCA and Vidmax.

Here are some of the better releases to date:

Fun and Games is designed primarily for pre- or early teens. The disk has numerous activities ranging from tongue-twisters to frisbee throwing to how-to projects. Incorporated into the program are a video board game, where the rules and steps are listed frame by frame. This takes about three or four seconds of on-screen time, but can take hours to play. Using the slow motion, step-frame, and reverse features increases the utility of this disk, which is also fun for parents. Additional games and activities are given on the second sound channel.

The History Disquiz is hosted by Steve Allen. The disk shows film clips of historic events, then asks related questions. Keep a pencil and paper handy to keep a running score. The program has different dialogue on each sound channel—one carries the normal narrative and the other gives you a twisted version.

The Master Cooking Course is exactly what the title suggests. Hosted by Craig Claiborne, we get to watch chef Pierre Franey cook up all kinds of exotic menus, from two different mousses to Portuguese chicken and many other complete menus.

Such techniques as knife sharpening and artistic vegetable cutting are demonstrated. In addition, at the end of the disk is a complete index and recipes. This is really a good introduction to gourmet cooking.

Murder, Anyone? and Murder, Anyone II? are the first and second truly interactive mystery disks. In each you are given the basic mystery. At certain points along the way, you must decide which deductive path to explore in your attempt to solve the mystery. On the first, there are 32 possible scenarios presented. Since each scenario can take about a half hour to explore, the mystery disk can take quite some time to tire of.

Maze Mania is another interesting application. In this disk, you are given a number of different mazes to work through. In order to progress through a maze, you must answer questions. Depending on the accuracy of your answer, you may be sent further along the maze, or back to an earlier path. Your knowledge of the general information questions dictates the path you are to take and the speed with which it will be conquered. In many ways better than any video game (as a result of the photographic resolution of the pictures), Maze Mania offers hours of enjoyment.

Vincent Van Gogh: A Portrait in Two Parts is even more than its name denotes. On the first side is a summary of the accumulated works of Van Gogh, along with a narrative history of his artistic career. Each picture is presented with appropriate critical explanation, and at the end of each period of his life, you have single frame access to each work covered during that period. On the other sound track are Van Gogh's own notes relative to the work or the period during which it was painted. On the flip side is an original play entitled "Vincent —The Play," which was written, directed and performed by Leonard Nimoy. If you are interested in Van Gogh, this is an impressive addition to any serious collector's library.

In addition to these disks, other current releases include Jazzercize, The First National Kidisk, Jim Fixx on Running, and the Joy of Relaxation. With sales of laser disk players growing, and an increasing interest in interfacing with computers, there should soon be many more interactive disks available.

SOFTWARE UPDATES
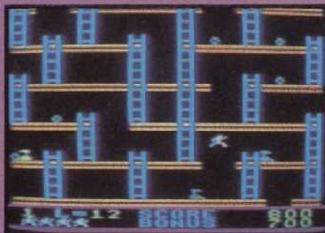
JUMPMAN
Epyx for Commodore 64
★★★
In one of its first entries for the Commodore 64, Epyx has produced an excellent translation of the popular Atari 800 version of Jumpman.

This is a game with 30 screens, each one different from the one before it, each one with new challenges and twists. And each, for the most part, more difficult than the one before it. You have four levels of difficulty, plus an even better variation —a "randomizer," which, after the first screen, takes you randomly through the other 29 screens (so the difficulties are mixed, and you can't really learn all the tricks quickly).

The basic object is to move your Jumpman through a series of Donkey Kong-like structures, avoiding dozens of different obstacles, and picking up bombs. Once all the bombs are collected, you advance to the next level. Complicating the procedure while picking up the bombs, your pathways to other areas of the structure disappear—making some easy walkovers into super-jumps, requiring exact timing.

Jumpman requires patience, a good memory, and lots of practice. It is a game which remains fun through all the many attempts to advance to the next level (if you clear 30, you win). Jumpman is a game which will probably take months to master, and months more to tire of. The game can be played by up to four players, and each player can select the speed of his Jumpman. Perhaps the only real problem with this game is the delay while the next screen is loading, and the time it takes to enter and record your initials on the high- score screen (this screen remains on the disk until someone beats it).

EVOLUTION
Sydney Development Corp. for Commodore 64
★★★
According to its designer Don Mattrick, Evolution was developed when he and Jeff Sember (both high school students at the time) became bored with computer and video games. They wanted something fun to play, interesting and hard to master. They spent a summer vacation programming on an Apple computer, then sold game and concept to Sydney. The Apple version has since been adapted to the Commodore 64 in a diskette version.

Evolution defies most of Darwin's theories, but still makes some rudimentary sense. In each screen you are guiding a progressively higher form of life through some task. The amoebas have to work their way through some primeval protoplasm picking up particles scattered there. If they are touched by alien bacteria, you lose a life. When they

succeed, they progress to tadpole level, swimming at the bottom of the sea trying to catch a fly and avoiding hungry fish.

In the higher levels you eventually evolve to man, the hairless ape. If you conquer all six levels, the game begins anew with the amoeba in an even thicker broth, and the obstacles are more difficult. Get one of the top ten scores, and you can enter your name on the high score screen.

Each level is accompanied by an animated title screen. The music is appropriate and game play is good. The only problem is the delay in waiting for the screens. But Evolution is a unique challenge, one of the more interesting available for the Commodore 64.

REPTON
Sirius Software for Apple II +
★★★★★

Repton, by Dan Thompson and Andy Kaluzniacki, is one home computer program that matches the quality of arcade video games. Its story line takes the player into an elaborate science-fantasy world. Equally satisfying are the faultless animation and the precise, high-speed action game play.

The player, with his squadron of advanced technology Armageddon ships, has five chances to defend his planet from swarms of alien invaders who are trying to build a base upon it. Quarrior ships dismantle and transport the planet's buildings for use in the construction of the outpost. Drayn ships siphon energy from the planet's power sources. These two

varieties must be killed quickly, for if the base is completed, or if all the energy is stolen, an Armageddon bomb will be detonated, destroying everything on the planet's surface. Then, the enemy must be confronted in their underground stronghold. If the player's ships can strike the alien's main generator, play will continue on the surface.

Quarriors and Drayns are supported by a host of other alien vessels. Minelayers disperse destructive devices throughout the atmosphere. Surface-to-air missiles are launched whenever the player's ship passes over the base. Dyne ships fire deadly horizontal energy beams. Nova cruisers, the escort crafts, break into smaller, faster Singleships when hit. The Spye ships, which do not fire, are merely a hazard to navigation.

Each of the player's ships is equipped with an inexhaustible supply of shots, unlimited shield capability, an energy converter, a radar unit, and five Nuke bombs that destroy everything on the screen when activated. An extra ship and Nuke bomb is awarded every 5000 points.

Repton is great in every aspect. The graphics are sharp, quick, and in a word, spectacular. The exciting scenario is genuinely reflected by the game play. Indeed, Repton is fun for both novice and expert. It deserves the highest recommendation.

by Robert Bosch, Katherine Fried and Derek Bosch

OVERCOMING CANNONBALL BLITZ

Cannonball Blitz is a challenging, addictive action game inspired and influenced by Nintendo's Donkey Kong. Designer Olaf Lubeck twisted this widely imitated concept, created a new scenario, and redefined its objectives. In Cannonball Blitz you do not rescue a maiden from a gargantuan gorilla. Instead you capture flags from guarded, trap-infested enemy establishments.

You have three men who can run, climb ladders, make daring leaps and seize vital objects. Even though they can be controlled with your keyboard, a joystick gives better results. Running, controlled by horizontal movement of the joystick, is similar to climbing, which is regulated by vertical movement. Jumping, however, an action performed on the move, uses the joystick's zero button. The last action, grabbing, is done by jumping in such a manner that your man's hands touch the desired object.

Your men are vulnerable to certain attacks and mishaps. Falling from any ramp or platform means immediate death. Contact with cannon fire, the cannons themselves, rolling cannonballs, or the soldier will also prove fatal.

THE STAGES

There are three types of enemy establishments in Cannonball Blitz. The first, known as the springboard stage, is a high platform, reached via a series of gently sloping ramps. A flag, the object of your mission, stands atop this platform. The second type of establishment, known as the rivet stage, is a set of horizontal platforms connected by ladders. Again, a flag stands on top. The third and final establishment, the elevator stage, has a complex arrangement of elevators, platforms, and ladders.

The game begins on the springboard stage, progresses to the rivets and then the elevator stage.

In every stage, there is a score chart in the top right corner of the screen. Its upper, six-digit number is your score; its lower, four-digit number is a bonus clock. At the beginning of every stage, this clock is set to 5000 units, and while you are maneuvering your man up the heights, the clock ticks away 10 unit intervals. When you complete the stage, the number of units remaining on the clock is added to your score. This is the bonus. If your man is killed before he completes a stage, his successor (if there is one) will face the stage just as it was left, the clock will not be set back to 5000.

SCORING

There are several ways to earn points in Cannonball Blitz. One is the bonus value. Jumping a cannonball is worth 200 points, as is removing a rivet. If you jump on a platform or elevator, you earn 100 points. Destroying a cannon will net you 200.

CANNONBALL JUMPING

There are several things to remember to successfully jump cannonballs. First of all, your jump must have some forward momentum; straight up and down jumps always fail. Either jump while your man is running toward a cannonball, or, if he is standing still, move the joystick forward immediately after you press the jump button. You must jump one centimeter from the ball (plus or minus one millimeter). From this distance, it is even possible to clear two balls in one leap (if they are reasonably close to one another). To avoid two cannonballs that are too far apart to jump in one bound, jump the first ball; then, upon landing, run away from the second. When the ball closes within two centimeters of your man, reverse and run toward it. Jump the ball at the usual distance.

METHODS OF ASCENT

There are four different ways to move up the screen in Cannonball Blitz. The first is the springboard, commonly found with one end touching the ground. Position your man so that he rests on the lower end and when a cannonball falls on the upper end, he will be catapulted up one level. If your man is running up a ramp, he must jump those springboards that he wishes to pass. If he is running down a ramp, he doesn't have to jump them; he may run through those that he wishes to pass by. Also, when you use a springboard, make sure your man is flush against its lower end.

To move up or down a ladder, you move the joystick in the desired direction when your man's spine is in line with the ladder's vertical pole.

Riding the balloon is an excellent way to ascend one level. To catch it as it is rising, you jump so your man's hand hooks around the handle. This is done by positioning your man so that he is roughly half a centimeter to either side of the handle, then jumping toward it.

Timing is the key to getting on and off the elevator safely. All you have to do is make sure that your man neither collides with the floor, nor falls too far.

CANNON JUMPING

Jumping cannons is very similar to jumping cannonballs. The only difference is that you must jump when you are a few millimeters closer to the object.

CANNON DESTROYING

To kill a cannon, you must first get the hammer. This is done by jumping so your man's hands pass through the handle. When you have the hammer, move to a position where the fiercely pounding implement will strike a cannon. The cannon will die instantaneously, whether it's on a platform, across a pit, or on a ladder.

To get rid of the hammer (it prevents you from climbing ladders and jumping pits), go to the edge of the screen and move it off the edge.

RIVET REMOVING

A rivet will be removed if your man runs across it from one side to the other. You can also remove one if your man runs halfway onto it and immediately steps back to the safety of the platform. If your man jumps over a rivet, however, it will not be removed.

THE SPRINGBOARD STAGES

There are no patterns that work every time on any of the springboard stages, but these tips help. At the beginning of these stages, hold the joystick in its left-most position to start your man in the correct direction and always move as quickly as possible. Avoid situations where your man will be catapulted up a level into an inevitable collision with a cannonball. Remember that exploding cannonballs appear on wave 2. When you reach the ramp below the flag platform you may jump balls forever. Stand just to the left of the left-most chute door; cannonballs never explode here. If you plan to make many uphill jumps, follow each uphill jump with one or more downhill leaps. This prevents your man from sinking into the ramp.
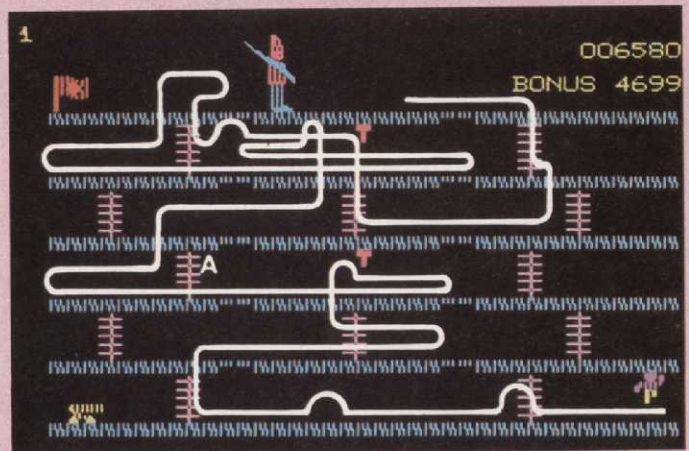
THE RIVET STAGE

At the beginning of this stage, hold the joystick in its left-most position to start your man in the correct direction. Do not hesitate unless the pattern specifically calls for a hesitation. Make sure that you do not fall off the edge when you are putting away the hammer.

In the first wave of a rivet stage, follow the pattern illustrated in diagram A. Begin by moving halfway up the first ladder and waiting until the cannon above you begins pursuit. Jump the cannons, then grab the hammer on the third level and destroy a cannon. Align your man's spine with the ladder's pole on the left, wait until the cannon above descends in pursuit of you, move several centimeters to the left and destroy the cannon while it is still on the ladder. A bug in the program will cause the cannon on the lower platform to be killed also. Once you get rid of the hammer, climb to the next level and clear the right rivet by moving halfway onto it and immediately moving back to safety. Proceed to the next level, grab the hammer, destroy the cannons as shown and end by jumping across the pit.

The second wave pattern (diagram B) opens in the same way but follows a different route. One extra man is awarded after completing a rivet stage.

ELEVATOR STAGE

When your man comes within one centimeter of the end of the platform (diagram C) jump onto the elevator without hesitation. The motion should be fluid and continuous. When he lands on the first elevator, center the joystick. Keep moving from platform to elevator as shown. Grab the hammer at the lower right corner and destroy the cannon and proceed upward. On the top platforms, position your man on the right third of the platform. When a cannonball passes, make your move to the left. Without stopping make your way to the ladder, climb it and move to the flag.

A In the first wave of the rivet stage, align your man's spine with the ladder's pole at point A, wait until the cannon descends, move to the left and kill it. A programming bug will cause the cannon on the lower level to die as well.
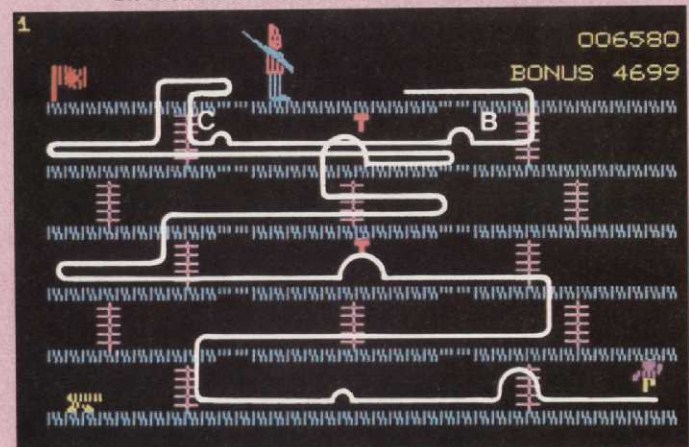
B For the second wave, hesitate at point B on the fifth platform until the cannon moves directly into your range. At point C, stand directly above the lower level's ladder. When the cannon descends, destroy it.
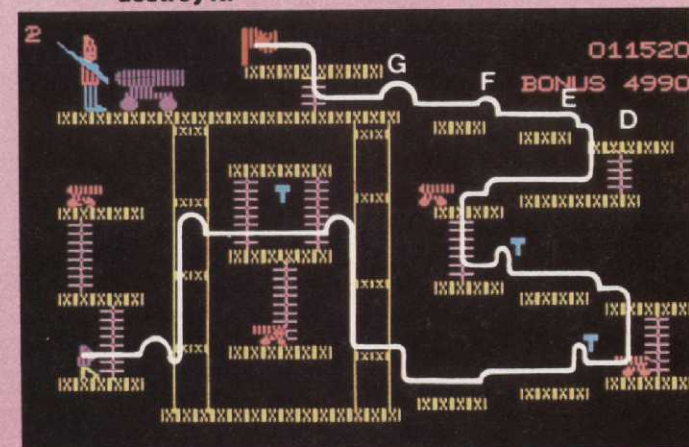
C On the elevator stage, move your man from platform to platform without hesitation. At points D, E, F and G position yourself to the right of the platform, move quickly left then jump to the next platform.

TECHNOCRACY

THE NEXT VOICE YOU HEAR

Atari, Inc. has demonstrated the first home video game controller to use voice synthesis and recognition, allowing the player to control games with oral commands from a controller headset rather than with conventional joystick or paddles.

The new voice capability, shown at the Summer Consumer Electronics Show in Chicago, is made possible with an add-on module, the Voice Controller. The Voice Controller plugs into the controller port of the Atari 2600 and is accompanied by an audio headset.

The Voice Controller is manufactured by the Milton Bradley Company and should be available now. The initial library of games to use the module will include RealSports BASEBALL, Star Raiders, Battlezone and Berzerk. Suggested retail price is $99.95.

ANDROBOT

Has Nolan Bushnell done it again? We'll just have to wait and see. If—in a few years—personal robots are as common as video games, then the man who founded Atari and Chuck E. Cheese Pizza Time Theatres can claim to have been at the forefront of yet another hi-tech craze.

Androbot, Inc. is Bushnell's latest venture, and he has high hopes for this small, aggressive Silicon Valley company. Androbot's first commercial products are B.O.B. and TOPO, person-

al robots for your home. B.O.B. operates entirely on his own, while TOPO requires a home computer to control him.

B.O.B. (an acronym for "brains on board") features three megabyte processing capability and three Intel 8088 16-bit microprocessors. Five built-in ultrasonic sensors allow B.O.B. to locate and measure objects in his immediate vicinity, and this information is logged in his memory so that he can move about at will without running into things. Infra-red sensors enable him to differentiate between humans and inanimate objects (based on their temperature), so that— supposedly—B.O.B. can treat people like people and objects like objects. (In other words, he knows better than to walk up to your television set and strike up a conversation.)

TOPO is similar to B.O.B., but he has no brains of his own—he needs the help of a home computer to control him. A remote radio link will allow TOPO to receive commands from your home computer up to 90 feet away.

Both robots stand three feet tall and move about on two motor-driven wheels. They are completely stable even when they aren't moving, because of a revolutionary drive assembly called Andromotion (TM). B.O.B. will sell for $2495, and TOPO will sell for $995.

A wide range of accessories will be available for B.O.B., allowing him to

perform many common household tasks. He can carry things around in his Androwagon, for example, or dispense cold beverages from his optional AndroFridge. And an AndroSentry cartridge will enable him to patrol and safeguard your home.

In addition to B.O.B. and TOPO, Androbot has announced plans to introduce F.R.E.D. (Friendly Robotic Educational Device) and AndroMan. F.R.E.D. stands 12 inches tall and can walk, talk, and draw pictures on command. He has a 45 word vocabulary, but his real interest is sketching. Put a pen in his drawing pen attachment, and F.R.E.D. will duplicate any pattern you create on your computer screen by dragging the pen across your floor or tabletop. With a little planning and patience, you could even teach him to do it on paper.

AndroMan is designed to play games with you on your Atari 2600. While you control the action on the TV screen, AndroMan will be playing the same game "in real life," moving over a GameScape that you set up on the floor complete with real objects that correspond to images on the screen.

Androbot has not announced specific prices or shipping dates for F.R.E.D. and AndroMan.

THE WAIT IS OVER

If you've been frustrated over the selection of games for your Colecovision,

we've got some good news for you—the wait is just about over. In a manner similar to that which got companies with varied interests involved in putting a glut of Atari-compatible games on the market, a number of manufacturers are cautiously preparing Colecovision game cartridges.

The new cartridges, in many cases, outdo Coleco by eliminating the 15-second load time. You just plug in the cartridge, turn the switch on, and enter game options through your keypad, or in some games, just start playing. A major complaint about Coleco games is now virtually eliminated, and with competitors on the market, Coleco undoubtedly will come out with their own "instant-on" cartridges.

The list of manufacturers of Coleco carts is impressive and continues to grow. Imagic is the first major Atari-compatible manufacturer to sign a licensing agreement with Coleco. Their Nova Blast game and a yet untitled adventure game both boast impressive graphics. Sydney Development Company, a Canadian software house, is set to release Colecovision versions of Evolution and Quest for Tires. Micro Fun will be coming out with Miner 2049er, an adaptation of the very popular Big Five computer game for Atari. Starpath is adapting the most successful of its SuperCharger games to the system; the first release will probably be Escape from the Mindmaster, with

others scheduled to follow shortly. Parker Brothers, N.A.P. (the makers of Odyssey2), and a host of others will soon be entering the field with their own releases.

DIFFICULTY SETTINGS

Arcade owners have the option to adjust their machines to prevent individual players from tying up a game for too long. Here are the possible difficulty settings for several current games, along with the setting recommended by the manufacturers.

Atari designed Star Wars to be played at easy, moderate, hard or super hard levels. It is possible to begin a new game with as many as nine shields and there are zero to three bonus shields available per wave completed. When Star Wars machines leave the factory, they are set at the hard level, games begin with six shields and one bonus shield is awarded per wave completed.

Congo Bongo can be set at easy, medium, hard or hardest difficulty levels. Sega sets it for easy play. There are a potential five hunters allocated per game and bonuses can be earned at 10,000, 20,000, 30,000 or 40,000 points. New machines are set for three hunters and bonuses are awarded at 10,000 points.

Difficulty levels for Time Pilot by Centuri range from very easy to easy, difficult, and very difficult. A possible three, four or five lives

are available and bonuses can be earned at 10,000 and 50,000 points and 20,000 and 60,000 points. Recommended settings are difficult, three lives and bonuses at 20,000 and 60,000.

There are ten possible levels of difficulty (ranging from zero to nine) available on Splat by Williams. The factory sets the machines on level 5. In a long game, a man is awarded every 1000 points; in a very short game, a new life is earned every 79,000 points. The factory setting lets you earn three men during a game. The number of seconds per wave varies from 15 to 99. Factory standard is 30 seconds per wave.

When Millipede games reach an arcade, they can be set for easy or hard millipede heads, easy or hard beetles and easy or hard spiders. A total of three, four or five lives are possible. They can be set so no bonuses are available or so extra turns are awarded at every 12,000, 15,000 or 20,000 points. The select mode enables a player to choose a starting level from novice to expert. The games leave Atari's factory set for easy millipedes, beetles and spiders and three lives are available. Bonuses are awarded every 15,000 points and they are set at "disable" mode, which begins each game at a score of zero.

Two levels of difficulty are possible in Cinematronics' laser disk Dragon's Lair game. There are a possible three or five lives available.

Machines leave the factory set on level 1, giving three lives. The machines can also be adjusted to accept two, three or four coins. Most accept two, making Dragon's Lair the first game to absolutely require a double dip.

BUSINESS AND PLEASURE

Home video takes on a new aura of respectability with the introduction of Coleco's Adam Family Computer System, just in time for holiday celebrations and income tax filing. But besides the inspired marketing bid of blending business and pleasure in one package, what makes this system remarkable is its price tag. The Adam is a complete computing/gaming package retailing for less than $600, comparable to the price of an electric typewriter, an appliance which the system virtually erases all need for.

Giving the Adam its bite is the union of two memory systems. A solid state 80K of RAM is supplemented by a magnetic digital drive the manufacturer dubs Data-Pak. The digital drive stores up to 500K bytes of data (that's 250 double-spaced pages) by expanding the standard RAM to 144K with an optional 64K memory module. A modular expansion port will accept a variety of peripherals, even a second digital drive, all on the same neatly engineered console that plays Colecovision game cartridges.

Perhaps symbolic of Coleco's new cloak of serious

computing are the two game controllers included in the package. Hand-held or attached to the computer, they double as devices for entering numbers and cursor control, as well as playing games. There are also several other features making the system an attractive multi-purpose unit for the home. Word processing software is built in. The keyboard is full sized. An optional printer, which accepts fanfold computer paper or conventional letterhead, delivers 120 words per minute using standard daisy wheels.

Not only is the Adam's software integrated, permitting the interchange of data among various programs, but the system is designed to be compatible with CP/M application programs and Apple-Source Code software. Many programs written in AppleSoft Basic will run on it. Coleco also is introducing its own line of Smart Software, including educational and information management programs.

The key to the system is a network of matched microprocessors in the keyboard, printer and memory console. Together, they free the full power of the central processing unit to simultaneously perform coordinated tasks.
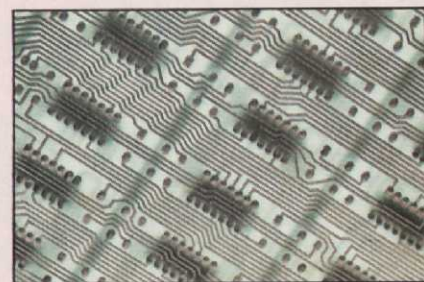
JOYSTIK CHARTS

The list grows longer and the scores grow higher! Send your high scores to the Twin Galaxies International Score-board: 226 E. Main Street, Ottumwa, Iowa 52501. Please include a signed verification of your score(s) from the owner or manager of the arcade in which the score was achieved. Also, be sure to include the bonus and difficulty settings from the machine you played, and any comments you wish to make about the game.

Game	Player	High Score	Date	Arcade Location
Arabian	Mike Ziara	102,850	6/15/83	Golden Dome: Salisbury, MD
Asteroids	Leo Daniels	40,101,910	2/6/82	Ocean View Corp.: Carolina Beach, NC
Asteroids Deluxe	Leo Daniels	2,269,230	5/3/82	Light Years Amusement: Wrightsville Beach, NC
Bagman	Mark Robichek	3,333,330	4/30/83	Golfland USA: San Jose, CA
Battlezone	Jack Haddad	21,851,000	5/5/83	Golfland USA: San Jose, CA
Berzerk	Ron Bailey	77,490	3/22/83	Time Out Arcade: Gastonia, NC
Bubbles	Spencer Ouren	749,790	5/5/83	Strand Union Recreation Center: Bozeman, MT
Buck Rogers	Bruce Borasato	313,330	3/8/83	Electric Pizazz: Trail, British Columbia
Bump-n-Jump	Mike Ternasky	1,971,000	5/23/83	Golfland: Milpitas, CA
BurgerTime	Thomas Sher	5,663,220	5/11/83	Columbis Video: San Francisco, CA
Centipede	Darren Olson	15,207,353	10/7/83	Reflections: Calgary, Alberta
Congo Bongo	Steve Harris	376,470	6/22/83	Bob's IGA: Kansas City, MO
Defender	Burt Jennings	76,377,300	4/8/83	Outer Limits: Durham, NC
Dig Dug	Ken Arthur	4,129,600	1/20/83	Video Games Inc.: Blacksburg, VA
Donkey Kong	Bill Mitchell	874,300	11/82	Twin Galaxies Arcade: Ottumwa, IA
Donkey Kong, Jr.	Bill Mitchell	957,300	11/82	Twin Galaxies Arcade: Ottumwa, IA
Frogger	Mike Mann	4,789,909	3/4/83	The Arcade: Oak Park Heights, MN
Front Line	Jeff Peters	668,400	5/13/83	Starship Video: Upland, CA
Galaga	Mike Lynn	12,753,570	12/29/82	Phil's: Lakewood, CA
Galaxian	Perry Rodgers	389,770	5/12/83	Martini's Time Machine: San Luis, CA
Gyruss	Todd Walker	905,650	no listing	Golfland: Milpitas, CA
Jungle King	Michael Torcello	1,510,220	5/83	Wegman's: East Rochester, NY
Make Trax	Clifton Newman	1,888,940	4/21/83	Outer Limits: Durham, NC
Millipede	Ben Gold	4,304,549	2/4/83	Pro Video Game Center: Dallas, TX
Missile Command	Victor Ali	69,739,020	1/21/83	Cinedome 7: San Francisco, CA
Moon Patrol	Mark Robichek	1,214,600	3/11/83	Golfland USA: Mountain View, CA
Mr. Do!	John McKeever	2,535,850	5/14/83	Casino Amusement Ctr.: Montreal, Quebec
Ms. Pac-Man	Tom Asaki	419,950	6/19/83	Twin Galaxies: Ottumwa, IA
Pac-Man	Les Martin	12,719,060	no listing	Golden Dome: Salisbury, MD
Pengo	Kevin Leisner	809,990	2/25/83	Mission Control: Racine, WI
Phoenix	Mark Gotfraind	987,620	3/7/83	Cloverleaf Miniature Golf: N. Miami Beach, FL
Pole Position	Les Lagier	66,710	6/7/83	Video Paradise: San Jose, CA
Popeye	Steve Harris	818,280	5/17/83	NKC Pro Bowl: Kansas City, MO
Q*Bert	Terry Mann	24,000,060	5/18/83	Saturn's Ring: Medford, OR
Qix	Bill Camden	1,666,604	1/15/83	Galaxy I: Lynchberg, VA
Reactor	Todd Mayberry	396,731	2/11/83	Mack Gold Mine: Kennett, MO
Robotron	Robert Bonney	325,325,325	4/26/83	Wizards Video Magic: Kirkland, WA
Satan's Hollow	Michael Ward	8,692,035	3/12/83	Odyssey: Madison, WI
Scramble	John Norman	999,250	12/6/82	Light Years Amusement: Wrightsville Beach, NC
Sinistar	Don Morlan	1,099,000	6/28/83	Arnolds Arcade: Kent, WA
Space Duel	David Covell	597,750	4/23/83	Bun & Games: Kenosha, WI
Space Invaders	Ted Troide	2,066,060	5/31/83	Alvin Ords: Nacogdoches, TX
Stargate	Roger Mangum	71,473,400	4/8/83	Outer Limits: Durham, NC
Tempest	Pablo Zaldiver	9,911,772	12/24/82	Marty-Mart: New Orleans, LA
Time Pilot	Bill Bradham	4,134,400	6/10/83	Take Ten: Dublin, GA
Tron	Huberto Gandara	8,999,998	6/12/83	7-11: Temple, TX
Turbo	Garlin Bullard	154,442	5/8/83	Just For Fun: Villa Park, IL
Tutankham	Mark Robichek	1,004,980	4/3/83	Golfland USA: Milpitas, CA
Xevious	Tim Williams	9,999,990	5/16/83	Mr. Bill's: Moscow, ID
Zaxxon	Eric Burch	3,839,550	4/9/83	Chuck E. Cheese: Waco, TX
Zookeeper	Eric Ginner	8,601,990	6/27/83	Golfland USA: Sunnyvale, CA

Which player's score is about to take flight?

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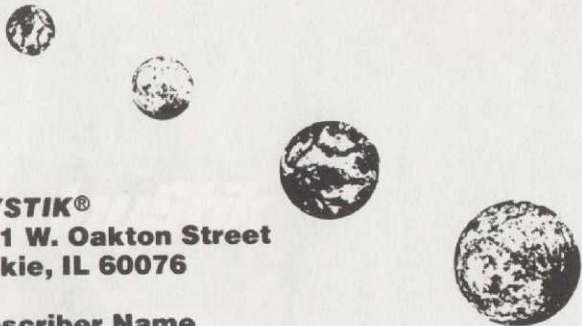
But in Phoenix you can't just wing it. You can't shoot like the player on the left. Because he'll get only 100 points for a bird high in the sky. While the player on the right will shoot the same bird low in the sky for 500 points. And a feather in his cap.

So whether you aim high or low, aim to get Phoenix home. Any other idea is for the birds.

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J