HOW TO BEAT THE VIDEO GAMES

A complete book of strategy
featuring surefire techniques* to outsmart all the most
popular games, including:

PAC-MAN	**TEMPEST**	**DEFENDER**
BATTLEZONE	**BERZERK**	**CENTIPEDE**
QIX	**GORF**	**SPACE INVADERS**
ASTEROIDS	**SCRAMBLE**	**STAR CASTLE**
GALAXIAN	**GALAGA**	**MOUSETRAP**
MAKE TRAX	**ELIMINATOR**	**DONKEY KONG**
STARGATE		**OMEGA RACE**

*Simple, step-by-step strategies to
boost your score dramatically

*Easy-to-follow illustrations

BY MICHAEL BLANCHET

video-game wizard and tournament champion

These video games are all trademarked by their manufacturers

FIRESIDE

How to Beat the VIDEO Games

Michael Blanchet

Illustrated by R. B. Backhaus

A CRABWALK BOOK CONCEPT

A FIRESIDE BOOK
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PART ONE

THE
BASICS

Player Beware

Let's face it, folks, video is a buyers' market and you are the consumer. It's no longer necessary to drive all over town looking for your favorite game, or, even worse, to wait for the seasonal game rooms to open in the summer. Video games have cropped up everywhere, and the end of the "alien" infiltration is nowhere in sight.

In case you haven't noticed, this video phenomenon is meeting strong resistance on all fronts. Towns and cities discourage it; parents disdain it. Their arguments are plentiful but, on the whole, irrational.

Contrary to popular belief, video games are not the "get rich quick" scheme most of us think they are. Considerable time, money, and effort go into running a quality gameroom, where the "intelligent consumer" can get his or her money's worth.

A small percentage of operators do business differently and you are the victim of their "corner cutting."

A top-quality video game is the fruit of painstaking research and development. To protect their creations, video game manufacturers are granted copyrights on the game that are very similar to the copyrights that protect the rights of an author or a film company from illegal copying.

With total disregard for this protection, *Pac-Man* has been copied and repackaged as *Puck-Man, Gobbler, Cruiser, Packman,* and *Speedy,* to name a few. I call this illegal practice bootlegging: the theft of original, copyrighted material.

A bootleg game closely resembles the real thing, but with some minute differences. If the name of the game is not displayed at the top of the cabinet, I become suspicious. If it does appear, chances are that it is misspelled. *Pac-Man* is corrupted to *Pack-Man*, *Scramble* to *Scrambles*, *Donkey Kong* to *Donkey King*, and so on, or letters are changed, added, or transposed. A sound-alike name may also be created. *Defender* becomes *Defense, Avenger,* etc. The cabinet on a bootleg game is usually devoid of artwork and if you look closely you can notice differences in the control board and the direction sheet. Generally, on the whole, the workmanship is inferior.

This all adds up to one conclusion. If you play one of these games, you are probably not getting your money's worth. Nobody pays full price for an imitation, so be smart and be selective. Play the real thing.

Before You Play

Very few of us would step onto a golf course without a putter, or play baseball without a mitt. But many of us think nothing of dropping a quarter into the slot of a video game we've never played before. When the smoke clears, most people ask themselves, "What happened?" The answer is simple: You're not playing with the proper equipment.

"Equipment? What equipment?" Let me explain.

Directions on video games are oversimplified at best. (For example: "Shoot enemy ships for points.") Tips on strategy are only discovered after much anger and frustration and, of course, uncounted quarters.

The purpose of this book is to show you the "tools" that are at your disposal, not only to increase scores, but to enhance your enjoyment of video games as well.

INSERT COINS

I don't recall the score I got the first time I played *Space Invaders,* but the bitter taste of defeat at the hands of that machine still remains strong. Even worse was the memory of that same machine I played so often robbing me of a quarter.

Getting a machine to give you credit for your quarter is the first hurdle to be cleared. Here are some precautions to protect yourself from the "Armless Bandit."

DON'T PANIC

Once you have deposited your quarter and realized that you have not received credit, don't panic. A typical first response may be a left jab to the coin door, usually followed by a swift kick. This is the worst possible course of action. Most video games are equipped with anti-abuse mechanisms, or "slap switches." A direct blow to the front door causes a switch to close, thus shutting off the game. Punching and kicking are unnecessary.

USE COMMON SENSE

The intelligent alternative is to use the coin-return button and to check the coin-return slot. This method is quite painless, easy, and solves 99% of coin-jam problems.

Don't ever throw good money after bad. If one quarter is stuck, don't add another one. Chances are you'll lose that one, too.

STATIC SHOCK

Static electricity is one of the game-room goer's worst enemies. The problem is most prevalent during the winter months, particularly where there is a carpeted floor.

As you walk about a carpeted floor, your body collects a static charge. By touching a metallic surface, such as a coin slot, you release the static charge into the machine, initiating what is called a false "self-test" sequence. Meaningless images flash across the screen, followed by a checkerboard of white squares. When this sequence is complete, the game will reset and be ready to play. Unfortunately, if the self-test is triggered as you deposit your coin, the game will not give you credit.

Protect yourself from the devastation of static discharge by following these simple steps:

1. Before inserting, simply touch your quarter to the outside surface of the coin slot. If you notice no change on the screen, it is safe to insert the coin and play.
2. If you notice an unusual pattern on the monitor after you have grounded yourself to the machine, wait until the game resets and then insert the coin.
3. In a two-player situation, *both* players should ground themselves before inserting coins. If only one player grounds himself, the second player will knock the game off the machine when it's touched.
4. Be courteous to fellow videots. Don't touch any metal surfaces on a game that others are playing. Static shock will cause the game to reset.

OTHER PITFALLS

A quick inspection of your pocket change will also save you unnecessary trouble. Never deposit a bent quarter into a machine. You're bound to have problems. The majority of machines in the United States also do not accept Canadian quarters. If in doubt, ask the attendant.

BE ALERT

If a coin is deposited during the high-score initial mode, the credit information will not immediately appear on the screen. Don't panic. Once the high-score initials are entered, or the present time of that mode expires, the number of appropriate credits will be displayed on the screen. Now you can start your game.

Input: The Player Takes Over

The mass appeal of video games is largely due to the input, or skill factor. Unlike games of chance, your score is not determined by factors over which you have no control. Exactly the opposite is true: you have total control over the eventual outcome. The secret of proficiency lies in your ability to handle the game controls properly.

A SOFT TOUCH WORKS BEST

On the whole, most properly adjusted game controls require very little pushing or pulling to activate. Familiarize yourself with the way buttons and joysticks operate—they have a personality all their own. And remember, a soft touch works best.

BUTTONS—LEAF SWITCH

Most American-made video games are equipped with leaf switch button controls.

As you press down on the button, the top leaf makes contact with the bottom leaf. It is important to remember that it is not always necessary to push the button all the way down to make contact. In some instances, such a practice can be detrimental to performance.

On a machine such as *Space Invaders,* each time the firing button is pushed, one shot from the laser base is released. Before another shot can be fired, the following conditions must be satisfied:

A. The shot must score a hit or travel to the top of the screen.
B. The firing button must be released to the point where the leaf switches no longer make contact.

It follows, therefore, that accuracy, coupled with a soft touch, cuts the recovery time before the firing of the next shot.

REPETITIVE FIRE

Atari's *Centipede* and *Tempest* offer the capability of repetitive fire, making it unnecessary to release the firing button for a second shot. To achieve this machine-gun effect, simply hold down the firing button. But be forewarned—the second shot will not be released until the first one scores a hit or travels to the top of the screen. The finer points of repetitive firing will be discussed in later chapters.

JOYSTICKS

A joystick is best described as a four-directional steering wheel. It consists of four sets of leaf switches positioned at right angles to each other, each of which activates one particular game function. Again, a soft but gently firm touch will assure the best results.

The mechanics of the joystick operation are very similar to those of the leaf switch button. As you move the joystick up, down, left, or right, you will notice a point of resistance. In this position, the leaf₁ switch will be closed and the game will react accordingly. When handling a joystick, be firm, but never bang or push on it. Not only will such action slow your recovery time for transition from one direction to another, it will damage the leaf switches and render them less responsive to your commands.

MICROSWITCHES

Games manufactured overseas are usually equipped with joysticks or buttons that utilize microswitches. You can detect a microswitch by the audible click it emits when closed or opened.

Microswitch-equipped joysticks, unlike their leaf switch counterparts, are more finicky and allow less margin for error. Extra attention and finesse are required to manipulate them properly, since the microswitches are close to each other. Failure to move the joystick exactly left or exactly right may result in more than one of the switches closing at the same time, or prevent the intended switch from closing at all. In any case, the results will be the same. The object you control will not move.

Compared to leaf switches, microswitches offer more resistance to the touch, and upon release will cause the joystick to spring back to the center switch more quickly. If the joystick rebounds with enough force, it may trigger the switch opposite the one it was previously against. When dealing with a joystick of this type, be firm and precise in your movements. When dealing with an eight-position joystick, you may find it easier to allow the handle to return to the center before attempting a diagonal move. Other methods of joystick control will be discussed in later chapters.

PART TWO

THE GAMES

Battlezone

If you don't understand how to play *Battlezone,* chances are you're not alone. If you do, pat yourself on the back. This is a tough one, a one-of-a-kind game. Most video games are played in the "third person"; that is, you see your ship (or other identifying object) and your enemy simultaneously. In *Battlezone,* the "you" is in the tank. Future games, you can bet, will incorporate this same unique concept.

When you play *Battlezone* you might imagine yourself in a car with only a front windshield. You can see only what's directly in front of you, but you must keep in mind that both you and the enemy forces have access to the entire play surface. Caution: Enemy tanks can stalk your blind side. To assist you in bringing these "ghost" tanks into your view, *Battlezone* is equipped with a radar screen located at the top of the monitor. Your field of vision is represented by a pie-shaped wedge at the top of the scanner. It looks like this:
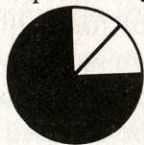
Battlezone pits you against four opponents:

1. Tanks   1000

2. Super Tanks   3000

3. Buzz Bombs   2000

4. Saucers   5000

GAME STRATEGY

To score in *Battlezone,* you must first understand the capabilities of your tank, as well as the personalities of your opponents.

YOUR TANK

Your tank is controlled by the two handles on the control panel. Remember that a tank travels on treads, not tires. Pulling one handle all the way while pushing the other all the way causes the tank to spin in place. Avoid this at all costs. Don't be fooled by the change in scenery, because you haven't moved at all. You'll be shot and destroyed.

Your tank is capable of forward and backward movement, and an infinite combination of angles.

The limits of your firepower are standard: one shot at a time, the second not to be released until the first hits an obstacle, scores a hit, or travels to the horizon. The only exception is when you are faced with a cruise missile. Once it touches the ground, you are only allowed one shot.

YOUR OPPONENTS AND HOW TO BEAT THEM

1. The Tank:

When the game starts, you will be confronted with an enemy tank. In most cases, it will not fire at you until the second hand on the radar scope makes eight sweeps (an important point to remember when the tanks appear behind you). If you manage to get the enemy tank into your crosshairs while it sits broadside to you, simply fire and destroy it.

If the tank is in your field of vision and facing you, do the following:

A. *Do not* attempt to fire right down your enemy's throat. If he fires back at you while you're getting into position, chances are you'll get hit.

B. If the tank is to your left or right, respectively, move forward on a parallel course. The tank will be firing past you, so you need not worry about being hit if you are on a straight course.

C. As you move forward, the tank will loom larger. Proceed on a forward course until he disappears from your sight.

D. Quickly glance at the radar scope. When the enemy tank appears just past center, pull the control handles straight back. As the blip (the tank) appears on the other side of center, turn left or right, depending on which side the tank is in relation to you.

E. The tank will appear in front of you broadside. Fire and destroy it.

If the next enemy tank appears outside your field of vision, remember that you have approximately eight sweeps of the second hand, or bleeper, before you will be fired upon. Use the time to maneuver the enemy tank into

your sights and continue with the battle plan just described.
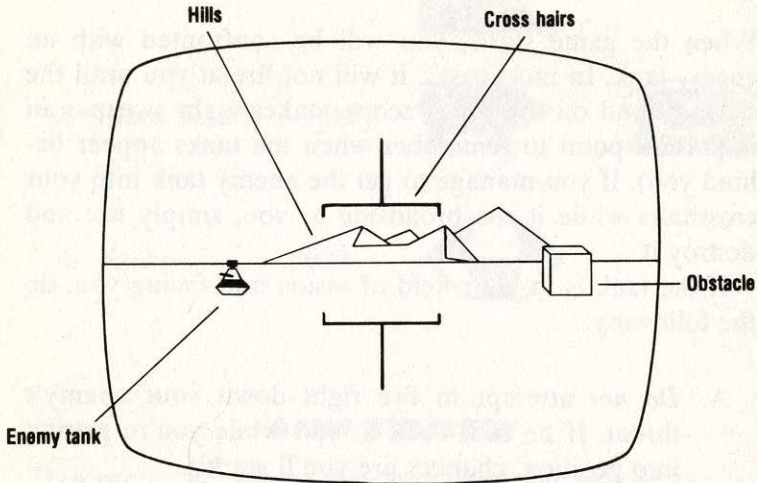
Approach enemy tanks on a parallel course. Once they pass your tank, reverse, turn and shoot.

2. Cruise Missiles:

After you have successfully destroyed the first wave of tanks, you will be further assaulted by cruise missiles. Their presence will be preceded by an audible hum or buzz. Once they touch down on the horizon, you have only one shot left with which to destroy them.

The first Buzz Bomb is a piece of cake. It will touch down and head directly for you. When the crosshairs show that you are on target, fire and destroy it.

The ensuing missiles are much more clever, so pay attention.

A. When you hear the second missile approaching, pull straight back on the control handles. This will

slow down its flight, giving you more time to attack it.

B. When the missile touches down, square off your crosshairs and face it.

C. The missile will make sweeping turns across the screen as it approaches you. Each turn will be smaller than the one before it.

D. On the third turn, lead the missile to the left about one inch and fire. It will turn to destroy you and be hit by the oncoming shot.

Fail-Safes

If you don't trust your timing, you may wait until the missile comes closer, providing you with a larger target. But be on guard for sudden turns. A missile may leave your sight and strike from the side.

If you don't have sufficient time to set up a good shot, you may hide behind one of the many obstacles that dot the battlefield. The missile will jump over you. Don't hide out too long. Each missile is progressively smarter and sooner or later one of them will hit you from the side.

In an open field situation, your only recourse after a missed shot is to run. Once again, don't count too heavily on the missile missing you. But it never hurts to try. Set a course for 45 degrees right and proceed straight ahead. Who knows? You might just live to tell about it.

3. Super Tanks

Don't be intimidated by Super Tanks. They're a cinch—once you know how, of course.

Super Tanks are speedier than regular tanks, move more erratically, and have an annoying tendency of appearing behind you. But they can be destroyed by the

same battle plan used to annihilate regular tanks, with one exception, which is optional. Instead of allowing the Super Tank to run past you on a parallel course, veer toward it slightly and bump it with your side. Immediately after impact, pull back, turn, and shoot.

For those who like to live dangerously, I propose this strategy:

A. As the Super Tank charges you, pull back on both handles to reverse.

B. Don't worry. Super Tank's shots will go over your shoulder.

C. As Super Tank gets closer, you will notice that your opponent is also correcting his angle in an attempt to get a direct shot at you.

D. Counteract by correcting your angle in the opposite direction, all the while moving in reverse.

E. When you feel you have a large enough target, begin mentally timing the Super Tank shots.

F. Between those shots, stop, turn, and fire right down his throat. Bingo—3000 points.

4. Saucers

Saucers are the only passive opponent you will meet in *Battlezone*. Even though their high value makes them a lucrative target, I recommend passing them up and concentrating on destroying an aggressor first.

If a saucer falls in your lap, by all means shoot it. Weigh your priorities carefully. Your game life will be extended by a wise decision.

Tempest

Playing *Tempest* is like sitting in the front car of a roller coaster. The breathtaking color graphics make *Tempest* as exciting to watch as it is to play. Other innovations guarantee a challenge for the novice as well as the expert.

FAMILIARIZE YOURSELF

For maximum enjoyment and, of course, maximum score, familiarize yourself with the unique play features on *Tempest*. After you push the appropriate start button, the following information will appear on the screen:

Player 1

Novice				Expert
1	3	5	7	9
●	✚	✚	✘	V
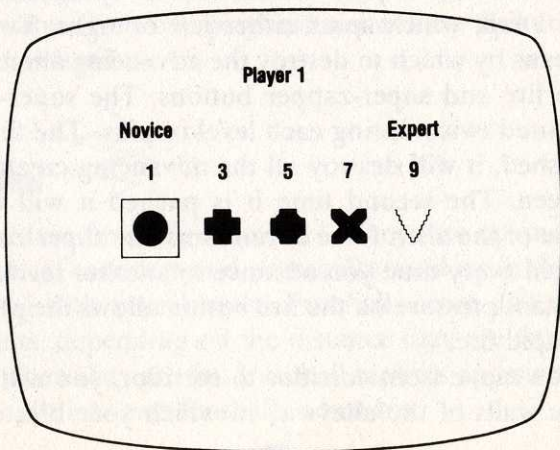
This is the skill-level selection mode. You can start your first game on level 1, 3, 5, 7, or 9. The playfield layout and bonus value are displayed under each level number. To select any level higher than 1, spin the control knob to the right. Lock in your selection by pushing the fire button. Don't contemplate too long. You have only nine seconds to make your choice.

You can select one of 28 skill levels at which to start your game. Once you have achieved a higher level, you can start your next game at that level instead of starting over from the beginning. For example, on your first game, the highest level you can select is level 9, which awards 54,000 bonus points. If during that game you successfully survive level 11, you can begin your next game at that level. If you manage to make it through level 11, 13, or any level thereafter, you can begin a subsequent game at the highest level previously completed. You must start your next game within 30 seconds or the game will reset and you will only be able to begin at level 9.

GAME PLAY

Your ship is a yellow, claw-shaped Blaster which is limited to the rim of each playfield. It moves by means of the control knob, which spins either left or right. You have two means by which to destroy the advancing aliens. They are the fire and super-zapper buttons. The super-zapper can be used twice during each level of play. The first time it is pushed, it will destroy all the advancing creatures on the screen. The second time it is pushed it will destroy only one of the alien force at random. The super-zapper is recharged every time you advance to another level.

Constant pressure on the fire button allows the player to shoot rapid fire.

As you move from corridor to corridor, you will notice that the walls of the alleyway in which your blaster rests

will turn yellow. Utilize this as an aid in placing your shots accurately.

YOUR OPPONENTS

The alien force in *Tempest* consists of the following:

Flippers

Flippers appear at the first level of play. They are worth 150 points each. These creatures flip from corridor to corridor as they approach you. Once they reach the outer edge, they will flip toward you and attempt to grab you.

Flipper Tankers

Flipper tankers appear at level 3. When hit, they divide into two flippers. Point value is 100 points apiece.

Spikers

Spikers also appear at level 3. As they move toward you, they build green spikes, which must be avoided when a player warps from one playfield to another. Spikers score 50 points when hit.

Fuseballs

You first face fuseballs at level 11. They race up and down the playfield corridors and eventually wind up in the outer rim along with your blaster. Fuseballs score 250, 500, or 750 points, depending on the distance they are from your blaster when they are hit. Fuseball tankers appear at level 33 and split into two fuseballs when hit.

Pulsars

Pulsars are encountered on level 17.

GAME STRATEGY

In levels 1 and 2 you will compete against flippers. Once they emerge from the center of the playfield, they will flip across corridors, clockwise or counterclockwise. Quickly spin the control knob to take aim, fire, and destroy them. To assure yourself a hit, strafe your fire across two or three corridors. To do this, hold down the fire button and move the control knob slightly left and right.

If the flippers reach the outer perimeter, they can be stopped in one of two ways. Destroy them with the super-zapper or position your blaster in one corridor and press the fire button as the flipper is about to grab you.

On level 3 you will be assaulted by two new enemies, flipper tankers and spikers. When hit, flipper tankers will divide and become two flippers. You can destroy flipper tankers and the flippers they carry in one motion by straf-ing your shots as you did in level 1.

Spikers and the spikes they form do not pose an imme-diate threat to your blaster. When you have destroyed all the advancing creatures on level 3, the words "Avoid Spikes" will appear on the screen. To warp out of level 3 to level 4, position your ship in a corridor that is unoc-cupied by the green spikes. If you are struck by a spike, your ship will be destroyed and you will lose a game life. Spikers can be whittled down and destroyed by firing upon them.

At the beginning of level 9, spikes will occupy every corridor of the playfield. Before the enemy forces charge you, clear away the spikes on either the extreme left or

right corridors. This will provide you with a clear escape route to warp through.

Since the approaching forces are more numerous and much faster, you may find it difficult to cover the entire playfield. If the flippers have reached the outer perimeter and you have already used your super-zapper, utilize the green spikes to your advantage. Position your blaster in a corridor that is occupied by a long spike and wait. When the flipper is about to roll over and grab you, push the fire button. A constant stream of fire will be released by your blaster until the green spike disappears. The flippers will be destroyed as soon as they enter that corridor.

If only two or three flippers are left on the rim, move to a clear corridor before you are warped through an alley occupied by a spike. If a flipper approaches you before you blast to the next level, release the fire button and wait. When it is about to grab you, quickly depress the fire button to destroy it.

At level 11, fuseballs appear. Initially they will move randomly up and down the playfield corridors. They can only be destroyed when they are motionless or moving laterally from corridor to corridor. Do not allow fuseballs to reach the perimeter. Direct contact with them will destroy your ship. If you have already used your super-zappers, you can foil a fuseball by waiting it out. Move to a corridor away from the fuseball and concentrate on destroying the flippers and clearing an escape route for yourself.

It is not necessary to destroy all of the alien forces to advance to the next level. Since the fuseballs work very slowly, your blaster will probably warp to the next level before the fuseball reaches you.

The control knob on *Tempest* is extremely responsive to the touch. In some instances, I've found it to be *too* responsive. Try to develop a technique by which you have maximum mobility and, at the same time, total control.

Only in a last-ditch attempt to escape do I spin the control knob and release it completely. More often than not, the blaster collides with a fuseball already on the rim or becomes locked with an oncoming flipper. Rolling the control knob between the thumb and index finger works best. You may feel comfortable placing the palm of your hand against the side of the control knob. Move your hand back and forth to move left or right.

The three-dimensional playfields are meant to be viewed from the top. The color of the playfield will change every 16 levels. Level 1 is blue, level 17 is red, level 33 is yellow, level 49 is purple-blue, level 65 is invisible, and level 81 is green. Between levels 65 and 80 the only time the playfield configuration is visible is when super-zap is pushed.

When level 17 is reached, pulsars appear. To determine where pulsars lie relative to your blaster, look for a section of the outer rim to disappear. When a section of the perimeter disappears, it means that a pulsar is in that particular corridor. Pulsars flip in much the same manner as flippers. After flipping, they will pause in a corridor and pulse, causing the adjacent rails to flash white. If your blaster moves into a corridor occupied by a flashing pulsar, it will be destroyed.

Pulsars must be destroyed as they move from corridor to corridor. Watch to see if they are flipping clockwise or counterclockwise and position your blaster so that the oncoming pulsars are flipping toward you. After pulsing, they will flip toward the adjacent corridor. Cut over and shoot them at this point.

Berzerk

Berzerk brings out the "Dirty Harry" (or "Annie Oakley") in all of us. If you feel you have outgrown *Boot Hill* and *Bandito,* then *Berzerk* is your game.

Berzerk is equipped with a unique joystick which enables you to move in eight directions. It is triggered by electric eyes under the control panel. The joystick is anchored with a high-tension spring which acts to keep the control handle at center, away from the electric eyes, until you push or pull it.

Before you play *Berzerk,* tap or push the joystick slightly and then quickly release it. If it snaps back to center, you can bet it will perform well. If it lies to one side or you notice no resistance, I'd pass it up. The joystick won't respond crisply and your score will reflect it.

To move diagonally, your joystick must close two electric eyes simultaneously. Finding the angles will be tough at first, but don't give up. If you look closely at the control panel you will notice an eight-pointed star coming from the base of the control handle. Use the diagonal points as your sights simply by pushing or pulling the joystick in the direction they are pointing. If you still can't find the mark, try moving the joystick so that your man is moving in a straight line either up, down, left, or right. *Slowly* move

the joystick toward the diagonal direction you desire. (Very slowly, since the diagonal directions are a fine line.) Eventually, your man will move at any angle.

If you wish to fire at an angle and can't find it, move the joystick to make your man fire up, down, left, or right. Hold down the fire button and slowly move the control handle toward one of the angles.

When moving the joystick, be precise and firm, but don't be overbearing. Unnecessary force won't make your man move any faster, or shoot more accurately. If anything, it slows your recovery time from one direction to another. Remember, a soft touch works best.

GAME PLAY

The object of *Berzerk* is to guide your humanoid safely out of the room, destroying as many robots as possible in the process. If you manage to destroy all the robots on any given board, you will be awarded ten additional bonus points for each robot destroyed.

What the game directions *don't* tell you is that there is not one, but three ways to destroy robots. Two of them don't even involve the fire button.

There are two fire buttons on *Berzerk,* one for right-handed people and one for southpaws. When one of them is pressed, your humanoid will stop (remember this) and fire in the direction the joystick is pointed. Pressing the fire button alone does nothing. Constant pressure on the fire button will give you the machine-gun effect.

YOUR OPPONENTS

Your opponents consist of a random number of robots, each force progressively faster and wielding more firepower than the one before it.

Each robot occupies a certain territory. His movements are governed *directly by the way you move your humanoid.*

Be smart and make the robots destroy each other. This can be done in one of two ways. Make them run into each other or make them shoot each other. Once you are on a horizontal or vertical path with an enemy robot, he will mimic your movements. Make him run into another robot.
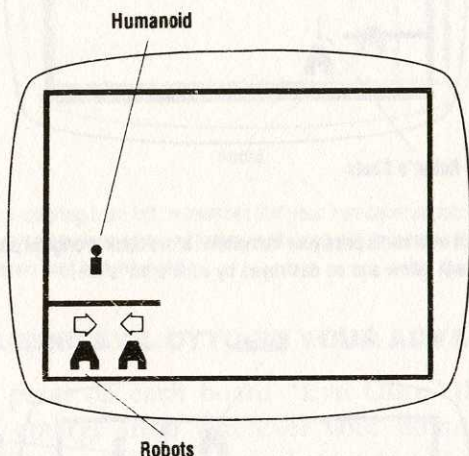
Humanoid

Robots

Move your humanoid back and forth. Robots will get closer and closer and eventually collide.

When caught between two robots, don't spend too much time trying to hit them. Your shots and the robots cancel each other out when they collide. Stop and wait for both robots to fire. When both shots are about to strike you from either side, move out of their way and let them pass. The robots will also move in the same direction that you do. Move back to your original position and the robots will follow suit. They will now be in the path of the oncoming shots.

Robots

Humanoid
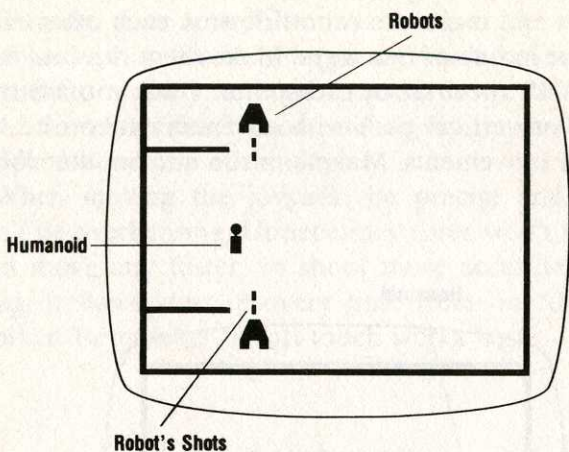
Robot's Shots

Move left until shots pass your humanoid. Move back to original position.
Robots will follow and be destroyed by each other's fire.

Robots
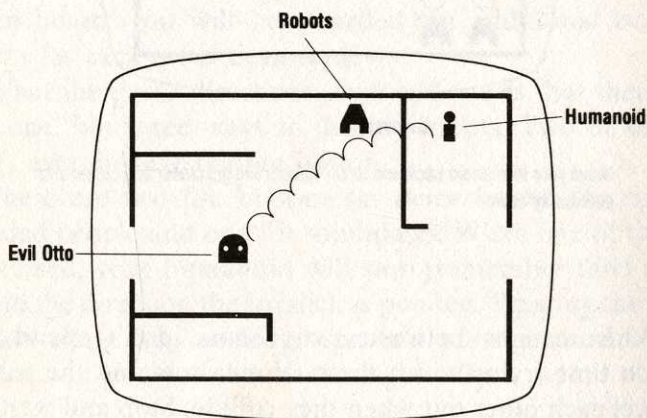
Humanoid

Evil Otto

Evil Otto moves toward you, destroying everything in his path.

Wall

Humanoid

Humanoid Bullets

Robot

When entering from left, remember that your humanoid shoots with right hand (as you face screen). Robots attacking will be able to walk safely between wall and your shots.

UTILIZING EVIL OTTO TO YOUR ADVANTAGE

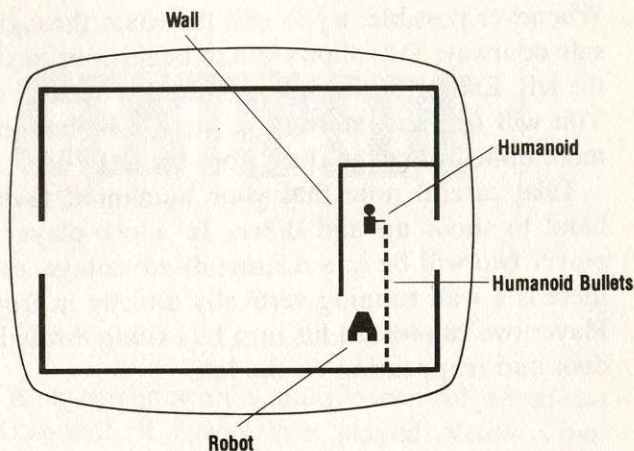At some point on each board "Evil Otto," the bouncing ball, will emerge from wherever your humanoid started from and make chase with the intent to kill. His speed is determined by the number of robots left on the board. As you destroy more robots, his speed will increase.

Apply the brakes to "Evil Otto." To slow down "Evil Ottos"'s attack, leave one robot unharmed, preferably one positioned at the upper or lower left of the playfield.

Destroy all the other robots and position yourself on a horizontal plane with the remaining robot. When "Evil Otto" emerges, he will head directly for you and destroy the remaining robot in his path.

"Evil Otto" can be manipulated in much the same way as the robots. Use him to your advantage. Instead of trying to shoot that last robot, let "Evil Otto" destroy him for you.

OTHER HINTS

Whenever possible, try to exit the room through the right side doorway. This allows you to begin your next round on the left. Exiting at the top or bottom is not recommended. You will find that starting at the top or bottom is much more difficult than starting from the left.

Take careful note that your humanoid uses his right hand to shoot up and down. In a two-player situation, player two will be at a distinct disadvantage, especially if there is a wall running vertically directly in front of him. Player two can restart his turn by exiting through the right door and reappearing on the left.

CENTIPEDE

Centipede is equipped with a unique control apparatus called a Trak-Ball. If you've ever played *Missile Command*, you're one step ahead of the crowd. The "Mini-Trak-Ball" on *Centipede* resembles a cue ball that moves on a field of ball bearings. It provides the player's gun with free movement and excellent speed control inside of a set zone, which is roughly the bottom three or four inches of the screen. Before playing *Centipede*, I always perform the "Trak-Ball Test." I find that a "broken-in" Trak-Ball responds better than a new one does. Briskly spin the Trak-Ball with the midsections of your fingers and release it. If it continues rolling upwards of three seconds, it is grade "A."

If you perform this test on a new machine, you'll notice considerable drag when the Trak-Ball spins. When you're caught in a tight situation and need to shift your gun to the opposite side of the screen, this drag factor becomes important.

HANDLING THE TRAK-BALL

Centipede does not give you a second to rest. The oncoming waves of hostile attackers are relentless, so quick, precise positioning of your gun is all important. Fight the

temptation to watch your hand on the Trak-Ball. You didn't spend a quarter to look at your hand. Divide your time among watching your gun, the oncoming centipedes, and where they are going to turn.

For maximum control use the midsections of your fingers, instead of your fingertips, to move the Trak-Ball. For quick side-to-side movement, spin the Trak-Ball and release it, all the while watching the position of your gun. When you're on target, press down with your hand to stop. You'll notice that the gun moves very smoothly and at the speed you chose. If you roll it with your fingertips, the gun jerks and sputters.

Try to keep your finger on the top of the ball. To move slightly left or right, as when a spider looms near; roll the Trak-Ball until your hand touches the control panel. Try to keep your gun in the bottom row of your zone. The majority of times, it is safer here than anywhere else. To make sure your gun is down as far as possible, always exert a slight amount of backward pressure on the Trak-Ball. After moving from side to side, roll the ball toward you until your gun rests in the bottom row. To move up, move your hand forward. To retreat quickly, simply pull back.

THE FIRE BUTTON

Centipede is equipped with a fire button that when constantly depressed emits rapid-fire. Before a second shot is released, the first must strike a target or travel to the top of the screen. Rapid-fire should not be used indiscriminately. If a situation arises when you need one well-placed shot, the use of only rapid-fire will disrupt your timing. Get into the habit of releasing the fire button periodically, so that when one well-placed shot is needed, you've got it right at your fingertips.

YOUR ENEMIES: THE CENTIPEDE

When the game begins, a centipede consisting of a head and 11 body segments will appear and begin to move across the screen. As it hits a mushroom or the side of the screen, it reverses its direction and drops down one level. It will drop down even if it has to drop through a mushroom directly below it. Once the centipede is destroyed, the second level begins, only this time you are faced with two centipedes, one consisting of a head and ten body segments, the other just a head. The third level begins with a nine-segment centipede and two heads. When the twelfth round begins, you will encounter twelve separate heads. This division process continues until the thirteenth round and then starts over again.

When a centipede head is struck by one of your shots, it becomes a mushroom. The segment behind the destroyed head now sprouts eyes and becomes the head. If one of your shots strikes a centipede's midsection, the section hit becomes a mushroom. The centipede then splits and a head appears on the trailing section. They now move independently of one another.

Haphazard firing at a long centipede is not recommended. A long string of segments is far easier to destroy than many smaller units. To destroy a long string of segments all at once, do the following.

A. Move your gun under a spot where you anticipate the centipede will turn, either next to a mushroom or between a channel of mushrooms running parallel to one another or along the edge of the screen.

B. When the head is directly above your gun, press the fire button and hold it down. The rapid-fire will do three things:
   1. Destroy the head and turn it into a mushroom.
   2. The resulting mushroom will be destroyed.

3. The following segments will be turned into heads and destroyed in similar fashion.

For each segment destroyed, you will be awarded 100 points, because each segment becomes a head after the one before it is destroyed.

Mushrooms

Long centipede

Player's gun
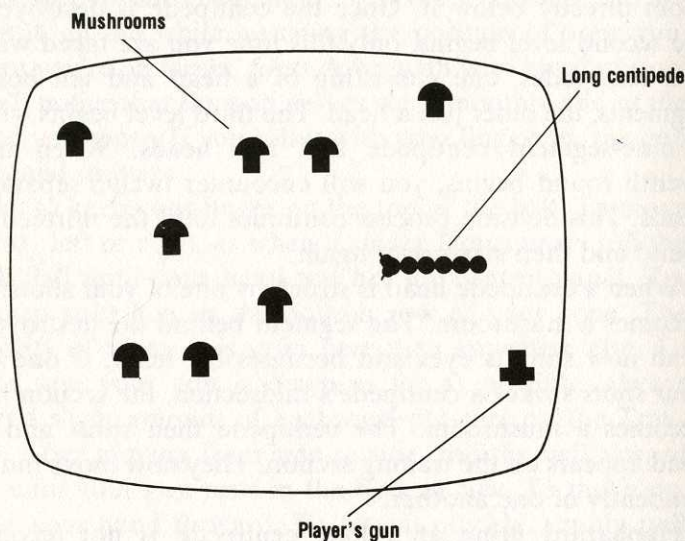
Long centipedes are easily destroyed by positioning your gun on the edge of the screen. As the centipede is about to turn, move up and hold down rapid-fire.

For shorter centipedes that invade your zone, try this:
Aim your gun at the tail segment of the centipede. Press the fire button down for rapid-fire and spin the Trak-Ball so that the gun is moving from the tail toward the head. You will score only 10 points per segment destroyed, but the resulting mushrooms will not cause the rest of the centipede to turn and head down toward you.

When all the centipedes reach the bottom of the player's zone, they will turn and move up the screen. Once they reach the top of the player's zone, they will turn and

head down to the bottom again. Until all the remaining centipedes are destroyed, the machine will release one centipede head at the top of his zone approximately every five seconds. The heads will continue to appear at an ever-accelerating rate until the player destroys every centipede segment or loses his gun through collision with a creature.

To destroy small centipedes and heads, set up a wall of rapid-fire by positioning yourself so the head must pass between your gun and a stationary mushroom. Press the fire button just before the head passes over your gun. If your zone is clear of mushrooms, it is far easier to hit a lone head by waiting for it, as opposed to chasing it. Move your gun to the bottom row and wait. When the head passes over you, then fire.

THE SPIDER

The spider will appear from either the right or left side of the screen. It is capable of only vertical or diagonal movement, its boundaries being the same as the player's. Since spiders cannot travel sideways, they cannot turn back, although they may bounce in one spot for any length of time. The next spider will appear only after the first one has been destroyed or exits from the screen. Spiders score either 300, 600, or 900 points, depending on the distance they are from your gun when struck.

When a spider appears, by all means shoot it, if possible. If you feel that the oncoming centipedes deserve more attention, position yourself so that the spider no longer poses a threat to your gun. If the spider leaps at you from the left side of the screen, move your gun so that it is on your right side. If it attacks from the right, move your gun so that it is on your left side. Since the spider is not capable of lateral movement, you're safe until it exits and another spider appears.

FLEAS

When the second round begins, fleas will drop from the top of the screen when fewer than five mushrooms are left in the player's zone. As they descend, they leave a random trail of mushrooms behind. When the game begins, clear your zone of mushrooms, since their presence may quicken the centipedes' journey toward the bottom. When the second round begins, shoot the fleas before they enter your zone for two reasons:

1. They're worth 200 points.
2. If destroyed quickly, you won't have to go back and destroy the mushrooms they leave behind.

Be certain to have a shot ready when trying to destroy fleas. Some of them fall at an accelerated rate and may crush you.

SCORPIONS

At 1,000 points a pop, scorpions are your most lucrative target. Unfortunately, most of them cross the screen well out of reach of your gun. As a scorpion crosses the playfield, he poisons every mushroom he touches. When a centipede in turn touches a poisonous mushroom, he will abandon his usual side-to-side movement and drop directly to the bottom of the screen. He will resume his side-to-side movement only if his head is hit. An onrushing string can be stopped by moving your gun up to meet the centipede, all the while holding the fire button down for rapid-fire. If the head is struck first, it will become a mushroom. Your rapid-fire will clear away the resulting mushroom in time to destroy the next segment, which will have

become a head. This process is continued until every segment is destroyed.

When your gun is destroyed, the machine will award you bonus points on the following basis:

1. 5 points for each poisonous mushroom.
2. 5 points for each partially destroyed mushroom.

After the bonus points are scored, the poisonous mushrooms revert to regular mushrooms. The partially destroyed mushrooms are repaired to their original state.

Pac-Man

The *Pac-Man* game I am concerning myself with in this chapter is the one manufactured by Midway, not any bootleg version or other bastardization.

The game is programmable for one of two versions of play, slow or fast. Here's how to tell which version you're playing.

When the game begins, watch the monsters' pen. If three monsters emerge immediately, you're playing the fast version. If only two emerge and head for the top of the maze, you're playing the slow version.

I based the following strategies on the fact that the monsters move and react to your movements almost identically from board to board. Instead of running at random, you follow a predetermined game plan or "road map." A well thought-out strategy separates the chess master from the average player. The same applies to *Pac-Man*.

THE FAST GAME

The following is the opening move I use on the first round:

Don't be intimidated by the monsters as you move. They won't catch you. Stop just before you reach the energizer on the lower right side and wait until the monsters are right behind you. Eat the energizer, turn around, and attack. If you move without hesitation or mistake, you'll have more than enough time to capture all four monsters before they change back to their colors. You will end up in the lower left corner of the maze. Proceed as follows:

Once again, move without hesitation and don't be rattled by close calls. When you reach the energizer at the lower left, wait for the monster to catch up before you attack. Again, you will have sufficient time to capture all four monsters before they revert to their normal colors.
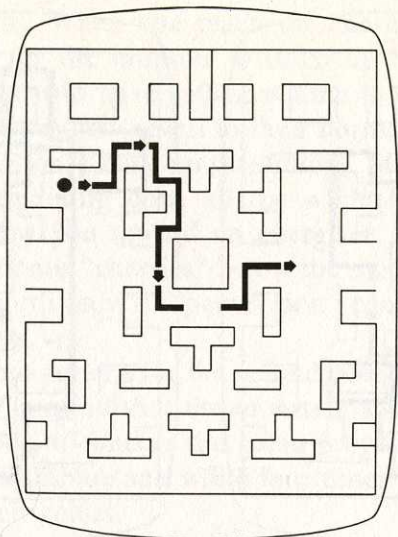
From this point on, I have no set strategy. Simply whittle down the remaining dots, all the while baiting the monsters to follow you toward an energizer. If time allows, go for the bonus "cherries" below the monsters' pen. Since they are worth only 100 points, don't consider them your prime targets.

Follow the same pattern for the second board, with one exception. Keep in mind that the monsters will stay blue for shorter periods of time as the game progresses. They will alternately flash blue and white four times. After that they revert to their colors.

When you eat the energizer in the lower right corner, you will have just enough time to eat only three monsters. As soon as you have devoured the *second* monster, take note of the color of the remaining two. If they are white, you will have time to eat only one more. If they are flashing blue, go for both of them.

From the third board on, I use one pattern with minor variations which will be explained later. This pattern, if followed without hesitation, will allow you to capture both bonuses that appear each round and consume the vast majority of dots on the board. You will be left with nothing but the four energizers and a few remaining dots near them.

Double
Back

Pause

Once you have snagged the first bonus, proceed as described above. As you come down the long vertical corridor on the right, watch out for Pinky, especially if he is moving by himself. If he is riding piggyback on Pokey, you're safe. He may attempt to cut you off just below the tunnel entrance. If he does, abandon your course and exit through the tunnel. When you reappear, continue the pattern on the left in reverse fashion (see diagram).

Assuming all goes as planned, continue until you reach the spot marked "Pause" on the diagram. Wait here until the tan monster passes overhead, then proceed. Once you have cleared the left vertical corridor and the upper left corner, the second bonus should appear. Once again, watch Pinky and then decide which course to take. If Pinky exits through the left side of the tunnel, go directly for the bonus.

If Pinky enters the area around the monster pen, do this:
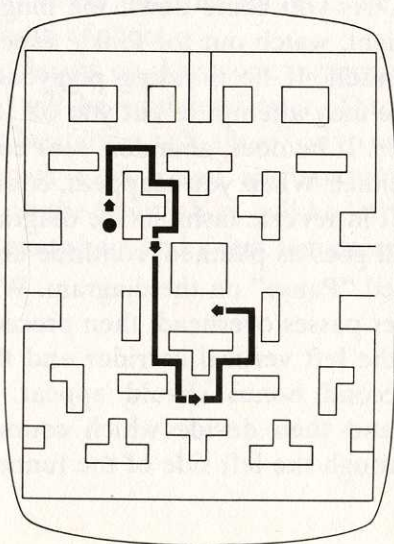
From this point on, all that remains are the flashing energizers and a handful of dots. There is no set pattern regarding the sequence in which the energizers should be consumed. To score maximum points, taunt the monsters so that they follow you toward an energizer. Remember that they will flash white four times before they change back to their original colors. A counterattack on blue monsters is your greatest source of point revenue, so be bold. Keep in mind that the monsters will move in a course directly opposite to the one they are taking, once you have energized. If they are moving away from you, energize to draw them toward you.

OTHER THINGS TO LOOK OUT FOR

As the game progresses, the monsters will flash blue for shorter periods of time. During the seventh round, which is denoted by the grape bonus, the monsters will flash blue for an extended period. Take advantage of this opportunity to score more points.

During the ninth round (the "eagle" bonus), you will find it necessary to alter your pattern slightly.

Cut Back   Move back and forth to confuse monster
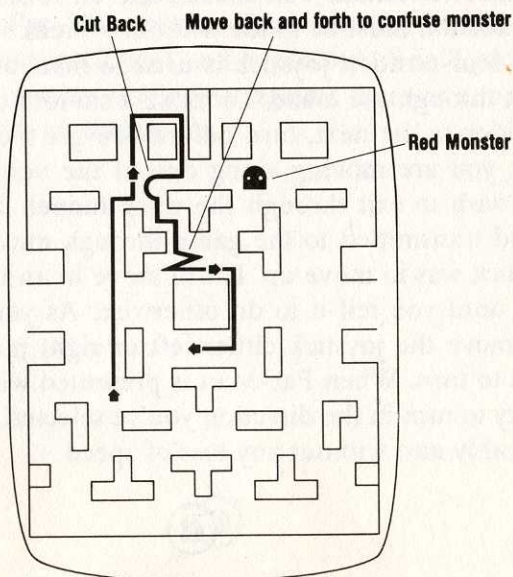
Red Monster

As you are moving up the left vertical corridor, the red monster will be moving up the right corridor. If you attempt to swallow all the dots around the upper left energizer, he will catch you. Head down toward the monster pen. To confuse your attacker, jerk the joystick back and forth and then proceed toward the bonus.

THE SLOW VERSION

Game play during the slow version is similar to its fast counterpart with these exceptions. The pattern described for use during the first two boards on a fast game can be used on the first four boards of a slow game. The second pattern described does not change until the twelfth round (see diagram). The monsters will remain blue for extended periods during the second "apple" and second "eagle" rounds.

SMOOTH TURNS

The patterns I've discussed here will work if executed without hesitation. This means that all turns and changes of direction must be made without a break in stride.

A four-position joystick is used to maneuver your Pac-Man through the maze. To make a smooth turn from one corridor to the next, turn before you get there. Let's suppose you are moving along one of the vertical corridors and wish to exit through the warp tunnel. The last command transmitted to the game through movement of the joystick was to move up. It will move in an upward direction until you tell it to do otherwise. As you are moving up, move the joystick either left or right just before you wish to turn. When Pac-Man is presented with the opportunity to turn in the direction you've selected, he will do so smoothly and without any loss of speed.

OTHER PATTERNS

There are probably hundreds of effective patterns for *Pac-Man*. You may only feel comfortable by adding a few variations to the pattern I've presented or developing your own. Experiment and see.

OTHER TIPS

When sandwiched between two oncoming monsters and no visible means of escape is close by, don't give up. If by chance one of the monsters looks away from you, you can pass right through him.

Once again, remember that a soft touch works best. Forcefully pressing or pulling on the joystick will not make Pac-Man move any faster. Find the point of contact and move the joystick only as far as necessary. Undue pressure will slow your recovery time and probably bend the contact points, making the joystick less responsive.

The pattern I've presented here will not guarantee you a high score. You may find it necessary to make slight revisions to accommodate changes in the monsters' behavior.

Just recently, Midway has made a *Pac-Man* Update Kit available to *Pac-Man* owners. Once installed, it makes the monsters more intelligent and aggressive. You'll probably find that no pattern is effective against them in a machine equipped with an update kit.

Mousetrap

The game play on *Mousetrap* closely resembles that of *Pac-Man* with a couple of very interesting twists. To score points you must maneuver your mouse through a maze, gobbling cheese as you go. Larger pieces of cheese, paper clips, and safety pins appear randomly, awarding bonus points when captured. When your mouse eats one of the four red dog bones (one in each corner), the machine will emit a savage growl. To attack the pursuing cats, push the dog button and chase the howling felines. Bonus points are scored after completion of each maze.

THE CONTROL PANEL

Your mouse is propelled by means of a four-position joystick. (Note: This joystick is one of the most responsive I've ever seen. I'm also happy to say it's a vast improvement over the control handle supplied on Exidy's *Venture*.)

The round green button in the center of the control panel is the "dog" button (more on this later). To your left is a row of rectangular buttons, one blue, one yellow, and

one red. These are the "door" buttons, the trickiest feature of *Mousetrap*. When you look at the maze you'll notice several red, blue, and yellow doors. To open the red doors, simply press the red button. The same applies to the yellow and blue gates. Each door makes a distinctive sound when opened or closed. (More on the use of the door buttons later.)

GAME PLAY

The first thing I recommend doing when playing *Mousetrap* is experimenting with the door buttons. Press each one of them one at a time and note which way they open and close. The yellow and blue doors around the center are particularly tricky. Take note of which areas are sealed off and which are opened.

The cats that patrol the maze seem almost confined to a certain territory. They don't appear nearly as smart as the monsters in *Pac-Man* or the goldfish in Williams's *Make Trax*. But there are a lot more of them. At some point during the game, a hawk will fly overhead and home in on your dog or mouse. He is not confined to the corridors of the maze and cannot be destroyed. He can be outsmarted, though.

Located at the center of the maze is a small rectangular box containing the word *in*. When your mouse or dog enters *in* he is jettisoned to one of the corners of the maze and is temporarily safe from the hawk.

At first, the door buttons will confuse the hell out of you. They are large and easy to press but they are positioned close together. You'll probably find yourself pushing the red when you wanted to press blue or pressing the blue when you wanted to press the dog button.

To avoid confusion, try one of these ideas:

1. Instead of taking your eyes off the screen to look at all of the buttons, use the fingers of your left hand as your eyes. Place one finger on each button. This will orient you as to where each is located. When it comes time to open or close a door, you can do one of two things. If you feel you have sufficient strength and coordination in your fingers, press the button with your "guide" finger. You may find this method difficult to execute if you have a weak pinky, as most people do. Or move your entire hand over in the direction of the button you want to press. When finished, move your fingers back to their original positions.

2. I've found that this method works best. Keep the fingers of your left hand on the yellow button. When it comes time to open or close the red or blue doors, you need only move your hand a short distance. There is no right or wrong way to push the door buttons. If you don't feel comfortable with any of these methods, then develop one that suits you. The important thing is to find a way to push the appropriate button without taking your eyes off the screen.

Clear the bulk of the maze before devouring the energizing dog bones. Remember that your mouse will not become a dog until the dog button is pushed. You'll find this ability to store your dog power to your advantage. Wait until a considerable amount of cats are nearby before pushing the dog button. In later stages of the game you will find this very helpful, especially when a hawk appears. After becoming a dog, work your way toward the *in* square. When a hawk emerges, enter it to make the hawk stupid. Your dog will be transported to one of the corners. Devour another dog bone and repeat the process.

You will also notice that more bonus objects will appear toward the end of each round. If the majority of the maze is clear, divide your time between collecting the bonuses

Dog Bone

In

Mouse

Cat
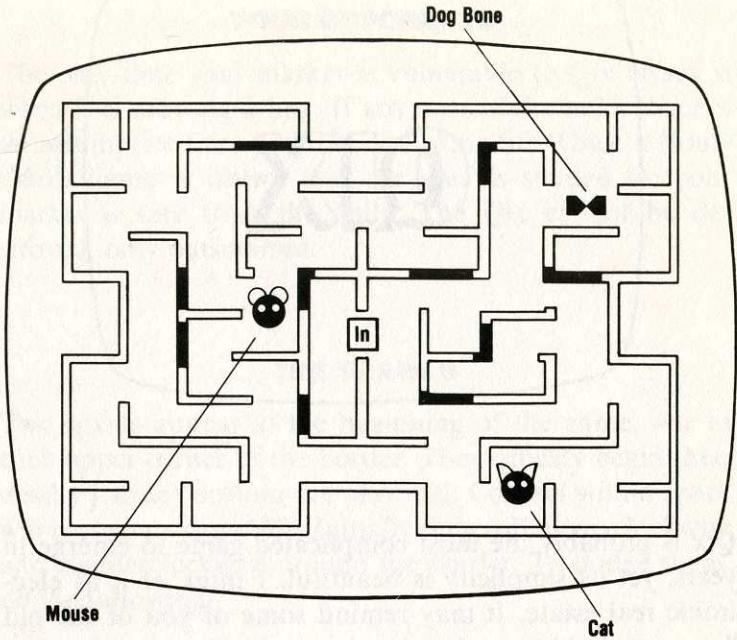
Take note of the position of opened and closed doors. When closed, blue
and yellow doors may trap cat near "IN" at the center of the playfield.

and moving back toward *in* to avoid the hawk. I recom-
mend keeping the blue and yellow doors open. If they are
both closed, you may trap some cats right in the area of
the *in*.

To avoid additional confusion, use your right hand to
push the dog button. This way your left hand will still be
in the ready position to open and close doors. Use of your
right hand will also save you from the mistake of acciden-
tally pushing the blue button when you intend to push the
dog button.

Your mouse or dog has unlimited use of *in*. Use it not
only to elude the hawk, but to transport your mouse to a
dog bone quickly. The green hawk shelters in the four
corners are not protected from cat intrusion, so don't stay
in one too long.

QIX

Qix is probably the most complicated game to emerge in years, yet its simplicity is beautiful. I think of it as electronic real estate. It may remind some of you of the old "connect the dots and claim the squares" game. *Qix* is a state of the art "Etch a Sketch."

The object of *Qix* is to claim at least 75 percent of the playfield area. This is done by moving a pen ("stix") in any combination of straight lines. Once a closed figure is complete, the area is claimed. Sounds simple?

When game play begins, your marker or "stix" appears on the bottom center of the screen. You will also notice a series of randomly twisting lines. This is the helix, your chief opponent. Your marker is propelled by means of a four-way joystick. Your movements are confined to the white border the stix rests on. To move out and conquer virgin territory you must simultaneously move the joystick and depress one of the "draw" buttons.

When claiming territories, you have a choice between fast draw and slow draw. An area claimed by fast draw is shaded blue, while the slow draw areas are shaded brown.

YOUR OPPONENTS

The only time your marker is vulnerable to *Qix* attack is when it is drawing a line. If any part of the helix touches an incomplete line, you lose one game life. Once a (four-sided) figure is drawn and the area is shaded in, your marker is safe from the helix. The *Qix* cannot be destroyed, only outsmarted.

THE SPARKS

Two sparks appear at the beginning of the game, one at each upper corner of the border. They quickly begin their deadly journey around the playfield. Contact with a spark will cost you a game life. Initially they will move clockwise and counterclockwise around the border. To dodge them, do the following:

Your marker
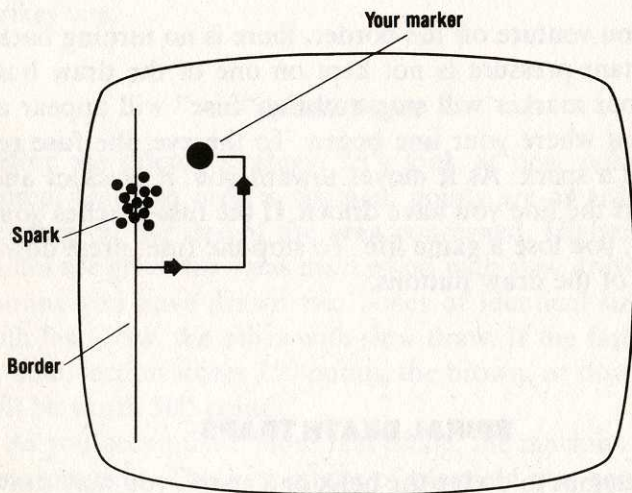
Spark

Border

Make a small square with a fast or slow draw to leap-frog over the oncoming spark.

Eventually, the sparks will venture onto the lines you've drawn on the playfield, in the order you've drawn them. In essence, they will retrace your steps. Once again, sparks cannot be destroyed, only outsmarted.

SUPER SPARKS

Running horizontally across the top of the screen is a time line that slowly shortens at both sides. Once it vanishes, the machine emits a piercing alarm. This marks the attack of the Super Sparks. Super Sparks travel faster than regular sparks. Instead of lumbering about the maze of lines you've drawn, Super Sparks home in on your marker and make a beeline to your stix with intent to kill.

THE FUSE

Once you venture off the border, there is no turning back. If constant pressure is not kept on one of the draw buttons, your marker will stop and the "fuse" will appear at the point where your line began. To the eye, the fuse resembles a spark. As it moves toward you, it crackles and discolors the line you have drawn. If the fuse reaches your marker, you lose a game life. To stop the fuse, press down on one of the draw buttons.

SPIRAL DEATH TRAPS

In an attempt to dodge the helix or a spark, you may draw yourself into a corner by accident. This is called the spiral death trap. It looks like this:
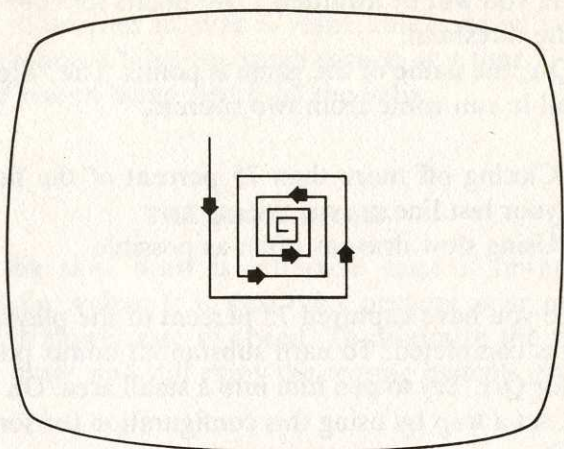
The spiral death trap

Remember that you must complete a figure to claim an area. Once you're in a spiral death trap, you have nowhere to go. It's only a matter of time before the fuse or *Qix* strikes you.

GAME PLAY

Before we discuss strategy, let's look at how points are scored. Once an area is claimed, points are awarded depending on the size of the area concerned. Higher point values are given for areas marked off with slow draw. Let's assume you have drawn two boxes of identical size, one with fast draw, the other with slow draw. If the fast draw, or blue, section scores 250 points, the brown, or slow draw, will be worth 500 points.

As you accumulate more real estate, the machine tallies your progress. The percentage of playfield you control is shown at the top of the monitor. If you claim exactly 75 percent of the board, you move to the next round but

score no bonus points. If you manage to fill more than 75 percent, you will be awarded 1,000 points for each percent over the threshold.

In *Qix*, the name of the game is points. The "big score," as I call it, can come from two sources.

A. Closing off more than 75 percent of the field with your last line.

B. Using slow draw as often as possible.

Once you have captured 75 percent of the playfield, the round is completed. To earn substantial bonus points, set traps for *Qix*. Try to pen him into a small area. On the first board, set a trap by using this configuration (or something similar):
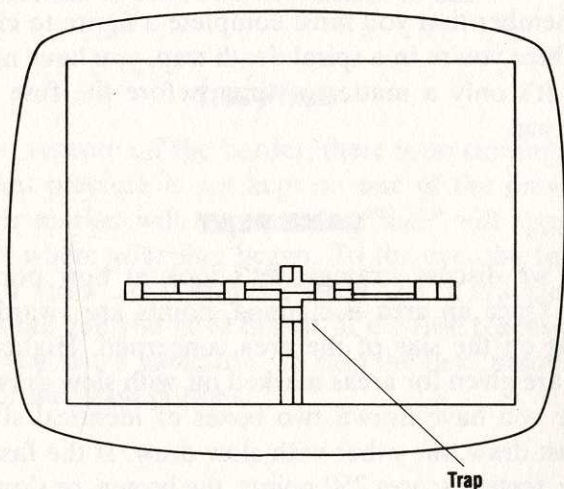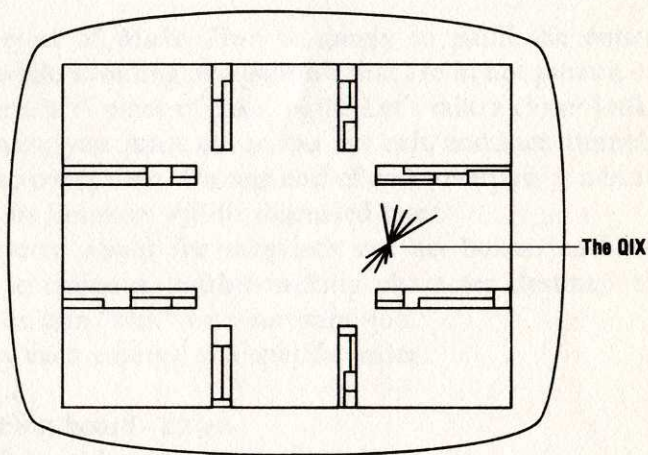

Trap

Don't make the traps too big. You'll lose bonus points when you draw the final line.

The *Qix* is very unpredictable but occasionally it will seem to lie flat and move through very small passages.

Resist the temptation to mark off large areas by drawing lines that span across the whole screen. Remember that the only time your marker is vulnerable is when you are drawing a line. Claim one small section at a time to minimize the risk of being struck by the helix.

THE SLOW DRAW

Use of the slow draw is attractive since it rewards in double-point value. It is also risky because your marker draws at a slower rate of speed. To minimize the risk of the slow draw, and still enjoy the scoring benefits, try this:


Set up a series of traps on the playfield

Set up a series of traps along each border. Draw the bulk of the traps with fast draw. When *Qix* is at a safe distance, close the traps, using slow draw to claim the area. Always try to mark off as large an area as possible, using fast draw, and close the area with slow draw.

OTHER TIPS

When drawing lines, take note of the position of the roving sparks. If one is approaching the spot your marker is heading to, release the draw button momentarily and let him pass. Be careful to keep an eye on the fuse. The fuse will stop, once you press down on the draw button. If you re-release the draw button, the spark will reappear at the same point it last stopped, not the origin point of the line you are drawing.
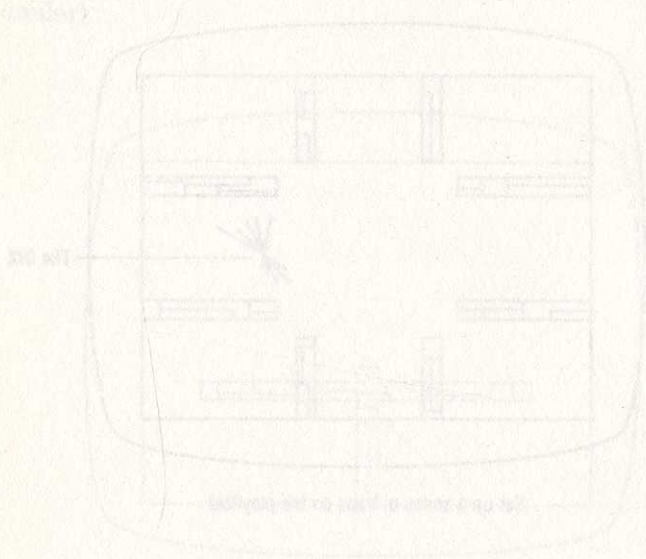
Make Trax

The object of *Make Trax* is simply to paint the entire maze while avoiding two goldfish that are in hot pursuit of your brush. A piece of cake, right? Let's take a closer look. The maze you must cover has six exit/entrance tunnels and two overpasses. On one end of each overpass is a blue roller. Its function will be discussed later.

Scattered about the labyrinth are six boxes, each of which contains a trouble-making character destined to make its own "trax" on your paint job.

They each emerge in a specific order:

1. First board—kitten.
2. Second board—mouse.
3. Third board—bird.
4. Fourth board—runaway tire.
5. Fifth board—dancing cat.
6. Sixth board—invisible man.

Each character leaves his own "trax" behind. Before you can move on to the next round, you must stop them by painting over them and then cleaning up their trax.

Collision with a goldfish, on the other hand, is deadly. They can be temporarily stopped by the roller located on the overpass. When your brush hits the roller, it will zip forward at an increased rate of speed. The roller comes to rest at the end of each overpass. If a goldfish is run over by the roller, it will be momentarily put out of commission. A new goldfish will be formed in the aquarium to take its place. Crushing a goldfish awards points on a doubling basis, beginning wih 50 points. Each one crushed awards double the point value of the one before it (50, 100, 200, 400, 800, 1600 . . .).

If you still think this game sounds simple, you're right. But playing it is another story.

The goldfish are much smarter in comparison to the foes you face in other maze games, such as *Pac-Man*. I don't think it is possible to map out a set pattern for completion of each round, but here are some practical tips to help you on your way.

Your brush is piloted by a four-position joystick. Once again, I've found it to be less than agile. If you are planning to move left or right, push the joystick in the appropriate direction well before your brush reaches the spot at which you want to turn. This will make the turn smooth and cause no delay. The response time on the control handle is, for some reason, slow. If you wait until the last second, you'll find yourself missing a turn you wanted to make.

On the first board, the goldfish are easily outsmarted. Bait and lead them until they follow you toward a roller. Once you push the roller across an overpass, quickly reverse and run the roller back over the goldfish. I've seen up to eight goldfish foiled in this manner on the first board alone. After the eighth time, they wise up. If you head for the roller, they will quickly change direction to avoid you. Sometimes they will plot to meet you at the spot the roller stops. Be careful.
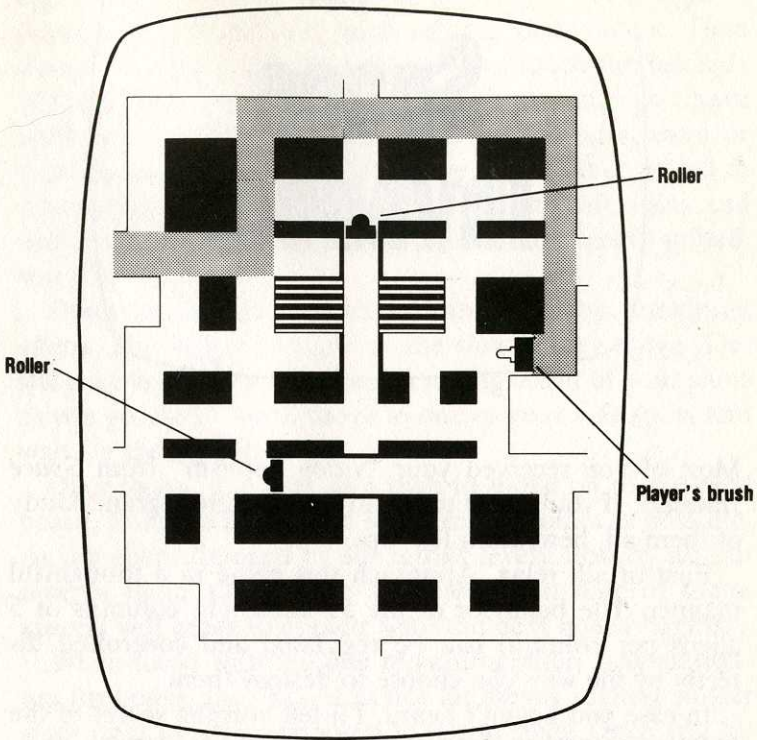
The two rollers will run the distance of the overpass they rest on. Once you touch a roller you cannot reverse direction until the roller comes to rest. Be careful of goldfish waiting for you on the other side.

Take advantage of the goldfish's initial stupidity and rack up extra points. The roller can be utilized whenever you desire. Its primary function in later stages of the game will be to provide you with a quick escape from oncoming fish. The other characters that emerge to spoil your paint job must be painted over. Successfully doing so awards 1,000 points.

Space Invaders

Most of you received your "video baptism" from *Space Invaders*. If you're still trying to beat the great granddaddy of them all, here are a few tips.

First of all, relax. Approach this game in a thoughtful manner. The behavior of the 55 aliens (11 columns of 5 aliens per column) can be regulated and controlled directly by the way you choose to destroy them.

In case you haven't heard, I'll tell you the secret of the 300-point UFO. Roughly every 25 seconds, a UFO will fly across the top of the screen, either right to left or left to right. The value of the UFO changes, depending on the number of shots your laser base has released. At the beginning of each level, striking the UFO on the 23rd shot will award 300 points. Hitting the UFO on every 15th shot thereafter also scores 300 points. The process starts over at the beginning of each new board. Take the trouble to count your shots. With a little practice, you should be able to hit at least four to eight 300-point UFOs on the first board alone. Add this to the 990 points you receive just for destroying the aliens. Not bad.

The first step is to whittle the alien force down to a more manageable size. When game play begins, your laser base

appears in the far left corner of the screen. Move right to destroy the second and third column of invaders. Then destroy the far left column as they approach the left side of the screen. Work on the fourth column until you have used 22 shots. Now that the alien force is only seven or eight squadrons wide, you have two safe spots in which to place your laser base. Move to one of the safe spots and wait for the saucer. Bingo—300 points. That wasn't so bad, was it?

Don't be in such a rush to annihilate the remaining aliens. The bigger the group, the slower they move. Destroy the bottom row of aliens, keeping count of your shots as you go. At 14 shots, move to one of your safe spots and wait for the saucer.

Once again, don't be in a rush to move on to the next board. Milk the first board for as many points as possible. As the aliens descend to dangerous levels, destroy all but nine of them. Once there are fewer than nine of them, saucers will cease to appear until the next board begins.

When faced with the one remaining alien, stay stationary for better aim. You'll notice he moves slightly slower from right to left as opposed to left to right. Once you hit the final alien, be ready to dodge the missile he drops when destroyed.

When the second board begins, the alien ranks begin one level lower than the first. They need to drop only ten levels to reach your laser base. No need to worry. Follow the same strategy outlined for the first board. You probably won't be able to hit as many 300-point UFOs this round, but still pursue them vigorously.

For the balance of the game (or up to the tenth board, where the aliens move back up to their original starting point), I propose this strategy: Begin the round by destroying the first six columns to the left. Be sure to leave one 30-point alien in the far left column. You have now established a safe spot between the lone invader on the left and

the rest of the army on the right. Count shots and destroy the 300-point UFOs when they emerge.

When the armada to your right is one row above your laser base, they have reached "death row." Once here, they are no longer able to drop bombs. Move to the right of the large force and then move back toward your safe spot, destroying the bottom row as you go. Remain in your safe spot, all the while waiting for UFOs. Once the next row of invaders drops down onto death row, move right, and then left, destroying them en route to your safe spot

30-point invaders

20-point invaders

10-point invaders

Shelters

Player's laser base
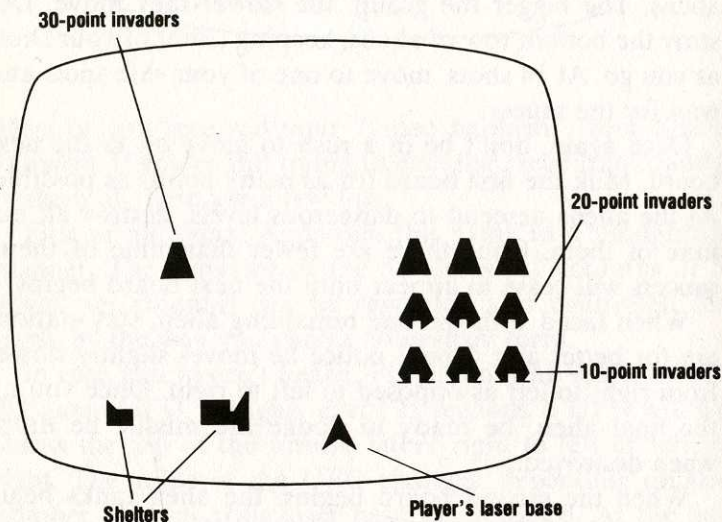
In later stages of Space Invaders, whittle down the alien columns to provide yourself with a safe spot to stalk 300-point UFO's. Be sure to leave one 30-point invader from the far left column.

Any one invader can drop only three bombs at you at any one time. If your missile collides with a descending invader bomb, one of two things will happen:

A. The opposing missiles will cancel each other out.
B. The alien bomb will destroy your missile and continue to descend toward your laser base.

Remember that in a collision situation your missile will never survive, but the alien's might.

In *Space Invaders* it is necessary to develop a "duck-and-shoot" rhythm, that is, moving your laser base under an alien row, firing, and then ducking away so that oncoming bombs will not destroy you. If the enemy forces are moving left to right, position your laser base to the right of the army, moving left to shoot and right to duck. In this way you need only move your laser a short distance between shots. Do the opposite for the right-to-left movement.

Eliminator

"Man vs. Machine" video games lack one thing. A video game never winces after you've landed a death blow or moans after you've handed it a temporary setback. The snide comments and provocations from a human opponent always make for better competition. Gremlin Sega's *Eliminator* offers the best two-player action I've seen in a long time.

Eliminator has three modes of play:

1. One player vs. computer.
2. Two players, one against the other, both against the computer.
3. In a two-player situation, when one player is out, the remaining player continues the battle against the computer.

If you are playing *Eliminator* for the first time, find a machine that gives five ships per player. This may sound like a lot compared to the standard three "game lives" offered on most video games, but believe me, you'll need every one of them.

In a one-player game situation, play begins as follows. Your ship will appear in one of the bottom corners of the screen. The boundaries of your movements are marked off by a colored frame around the outside of the monitor. A

large, spherical object will also appear and begin to move randomly about the playfield. This is the *Eliminator* base. Initially, its throat will be covered by a reddish membrane that in time will begin to disappear. To destroy the base, you must guide one of your shots directly down the throat to the core. If you score a hit, hold on to your hat. The sound effects and graphics are awesome. I almost jumped through the roof the first time I saw the base destroyed. Each time the base is destroyed, one additional enemy ship will appear, along with a new base.

The way to destroy the enemy ships is unique, so pay attention. The surface of the *Eliminator* base is deadly to any ship that touches it. You will also notice that your shots, as well as shots emitted from enemy ships, do not directly destroy a ship when hit. As in a boxing match, or a billiard game, direct blows force the enemy ships back. To destroy an enemy ship you must push it until it makes contact with the *Eliminator* base. Use this "pushing" method not only to destroy small enemy ships but your competitor's ship in a two-player game and the *Eliminator* mother ship.
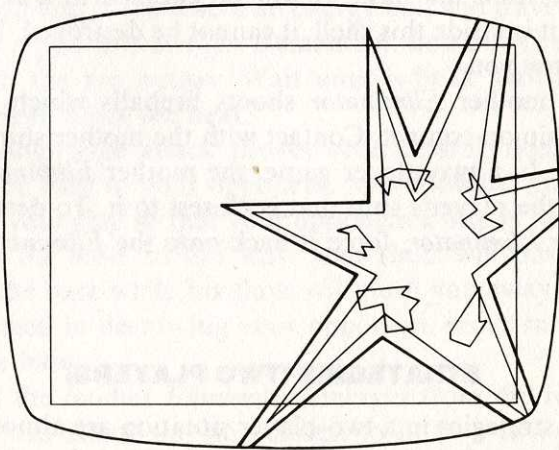
To destroy the base, you must guide one of your shots directly down the throat to the core.

Before discussing strategy, let's look at some important play features on *Eliminator*. Points can be scored one of two ways:

1. Destroying the base (500 points).
2. Forcing any other ships into contact with the *Eliminator* base surface.

(NOTE: Points are awarded for a hit on an enemy ship, even if it is not destroyed.)

Only one energy bolt can appear on the screen at any one time. If you release a shot from your ship, it will travel until one of the following happens.

1. It strikes the *Eliminator* base surface.
2. It travels down the throat of the base and destroys it.
3. It bounces off three sides of the playfield border.
4. It strikes an enemy ship. Or. . . .
5. You cancel it out by firing another shot after it.

Repeat. Any time you press the fire button, you cancel out your previous shot. In certain situations it pays not to be trigger-happy.

Eventually, the mother *Eliminator* ship will begin to emerge from the base. It will be encased in a red shell. When it is inside this shell, it cannot be destroyed. Nor can it destroy you.

The mother *Eliminator* shoots fireballs which destroy your ship on contact. Contact with the mother ship is also deadly. In a two-player game, the mother *Eliminator* will attack the player's ship that is closest to it. To destroy the mother *Eliminator,* force it back onto the *Eliminator* base surface.

STRATEGIES (TWO PLAYERS)

Game strategies in a two-player situation are almost limit-less. Remember that points are awarded for either de-stroying the base or forcing your opponent's ships onto the

base. Every time I've played doubles on *Eliminator,* my partner and I vowed to work as a team. After assuring each other that this was to be a team effort, we would start the game and almost immediately betray our confidence and each other. Some team! If your partner insists on working as a team, be wary.

When game play begins, the *Eliminator* base will appear in the center of the screen. If you are commanding the buttons on the left side of the control panel, your ship will be the one on the left side (green). The opposite is true if you are using the right side's set of buttons (blue).

Before making chase toward your opponent, or the throat of the *Eliminator,* experiment with bank shots. Your opponent most probably does not expect a long-range attack. Fire an energy bolt toward one of the playfield borders and observe the way it caroms. It will bounce off three sides before disappearing. Correct your angle until the next shot will hit your opponent's ship, hopefully pushing him into the base surface. If their path is unobstructed, your energy bolts will bounce the same way each time. A good pool player knows where and how a ball will travel, once bounced off a cushion. A good *Eliminator* player will also know where an energy bolt will travel after it strikes a playfield border. Remember, don't be overanxious with the fire button. Wait until a bank shot disappears before firing the next.

If a long-range attack proves unsuccessful, don't surrender the base to your opponent. Move toward him and position your ship so that your opponent's ship is between you and the base. In this way, your shots will push him toward the base while his shots will push you away. Once you succeed in destroying your opponent, move in to destroy the base.

When the mother *Eliminator* emerges from the red cocoon, it will attack the ship closest to it. In a two-player situation, lead the *Eliminator* toward your opponent. When it begins to trail your opponent, move toward the

Eliminator base. Extra points are awarded for destroying the base, once the *Eliminator* has emerged. If the mother *Eliminator* is tracking you, the only way to force it back to the base is with a relentless wave of short-range fire. This is necessary for two reasons:

1. One or two long shots will only stun the *Eliminator* momentarily. It will quickly turn to attack you.
2. A constant stream of hits will render the *Eliminator* temporarily helpless and also keep its gun nozzle pointed away from you.

When two or more smaller enemy ships are present, this may be hard to execute. In this situation, two-player teamwork becomes a necessity. One player should dispose of the smaller ships while the other works on the *Eliminator*. Once all the enemy ships are destroyed, it's every man for himself. Go after the base.

Once one player's supply of ships is exhausted, the remaining player will continue the battle solo against the computer. You will be faced with an ever-increasing force of smaller ships and the mother *Eliminator*. The object here is to prolong your survival. For maximum points, deter the smaller ships first by striking them with energy bolts. You'll notice that they bounce farther than the *Eliminator* does when hit. Then concentrate on the *Eliminator* with the short-range attack pattern described earlier. Long-range bank shots work very effectively against a large force of small ships. Position yourself so that the base is between you and the advancing fleet. Riddle them with long-range bank shots. This will stave off their attack long enough to allow you a good shot down the throat of the base or to launch a relatively uninterrupted attack on "Ma" *Eliminator*.

OTHER TIPS

The playfield walls have an elastic quality. Not only will your energy bolts bounce off them, but your ship will, too. If the base is forcing you into a corner, go easy on the thrust button. In a hurried attempt to escape, you may bounce your ship off a wall and back onto the base. To hold your ship against a playfield wall, ease it up to a border nose first. When you are about to touch, hold down the thrust button. This will come in handy when the base has you trapped in a corner.

In a two-player game, the border will change color to show which player is ahead in point standings. If you wish to see who is winning, just glance at the border. It will be the same color as the winning player's ship (either blue or green).

Donkey Kong

How many of you videots are battle weary of the "Space War" theme in video games? Your only alternative is a "cute" game, the bulk of which are *Pac-Man* clones and look-alikes.

Enter *Donkey Kong*. Oh, what a relief! By the way, what does the name *Donkey Kong* mean? (I haven't the slightest idea. This game is fun and that's all that matters.)

Donkey Kong begins with a distressing scene. The evil Mr. Kong is carrying a helpless young lady up a building. After setting her down, he bounces up and down, causing steel girders to fall at helter-skelter angles. Your mission is to guide Mario, the jumpman, safely to the top of this structure in an attempt to rescue the beautiful girl. Once you have scaled the first level of girders, Mr. Kong grabs the girl and heads up higher. If you successfully complete the ascent, Mr. Kong meets his demise but returns to challenge you on a more difficult steel structure.

THE JUMPMAN

The four-position joystick and jump button are used to guide Mario to the top of the structure. Let's look at the mechanics of jumping. When the jump button is pushed,

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Mario will leap in the direction the joystick is facing. If the joystick is resting at center, Mario will leap up and come down on the same spot. To cover more distance, either left or right, move the joystick in the appropriate direction. In this way the jumpman will land approximately one step away from where he started. In later levels of play, it will be necessary for Mario to jump from one level of framework to another. He can only safely jump a distance equal to his height. Any higher drop will cause Mario to stumble and fall, resulting in a loss of a game life. The jumpman moves from level to level by means of a ladder. He cannot jump onto a ladder or jump while he is climbing one. Partial or broken ladders appear during some rounds. Their function will be discussed later.

THE JOYSTICK

The microswitch-equipped joystick is *Donkey Kong*'s only shortcoming. But since neither you nor I make the game, there's not much we can do. I found the control handle less responsive than I had hoped. So don't be quick to blame yourself for a poor performance.

Mario moves in the direction the joystick points. To move him up a ladder, position Mario at the bottom, then push straight up on the control handle. When you reach the next level, you'll notice that Mario is on his hands or knees just prior to standing up. Be sure to keep the joystick up until he stands. Left or right movement of the joystick will cause Mario to freeze in the kneeling position.

GAME PLAY

Once Mr. Kong has carried the beautiful girl to the top of the framework, your jumpman will appear in the lower left corner of the screen. Mr. Kong will begin to drop

barrels which will either roll along the framework or descend by falling down the ladders. Collision with a barrel costs a game life. Jumping over a barrel awards a hundred points.

When each level begins, the bonus value for completion of each round appears in the upper right corner of the screen. It begins at 5,000 and slowly reduces by 100-point increments. Two hammers are hung at different levels of the framework. To utilize them for destroying barrels, Mario must jump up and grab one. Turn hammer first to destroy oncoming barrels. When the hammer begins to flash different colors, it is about to disappear. With hammer in hand, Mario cannot jump, ascend, or descend a ladder to another level.

During the first round, concentrate on climbing to the top. If you choose to destroy barrels, you may be earning points, but at the same time your bonus is decreasing. Be smart and take the shortest route. This means utilizing the center ladders. Remember that some barrels will turn and fall along the path of a ladder. Before ascending, observe the oncoming barrels and determine if you have sufficient time to climb the ladder and stand up before it reaches you.

The key to *Donkey Kong* is timing. This is not easily taught. It must be learned. Before running gung-ho, committing yourself to a ladder, assess what's coming.

The second framework arrangement consists of four stories, each shorter in length than the one below it. On the left and right side of each story is a plug that the jumpman knocks out by running or jumping over it. The goal of this round is to remove all the plugs in any order. Once done, Mr. Kong will no longer have a floor to stand on. He will plummet headfirst to the ground. Mario will be transported to the top level beside the beautiful girl.

The framework of this round is patrolled by a series of burning barrels which move from story to story. An
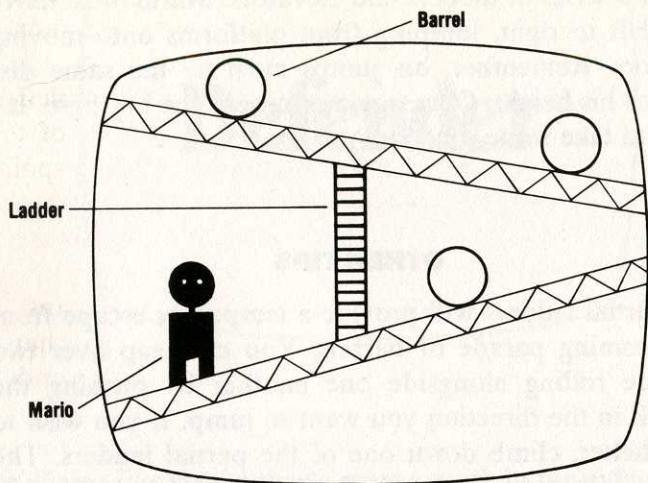
Before ascending a ladder, move Mario back and forth. Climb the ladder only if you have sufficient time to stand up and jump over oncomming barrels on next girder.

umbrella and a suitcase also appear. Bonus points are awarded when the jumpman runs over them. The order in which the plugs are removed is entirely up to you. The fireballs will tend to congregate around the remaining plugs. Draw them away by moving up and down ladders. Once they follow, reverse direction. You must jump over the hole left by a missing plug. Failure to do so will send little Mario a-rolling.

The third round is an exact rerun of the first with a few exceptions. The barrels fall in unpredictable ways and there are more of them. Once again, make reaching the top your primary goal. If you spend too much time destroying barrels or jumping over them, the bonus will melt away.

The fourth round looks impossible at first glance. It consists of a series of ladders and elevators. Mario must move from left to right, jumping from platforms onto moving elevators. Remember, his jumps must be the same distance as his height. Once again, timing is the key here. It's going to take some practice.

OTHER TIPS

The partial ladders will provide a temporary escape from an oncoming parade of barrels. You can leap over two that are rolling alongside one another by pushing the joystick in the direction you want to jump. If you wish to seek shelter, climb down one of the partial ladders. The barrels will pass overhead. Don't descend past the last rung or Mario will fall. Some of the hammers will appear to hang over thin air. To grab them, move the joystick toward the hammer and jump. At the top of the jump, move the joystick back in the opposite direction so that Mario will land back on the framework.

Defender

Williams Electronics made quite a mark in the video game industry with the introduction of *Defender*. Not only was it the first video game from a company noted solely for its outstanding pinball games, but the first video game to sport left-to-right (or right-to-left) play action.

As its name implies, your mission in *Defender* is to defend a humanoid population which is scattered about the planet's surface below your ship. Initially, your adversaries will be a deployment of green landers. Their mission is to descend to the planet's surface, pick up a humanoid, and carry it to the top of the screen. At this point, the two merge to form a mutant, an undesirable opponent.

Defender arms you with a formidable assortment of munitions. At first glance the control panel appears very intimidating. It consists of two position levers (up and down) and five buttons (reverse, hyperspace, smart bomb, thrust, and fire). Before you go doubting your dexterity, let me tell you something. Out of five buttons, only two will be used continually. One I recommend never using. The other two are no sweat. Now that you're calmed down, I'll tell you what to do.

The control handle moves your ship vertically (up and down). To the right of the control handle is the reverse button, which reverses the direction of your ship. It is easily accessible to the thumb of the left hand. The two buttons to the far right are the thrust and fire buttons. Your firepower here is unique. Laser bursts will emit from your jet as fast as you can push the button. Not automatic, but semi-automatic. You must constantly press and release the fire button. No shot, however, will travel past the boundaries of the screen. To move your jet along, thrust is necessary. Get used to pushing this button, because you'll be doing it a lot. Remember that what you see on the screen at any one time is just one piece of an entire panorama. You have a whole planet to defend. To help you see what's going on elsewhere, a long-range scanner rests just above the screen. Each enemy ship has its own distinctive mark on the scanner, so familiarize yourself with it.

The green button just below the thrust button is your trump card: the smart bomb. When pressed, every alien on the screen is destroyed. You get three to start and one additional for every 10,000 points.

Closest to you, in the center of the control panel, is the panic button, commonly referred to as hyperspace. It is nothing special. When pressed, your ship is relocated at random somewhere over the planet. Explosion on reentry is possible.

In comparison to the complexity of the game's controls, the rest is easy. An ideal attack plan is to annihilate whatever creature is in your path first, before moving on. Dilly-dallying or standing still can have two very negative effects. First, the lander force will make off with your humanoids. If all your humanoids are mutated or otherwise destroyed (more on this later), your planet explodes, leaving you to face a very large and overpowering enemy fleet in the bowels of deep space.

Secondly, *Defender* allows you only so much time before it unleashes reinforcements in the form of baiters. Baiters are green saucers which your ship, under full thrust, cannot outrun. So make haste!

If you come upon a lander with a humanoid in tow, you can spoil the party and score extra points in the process. First, shoot the lander, being cautious not to strike the humanoid. When the humanoid begins to fall, move your ship forward and catch it by flying through it. That's worth 500 points. Set him back down on the ground wherever you choose by descending to the planet's surface. That is worth another 500 points.

A WORD ON TECHNIQUE

If you've developed your own technique for manipulating the thrust and fire buttons, good for you. You beginners may find continually pressing the fire button difficult while holding down the thrust button. I propose what I hope is a better way. Using the first three fingers of your right hand, press both the thrust and fire buttons in quick bursts together. In this way, your ship is always moving and always firing. Fly relatively low to the planet's surface and be careful not to dip down below the planet's surface. You may hit one of your humanoids with a stray blast.

During the second round, or wave, the tempo picks up and some new adversaries make their entrance. They are bombers, pods, and the swarmers. Bombers appear as small boxes. When they come close to your ship they deposit small white *X*'s which are fatal to the touch. Pods are round stars, each worth 1,000 points. Once destroyed, a group of tenacious swarmers will emerge. As their name implies, swarmers home in on your ship, swarming on it from all sides.

Your strategy here should not vary a great deal. Your main objective is to preserve humanoids. Strategic use of smart bombs is critical in later stages of the game. Use them for big points. Hint: When the screen is loaded with pods, stop your ship and press smart bomb. Experience tells me that nine times out of ten, the pods and the resulting swarmers will all be consumed in a single blast.

The one unique characteristic of swarmers, pods, mutants, and baiters is their ability to exit at the bottom of the screen and reenter at the top (and vice versa).

And now, on to bigger and better things, and of course, more strategy with *Stargate.*

When a manufacturer releases a "deluxe model" of a hit game, it usually falls short of the game player's high expectations. At least, this is how I feel. *Stargate,* on the other hand, is the exception and a very worthy successor to *Defender.*

Before I show you *"Defender* vets" what *Stargate* is all about, let me review the similarities and differences.

A. The control panel on *Stargate* is identical to that of *Defender* with one exception. *Stargate* has one additional button labeled "Inviso Anti-Matter Cloaking Device." When punched, it makes your ship invisible and indestructible. Depending on how the *Stargate* you are playing is set, additional Inviso time is awarded for x-number of points scored. It is represented by the red line in the player information center, which also shows reserve ships and smart bombs.

B. In *Stargate,* as in *Defender,* the bulk of the point values are identical. *Stargate* sets you against additional forces which include Yllabian, Space Guppies, Dynamo, Space Hums, Firebombers and their fireballs, Phreds, Big Reds, and Munchies. Heavy

bonus points are awarded for successfully using the *Stargate.*

C. Your mission in *Defender* was to defend the humanoid population that rested on the planet surface. The same holds true for *Stargate.* Once your ten humanoids are either abducted by landers, accidentally shot by your ship, or otherwise destroyed, the planet explodes, leaving you in space with a swarm of mutants and other unfriendly characters. *Defender* was factory set to restore the planet and the humanoids every fourth round. *Stargate* replenishes your humanoid count every fifth round. The fifth round is unique. It is called the "Yllabian dogfight." During this battle, your ship will be in space against a reinforced army. There will be no landers or humanoids to protect during the Yllabian dogfight. Still, you'll have your hands full.

D. The long-range scanner on *Stargate* gives you more information than its predecessor did. The area you are defending is represented by the small frame in the center of the scanner. Below it, written messages will appear, warning you of lander whereabouts, information regarding the use of the *Stargate,* and other vital information. When all the landers in one wave are destroyed, it will read "All landers destroyed." When your remaining humanoids are in jeopardy, or if the planet is about to explode, it states "Planet surface unstable."

E. *Stargate* offers you the option of a reinforced army of seven ships, seven smart bombs, and extended Inviso time for 50¢, as compared to three ships for 25¢. This is a real bargain for the amateur and expert alike. I recommend a reinforced fleet.

Stargate

Before playing *Stargate,* hold down the "reverse" button. A summary of game-play hints will appear on the screen. I applaud Williams for this feature. Manufacturer-supplied game instructions are a rare if not endangered species.

If you've played *Defender,* you are probably conditioned to zip along the landscape at full speed, quickly zapping the landers before they pick up your humanoids. That strategy will work on *Stargate,* but will hurt your final point tally considerably. My observations tell me that the first wave of *Stargate* has been programmed to be easier than its counterpart on *Defender.* What this means is that the landers are less hostile and move to capture your humanoids at a slower pace.

Before going any further, let's discuss the *Stargate.* The *Stargate* is a box-shaped warp tunnel that is in a fixed position over the planet. If you choose to enter it, your ship will be transported to a part of the planet where humanoids are being abducted. If you manage to reenter the *Stargate* carrying four rescued humanoids, your ship will be warped ahead to the fourth level. 2,000 bonus points will be awarded for each surviving humanoid, as opposed to 100 per if you elected to destroy each alien in wave one. It is not necessary to destroy all alien forces before entering the *Stargate.* Going into the *Stargate* with four humanoid passengers ends wave one and places you at wave four.

When game play begins, take advantage of the simplified first round. Enter the *Stargate* to be transported to where the humanoids are being abducted. Be patient and wait for the landers to capture a humanoid before destroying them. If you feel "trigger-happy," work on destroying the fire bombers, but save the landers. Once you have

rescued four falling humanoids, hasten to the *Stargate*
Get ready for some incredible special effects. Now check
out your score. Pretty good. Continue the fourth round
using the same strategy. During this round, waiting for the
landers to pick up will not be necessary. They move much
faster.

Save your Inviso time for the fifth wave, or Yllabian
dogfight. You will probably find that use of the Inviso for
short perriods of time in earlier rounds is somewhat waste-
ful. When Inviso is pressed, your ship disappears and de-
stroys everything it touches. During the Yllabian dogfight,
approach the oncoming waves and press Inviso as you are
about to collide with a large formation. Move up and
down and back and forth in an attempt to erase the alien
tracking you. If you lose track of your position, glance at
the scanner to give yourself a general idea of your loca-
tion. Also keep in mind that the alien forces will track you
during the Yllabian dogfight. Try to move within a small
area when using Inviso.

In later rounds, pods will appear on the screen. When
hit, they award 1,000 points and at the same time release a
squadron of swarmers. The swarmers can be destroyed in
one of three ways:

1. With gunfire.
2. A smart bomb.
3. Inviso.

Battling swarmers with gunfire will take some tricky
maneuvering and use up valuable shots that could be bet-
ter spent elsewhere. I find the use of Inviso costly also.
Some of you may not agree with my next suggestion, but
I find that it works more often than not. When a wave
forms, remain still and allow the pods to wander onto the
screen. Destroy them with a smart bomb. I've found that
by not moving, the smart bomb destroys not only the

pods, but the swarmers inside. Each time I've zoomed over a pod and killed it with a smart bomb, the swarmers would survive, making it necessary to either use another smart bomb or battle them one by one. If a healthy number of pods are on the screen when you use a smart bomb, you could grab yourself over 10,000 points, which would replenish the smart bomb and award you additional Inviso time and another ship. Experiment and see.

Baiters, Big Reds, Phred, and Munchies appear if you dally too long in any one round. These creatures are particularly dangerous because they can attack from either the top or bottom of the screen. No creature can exit at one side of the screen and reappear at the other without first traveling the length of the planet. A Baiter under full steam is faster than your ship at full thrust. Confuse them by reversing direction twice. When they pause to turn back to chase you, shoot them. Be careful when pursuing an alien that is exiting at the bottom of the screen. You may accidentally shoot one of your humanoids. Your ship can pass through a stationary humanoid without destroying it. When the scanner reads "Planet surface unstable," this means that your remaining humanoid is in danger. To prevent destruction of your planet, carry a humanoid along with you, rather than setting him back down. If your ship is destroyed, the humanoid will survive, but reappear somewhere on the planet's surface.

In later rounds, I've found this strategy very effective. After rescuing a humanoid, carry him to a spot where other humanoids rest. Continue to group your humanoids until you have consolidated them into one area. Now you need defend only one portion of the planet.

When transporting humanoids, be careful of the high mountains dotting the terrain. If your ship brushes its peak, the humanoid will be deposited there. This decreases the distance a lander has to carry it.

Galaxian

The first significant change in "Laser Base" games was unveiled in Midway's *Galaxian.* Here, again your Laser Base is pitted against an alien armada (46, to be exact) that appears to be shifting laterally against a deceptive background. Suddenly, one, two or three attackers peel off the main formation and make diving-attack runs at your ship. Simply dodging them is not enough. As they descend, each alien strafes a section of the playfield with deadly bombs.

So now we have two problems: swooping aliens and their bombs. What next? Well, if you don't destroy an alien during his attack run, he passes your ship, exits at the bottom of the screen and returns to formation.

Now for the good news! Each alien has a set point value if destroyed while in formation. Point values double if any ship is knocked off during its attack run, with the exception of the yellow flagship. During his first attack run, the "Boss" Galaxian will be flanked by two red escorts. His point value is determined by the order in which the escorts are destroyed. Hitting the "Boss" after first knocking off both escorts yields 800 points. Hitting the flagship first (when accompanied by dual escorts) awards 300 points. A "Boss" on a solo run carries a 150-point value. In forma-

tion, the elusive flagship carries a paltry 60-point price tag. Wait till he descends!

Your arsenal sports the standard limitations: one shot on the screen at any given time. To see when you have a bullet in waiting, glance at the nose of your ship. A yellow missile is perched on the bow of your vessel telling you that all systems are go. When the fire button is pushed, it's bombs away, until your ship sprouts a new projectile.

There's no trick or safe spot in *Galaxian,* just a lot of defensive maneuvering. Player response to the challenge has been so great that Midway recently unveiled *Galaxian's* successor, *Galaga.*
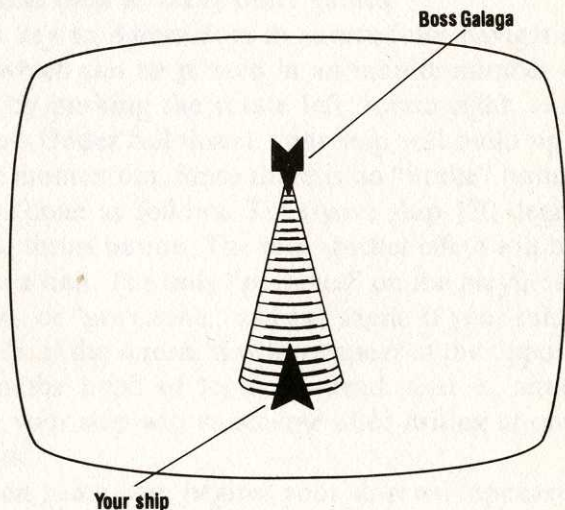
Galaga

Galaga is very similar to Midway's *Galaxian.* Here is a summary of the differences and new features.

1. Instead of appearing in formation at the beginning of each move, columns of aliens emerge from the sides of the screen and then group into formation before attack. At the beginning of stage 1, the alien columns are harmless.
2. During stage 3 (or challenging stage), you will be confronted by swooping squadrons of passive aliens. This offers you the opportunity to score bonus points without opposition.
3. Bonus fighters are given for a score of 20,000, 70,000, and every 70,000 thereafter.
4. The flagships of "Boss" Galaga have to be hit twice to be destroyed. When he enters the formation he is green. After the first hit he turns blue.
5. The fire button on *Galaga* has the capability of rapid-fire, but this feature can be deleted by the ma-

chine's owner. Test to see if the *Galaga* you are playing has rapid-fire by holding down the fire button.

6. One of the "Boss" Galagas will randomly shoot a tractor beam toward your ship. If captured, he will carry your fighter to the top of the screen. If you succeed in destroying the flagship that carried away your fighter, the captured ship will descend and give you tandem firepower.

7. The blue and yellow aliens (I call them bees) will swoop down toward you and move below your ship. If they do not immediately return to formation, they will attempt to ram the underside of your ship.

Your ship is confined to the lower portion of the screen. It is moved with a two-position joystick, either left or right, as in *Galaxian*. The attacking aliens score more points during their attack run than they do in formation.

As soon as possible, allow the tractor beam to capture your first fighter. Successfully destroying the Galaga that apprehended your fighter will award you dual firepower.

As early in the game as possible, arm yourself with tandem fighters. To do this, allow the tractor beam to capture your first fighter. When you destroy the flagship that captured your fighter, it will descend and join the ship already on the bottom of the screen. The two ships move as a unit and fire simultaneously. It is possible that one of the ships will be destroyed and the other left intact. If you see that destruction is inevitable, move your ship so that only one fighter will be destroyed. If you have ships in reserve, allow your remaining ship to be caught in the tractor. Do not allow your last ship to be caught by the tractor beam. If this happens, the game will end.

If the *Galaga* you are playing is equipped with rapid-fire you will find it particularly effective during the challenging stages.

ASTEROIDS

Space Invaders brought video to the forefront. The introduction of *Asteroids* proved it was no fad. Even though so much has been said and done concerning *Asteroids,* I feel it still merits discussion here. Not only is it a pioneer in video, but its play concept of "free flight" has been imitated and used in many other games.

The key to *Asteroids* is in successfully navigating your ship, which can be piloted in an infinite number of flight paths by pushing the rotate left, rotate right, and thrust buttons. Under full thrust, your ship will build up considerable momentum. Since there is no "brake" button, stopping is done as follows. Turn your ship 180 degrees and tap the thrust button. The retro-rocket effect will bring the ship to a halt. The only "potholes" on the playfield are the borders, or "gray zone," as I call them. If your ship exits at one side of the screen, it will reappear at the opposite side. Get in the habit of looking ahead, that is, anticipating where your ship will re-emerge after exiting at one of the borders.

When game play begins, your ship will appear at dead center of the screen. Four large asteroids will materialize near the borders and begin to move randomly. Each rock passes freely through another and can also move through the gray zone. When a large asteroid is struck by one

of your shots or collides with a UFO, it will divide into medium-sized asteroids. The speed and trajectory of each of the remaining rocks will vary from that of the "mother asteroid." Medium asteroids are further divided into small asteroids. Once again, a change in speed and course will take place. I doubt if anyone can accurately predict which course an asteroid will follow, once hit, or at what speed it will move. Better players will probably tell you that shooting an approaching large or medium asteroid at close range is risky business.

Your ship is capable of releasing salvos of up to four shots at a time. After that, you must wait out a brief reloading period before the next shots can be taken. Your shots are also capable of exiting and reentering the screen via the gray zone.

Since *Asteroids* is a game of skill, I personally frown on the use of hyperspace. When pressed, hyperspace causes your ship to vanish and then reappear at some random point elsewhere on the screen. Explosion upon reentry may also occur. If you are faced with a situation that seems to be pure destruction, it probably isn't. We all have a tendency to panic and the answer is right at our fingertips. "Quick, hit hyperspace," an excited onlooker might say. I've found that too many times you go from the frying pan into the fire. (If your ship is transported from one dangerous spot to another, that is far worse.) It is much more gratifying to shoot or maneuver yourself out of a tight spot, as opposed to resorting to hyperspace. The key to success in any video game is to control the variables and limit the unnecessary risks. Enough said.

Your ship can be destroyed one of two ways: collision with an asteroid or being struck by a shot from a UFO. UFOs come in two varieties, large or small. They both originate from either the right or left sides of the screen, never from the top or the bottom. The large UFO fires more randomly than its smaller counterpart. Both are sus-

ceptible to destruction from collision with an asteroid. You receive no points for a UFO destroyed in this manner. Remember for future reference that a UFO missile cannot travel across the boundaries of the screen.

In order to practice your aim, remain stationary at the beginning of each round. Practice strafing your fire and leading the asteroids with your shots before moving off into free flight. Each round begins with progressively more asteroids per screen, until a maximum of 16 appear. Don't be overanxious to make mincemeat out of every large asteroid. You'll be faced with an undesirable amount of small asteroids. Thin out the ranks of smaller asteroids before splitting up any larger ones. Once the congestion disappears, leave one small or medium asteroid, preferably a slow-moving one. You are about to begin "lurking." Toward the end of each round, the small UFO (1,000 points) begins to appear more frequently. When one asteroid remains, UFOs appear continually, one after the other. Since each one is worth 1,000 points, it is senseless to destroy the remaining asteroid and begin the next round. Lurking allows you to milk this opportunity and rack up as many points as possible.

It can be done a number of ways. Here are two of the most efficient methods:

1. Position your ship approximately one to two inches from either upper corner. When a UFO appears, it will not fire immediately. Take the opportunity to fire at it. If the UFO appears on the opposite side, turn to fire off the screen, so that your shots will reenter in the vicinity of the UFO.

2. Under full thrust, move your ship toward the top of the screen. You will reappear at the bottom. Continue moving in this direction, all the time keeping one eye open for the whereabouts of the lone asteroid. When the UFO emerges, release the thrust

Player's ship

Small UFO

Asteroid
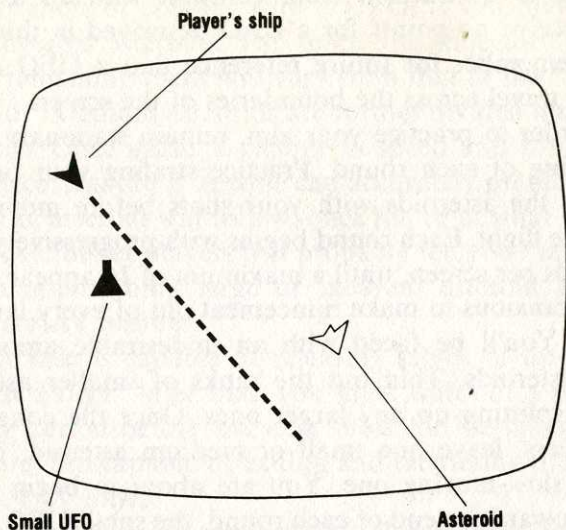
When lurking, position your ship in either upper corner. If the UFO emerges from same side where you are stationed, shoot it quickly.

Player's ship

Player's shots

Small UFO

Asteroid
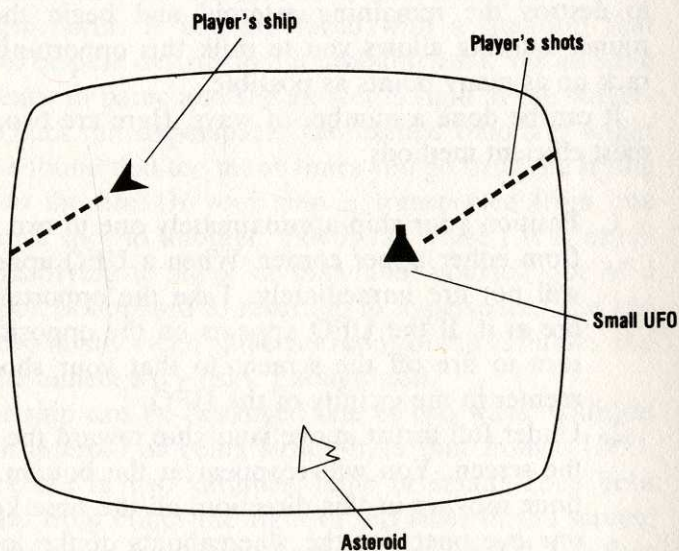
...If he emerges from opposite side, shoot off the screen to destroy it.

and rotate toward it. Your momentum will allow you to continue moving in an upward direction, even though your ship is facing left or right. Fire a line of shots in the UFO's flight path. If you miss, try again on the next pass. The idea here is to keep moving so the UFO cannot get you in his sights.

If you choose to develop your own method of lurking, remember these points:

1. UFO missiles cannot travel off the screen and reappear on the opposite side—yours can. Firing off the screen at a UFO offers you considerable protection and better accuracy. By shooting off the screen, in some cases you cut the distance your missiles must travel to reach the UFO, as opposed to stalking in the open.
2. Keep an eye on the remaining asteroid. If it is accidentally destroyed, a fresh supply of large asteroids will appear.

OTHER INFORMATION

Once your ship is destroyed, its replacement will appear at dead center. It faces the exact angle its predecessor faced when destroyed. Be alert for its appearance. It will not materialize until all asteroids are at least one inch from center. Be ready to move.

Omega Race

Omega Race has a deceiving appearance. "A piece of cake," I said the first time I saw it. I was wrong. This game develops a healthy level of frustration, which you'll find quite stimulating.

Your mission (should you choose to accept it) is to maneuver your ship around a rectangular "race" course, destroying an android force as you go. The infield of the race course displays the scores and ships remaining. It is off-limits to your ship and the droid forces. Even though *Omega Race* closely resembles *Asteroids* in some aspects, Midway made some interesting changes and improvements on the free-flight theme. The borders of the playfield are "roped off" by elastic walls, thus eliminating the "gray zone" that would exist if your ship could exit one side and enter the other. The walls are invisible at first. When your ship approaches or strikes one, it will momentarily appear. Each wall possesses an elastic quality. Your ship will bounce off them.

Instead of "rotate right" and "rotate left" buttons, *Omega Race* is equipped with a small control knob or steering wheel, technically referred to as an angle encoder. Use it in the same manner you would an automobile steering wheel. The control knob offers only slight resistance. This is a blessing of sorts. If you release it, your ship will

remain on the course you last set it for. Your firepower limitations are set up to four shots per salvo. Each shot will travel until it hits a droid or strikes a boundary. The thrust is somewhat tricky. When first pressed, your ship will remain motionless for a second or two until sufficient power is built up. All of a sudden—whoosh! You're off. Once the thrust button is released, the ship coasts on its momentum farther than I've seen in any other free-flight game. Brakes are applied by doing a 180 and topping the thrust or by bouncing off a wall. A "lead finger" is not recommended.

The game is broken down into progressively more difficult forces, each force consisting of four waves. A maximum of twelve droids will appear at the fourth wave and every one thereafter. Your opposition for the first four waves stacks up as follows:

> First Wave: 6 droids
> Second Wave: 8 droids
> Third Wave: 10 droids
> Fourth Wave: 12 droids

The enemy droids each have a particular personality and point value. Collision with any one of them is fatal.

Photon Mine: 350 points

Vapor Mine: 500 points

Droid Ship: 1,000 points

Command Ship: 1,500 points

Death Star: 2,500 points

Initially, only one command ship will appear. It will move clockwise or counterclockwise around the course. Once destroyed, one of the droid ships will replace it and continue its journey. The photon and vapor mines remain stationary. Once deposited by either a command ship or a death star, they're only dangerous if you collide with them. To advance to the next wave it is not necessary to destroy the mines. If they are not destroyed, they will re-appear in the next round.

Omega Race utilizes the familiar "dun-dun-dun" sound effects of *Space Invaders* and *Asteroids* fame. When the tempo begins to increase considerably, the death star will soon emerge. The death star zips around the playfield, homing in on your ship. As it scurries about, it deposits mines and fires in all directions. Learning how to deal with the death star is the only way you'll get anywhere on *Omega Race*. Here's a strategy to use against it.

Even though you cannot maneuver outside the boundaries of the playfield, you can still lurk and wait for your prey at one of the four corners of the infield. To position your ship against one of the walls, head for it nose-first. As you hold down the thrust button, your ship will bounce but eventually cling to the wall motionless. Turn so that your shots will travel across one of the vertical corridors. As the death star approaches, fire so that it runs into your shots. If you miss, the death star will run past you, turn and come back to chase you. Position your ship at another corner and wait for the death star to pass.

Chasing the death star is difficult if not unwise. If other ships or mines exist, flying could be dangerous. The key here, especially in later rounds, is to destroy the droid force as soon as possible. This way, when the death star emerges, no other distraction will be present to interfere.

Initially, each force will move in the same direction, clockwise or counterclockwise. The command droids will lead each wave. Destroy them as they come up the vertical

Player's ship
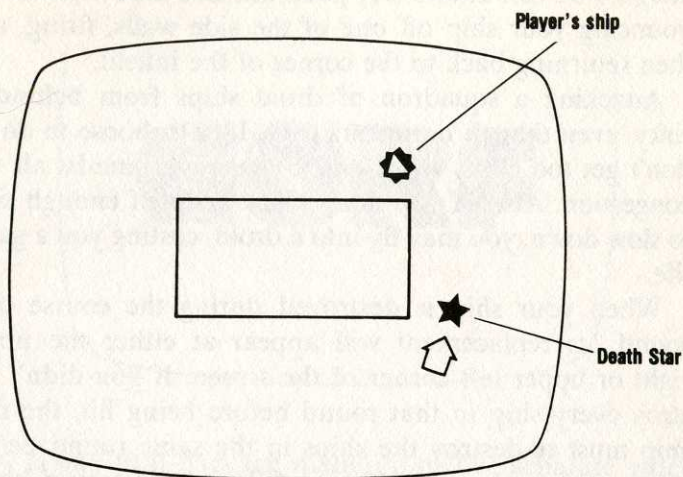
Death Star

Position your ship at one of the corners of the infield and wait for the Death Star.

Player's ship

Droid force
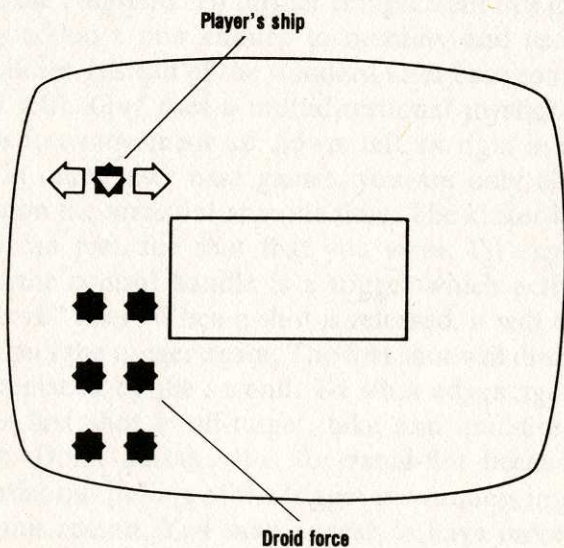
Bounce back and forth between walls and the cover of the infield to protect your ship periodically.

alleys. You can alternately peek out and hide to shoot by bouncing your ship off one of the side walls, firing, and then returning back to the corner of the infield.

Attacking a squadron of droid ships from behind is risky, even though it appears easy. If you choose to do so, don't get too close. It is hard to maneuver amidst all this congestion. Also, if you don't allow yourself enough time to slow down, you may fly into a droid, costing you a game life.

When your ship is destroyed during the course of a round, its replacement will appear at either the upper right or upper left corner of the screen. If you didn't destroy every ship in that round before being hit, the new ship must re-destroy the ships in the same round before moving on to the next. If your fighter is destroyed by an enemy shot or collides with a mine after the last ship is destroyed, its replacement will be advanced to the next wave.

GORF

Gorf is one neat package made up of five separate video games or missions in one game. They consist of *Astro Battles (Space Invaders* to you video vets), *Laser Attack* (a new entry), *Galaxians, Space Warp* (another new entry), and the *Flagships.* To further complement this game, Midway added a new change to mobility and firepower capabilities. Instead of the standard laser base controls (right and left), *Gorf* uses a multidirectional joystick which allows free movement up, down, left, or right in a set zone. As in other laser base games, you are only allowed one shot on the screen at any one time. The kicker here is that you can pick the shot that you want. I'll explain. Built into the control handle is a trigger which activates your "Quark" laser. When a shot is released, it will travel until you pull the trigger again. The first shot will disappear and be replaced by the second. To what advantage is this? If your first shot is off-target, take aim and fire a second time. Don't mistake this for rapid-fire because it isn't. Continuous pulling of the trigger is worthless in most cases for this reason. You may appear to have more than one shot on the screen at one time, but none of them are traveling far enough to destroy any aliens. The exceptions will be discussed later.

ASTRO BATTLES

Astro Battles resembles the original *Space Invaders* in appearance only. In this mission you are pitted against 24 aliens as opposed to the standard 55. The 23-15 counting method is of no value here, even though UFOs do occasionally appear. When hit, they score 100 points. Instead of four shelters, your ship is protected by an arcing force-field, which spans the width of the screen. It will momentarily disappear to let your shots pass through.

At the beginning of the round, the invaders do not appear in formation. A large Gorfian robot will hop out of the right side of the screen and begin depositing the aliens in formation. Once the ranks are filled, the invaders will begin their familiar left-to-right, right-to-left movement. The goal here is to destroy them as quickly as possible. Not too much strategy is involved, unless you want to take a crack at the large Gorfian robot that jumps out to dispense the invaders. I've found that he can be hit by immediately moving your ship up as far as it will go just to the right of center. When he appears, fire and he will hop right into the oncoming "Quark." Try it. It's another 250 points. If you succeed, he will still drop the 24 invaders.

LASER ATTACK

In *Laser Attack* you will face two laser cannons escorted and flanked by what appear to be badminton birdies. The laser cannons will prance about the screen in a random pattern, moving, stopping, and shooting. The laser bolts stretch the length of the screen, appearing as solid yellow lines. They are deadly to the touch. The birdies and an occasional Gorfian robot will try to ram your ship. Once again, not too much strategy here. Go for the cannons first. The rest is a piece of cake. After hitting a laser cannon, beware of the laser he emits when destroyed.

GALAXIANS

Not much difference here from the original, except you face only 24 galaxians as opposed to 46. I recommend staying low, taking advantage of your upward mobility for escape purposes only. Defense and the preservation of ships are the key in *Gorf.*

SPACE WARP

In *Space Warp,* the screen will portray a black hole with a series of lines radiating from the center. Ships of various sizes and shapes will emerge from the center and move in a spiral course until they are either destroyed or exit at one of the borders of the screen. A small line, resembling a chain of beads, serves as a counter during this game. As an alien materializes, one dot on this line disappears. During this round, your range of upward movement is increased. A good attack pattern for *Space Warp* might be moving your ship as far up as possible, rapid-firing so that each bullet passes through the center of the black hole. In later rounds of *Space Warp,* you would be wise to think defensively. Since the robots will emerge with blinding speed, positioning your ship too close to the black hole would be unsafe. If you feel they're too quick for you, keep your eye on the "time line" and wait the round out.

FLAGSHIPS

The *Flagships* confrontation on *Gorf* is labeled the dramatic climax of your mission. Whatever. The object here is to place a shot dead center to the flagship's nuclear reactor. Successfully destroying the flagship the first time awards one bonus ship. Each time you face the flagship thereafter, two Gorfian robots will ride piggyback on the flagship. Periodically they will leap off and attempt to ram your ship.

A semicircular forcefield separates the flagship from your fighter. It offers no protection from the "Christmas ornament" bombs dropped by the flagship and the kamikaze robots. To get a clear shot at this flagship, you must first shoot holes in the forcefield. If the oncoming salvos are testing your nerves, two safe spots exist during this round. Position your ship in either upper corner to take a breather.

Successful completion of each of the five missions awards you a higher ranking. At game's beginning, you are a space cadet; after mission five, a space captain; after mission ten, a space colonel; after mission fifteen, a space general; after mission twenty, a space warrior; and after mission twenty-five and thereon, a space avenger. Play difficulty does not appreciably increase with each level. Just remember to play defensively and the points are sure to follow.

ANOTHER TIP

Each time an alien is destroyed, its point value will appear on the screen. Avoid colliding with these numerals. If you touch them, you'll lose a game life.

Scramble

Scramble consists of five stages, each progressively more difficult. Your mission is to pilot a jet along an ever-changing landscape, bombing assorted ground targets as you go. After Stage Five, the base appears. Successfully destroying it awards a bonus jet. Game play continues back at Stage 1 and repeats thereafter.

Your jet boasts two weapons, lasers and bombs. Bombs fall from the belly of your jet. Their trajectory is directly affected by the speed and height of your jet at the time of discharge. It is possible to apply "English" on the bombs by speeding up, slowing down, or otherwise changing your flight path. You are allowed two bombs on the screen at any one time. Laser shots are emitted from the nose of your jet. There are four per salvo. Laser shots, though, can be released continually, simply by pushing the laser button constantly.

Unlike other games, *Scramble* players must also pay close attention to the fuel gauge that runs along the bottom of the screen. Fuel is consumed on a time basis; therefore, air speed has no bearing on fuel consumption. Fuel is replenished by destroying fuel tanks which dot the varied terrain.

You'll control your jet with a four-position joystick that moves your jet up and down and enables it to accelerate and decelerate. In its normal position your jet rests against the left side of the screen. By moving the joystick to the right, the jet will accelerate until its nose is almost touching the right side of the screen. The jet will appear to hang motionless until the landscape, or left side, catches up with it. It will then continue at normal speed. In this motionless state, your jet is capable of vertical movement.

STAGE ONE

The landscape during Stage One consists of mountains and valleys jam-packed with missiles, fuel tanks and mystery bases which vary in value from 100 to 300 points. The only danger here is the rockets. They will launch in a perpendicular flight path, once they pass the center of the playfield. What this means is that as the planet's surface rolls beneath you, the rockets will fly as they pass center. Keep your jet low and at normal speed so that each rocket will launch in the path of your laser as opposed to a path beneath you. To position your ship on low ground, release two bombs just as you clear the peak of a mountain. Immediately move down and glide along the ground, annihilating everything in your path. Never fly at the top of the screen. You may think you're safe from oncoming missiles, but in actuality you're running out of fuel and scoring no points.

STAGE TWO

Stage Two closely resembles Stage One with two exceptions. First of all, the air space is smaller, since you seem to be flying through a cave. Secondly, your path is ob-

structed by a squadron of UFOs. The key here is to spray a steady stream of laser shots ahead of you to stop the UFOs, selectively dropping bombs to hit fuel tanks. A good rule of thumb for the balance of the game is to make fuel tanks your primary targets. They're worth 150 points a pop and keep your tank full to boot.

STAGE THREE

Stage Three presents a unique challenge. A relentless stream of fireballs cascades from right to left across the screen. They're indestructible and their speed makes evasive maneuvering almost impossible. Survival and keeping your fuel up are paramount here. As soon as you see the first fireball approaching, move toward the ground. The targets are much sparser here than in the previous two levels, but missiles present no threat. I suggest moving at a brisk pace as you approach a mountain. If you attempt to hurdle it without stopping, nine times out of ten, a fireball will zap you. Zip along at the valleys, pause at the mountains before going over, and then drop down into the next valley.

STAGE FOUR

In Stage Four, your airspace will be significantly decreased to roughly three widths of your ship. Missile silos abound and fuel tanks are scarce. I really have no sure-fire advice for Stage Four except bomb and laser for all its worth. Once again, make the few fuel tanks you spot your primary targets. If you fear being submarined by a missile below, a quick burst of speed will lead you to temporary safety.

STAGE FIVE

Here is where the use of fast speed and vertical-movement expertise become necessary. In Stage Five, your ship must maneuver through long hallways slightly higher than the ship itself. Once exiting a hallway, you must either drop or rise vertically without moving forward, only to exit at another narrow hallway. To successfully navigate these bends, move through the narrow tunnels at full speed. Once your ship is clear of the exit, pull down or up, depending, to line up your ship with the next tunnel. Once you are lined up with the next tunnel, move ahead and repeat the process each time a sharp vertical rise or drop is necessary. Destroying the base requires the same vertical agility necessary during Stage Five. The base will appear at the bottom of a deep narrow canyon and continue to appear until destroyed or until your ship runs out of fuel. Even though the base appears safe from your laser and bombs, remember one thing. At this point your ship is expendable. Once you've destroyed the base you'll be awarded a bonus ship which will be placed back at the beginning of Stage One. As soon as you enter the base, move at full speed. Once you sight the base in the bottom of a canyon, pull down on the joystick. If you see your ship beginning to move forward, quickly drop bombs. If you have time to spare, move down to shoot the base with your laser. Once you've destroyed the base, don't worry about crashing. You've completed your mission and won a bonus ship.

Each stage that follows is an exact replica of the original five, except that the fuel is consumed at a slightly faster rate.

STAR CASTLE

Star Castle is a standout among the wave of free-flight games that emerged after *Asteroids*. The object here is to break through three revolving rings and destroy the energy cannon nested inside. Points are awarded on the following basis:

1. Outer ring: 10 points per side.
2. Middle ring: 20 points per side.
3. Inner ring: 30 points per side.

An additional ship and bonus points are awarded each time you destroy the energy cannon.

So you ask "What's the catch? This sounds too easy." Well, here it is. This game increases in difficulty with time, as opposed to skill level. If you dawdle too long, the energy bombs, which periodically leap from the outer ring, become very aggressive. During the course of the game, the energy cannon tracks your every move. Whenever missing sections of all three rings pass over the energy cannon's barrel simultaneously, it unleashes a fireball which kills on contact. Initially, the cannon turns slowly to face your ship. As time passes, it appears to blink into position. Each time the entire outer ring is destroyed, the middle and inner rings enlarge to replace the destroyed outer ring and a new wall is formed around the cannon.

The bombs that move toward your ship have no point

value and cannot travel off the screen and back at the opposite side. Neither can the fireballs that are emitted from the energy cannon. Luckily, your ship and your shots can. The basis of my strategy rests in your ability to use the "gray zone" outside the borders.

As with *Asteroids,* the player's ship builds up considerable momentum under full thrust, which allows it to turn while still moving in a forward direction. By moving along the path described in the diagram below, you spend a considerable amount of time in the "gray zone," safely out of sight of the energy cannon. When you reenter the screen, turn and release a salvo of shots. Straighten out and continue on your way. Repeat the turn and shoot rhythmically each time you re-emerge on the screen.
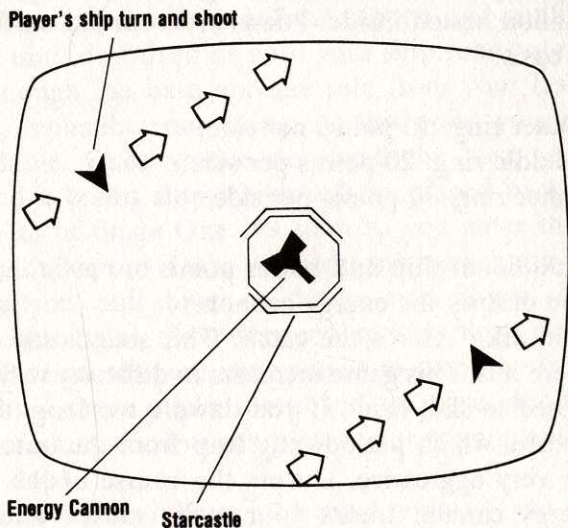
Arrows and dotted lines indicate recommended flight path.

This flight pattern is particularly effective in later stages of the game when the energy cannon homes in on your position more quickly. Also, since you are exiting the order on a regular basis, the bombs will lose track of your ship.

Scoring Log

Date	Game	Location	Score Goal	Score Received

About the Author

Michael Blanchet was born November 28, 1959, in Summit, New Jersey. He grew up in Far Hills, New Jersey, and attended Bernard's High School.

Originally a pinball fanatic, he can remember spending hundreds of dollars in one week playing these games. One summer he graduated to video games when his father brought home a Hewlett-Packard educational computer. Since then, video games have been Michael's passion and source of employment. He has managed arcades, which has given him the opportunity to acquire intimate knowledge about the workings of the machines. During this period he also improved his playing technique.

Michael is presently the vice president of operations for a New Jersey-based video games concern and has been featured in magazine and newspaper articles. He is particularly proud of a *New York Times Magazine* feature.

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