VIDEO GAMES™

Exclusive:
The Godfather of Video Games & Marty Ingles Have Their Say

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FEBRUARY 1983
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WHAT'S NEW FOR '83

The Games Network

Super Pac-Man

Saviour One

The Atari 5200

3-D Everything

PLUS
Our Dream Machine

SPECIAL 27-PAGE HOME COMPUTER SECTION

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BAD NEWS FOR INTE

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So you think you can beat every game made for your Intellivision* system, huh?

Well, so did Billy Grubb up there.

Until he played IMAGIC'S® new games for Intellivision—the first games ever to unleash the enormous power locked away in every Intellivision system.

First, Bill played Demon Attack.® Wave after wave of deadly demons bombarded Bill with lasers. The tricky demons split in two, even let loose with a few fireballs. But somehow Bill managed to wipe them out and take off into space searching for the demons' home base.

Unfortunately for little Billy, he found it.

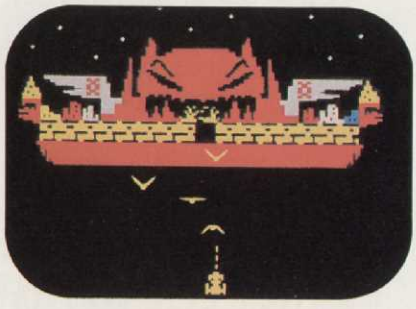
Next, Bill gave Atlantis a shot. The Gorgon attack vessels filled the skies above the underwater city of Atlantis. Bill fought back from his two missile posts. As night fell, and the Gorgon death rays took their toll, Bill launched his star fighter and attacked the enemy head-on in the air.

But little Billy was no match for the fierce Gorgon warriors. No match for IMAGIC.

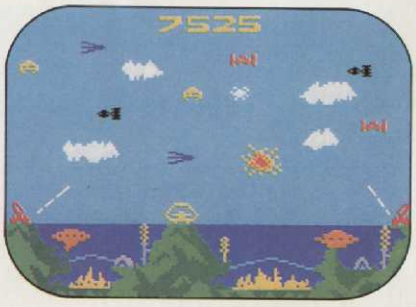
By now, Billy was feeling a little sick. He was ready for Microsurgeon.™

Using a surgical robot probe, Bill began exploratory surgery on the

Demon Attack



Atlantis



LLIVISION OWNERS.

patient. The status report warned of serious problems in the heart and lungs. Bill raced down the circulatory system fighting white blood cells and bacteria all the way.

The beating of his patient's heart was deafening as Bill raced against the clock to remove the cholesterol blocking the arteries. Then the beating stopped.

And so did Billy.

Next, Bill grabbed for Beauty & the Beast. "This'll be easy," he said with his last glimmer of cockiness.

It wasn't.

After climbing up a building through dozens of open windows, jumping over rolling boulders, narrowly avoiding vicious rats, and ducking under deadly birds, Bill was still four stories away from the beast that was bullying his best girl. Then he fell off the ledge.

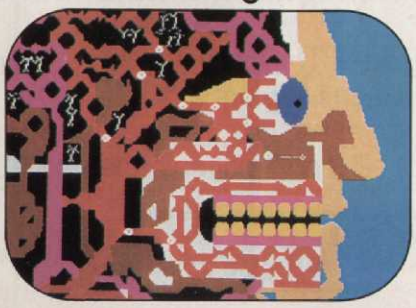
Bye-bye, Biiiiiiiiyyyyyy!!!!!

Let this be a warning to all you cocky, know-it-all, self-proclaimed video game wizards out there:

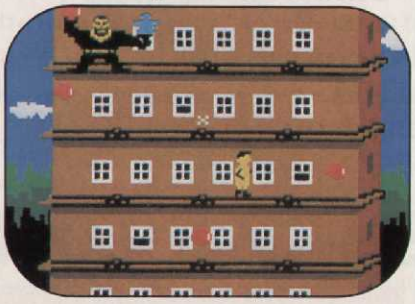
Laboratory tests have proven that IMAGIC games, when played in large doses, may be hazardous to your self-esteem and cause chronic Hugedigitosis (sore thumb).

In other words, our games are created by experts for experts.

Microsurgeon



Beauty & the Beast



IMAGIC

Created by Experts for Experts.™

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Volume 1, Number 5 February 1983

FEATURES

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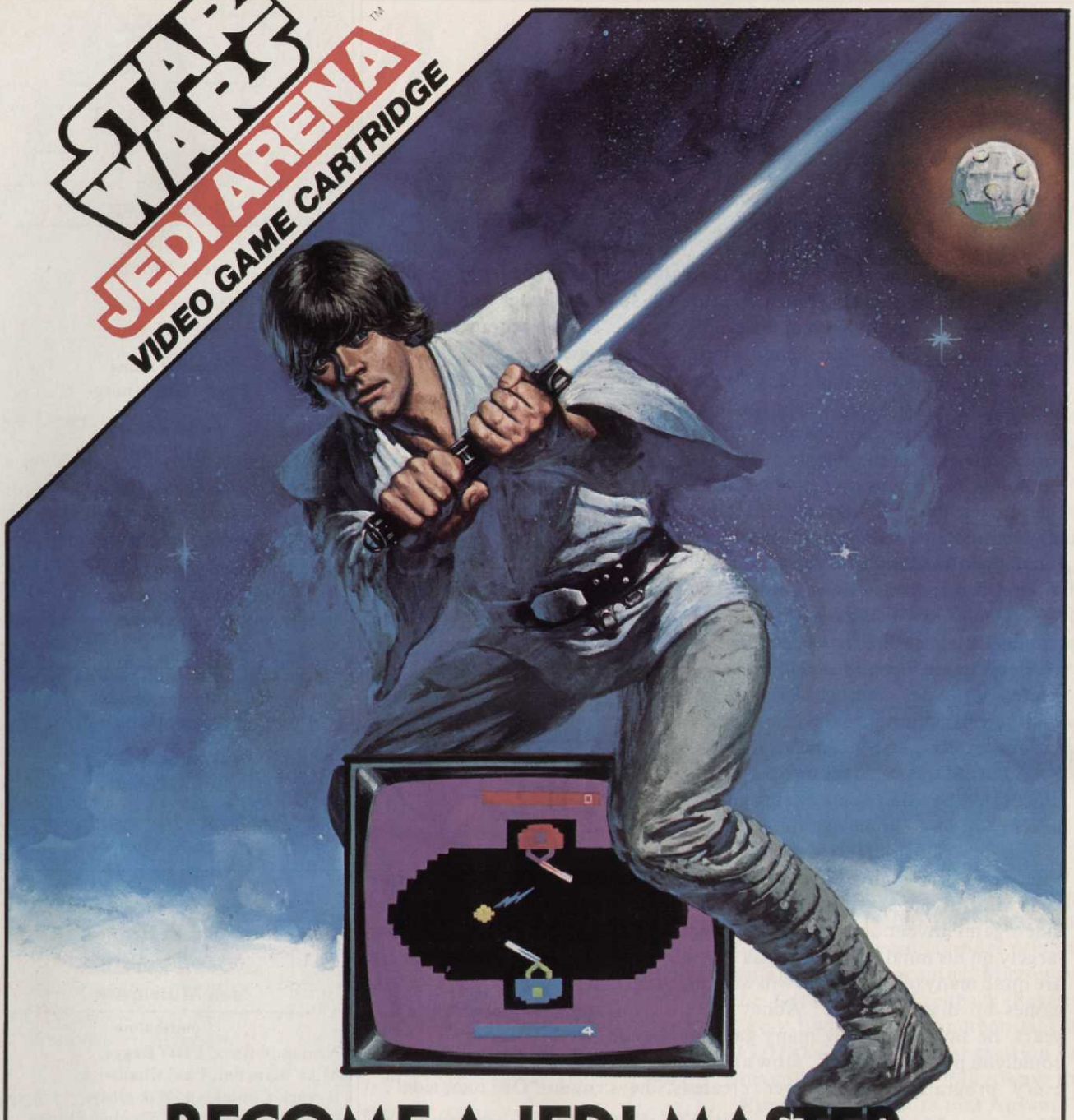
DEPARTMENTS

Cover illustration by Richard Kriegler

STAR WARS®

JEDI ARENA™

VIDEO GAME CARTRIDGE



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In the STAR WARS® JEDI ARENA,™ perfecting the skills needed to become a JEDI MASTER takes concentration and practice.

Use your LIGHTSABER to direct the attack of the whirling SEEKER. But stay alert, your adversary can attack at any time. So follow your instincts. In no time at all you'll be a JEDI MASTER, ready to go saber to saber against any opponent who dares to do battle with you.

Play the STAR WARS JEDI ARENA home video game. Alone or head-to-head. The challenge awaits you.

®PARKER BROTHERS

HYPERSPACE

Welcome to 1983! Three years ago I discovered Space Invaders and so here I am. What's your excuse?

Video games have come a long way (baby) since 1979. Screen resolution has improved dramatically, game formats have expanded above and beyond shooting nameless alien creatures in so-called space and almost every game has leaped in complexity. Meanwhile, they've become simpler to play and the price—for the most part—has remained the same.

But that's all happening today. What might we expect for tomorrow? Here at *VIDEO GAMES*, we spent most of October and November trying to answer that question. Thanks to the opinions of a panel of experts, both inside and outside the magazine, we were able to arrive at some conclusions. The fun begins on page 34 with Sue Adamo's "Video Games Go to the Movies, Part 2." Our resident Hollywood hobnobber reveals the latest plans some filmmakers and game people have been cooking up. An Academy-award report if there ever was.

Another story that should grab a few nominations is "Playing Games With Cable" in which *VG* senior editor David Smith explores the up-and-coming relationship between video games and cable television. But "Future Shock Talk," starting on page 36, is where things really start to stretch out. After reading the six interviews Bob Mecoy conducted you'll want to run right out to the nearest movie theater and "interact" with the action on the big screen. And after studying our "Dream Machine for '83" (illustrated by Alan Wallerstein) you'll *never* want to go home again.

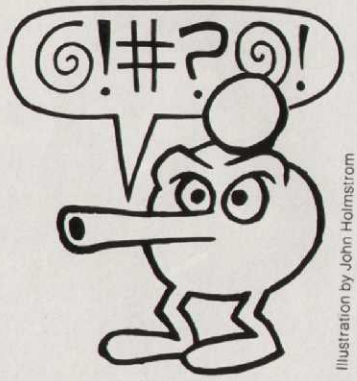

Illustration by John Holmstrom

*Pick-hit: Q*bert!*

Finally, there's Ralph Baer (*VG* Interview)—the man who started it all and who, at 60, is still cranking out video game inventions. Videodiscs are largely on his mind these days—as they are on so many others. When will we see games on discs at home? About five years, he says. And how many games could you put on one disc? "How about every program that was ever created," he crows. "On one side!"

Chicago on My Mind: Just returned from the Windy City where all the coin-op makers met (Nov. 18-20) to show their newest wares. There were plenty of sequels—Atari's Millipede (Centipede) and Liberator (Missile Command), Sega's Super Zaxxon and a trio of new Pacs (Super, Baby and Pac-Man Plus) from Bally Midway—lots of Donkey Kongs (Nintendo's Popeye, Data East's Burger Time, Sega's Monster Bash), one decent space game (Sega's Buck Rogers), one experimental videodisc shoot-'em-up (Sega's Astron Belt), and then there was Q*bert, the sure-fire hit of the show from Gottlieb.

What in the world is Q*bert? You probably know by now since every operator who walked out of the Hyatt bought at least one. Why? Cause Q*bert's different—that simple. It's easy to play, but not so easy to do. Unless you're John Holmstrom. *VG*'s in-house gamer already had some practice on Q*bert when he discovered it on test in a New York arcade back in October. So it's no surprise really that he registered the high score all three days in Chicago.

"Q*bert has star quality written all over it," Holmstrom wrote in the January issue. "Mark my words." Need I say more?

SB

VIDEO GAMES

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VIDEO GAMES is published monthly by PUMPKIN PRESS Inc., 350 Fifth Avenue, Suite 6204, New York, N.Y. 10118.

Single copy price $2.95, Subscription rate $29.00 for one year (12 issues), Canada $35.00. Printed in U.S.A.

Application to mail at Second Class postage rate pending at G.P.O., N.Y., N.Y. and additional mailing office.

Double Speak

Eye Opener

The news item in your December issue about Siggraph (Blips) amazes me. Currently I am a soph at the University of Nebraska majoring in computer science. My first year was electronics and my second is programming. When I read about the Siggraph convention my eyes were really opened. My first love is art and by many hours of art classes I became well-known in my area for turning out very good stuff. I am really interested in computer art and wish to know more about it. I would like to know where I can learn to do it, maybe go some place where they do it and see it first hand. Please tell me all you can about it.

Patrick Kassebaum
Lincoln, Neb.

Here's a suggestion: Send a note to the Association for Computing Machinery (P.O. Box 353, Derby, Ct. 06418). ACM sponsored Siggraph '82.—Ed.

Once Upon a Tron

I am looking to purchase a Tron pattern book and/or a book of how to win at playing Tron. Also, where can I find out what the highest Tron score on record is? Thank you for your help in these matters.

Andrew C. Eldredge
West Des Moines, Iowa

Can't help you about the book, but the last high Tron score we've heard was 3,195,329. For more top scores, see page 19.—Ed.

Bee Cause

I have come up with a great new game idea! The name is Bumble Bee. There is this bee and he is flying over these trees. Then he spots two tennis courts so he swoops down and these people are playing tennis and they try to hit him with their rackets. So, he tries to dodge the strings. Then, after that, he flies over a city and tries to dodge tall skyscrapers. And he has to go under cars and through windows. And, now he has to go through this swimming pool and dodge people's legs and stuff. When they are done they start over but there are more obstacles. For this game you should use joysticks.

Julian Goss
Marietta, Ga.

Coleco Woes

Why does Canada market a version of the ColecoVision that doesn't have a speed roller? And when do you think they will have the new version in Canada? Did Mattel ever own or associate with either Atari or Coleco?

James Hung
Toronto, Canada

It's not just in Canada, my friend. Coleco decided to forego the speed roller when it encountered mechanical problems. No, Mattel never owned or "associated" with Atari or Coleco. Why do you want to know?—Ed.

What's Your Zydroid?

Come on, guys. I know you are trying to make us better game players but trying to increase our dexterity by making us turn pages is utterly ludicrous. Also, could it be possible to see "The Zydroid Legion" part two and more of Eugene Jarvis?

Darel Smith
Baton Rouge, La.

For your sake, I hope you caught Zydroid II in the Jan. issue. The "secret" is revealed in March. Sorry to say Dr. J. is still on sabbatical.—Ed.

Join the Club

I really enjoyed the December issue and I can't wait for the next. In Blips you had a news item called "Are You Game Enough to Join a Club?" There is one club called Screen Sonics for which you did not print an address. Can you help?

Chris Webster
Boise, Idaho

For Screen Sonics write: P.O. Box 8892, St. Louis, Mo. 63102—Ed.

Micro-feedback

To put it simply, I take very great offense at the fact that your magazine could possibly even consider printing such a horrible concept as "Microwave the Cat" (Gamer Feedback Results, Dec.). I will not buy another issue of *VIDEO GAMES*. My suggestion for this column would be "Microwave the 'Human' Who Sent in that Answer."

J.
Address unknown

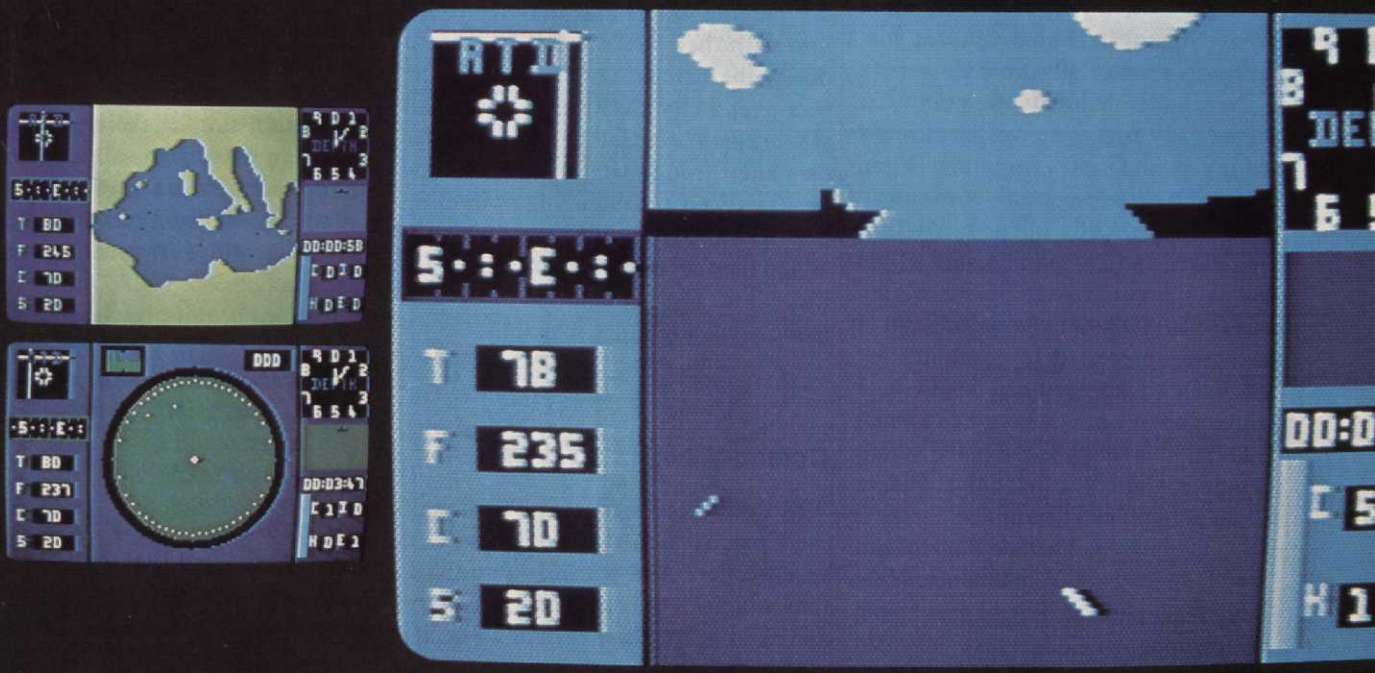
Boo For Kangaroo

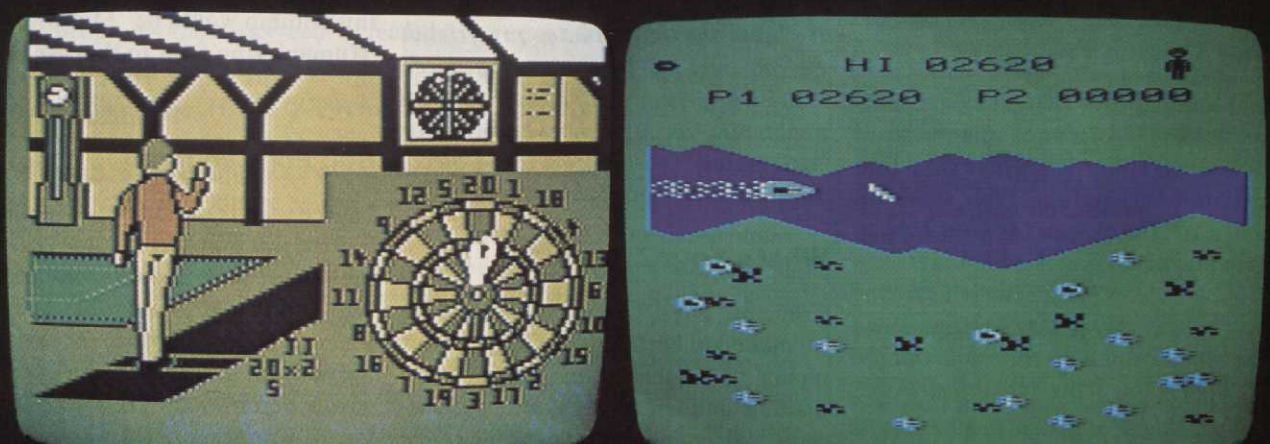
I agree with Isais Banegas who did not like the tips that Eugene Jarvis gave on the game Robotron (DoubleSpeak, Dec.). But that is not what I'm complaining about. Jarvis must have terrible taste for games. Why he likes Kangaroo better than Tron I will never know. Kangaroo is the dumbest game to come along since Amidar and Turtles. I suggest that Jarvis just tells us about the games and leave his personal feelings in the arcade.

Mike Tressler
Connellsville, Pa.

PLAYFC

COMPUTER GAMES THAT ARE THE CLOS

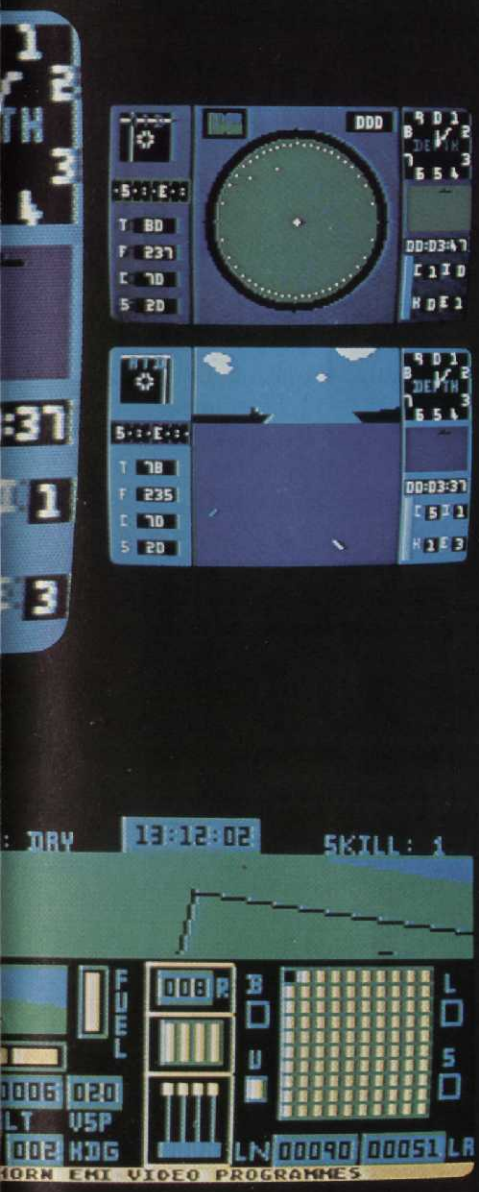




OR REAL

EST THINGS TO REAL LIFE CHALLENGES.

THORN EMI VIDEO



THORN EMI Video Programming Enterprises, Inc., part of the international electronics entertainment giant, announces 21 computer games that are so real, so challenging, your customers will almost forget they're playing a game. They'll be playing for real. No wonder. The graphics are amazingly real-to-life. Action packed. Your customers will know the moment they start playing one they aren't playing any ordinary computer game. They'll be concentrating too hard.

Incredible variety. *With 21 exciting games to choose from, THORN EMI offers a game for every member of the family. There are super realistic simulator games, like Submarine Commander (pictured) and Jumbo Jet Pilot, sports games with lots of fast action, nursery rhyme puzzles, even a financial management game. All have different levels of challenge, so your customers can make them as challenging as they want, and they can be played on the Atari® 400 and 800 and the VIC® 20.*

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THORN EMI
VIDEO

Life in the Fast Maze with Marty Ingels

As a child Marty Ingels spent many hours going "Ahhhh" in doctors' offices. His rather strange, scratchy voice had everyone concerned that things might not be quite right within. "Women like my voice. Some women tell me it's a turn-on," he says. "Babies are fascinated by it. They're not sure if they like it or not, but when they hear my voice, they stare at me for days. And, for some reason, it infuriates animals. I've been bitten by everything from a boa constrictor to a praying mantis."

So it's little wonder that when Gordon Hunt, head of casting at Hanna-Barbera, took a call from Ingels, something special flashed in his mind.

As Ingels tells it, he was actually trying to contact 20th Century-Fox on behalf of his client, Robert Culp. Having misdialed two numbers, the comedian/actor-turned-agent found himself hooked up with Hanna-Barbera instead. The conversation went something like this:

Ingels: What do you have going on over there for Robert Culp?

Hunt: You know, we don't do movies.

Ingels: Oh. You don't?

Hunt: No. We do animated shows for which there are voices.

Ingels: Culp would be great for a voice!

Hunt: We've got something, and it's going to be the biggest thing of this generation. We've got Pac-Man!

Ingels: Wow! Boy! Robert Culp would be *perfect* for that!

"Now, I want to tell you," Ingels says, returning to the immediate conversation, "that all this time I was talking to him, I had no more idea of what Pac-Man was than the man on the moon. I had never seen it, never heard about it. I thought it was a luggage company."

To make a long story short it was Marty Ingels, not Robert Culp, who was told to report for work as the voice of ABC-TV's Saturday morning superstar. On its premiere day the show garnered a hefty 42 share in the Nielsen ratings, and it has been smothering its major competitors, the Smurfs, ever since.

Pac-Man is a family man. In Ingels' eyes he's a cross between Fred Flintstone, Captain Marvel, Popeye, and William Bendix. However, he's becoming more Marty Ingels with every recording session. "That could end up disastrously," he admits. "I can just see a small, thin, Jewish, neurotic Pac-Man who has phobias and lives with anxiety and fear." Tossing the possibilities over in his head, Ingels concludes, "That could be interesting."

Until then, TV's Pac-Man will remain the well-adjusted citizen of Pacland, a blue-collar worker who spends his time guarding the Pac-Pellet Forest from Mezmaron and his ghostly henchmen. The show features dizzying action scenes, but it also touches on the domestic life of the Pac-nuclear family. That's the part that interests Ingels, who is working with scriptwriter Jeff Scott to steer the program more in that direction.

"I more or less agree that Saturday morning television is really a vast jungle of nothing," he says. "I don't know if it's possible to take this little grapefruit that eats things and make him into something inspiring or something that will instill the proper priorities in kids, but that's what I'm trying to do."

Whether ABC-TV goes along remains to be seen. After all, this is the network that passed on Pac-a-pac-a-wow-ee. Ingels backtracks: "I wanted to find some cute little words to say when Pac-Man takes the pellets. Something equivalent to *Shazam!* One day I said, 'Well, if I take one of my Pac-Pellets—*Pac-a-pac-a-wow-eeeee!*'"

(*Continued on page 12*)

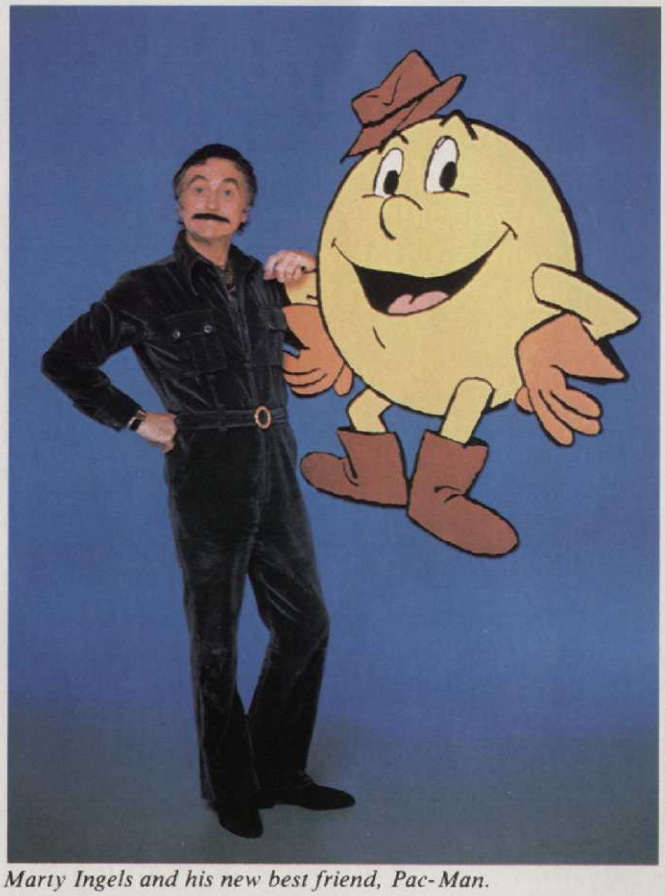


Photo: Courtesy ABC-TV

Marty Ingels and his new best friend, Pac-Man.

Can Video Games Save the Radio Star?

If you can't beat 'em, join 'em. That's the philosophy of Herbie Herbert, the astute manager of Journey, the San Francisco-based rock group whose latest album, *Escape*, has sold more than five-and-a-half million copies. So Journey has linked up with Data Age, a recent entry in the TV-game software circus, to create what is being billed as "the world's first rock 'n' roll video game." Says Herbert: "To stay on top of the youth market, you have to establish broad appeal. Video games are becoming as much a part of kids' lives as rock 'n' roll has been for decades."

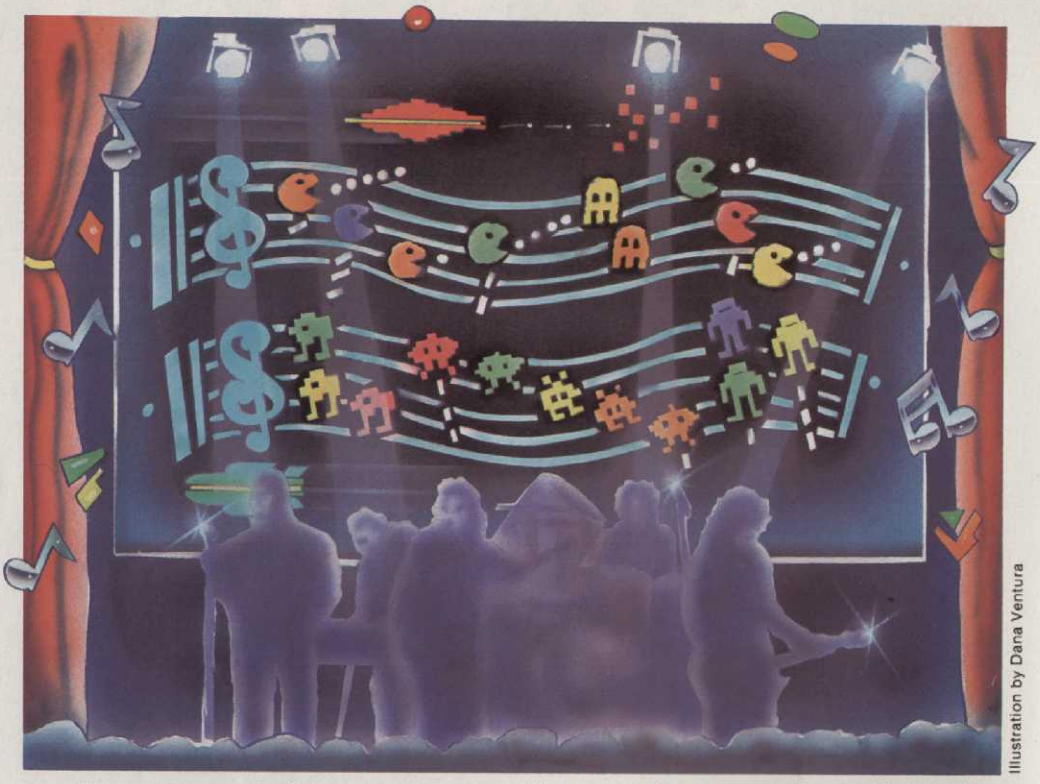


Illustration by Dana Ventura

Or as Data Age's Vice-President of Marketing Robert Rice puts it: "The youth of America know exactly what they want—and today that means video games *and* rock 'n' roll."

In the game—Journey Escape—you start on a concert stage and maneuver up a scrolling screen to Journey's trademark scarab escape vehicle at the very top. The object: avoid a procession of heart-shaped groupies, flashing paparazzi, money-grubbing promoters, and autograph-seeking fans. You do get some help: When touched, a rock manager and a group of roadies will literally clear your way to the chauffeured limo. Besides being rewarded with a portion of the night's take (what, no royalty points?), you get to hear a computerized version of the group's latest hit, "Don't Stop Believin,'" following the getaway.

How did Data Age hook up with Journey? It seems the band's management had been thinking about launching a video game when Rice, a music industry veteran and former Activision sales manager, contacted them with the same idea. It took less than an hour for the group and the company to reach an agreement. "We couldn't believe someone else was thinking the way we were," Herbert explained. The game is scheduled to be released in January and will be playable only on the Atari VCS.

Journey Escape is only the latest attempt to fuse video games with rock 'n' roll. Surely you remember Buckner and Garcia's "Pac-Man Fever," but if you haven't heard "Video Freak (Defend It)" by Trigger Finger and the Space Cadets, you're lucky. This piece of dance/disco drek fails to capture the essence of video games—it could be about anything. Then there's "Video Games," by The Occupants. What sets this Chicago-area quartet apart is not its rather predictable new wave, synthesized blips, but the instruments it uses. Exclaims member Saul Smaizys: "We're the first all-Casio band." Two band members sing while the others play a variety of the mini do-it-yourself synthesizers—ranging from the $50 VL-1's to the $160 MT-40's. Why only Casios? "We can put all the band's equipment in the trunk of a Volkswa-

Ingels

(*Continued from page 10*)

"What was that, Ingels?" asked a voice behind the glass partition.

"Well, Pac-a-pac-a-wow-eeee," Ingels answered. "I just thought I'd try one."

Suddenly the executives went into a huddle, adjourned to make a call to the head of children's programming at ABC-TV in New York, and came back with the bad news: no Pac-a-pac-a-wow-eee. "What person is the vice-president in charge of childrens' sounds, and why would you turn down Pac-a-pac-a-wow-ee? It's hysterical, but they did."

Meanwhile, back at the home he shares with his wife, actress Shirley Jones (of *Partridge Family* fame), and her sons, Ingels has learned well what a Pac-Man is. After Bally-Midway gave final approval to his voice, it presented Ingels with a coin-operated Pac-Man game. "I wouldn't even look at it for four days," Ingels recalls. "Who wants to play that silly game?" Now, when he can wrest it from the kids, Ingels can be seen hunched over the screen, racking up points. Oftentimes the "conference" he's in is actually a tension-relieving match against the machine. Ingels' high score? 28,000, a feat he hasn't been able to duplicate since "that day when I had a glass of wine and tried it."

—Sue Adamo

gen," says Smaizys. (For "Video Games," send $3.75 to Unheard of Records, Box 11446, Chicago, Ill. 60611)

There's plenty of promotional value in rock 'n' roll and video, too. One Atari ad features Chubby Checker, the king of the Twist craze 20 years ago, singing and doing "The Dig Dug Dance." In Mattel's M Network campaign we are offered "the cure for the video blues"—to the unmistakable tune of The Who's rock chestnut, "Summertime Blues." And Activision's Megamania, which has nothing to do with rock, was recently celebrated with dazzling, prime-time advertising fireworks in which a rocker shoots lasers from a guitar slung on his hip. *That's* what you call hitting with your best shot.

And then there are the promotional clips that have become a staple of cable television and the rock club scene. In the video of Rush's "Subdivisions," while the music builds to a climax the circular playfields from Atari's Tempest eventually fill the entire screen, creating a riveting audio-visual synthesis. More pointed is ex-Eagle Don Henley's "Johnny Can't Read," in which a classroom full of kids sit at video monitors, surreptitiously playing computer games instead of doing their schoolwork. Silliest is the Rockets' "Rolling by the Record Machine," which follows the band members *into* a video game, a la *Tron*, where they get caught up in a game of Space Invaders.

If Kiss and Elton John can get their names on pinball machines then Journey is entitled to its own video game. But so far, the marriage of video games and rock 'n' roll has been one of convenience, not inspiration. By and large, it's a marketing ploy, which is not to say the ultimate rock 'n' roll video game isn't somewhere out there, ready to be invented. In fact, *The Official I-Hate-Video Games Handbook,* by Emily Prager suggests one such potential game: In Punk Man, you trash the producer's office by pushing slam and slash buttons and maneuvering a safety pin plunger. That's more like it! —*Roy Trakin*

Dems Gain Points on Hill

Are you an Atari Democrat? Do you have an Atari Age agenda? Or are you one of the PAC men, looking for a way to defeat an Atari Democrat? Chances are, you are none of the above. These are just some of the new terms being used in Washington D.C. to describe liberal politicians and the Political Action Committees (PACs) which often provide campaign funds to opponents.

Politicians in the nation's capital are doing what many Americans have been doing for some time: getting into computer speak. True, you won't hear dialogue like this in the U.S. Senate:

"I challenge the Republican Zoid from California."

"Will the blip from Missouri yield?"

But computerese and video game terms are gaining widespread use—even in the nation's capital.

Perhaps there is a deeper relationship between politics and video games (who was that dignified gent I saw playing Defender?). Lately, incidents such as Three Mile Island (Spectravision's China Syndrome) and Abscam (U.S. Billiards' maze game) have been re-enacted for gamers of all ages. The latest hot political entry is Reaganomics, also from Spectravision, where the player "is in total charge of the country's Gross National Product." This game lets you have fun with world events like a world-wide monetary crisis, a plummeting stock market, or a break in detente with a foreign power, as you try to straighten out the nation's three trillion dollar economy.

Judging from conditions outside the arcades, you might have better luck with Reaganomics than the Republican Zoids. When video games are on the line, it pays to be an Atari Democrat. ***—Josh Martin***

May the Atari Force Be With You

The scene: post-holocaust Earth. Civilization has been decimated, and food sources are rapidly disappearing. Over at the Atari Institute in Northcal ("that part of the North American continent that used to be known as California before the 'break-up'. . ."), a five-member superteam has been assembled. Its mission: to traverse the "Multiverse" in search of "an uninhabited world of fertile fields, green hills, blue skies, untouched by war."

Welcome to *Atari Force,* a series of mini-comic books produced for Atari by DC Comics—the same folks who bring you Superman, Batman and Wonder Woman. The first three issues came along with the Defender, Berzerk, and Star Raiders cartridges, and at least five more are slated for 1983. Each, however, will have little or nothing to do with the accompanying game.

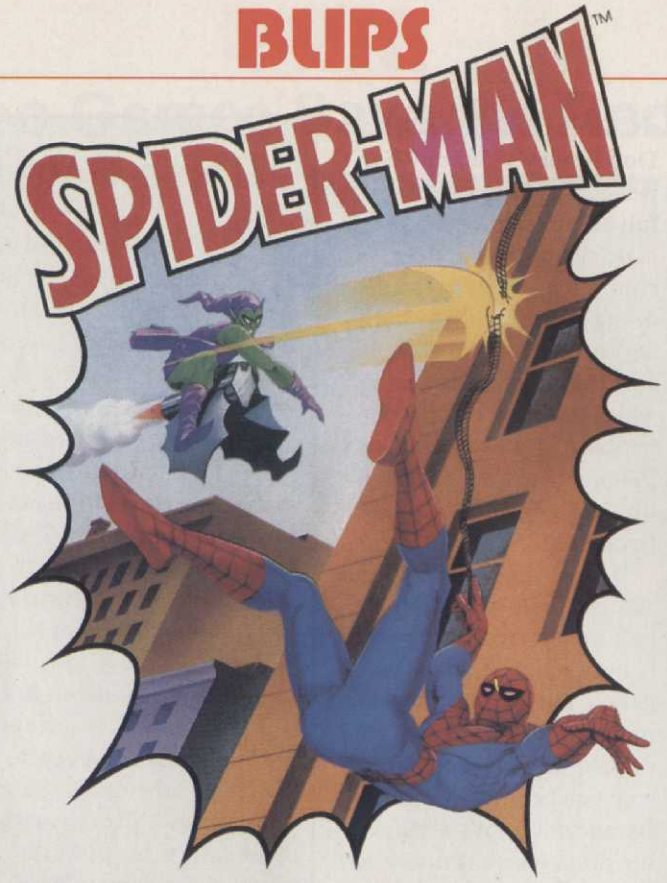
The Atari Force is a multi-ethnic quintet of incredible

Commander Champion has a few tricks on his sleeve in "Atari Force—The Origin." Included with the Berzerk cartridge.

characters beginning with a blonde and blue-eyed hunk named Martin "Commander" Champion and his competitive lady sidekick, brunette Lydia Perez. ("You're a woman," he lectures at one point. "So was my mother," she shoots back.) Then there's a black physician (Lucas Orion), an Indian scientist (Mohandas Singh), and a female security director of Oriental and Irish persuasion named Li San O'Rourke. Yow!

Dick Giordano, DC's Managing Editor, expected a set of guidelines concerning story content and use of violence to follow, but he says that Atari has remained silent. "We understand each other right from the business level on down to the level at which I operate," says Giordano. "They consider us comic book people. They don't pretend to know anything about it, and they don't want to get in our way."

Atari Force will also be used to promote other Atari products. For example, the January edition of DC's *New Teen Titans* includes a 16-page *AF* insert about Atari's latest coin-op game, Liberator. The story of the game, which is more or less a sequel to Missile Command, is explained without referring to the actual game. On the other hand, Atari's four-game series Swordquest, also developed by DC and Atari, requires the player to read the comic book enclosed with the cartridges in order to compete for the $150,000 in prizes Atari is offering.



Another outgrowth of the meetings between these sister companies (both are owned by Warner Communications) are the plans to retail comics based directly on Atari's most popular cartridges. Originally, it was agreed upon to publish three bi-monthly magazine-size books with three or four series per title. But Atari has since reevaluated its involvement in this project. It now seems DC will either share expenses with Atari or take over the entire project itself.

Meanwhile, a few web swings across Manhattan at Marvel Comics, Spider-Man has finally taken the video game plunge, thanks to Parker Brothers. In this VCS-compatible game, Spidey must find and defuse the deadly bombs planted throughout Gotham by the nefarious Green Goblin. He does this by using his web fluid to shoot lines of webs up the sides of buildings. Parker Brothers' Vice-President of Consumer Marketing Rich Stearns says the game is primarily targeted for six-to-12-year-olds, the same audience that reads Spider-Man. "In our testing process, we found the older kids were not as excited about Spider-Man as they are about Raiders of the Lost Ark, or something more to their age."

If this proves successful, no doubt a legion of costumed heros or heroines will soon find its way onto our video game screens. To the Bat-Monitor, Robin!

—Robert Greenberger

Souped-up Pac Has Snack Attack

It's a bird, it's a plane, it's, uh . . . Super Pac-Man? That's what Bally Midway has dubbed its sequel to a sequel video game.

"It's different, but the same," Midway's Jim Jarocki tries to explain. "It's more different than the difference between Pac-Man and Ms. Pac-Man."

Pac-Man purists, take heart. Your favorite video creature still gobbles energy dots, and the ghosts still turn blue and vulnerable when he does. There's only one maze, albeit a new one. But that's where the similarities to Pac's predecessors end. Instead of a diet of run-of-the-maze dots, Pac-Man now feasts on an assortment of munchies, including fried eggs, corn-on-the-cob, hamburgers, mushrooms, cake and an occasional tennis shoe. Each screen caters to a different craving.

Getting at the goodies is no easy task. Certain areas of the maze have pink "doors" blocking valuable foods that can only be opened by eating a nearby key or by taking another route. Also, there's a timed challenge round, patterned after the same feature in Midway's popular Galaga. The "challenge" is to eat everything on the screen in the shortest amount of time, while Inky and the boys take a breather.

Finally, to double your velocity, simply press the rapid-speed button—as in Midway's Tron. But first Pac-Man has to be "super." Just gobble the two "super pellets" and watch our mild-mannered yellow man transform into Super Pac-Man, a behemoth so large his jaws flop over the sides of the maze. Not only can Super Pac crash through the pink doors and move twice as fast as his alter ego, he can actually pass through the ghosts.

But will the public "eat up" Pac-Man's latest incarnation? They better. After all, what could be left? Donkey Pac-Kong Jr.?

—Andrea Stone

3-D REALISM THAT'S UNREAL.

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MODEL SA-206

FOR THE ATARI VCS SYSTEM™, SEARS VIDEO ARCADE™

Beyond galaxies known to man, beyond time as we perceive it, lies the source of inner power. There in a remote corner of the universe, future SPECTRA WARRIORS are trained for the conquest to come—To meet THE CHALLENGE OF NEXAR.

As you enter the mesmerizing Warp of Nexar, you are drawn into a zone that no man has ever conquered. Radioactive beacons gyrate three dimensionally toward a doom collision course with your ship. Your mission is to penetrate the warp zone and destroy as many beacons before they destroy you. Emanating from the center are also suicidal saucers that protect the deadly beacons. You must constantly be alert to blast them to pieces with your laser cannon. Keep that joystick moving to avoid a collision that will weaken your shield. The worse enemy of all is time, you are racing against time as you penetrate the warp zone.

To become a Full Fledge SPECTRA WARRIOR, you must survive wave after wave of attacks—All 99 levels to be exact. Those who can go beyond will receive their due recognition and earn their place in SPECTRAVISION'S Elite Group known as "THE LEAGON OF THE CHOSEN."

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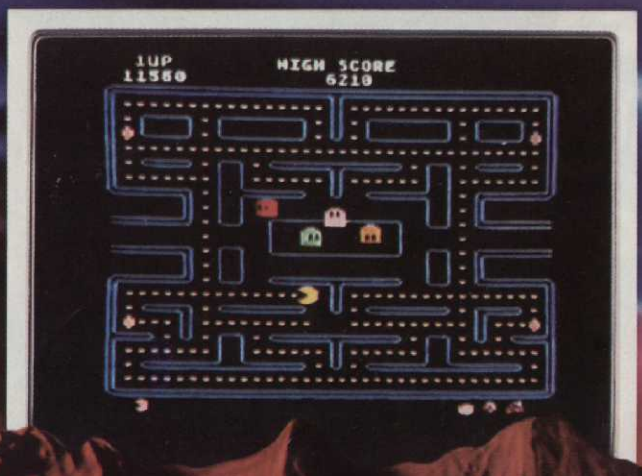

ATARI® IN THE 5200™ SU

No one knows better than Atari what arcade players want. And that's just what we've given them: The new Atari 5200 SuperSystem.

Everything Atari has learned since we invented video arcade games has gone into the 5200 SuperSystem. Arcade graphics, arcade action, arcade sound. All so real, it's unreal.

The 5200 has its own special arcade-quality cartridges. Like Centipede.™ PAC-MAN,[1] and Galaxian.[2] Plus the most lifelike sports games anywhere.

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TRODUCES PERSYSTEM.

12-digit keypad. Plus start, reset, and fire, all in your hand. Even a pause button for stopping the action without ending the game.

And that's just the beginning. Defender,[3] Dig Dug,™[4] Vanguard,™[5] and other arcade hits, are coming in 1983. Along with an optional TRAK-BALL™ controller. And an adapter that accepts all the ATARI 2600™ cartridges.

The ATARI 5200 SuperSystem.

No other home system looks like it, feels like it, or plays like it. Because nobody beats Atari at its own game. Except Atari.

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Atari to Billy: You're Fired!

New York (AP)—On a day that should have been his most triumphant, Billy Martin, the bad boy of baseball, was both hired and fired . . . again!

Only hours after New York Yankee owner George Steinbrenner yesterday named him Yankee manager for the third time, Martin, who had been pitching Atari's new, improved RealSports baseball game in TV ads, punched out George Plimpton during a staged video game competition at a Times Square Playland. Atari fired Martin on the spot.

Sworn in earlier in the day as the new Yankee manager, Martin arrived first for the competition that was intended to decide, once and for all, who was the better video baseball player. With a packed Playland crowd chanting, "We want Billy! We want Billy!", the new Yankee skipper sipped a Miller Lite and talked strategy with George Steinbrenner, while waiting for Mattel's TV answer man.

Plimpton's entrance created a furor: He walked in with close friend Reggie Jackson, a clever psychological ploy by Mattel that clearly agitated the Bronx braintrust. "This should be as easy as hitting three straight homers in a World Series game, right George?" Jackson was overheard digging at Martin. Billy quickly countered: "I hope your rightfielder plays defense as well as that guy with you." Jackson scowled at Martin's sarcasm and turned up the volume on his Panasonic "Platinum Plus."

The match, however, was delayed when a controversy over which game—Atari's RealSports baseball or Mattel's Major League Baseball—would be used. "Take it from a guy who *lives* the game," announced Martin, chugging down his third Miller Lite. "The Atari is the one we should settle this thing with."

Illustration by Gene Williams

"I trust you will concur with thousands of people, Alfred," replied Plimpton, mocking Martin's real given name, "that Intellivision baseball is more like playing actual baseball."

"The name is *Billy*, buddy!" Martin snapped back.

"Better watch it, George," warned Jackson. "You look

Bungling in The Jungle

The name of the game in video is no small matter. Disney sued Williams Electronics over Robo*tron*. MCA (the maker of *Jaws*) persuaded Apollo to retitle its Loch *Jaw* cartridge to Shark Attack. Now Edgar Rice Burroughs Inc., which owns the Tarzan rights, has convinced Taito America to delete the word "King" in its hot arcade property, Jungle King. You may already know it as Jungle Hunt.

But Burroughs didn't stop there. It also demanded changes in the game. The original featured a Tarzan-like character who wore only a loincloth and swung from vine to vine, giving out a good yell every so often. Now, Jungle Hunt's main character is mute, swings on ropes and wears an outfit more suited for Dr. Livingstone. "It's a new game," says Marv Weiss, a spokesman for Taito, "with the same play value as Jungle King."

In the past, copyright cases have established that the characteristics that make a story line unique can be copyrighted. That's how a character like Superman, who is distinguished by his ability to fly, his X-ray vision, superstrength and weakness to kryptonite, can be protected. Though Weiss insists Taito did not borrow from the Tarzan character and story line, he admits the company would have been in for a long fight had it not agreed to change the name and parts of the game. The settlement with Burroughs does not require Taito to pull the existing Jungle Kings off the street, or even modify them. Edgar, a gamer in the true sense of the word, would have preferred it that way. —*Kevin Johnson*

a little like a marshmallow salesman Billy used to know."

"Let's get this show on the road," Martin barked between gulps of his fifth Lite beer. "Let's use Intellivision. It'll look better for Atari if I whip you on the competition's game."

With anxious officials from both companies looking on, Martin beat Plimpton 7-2 in the first of the best of seven series, but Plimpton came back to smother Billy in the next three contests, 8-4, 5-1 and 11-2. Early in the fifth game, tempers boiled over. The frustrated Martin began throwing at Plimpton's hitters. When Plimpton retaliated, Billy suddenly unleashed his well-publicized fist on Gentleman George's jaw, fracturing it instantly. Martin, who had just polished off his tenth Miller Lite, had to be restrained by Steinbrenner, thus preventing further damage to both Plimpton and Playland. "Look at those guys," shouted an obviously drunken Martin. "One's a born liar and the other's . . . the other's . . ." "Convicted?" Steinbrenner piped.

A hearing on the incident is scheduled for April 1.

—Stephen Hanks

Video Meets Video In Tinseltown

You know something's up when you can't even *watch* television without video games taking over the screen.

It all began last year when the cast of *Fridays* acted out a live Pac-Man game. Then a Pac-Man machine was installed at the *Taxi* garage, sending the hacks into a tiz. More recently, an episode of *Remington Steele* involved tracking down a missing games' company executive while another detective, Tom Magnum (Selleck) took time out of a rough case to play Tomytronic's hand-held Pac.

But you know things are deteriorating when Father Guido Sarducci (Don Novello) is summoned from his papal beat to conduct a game exorcism. In a *Square Pegs* episode titled "Pac-Man Fever," the good father was called upon by Johnny Slash (Merritt Butrick) to release demon video game spirits from his best friend Marshall Belchtman (John Femia). And in "Shoot-Out at the O.K. Arcade," a *Diff'rent Strokes* segment, kid-star Gary Coleman bested his brother, the local video game champ, in a game of Space Sucker.

Will Captain Furillo lead the Hill Street cops on a raid of a hoodlum-controlled arcade? Will the Dukes of Hazzard stop burning rubber long enough to try their hands at Turbo? Stay tuned.

—Sue Adamo

WHAT'S YOUR GAME: Don Novello as Father Guido Sarducci (top) appeals to a determined John Femia (as Marshall Belchtman) in Square Pegs. *Equally as determined is Gary Coleman (bottom, right) as he takes on "Space Sucker" in* Diff'rent Strokes.

Getting Higher

Here are some high scores that were valid as of mid-November. Once again, thanks to Walter Day, Jr. and his Twin Galaxies International Scoreboard of Ottumwa, Iowa, for providing them.

Amidar, 18,201,100, Joe Barrett, Kenosha, Wis.; **Berzerk** (slow bullets), Joel West, Ottumwa, Iowa.; **Centipede,** 15,270,350, Darren Olson, Alberta, Canada; **Defender,** 62,999,975, Ned Troide, Clearwater, Fla.; **Donkey Kong,** 3,165,300, Steve Sanders, Kansas City, Mo.; **Donkey Kong, Jr.,** 787,500, Jeff Brandt, Ottumwa, Iowa; **Frenzy,** 4,719,986, Jim Bennett, Kenosha, Wis.; **Frogger,** 442,330, Mark Robichek, Wrightsville Beach, N.C.; **Joust,** 60,956,850, Rick D'Ercole, Omaha, Neb.; **Kangaroo,** 505,000 David Yamamoto, San Jose, Calif.; **Moon Patrol,** 536,470, Eric Ginner, Mountain View, Calif.; **Ms. Pac-Man,** 286,410, Mike Lepkosky, Houston, Tex.; **Reactor,** 321,299, Linda Rojas, Kenosha, Wis.; **Red Alert,** 23,330, Darren Jones, Lamont, Ill.; **Robotron** (level three), 169,595,225, Leo Daniels, Wrightsville Beach, N.C.; **Satan's Hollow,** 677,720, James Robinson, Wilmington, Calif.; **Stargate,** 43,332,725, Connel McCrohan, Dallas, Tex.; **Super Cobra,** 198,470,000, Matthew Brass, Helena, Mont.; **Tron,** 3,195,329, Sterling Ouchi, Lakewood, Calif.; **Turbo,** 90,667,000 Paul Huggins, Chatsworth, Ga.; **Tutankham,** 230,000, Mark Robichek, Wrightsville Beach, N.C. ▲

Ralph Baer

The "Godfather of Video Games" wouldn't mind being recognized for his inventions, but he'd really rather talk about the future.

By Steve Bloom

Engineers are, by nature, a mild-mannered lot. Most go about their jobs quietly, diligently, and usually anonymously. Do you know who designed the Datsun Turbo-ZX? Do you care? Probably not, and that is, in part, the plight of the engineer/designer. While spending their days cranking out products for our work and leisure, they go unnoticed.

Ralph Baer is, in many ways, typical of this breed. For 30 years he has toiled as an electrical engineer, gaining over 70 patents in radio communications, radar altimetry, and TV-games. It is, of course, this last category that attracts our interest. On April 25, 1972, Sanders Associates of Nashua, N.H., a military electronics firm and Baer's employer for the past 23 years, was issued patent number 3,659,285. It reads, in part: ". . . for the generation, display and manipulation of symbols upon the screen of television receivers for the purpose of playing games, training simulation and for engaging in other activities by one or more participants." Its inventors are listed as Ralph H. Baer, William T. Rusch, and William L. Harrison.

At the time, the only coin-op video game known to man was Nolan Bushnell's Computer Space (reported on extensively in the August and December issues of VIDEO GAMES). Baer's invention, meanwhile, was sold to Magnavox. In the spring of '72, the TV giant introduced the first home video game known to man: the Odyssey 100. Almost simultaneously, Bushnell came out with Pong.

Despite an ensuing court battle over the original TV-game patent that ended in a settlement between Magnavox, Sanders and Atari, Bushnell harbors no ill feelings towards Baer. "He did some really good pioneering work in the analog field," says the founder of Atari. "Just think about what he was dealing with then—he didn't have the tools that I did. A lot of the work he was doing came before many of the integrated circuits that made my life very easy. I think he's a bright man."

Baer's family arrived in New York from Germany in 1938. Living under the Nazis, he had been expelled from the school he attended. "I'm Jewish and that was a bit of a problem then," Baer recalls. After serving in military intelligence in World War II, he attended the American Institute of Technology in Chicago on the GI Bill. Baer became, in his own estimation, "the first person ever to earn a bachelor's degree in TV engineering."

Baer's first position was as chief engineer at Transitron in New York. He moved on to Sanders in 1959, where he supervised several divisions before becoming the company's manager of consumer product development. At 60, he is triple the age of most video game designers. It's about time we learn a little bit more about him.

VIDEO GAMES: I'm going to start by shooting from the hip. Doesn't it bother you that Nolan Bushnell generally receives credit for inventing—or fathering, if you will—video games?

Ralph Baer: Well, I've had to make peace with that years ago. Sure it bothers me. I look out there—there will be something like $10 billion spent on video games this year, the one outstanding product that is named in every report is video games, so why doesn't my name pop up? But, to be perfectly honest, I have to take a backseat to commercial considerations.

VG: Why is that?

Baer: Sanders has made a considerable amount of money from all the licenses that have evolved from the whole situation. That patent alone (#3,659,285) is worth many, many millions of dollars. We've spent a great deal of time and money defending those licenses in state and federal court—all in an effort to retain the claim of what we have and derive the benefits from it.

Under those conditions, you have to be a little restrained. You have to suppress your ego. Bushnell did one helluva lot for the industry—there's no question in my mind he was the major catalyst in developing the industry. He deserves credit for that. I'd just like to see myself more often identified as *the* inventor.

VG: How many patent cases have you

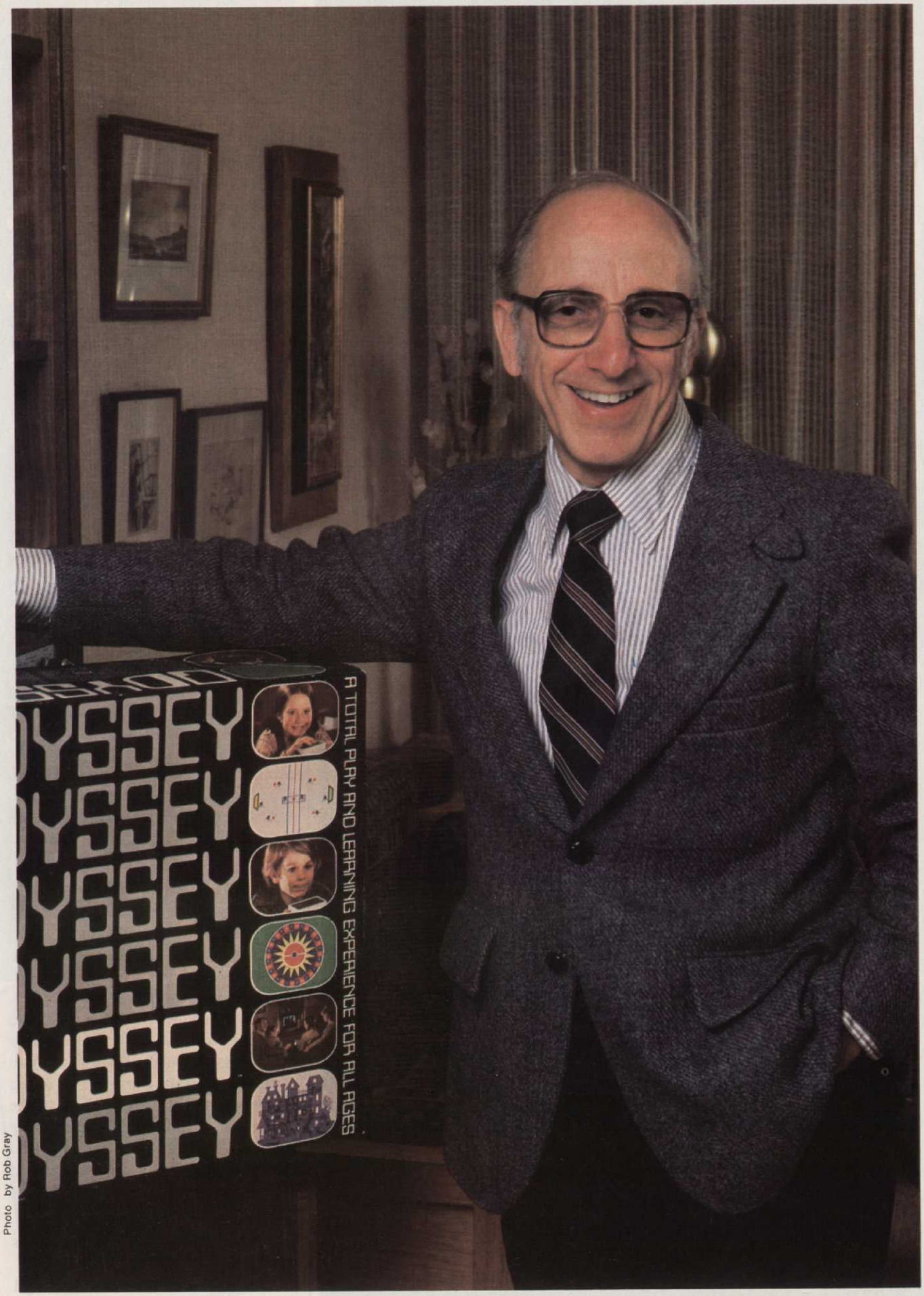

Photo by Rob Gray

Baer and his Odyssey 100, the original TV-game system.

been involved in?

Baer: The initial case involved Williams, Atari, Bally Midway and Chicago Dynamics/Seeburg all versus Magnavox. I spent about three days on the stand, much of which time I lectured the judge on TV technology. I turned out to be more of an expert witness than defendant. In most every instance we were upheld, such as coverage of basic TV concepts as they relate to monitors as well as receivers. It was very gratifying that the court upheld this.

VG: But in 1973, Bushnell won a case concerning symbol movement on a screen. "People won't be able to copy our circuit boards again," he said at the time. What was this all about?

Baer: That's nonsense. Firstly, there's no such thing as circuitry that you can't design your way around. Circuit patents by themselves are not very valuable. Secondly, that patent was later on invalidated. It was a neat way of doing things—moving a spot in a Pong game in a particular way—but six other engineers could've done it. There was nothing fundamental about that.

You hope you can patent something more fundamental and broader than an ephemeral thing like a particular circuit idea. A method of connecting parts that can perform a certain function is what we did in the basic game patent. Basically, we patented a black box that moves spots around the standard TV set for the standard TV monitor that allowed you to play games.

VG: What got you thinking about putting games on TV in the first place?

Baer: I have an official entry in my notebook, dated September '66, that talks about what one might do with a TV set other than turn it on and off. It's a ubiquitous device—at the time, 62 million families owned at least one. It's a powerful display, a marvel of technology. What the hell else can you do with it? So the thought of playing games on it came along. The whole thrust was towards doing something with the TV set which people could afford. The basic question I asked myself was, "What can we do for $19.95?"

VG: When was it that you had spots moving around on the screen?

Baer: December. That's when I decided this thing was too important to handle

ATARI POLE POSITION™ IS FORMULA 1 YOU CAN FEEL.

NEW FROM ATARI COIN VIDEO GAMES.

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Awesome speed. Awesome realism you can *hear* and *feel*. New Atari Pole Position puts you *in* the action like no other coin video game you've ever played. . . In the cockpit of a screaming Formula 1 racing machine at the famous Fuji Speedway. You've finished the Qualifying Lap. Fast enough for the pole position starting slot in the Gran Prix. Starting lights blink to green. You touch the throttle. Your breath catches as your car lunges off the grid. You're racing other cars and the clock flat out to master the challenge of this incredibly real driving experience. Pole Position is Join the Atari Racing team. Pole Position is racing competition to the max. Play it. Upright or Sitdown. Ask for it where you play coin video games today. Everything else is too slow.

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*Engineered and designed by Namco, Ltd. Manufactured under license by Atari, Inc.

by myself after-hours. So I went to the corporate R & D director, Herb Campman, who understood the scope of the whole thing immediately. We put a few bucks aside in corporate research and established an official project. We set up a room on the sixth floor and brought in two engineers—Bill Harrison and Bill Rusch—to work under my direction. Through all of '67 that room was off limits to everyone but the three of us. As you might imagine, there were some pretty convoluted rumors going around.

Early in '67, we had the most basic ball-and-paddle games working. By September, we were playing a hockey game that was rather fancy. Velocity depended on how hard you hit the puck. It had all the dynamics of a real puck—the kind of thing that didn't reappear in games for years and years afterwards. So now we had all this stuff, but there was one nagging question we couldn't answer: What the hell do we do with it?

VG: Is this where Magnavox comes into the picture?

Baer: Not yet. Our first concept was: Gee, maybe this is what cable TV needs. Cable was in dire straights back then, so we invited Teleprompter to come up (from New York to Nashua). Their chairman of the board, Irving Kahn, was considered "Mr. Cable" in those days. We set up an interactive cable games system and he got pretty turned on by it. Well, cable was in trouble and had more important things to deal with, so we got nowhere. At that point, we decided to start concentrating on licensing the whole concept to a strong consumer electronics company, preferably a TV manufacturer.

It took us until early '69 to convince the RCAs, the Zeniths, the GEs, the Sylvanias, the Magnavoxes—you name it—to send reps up to Nashua for demonstrations. In a period of nine months, we held one demo after another and aroused a lot of interest. Everyone who came up left enthusiastic. We negotiated with RCA for six months, but they wanted to own us as part of the deal, so we finally said no to them.

One of the members of RCA's negotiating team was a fellow named Bill Enders. Early in '70, he left RCA and went to Magnavox as a senior product

(*Continued on page 81*)

SWEATY PALMS GUARANTEED! **5 EXCITING NEW GAMES!**

US GAMES NEWS

EARTH DOOMED?

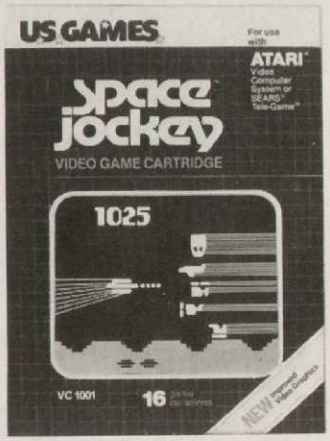
LONE SPACE JOCKEY FIGHTS BACK!

With every human attack weapon captured by alien forces and turned against Earth, surrender seemed inevitable... until you captured one of the alien attack saucers!

Screaming through the atmosphere, you cut forward and back, up and down to escape relentless alien firepower. You blast back, firing directable missiles into alien planes, tanks, and other obstacles.

Can you beat the aliens with their own machine? You can... if you're fast enough, if you're accurate enough, if you're good enough.

★ ★ ★



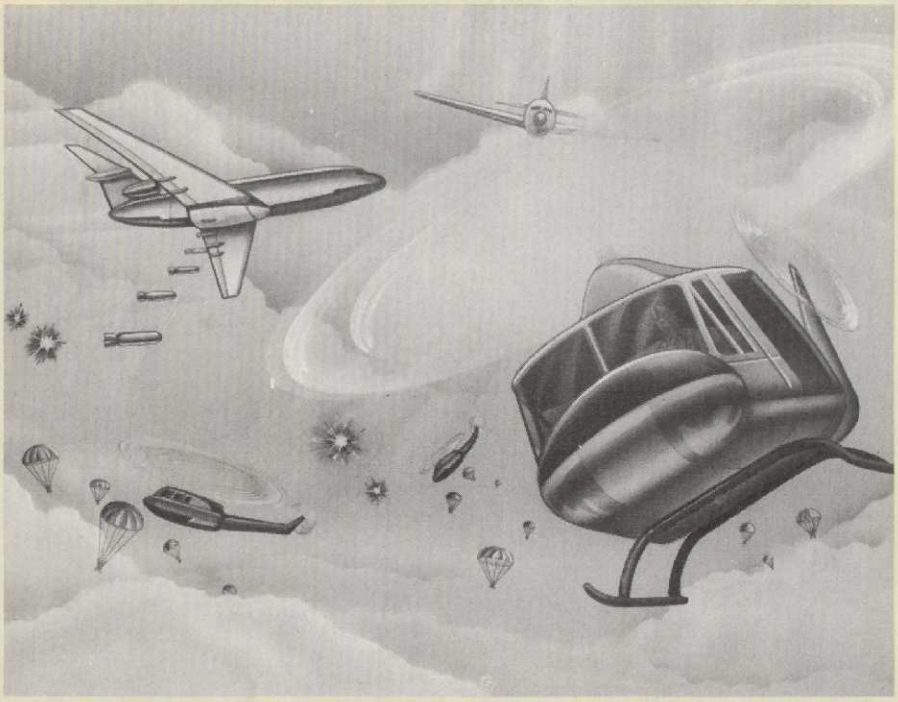
Can you beat the aliens at game level 16?

ANDROID RAIDERS ATTACK!

HOT GUNNER COULD SAVE CITY!

With attack choppers dropping android commandos and fighter-bombers delivering payload after payload, our city would be destroyed by now if it weren't for one brave gunner... you.

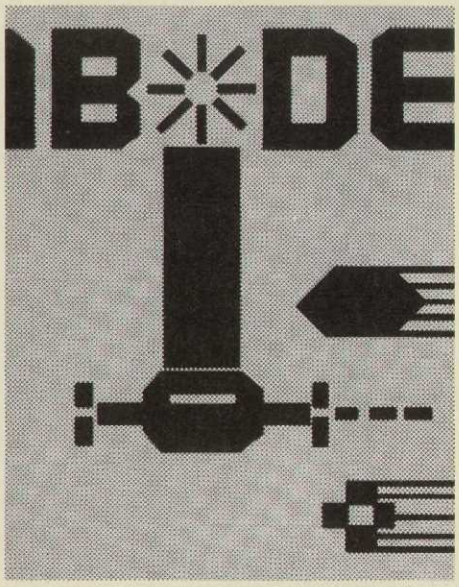
Only your quick eye and quicker trigger finger can hold off wave after wave of android parachutists. Only your skill can keep them from tunneling under the city and taking you out. The game is Commando Raid, and you're the city's last hope.



The action gets faster with each commando attack wave!

★★★

ZAPPER A FAST BLAST!



HOT GAME CHALLENGES THE BEST!

Just when you think you've thought fast enough, you've got to think faster! You've got to fire left and right to zap deadly asteroids... one hit by the Doomsday asteroid and your saucer blows!

But that's just defense! To win you've got to fire overhead with incredible skill to blast away the letters of the alien's language. And it will only work if you follow the computer's lead. Can you beat Word Zapper through all 24 games? Can anybody?

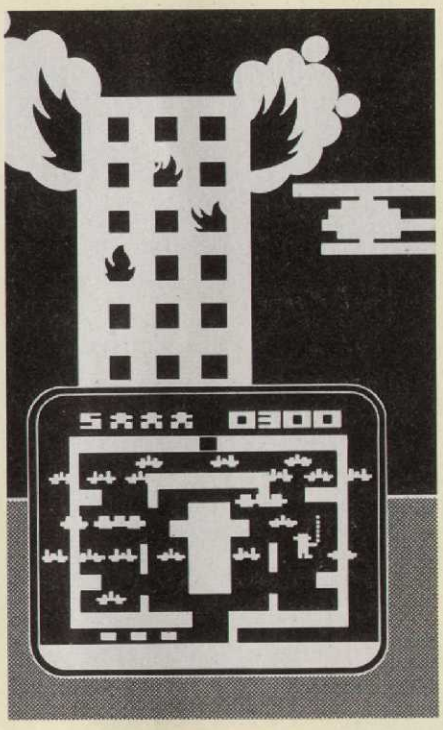
Why is Ronald Evans smiling? Did he beat the zapper?

FIERY DISASTER AVERTED!

BOLD FIREFIGHTER SAVES HUNDREDS!

It was the worst fire you'd ever seen... a high-rise going up like a torch. With a different fire-filled maze on every floor. And hundreds with no way out... unless you could get them out to the rescue chopper.

It's a race against time and the fury of fire that can destroy innocent occupants... and you! You're the firefighter... do you have the skill and strategy it takes to beat Towering Inferno?



Relive the movie in this challenging maze game!

★ ★ ★

MISSING PERSON MYSTERY SOLVED!

ENTIRE FAMILY CAUGHT UP IN SEARCH.

Four different rooms with lots of sneaky places to hide.

It seems simple enough... somebody disappears, and you find them. But this is a spooky video world, with electronic hidey-holes that happen where you least expect!

You can seek a friend or family opponent... or take on the computer! You've got to beat the clock, or your Sneak 'N Peak opponent has you dead to rights!

★ ★ ★

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WHEN YOU WANT HOT ACTION ON YOUR ATARI®, LOOK FOR THE NAME

US GAMES

GAMER FEEDBACK

RIP IT OUT, or photocopy it. But let us know what you want to see and read. This is your magazine, Video Gamer, and you can be a part of VIDEO GAMES by taking a few minutes (when you're not saving the earth from total annihilation) to fill out the questionnaire below. The next issue of VIDEO GAMES will continue to report the Video Gaming news and views that interest you.

Please return to: **VIDEO GAMES Magazine, 350 Fifth Avenue, Room 6204, New York, New York 10118**

Sex: Male____ Female____ Age:____
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Occupation (if none, list parents'): _____

Favorite Department in this issue: _____
Favorite Feature article: _____
What I'd like to see less of: _____
_____
What I'd like to read most about: _____
_____
How does this issue of *VIDEO GAMES* compare to previous ones?
The same____ Better____ The Best!____ No comment____
Why? _____

GAMER SECTION

Favorite form of play: Arcade games____ TV-games____ Computer games____

Favorite arcade games	Favorite cartridges	Favorite computer games
1 _____	1 _____	1 _____
2 _____	2 _____	2 _____
3 _____	3 _____	3 _____

Finally, we come to that time again when all good gamers must speak their minds. What Great Ideas and Concepts do you have for New Games? _____
_____
_____

Caption this Photo!

True love can be found where you least expect it. Even in the Ms. Pac-Man corner of the local arcade. But just what are these two cooing to each other? You tell us! If your caption arrives in our offices by January 15, you're eligible to receive the grand prize of one complete box of video game gum cards.

Answer: _____
_____
_____

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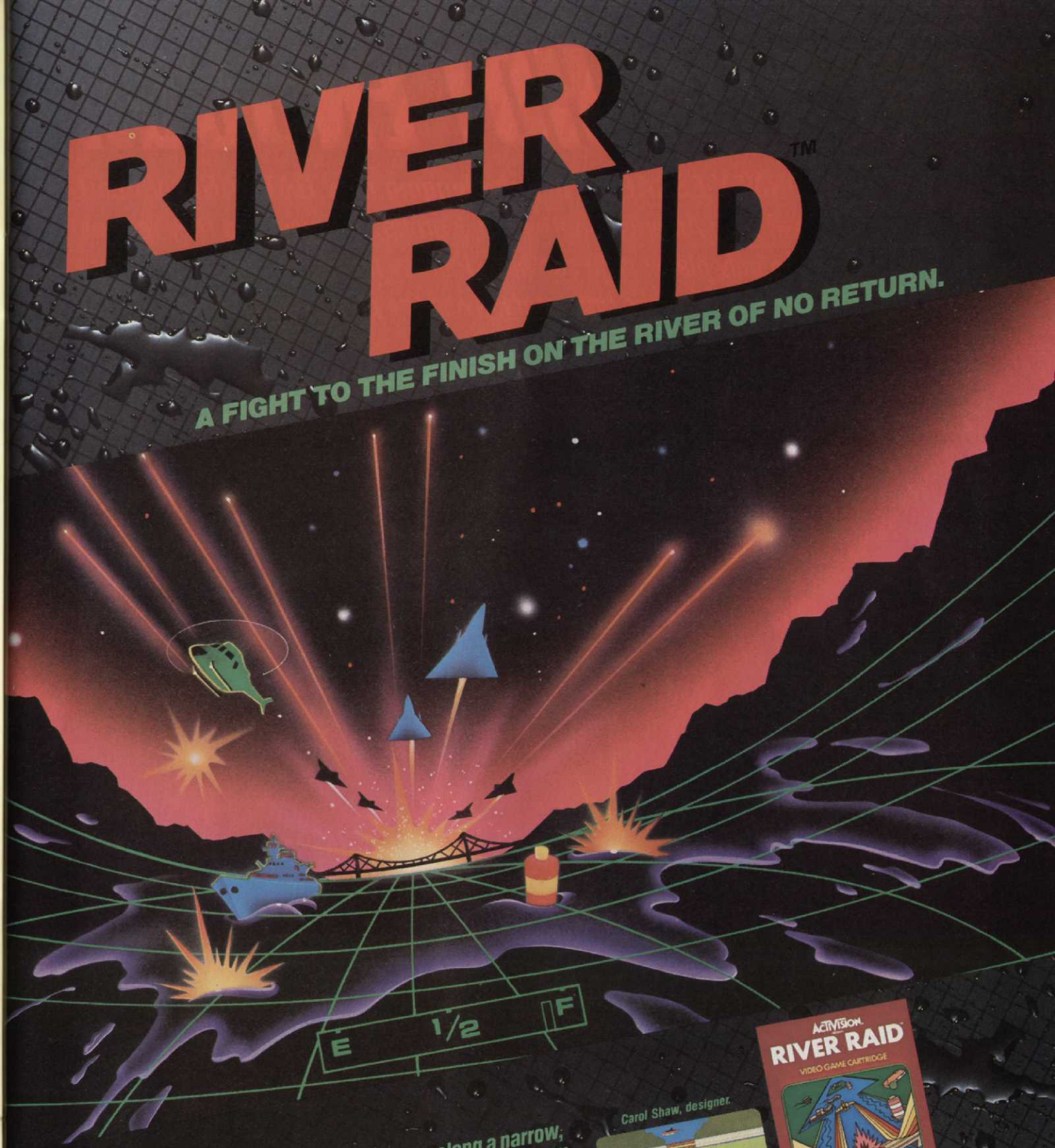
A FIGHT TO THE FINISH ON THE RIVER OF NO RETURN.



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Carol Shaw, designer.

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You're on the road with America's hottest rock group, Journey. And they're counting on you. You're the only player who can help Journey make it to their scarab escape vehicle. Only you can outsmart the promoters, avoid the photographers and fight off the love-crazed groupies. If you can handle it!

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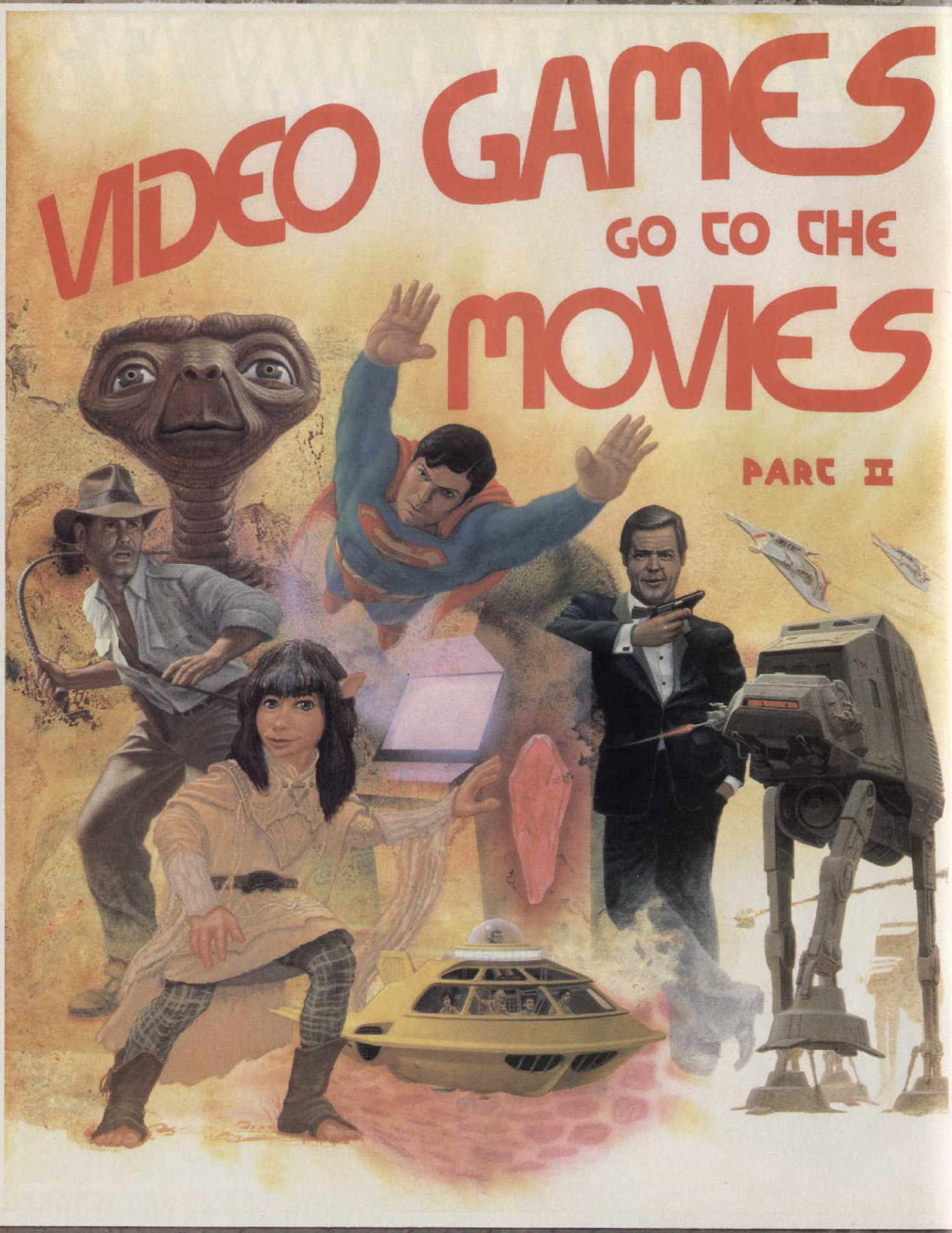
VIDEO GAMES GO TO THE MOVIES

PART II



Hollywood's hottest romance continues! Despite Tron's lackluster performance, one filmmaker after the next is seen diving into the video game pool.

Written and Directed by Sue Adamo

Saviour One, the latest video game sensation, is causing all kinds of chaos at one heavily-trafficked arcade. It seems that once kids become high scorers on the machine, they disappear. Where are they? What is happening? Nobody appears to know. But gradually a detective learns that Saviour One is not your ordinary video game: It's a sophisticated screening device used by an unknown force to identify certain gaming skills and players. Therein lies the mystery of the missing kids.

Actually, this is the plot of *Arcade,* one of several video game movies now in the works. *Tron's* disappointing performance at the box office hasn't stopped nearly every Hollywood studio and numerous independent producers from trying to tame the video game tiger. Consider the following:

• Universal, Atari, and Texas Instruments have all agreed to turn America's favorite alien, E.T., into at least two video games.

• Paramount is working with its sister company, Sega Enterprises, on arcade games based on the many adventures of *Star Trek.*

• Atari is closely watching the development of *Superman III.* In the film, Richard Pryor plays a computer-wise villain who traps the man of steel in a deadly game of wits.

• MGM/UA has launched a top-secret film project, *War Games,* in which a computer whiz-kid taps into America's emergency defense system, forcing the U.S. to the brink of world war.

• Two cult classics, *The Texas Chainsaw Massacre* and *Halloween,* will soon be available for play on the Atari VCS, courtesy of Wizard Video Games.

And there's plenty more where that came from. Richard Spitalny, whose company Pona Star Entertainment is producing *Arcade,* believes that all this is the start of a beautiful friendship. "My feeling is that the marriage of video games and films is inevitable," says Spitalny from Pona Star's Manhattan offices. Spitalny isn't just talking. He and his partner Bill Blake, who was the executive producer of *The Night the Lights Went Out in Georgia,* formed First Star Software last summer. The idea is to develop films and design games all under one roof.

First Star's first move was to sign up award-winning game designer Fernando Herrera. Last year, Herrera was celebrated by the Atari Program Exchange for My First Alphabet, an innovative educational program he wrote for his visually-impaired son. The recipient of Atari's Star award and $25,000, Herrera continued to manage a computer store in Long Island until he heard from Blake (who coincidentally had a financial interest in the store). Herrera jumped at the chance to become First Star's resident game designer.

While busy working on generic games like Astro Chase and Cosmic Squeeze, Herrera has found some spare moments to devote to Dangerous Cargo, another game that's being built into a Pona Star production. The film, *Future Gold,* is a musical comedy set in the year 2005 when computers have taken over the home. There's one stubborn computer named Fred that would rather play Dangerous Cargo than help its young ward with his homework. Spitalny sees this sort of sight gag, which will be carried throughout *Future Gold,* in terms of promotional value. "By the time we announce, 'Dangerous Cargo—as played by Fred in *Future Gold,*' " he says confidently, "it will have served its purpose."

The concept behind Saviour One is less farcical. In *Arcade,* video games and film are meeting as equal partners on a unique, almost futuristic frontier. "This movie can't exist without the game," claims Spitalny. "Fernando will be working directly with the scriptwriter from beginning to end. He (Herrera) might say, 'You can't write that because I can't do it, but you can write this.' And we might say to Fernando, 'You've got to show satellites in space at the same time you show subs underwater. Once you find a way to do that, we'll write it into the script.' It's a long process."

The boys up at Pona Star think they're onto something. For a fee, Spitalny and Blake will appraise any film, treatment or screenplay. If there's a game there, they'll find it; if there isn't, they'll tell you what you have to do to put one in. An advertisement describ-

Illustration by Andy Probert

ing the service, placed in *Variety* last summer, solicited 55 phone calls in two days. "What we look for," Spitalny explains, "is something we can take out of a movie that lends itself to great sound, graphics, and playability. We'll tell you what you have to add or change in order to make those qualities an integral part of the film."

Sitting beneath a poster of *Blood Bride*, a psychological thriller he produced several years ago, Spitalny insists there's nothing really new about Pona Star's merchandising concepts. "We're actually doing things the *old* way here," he says. "But instead of merchandising pajamas or a book or a little toy as tie-ins, it will be a video game. As we saw with *Tron*, you can make more profit from the game than the movie. So now you can bring out a movie—a small movie that just breaks even, or even loses money—and still clean up. In other words, your movie serves as a huge advertisement for your video game."

Some games got it made. Take Atari's E.T., for instance. With the enthusiasm from the film still brimming, the cartridge of the same name hardly needs any promotional fanfare for a successful launching. All E.T. needs is accuracy and solid gameplay, and he's got it made.

Though software designer Howard Warshaw, of Yar's Revenge fame, had already worked with Steven Spielberg on the Raiders of the Lost Ark cartridge, it was still a surprise when Spielberg personally requested Warshaw's services on the E.T. game project. "When I was down in Los Angeles to show him (Spielberg) Raiders in the beginning of July," says Warshaw, "I asked him if he was thinking of doing another game, particularly one based on *E.T.*, and he said he was giving it some thought." It wasn't much later that Warshaw received word from the top (President Ray Kassar's office): "Spielberg wants you . . . fast!"

Warshaw immediately got to work, aiming for a November deadline. "My strategy was to create several discreet characters, each with its own behavior, and good enough graphics so that you would believe it's them. From the beginning, Steven told me he wanted Elliot to have a very strong part in the game. So I gave him the role of saving E.T. Steven and I communicate on a conceptual level. He gives me some very helpful ideas. For instance, when E.T. is low on energy, Elliot brings him some more. That was Steven's idea."

The straightforwardness of the script and E.T.'s simple goal—to phone home—made for a smooth transition. "I'm very happy about E.T.," he reports, "because it's a game that almost defies description. It's not a kiddie game or an adult game. It could be played by anyone who has the time to enjoy it. It *is* a non-violent game. Nobody gets killed and nobody kills. The worst that can happen is E.T. can get occasionally pickpocketed. And E.T. never dies."

Warshaw's advice to film-to-game translators: "Don't see the movie too much; remember your prime objective, which is to relate the game to the movie, not emulate it; and always think in terms of gameplay."

Atari wasn't the first company to discover that movie games have star potential. Parker Brothers blazed this trail with The Empire Strikes Back, a cartridge based on a battle scene from the second *Star Wars* picture. The company has plans for at least two more Star Wars games, Jedi Arena and The Revenge of the Jedi, as well as an action-packed cartridge featuring James Bond. Another company with game plans is MCA/Universal, who formed a game division after it began getting inquiries about licensing some of its better-known film titles.

"A couple of things that jump out at you immediately is *Jaws 3* and our next *Smokey and the Bandit,*" says MCA's Jim Fiedler. "Since *Jaws* will be done in 3-D, we've started working with a number of coin-op companies about licensing and developing a game based on scenes from this film."

Twentieth Century-Fox's game subsidiary, Fox Video Games, has the same thing in mind. "It makes good sense to work with what we already have," explains Vice-President of Marketing Al Pepper. "There are a number of natural ties that make this an attractive business for us. One is that movies and games appeal to the same basic customer. Couple that with the growth of the market and that they're competing for the same entertainment dollar, and you see that there is every reason why we should be in this business."

In December, Fox shipped its first movie games—Alien, Megaforce, and Fantastic Voyage. The latter is a direct translation of the 1966 science-fiction classic. In the game, you try to save a dying scientist by guiding a miniaturized submarine through his bloodstream. Combating white corpuscles

Spaceblasters: All Systems Slow

Spaceblasters, a movie/game project announced last spring (and first revealed at length in the October issue of *VIDEO GAMES*) won't arrive in theaters and arcades in time for the New Year, as was then predicted. After having gone through several rewrites, the final draft of the screenplay was delivered by writer Robin Swicord to Polygram and CBS Theatrical in mid-November. "The one thing we lacked in the script," explains co-producer Adam Fields, "was a female sensitivity in terms of the characters and the interplay between the kids. We don't want *Spaceblasters* to be a high-tech, hardware, *Tron*-type of movie. What we have in mind is a warm story, something along the lines of *E.T.*"

In the meantime, Polygram has begun to discuss the possibilities of a Spaceblasters coin-op game with Bally Midway. "We have a firm idea of the game's design," Fields says. "Our feeling is that the science of manufacturing games is changing so rapidly that the longer we wait, the more sophisticated the game will be." Indeed, by the time *Spaceblasters* is ready to blast off, Fields is hoping that a genuine 3-D hardware system will have been perfected.

The melding together of films and games has unlimited potential, adds Fields. "All the studios are clearly recognizing the enormous potential in the video game business. I think Warner (Communications) has showed them what an Atari can do for a company. Once it was a mighty film company, now it's Atari that's the leader. It's something that you just can't ignore." —*S.A.*

Photo: © 1982 ITC Entertainment

Game art: © Henson Associates, Inc., 1982

Jen and his friend Ur-Su in a scene from Dark Crystal *(left) and a similar scene as it appears in the computer game (right). Says On-Line's Ken Williams: "There was a reason for giving the name Dark Crystal to our game. It is* Dark Crystal."

and other natural catastrophes, you must safely and speedily manuever yourself to a blood clot lodged near the brain and destroy it. Pepper says Fox is also considering *Mash, Patton* and *9 to 5* as possible game projects.

CBS Video Games, another new software outfit, is one subsidiary that hasn't gone this route just yet. "I think there is a benefit to licensing a title," says division director Robert Hunter, "if it's fairly recognizable and if the story lends itself to a game. But our attitude about all games, regardless of their sources, is that the game's the thing. If there isn't a story that makes sense in a game context, we're not interested in it."

Play the arcade game Tron and tell me at the end of playing it if you know what the movie *Tron* is about, who the characters are, or where it begins and ends. On the other hand, The Empire Strikes Back is a darn good cartridge; it's one of my favorites. But I'm not sure that someone playing that game feels like he's watching the movie. With Dark Crystal, we've got the movie in the game—all of it—and then some."

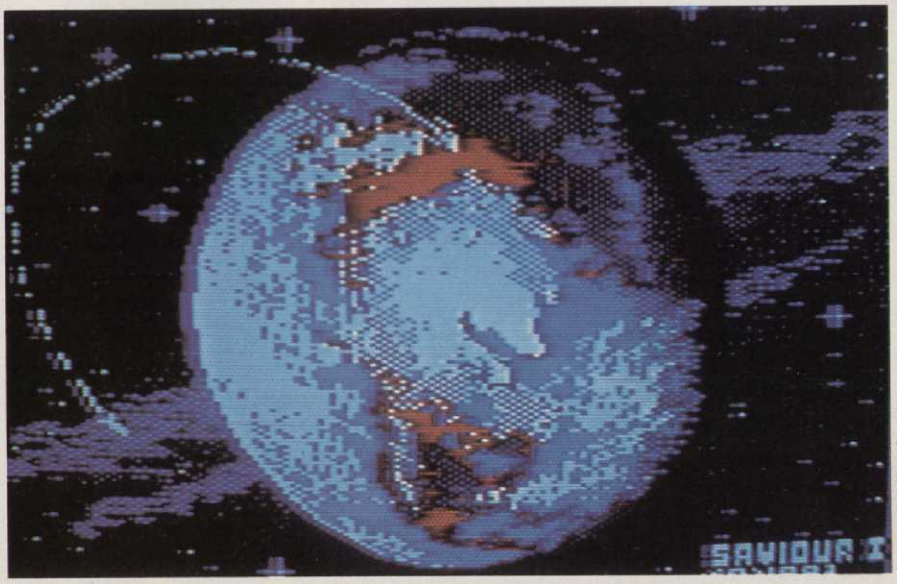
Ken Williams has obviously given this hot new trend some thought. If you were responsible for developing a game based on Muppets creator Jim Henson's film *Dark Crystal,* you would too. Williams and his wife Roberta are the people who founded what is perhaps the most successful computer game software company, Sierra/On-Line. Christopher Cerf, a consultant to Henson Associates on several computer projects and an avid fan of On-Line's games,contacted the Williamses about the project in May. "We were well into production of *Dark Crystal* when the decision to make a computer game was made," Cerf says. "It struck us as a movie that would be perfect for this type of adventure because Henson created a world that you could wander around in."

Dark Crystal, as you may already know, is a story about Jen, the last member of the mythical Gelfling race, and his quest to assemble the scattered chards of the Dark Crystal. All of the characters are puppets.

"The game had to follow the plot of the film," says Roberta, who read the script, perused research and reference materials and saw a rough cut of the film before writing up the program. "It had to begin and end where the movie began and ended. The problem was, we didn't want people to go to the movie and then come back and know how to solve the game. We want them to solve the puzzles for themselves. So it was tricky having Jen do the same things, but not exactly the same things, as in the film. We added some things to the game that are not in the movie. There's actually almost *more* of a story behind the game."

The first step was to write up a game script and bring it to Henson Associates for approval. After some adjustments were made, such as removing all references to Earthly objects, Roberta then detailed the scenes of the game. These descriptions were handed over to art director Jim Mahon and illustrator Carl Potts, who created hundreds of separately-drawn pictures. The art was sent back to On-Line and drawn

(*Continued on page 89*)



Game art: © First Star Software

After notching high scores on Saviour One, the game from Pona Star's Arcade, *pictured above, kids disappear. What's happening? A mysterious force is taking them away.*


©82

FUTURE SHOCK TALK

Compiled by Bob Mecoy

Talk to anybody who knows anything about video games and they'll tell you that '82 was not a particularly innovative year. Designers will tell you that it was a year for "taking stock," a time for "breathing room." Arcade owners will mutter darkly about "falling revenues" and "too much of the same old stuff." But talk to the real experts—a couple of 15-year-old boys with pockets full of quarters—and you'll get the straight story: "This was a very down year!"

Well, there is light at the end of the tunnel. The immortal cry that issues forth from every loser's locker room is echoing through the electronic halls of Arcadia (a mythical land where all the games are free)—"JUST WAIT TILL NEXT YEAR!" Yes, hope springs eternal in these electronic wonderlands.

The next voices you will hear are some of the folks who are going to deliver those games to you, and others who just like to dream about the *ultimate* anything. So, let's take a little look into the electronic crystal ball.

Illustration by Richard Hescox

Ed Rotberg

Ed Rotberg is vice-president in charge of engineering at Videa. An ex-Atarian, he programmed the immortal Battle Zone and worked on a number of the company's video Bronze Age games. At the moment, Videa has yet to release its maiden game but, as he puts it, "The first one's real, real close." Rotberg's latest credit, though, was a "special thanks" from director Steven Lisberger at the end of Tron. *One of the inspirations for* Tron *was clearly Battle Zone.*

"This wasn't a bad year. In '82 the industry struggled to the top of a hill and '83 should be a lot easier. It was a year for some soul searching and '83 should see some great strides forward. Some people think that this will be the year of the shakeout for the industry. I don't. The market has been so soft that everybody *does* have to come up with good games to survive, but I think that everybody's here to stay.

"One of the big changes for '83 will be mass memory. The games started off with almost no memory. Then everybody started using increasing amounts—16K, 32K, 48K—next year it's going to be anything goes. What that's going to mean is more and better graphics, higher resolution. There'll be better sound effects, better music.

"The big change, though, is going to have to be better gameplay. Playability is the key to successful games. A playable game is one that always gives you a chance, that always leaves you thinking, 'If I play it one more time I'll do better.' That's a 'gotcha' game and that's what we've all got to come up with.

Photo by Victoria Rouse

"The big change is going to have to be better game play"

"I think all you have to do is look at some of the flight simulators to see one of the most logical frontiers for gameplay. My favorite fantasy, though, is an interactive movie. I like the idea of going to a movie theater where at certain points in the action some or all of the people in the theater take control of either the characters or simply become characters in the movie and make decisions about where the movie's going or how the action is resolved. Maybe everybody could become involved and see their own version of the movie by wearing special glasses or something.

"It's hard for me to talk about my ultimate dream game—because I like to think we have our dreams on the drawing board. I can say that I think that even ten years from now video games will still be getting people out of the house and into the arcades because they're going to have something to offer that people can't get anywhere else. The key to this will probably be enhanced graphics that are simply impossible for a home system to offer."

Bob Brown

Bob Brown has been around the video game scene since the electronic Stone Age. He helped create Atari's first home game, Pong, and supervised the development of the original VCS software. Nowadays, Brown is Executive Vice-President at Starpath—home of the Supercharger, the RAM add-on for your stunted, but wonderful, VCS. There are a few clouds in his crystal ball, but he's sure that there's a silver lining not far down the road.

"Home games used to be modeled after the most popular coin-ops. Nowadays, more and more home machines are out there and we can work up games that could never succeed in the arcades. At the arcades, you have to keep those quarters coming and any game that isn't over in 90 seconds or so is not going to appeal to the arcade owners. Adventure games that take hours or even days, for example, will never happen in the arcades.

"If you look at '82 closely, you have to know that '83 has to be the year of the shakeout. Consumers are willing to pay for the games they want, but the tendency to just pour money into the slots is gone. Bad games or boring games or games that take forever to get good at are just going to sit there, and that means some manufacturers are going to get left out in the cold.

"The exciting thing about '83 is that the things we dreamed about five years ago we're now able to do. I think role-playing games will become more popular—at least in the home games market—and I'm looking forward to the day when an arcade system is a black box you can get inside and be whatever you want to be, in whatever surrounding the designer can imagine. With this ultimate system, you can have dogfights in space—more real than the real world.

"I think that the arcades—the coin-ops—will survive because people will pay five bucks a shot to try the incredible. I don't think that this'll happen next year, but it will happen soon. The industry is evolving at a really rapid speed and the technology is there. It just doesn't make economic sense yet."

Photo by Victoria Rouse

"The things we dreamed about five years ago we're able to do today."

Dave Nutting

Photo by Steve Kagan

"I don't see anything to stop us from simulating whole worlds."

Dave Nutting heads up Nutting Associates, the Bally Midway design group. Early on, he designed Sea Wolf (one of the Cretaceous classics) and the Astrocade TV-game system and, more recently, Gorf and Wizard of Wor. Nutting's one of the industry's elder statesmen and is always a good source for information when state of the art is the topic.

"We're on a plateau. The industry's been slowing down, catching its breath. There were a lot of good games in '82, but there weren't any real significant changes in what the players were being offered. Zaxxon was a first attempt at 3-D, but it really didn't quite make it visually. Sega and Stern are trying some pseudo-3-D games, but they're really just testing the water. Next year we're all going to be in it.

"In '83, everyone will be going to higher resolution and getting into mass memory. In March we (Nutting) will be coming out with a game using 300K of memory. What this will give the player is virtually infinite gameplay. It isn't going to be a linear game. Depending on how well you do, you can go into any one of a number of worlds. And, no, I can't tell you the name of the game yet.

"The game has brought us up against a limit though. As you get up into more and more sophisticated games you find that the microprocessor just can't cope. The problem is all the memory you have and how fast you want to move it. The microprocessor itself, the old 8-bits that everybody's been using, just can't handle it and next year should see the beginning of a move to 16-bit machines, dual 16-bit machines and on and on.

"The reason for this is that we're in the real-time world. The people who put together *Tron* had the time and money to take a $150,000 machine and then take five minutes or 15 minutes or even a week to generate a single picture. Then they'd repeat that process 24 times to make one second of the movie. We've got to simulate that kind of power in real-time—right now—60 times a second. And in 1984 we'll be doing that. We're working on a game hardware system that will be equal to the Vax machine—that'll give you photo quality graphics, incredible stereo sound and gameplay like you've never seen and will be priced right along with today's arcade systems. The next quantum leap will happen in '84—right here at Midway.

"The next breakthrough after that will be 3-D raster graphics. By this I mean the player will be able to change his point of view—walk around behind his opponent or walk over his opponent if he wants.

"In '83, we're going to have a vector game that is completely three dimensional. Our biggest problem with this one is that it's too realistic. Players keep getting lost. What we've finally done is limited how far the player can travel in the game. You're in the cockpit of a spacefighter looking out and you can fly above, below or around anything that shows up.

"On down the road, I don't see anything to stop us from simulating whole worlds. And as we increase our resolution we're going to be changing the way things are being shown on screen. With an image that almost looks like a photograph, you can make the tiniest objects very important. There may not be any quantum leaps in '83, but we're going to see some good first steps."

J. Ray Dettling

J. Ray Dettling writes science fiction and about science fact. He's also a physicist who has 15 years experience in the aerospace industry. As consumer liaison for Data Age, one of the newest TV-game outfits on the scene, he has a unique view of the industry in transition and some pretty outrageous things to say about the future.

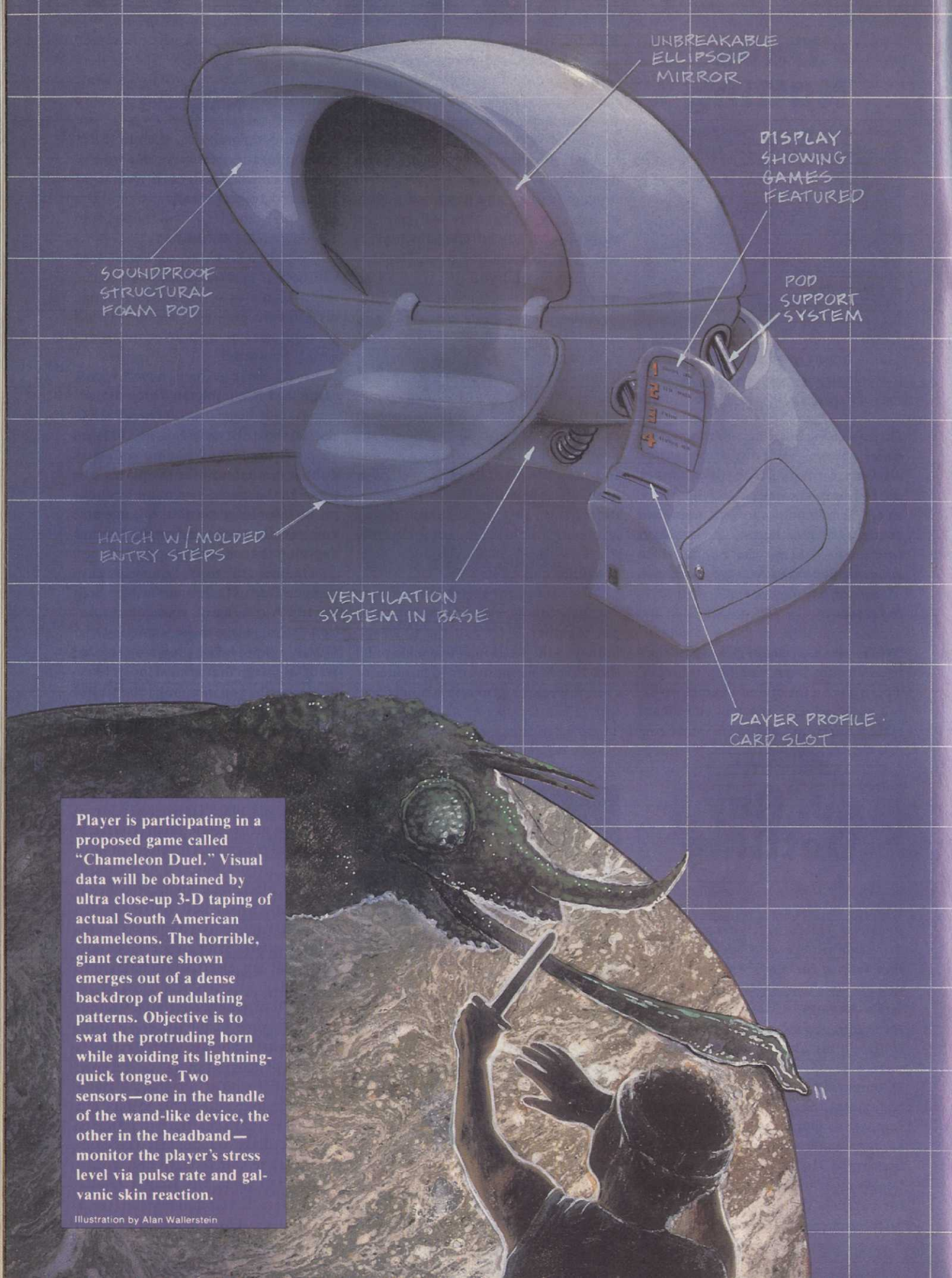
Photo by Rob Gray

"Sooner or later we'll transcend mechanical controls altogether."

"Comparing the computer games of today to the computer games of tomorrow would be like comparing smoke signals to communication satellites or the Model T to the Space Shuttle. As more memory gets stuffed into the cabinets there will be much more interaction. Perhaps you'll have to talk your way out of a situation. And, though we're limited to joysticks, trackballs and buttons now, there's no reason why we couldn't move up to something like an exoskeleton on your arm to control the game. Or sooner or later we may even transcend mechanical controls altogether. Imagine a headband with which you can make the characters move by having the headband analyze your brainwaves the same way an electroencephalograph does today.

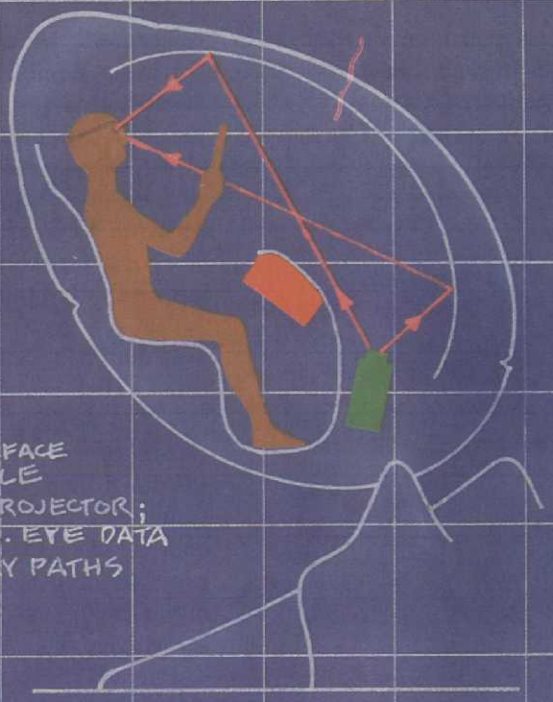
"You'll probably have a new opponent sometime in the not-too-distant future as artificial intelligence replaces the kind of programming you see now. A computer with artificial intelligence programming will be able to pull out new tricks that even the programmer could not have anticipated. The computer will be able to learn how you're playing the game. So, if after five or ten players the computer can see a

(*Continued on page 42*)



Player is participating in a proposed game called "Chameleon Duel." Visual data will be obtained by ultra close-up 3-D taping of actual South American chameleons. The horrible, giant creature shown emerges out of a dense backdrop of undulating patterns. Objective is to swat the protruding horn while avoiding its lightning-quick tongue. Two sensors—one in the handle of the wand-like device, the other in the headband—monitor the player's stress level via pulse rate and galvanic skin reaction.

Illustration by Alan Wallerstein

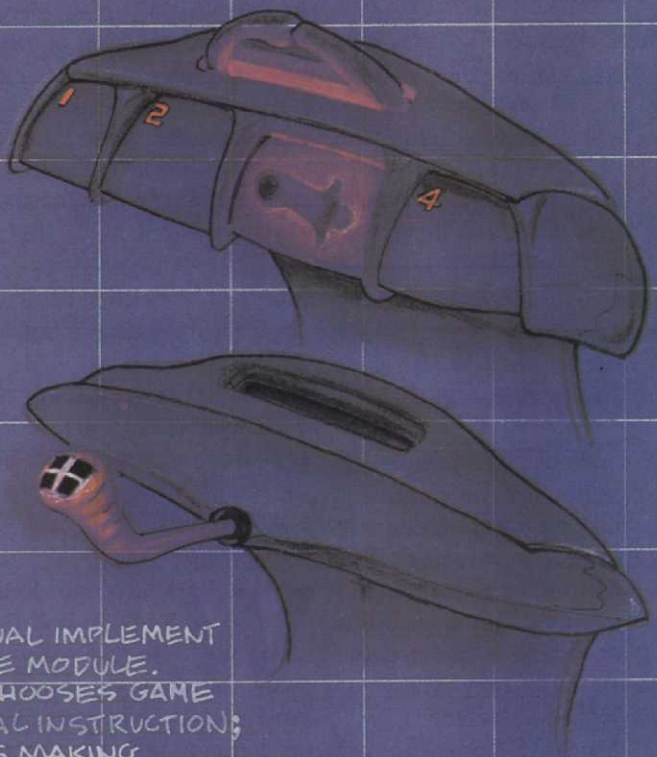


ORANGE: INTERFACE MODULE
GREEN: 3-D PROJECTOR; L. & R. EYE DATA
RED: LIGHT RAY PATHS

GENERAL DESCRIPTION

A total-environment center with 3-D visuals, (via videodisc transmission), ellipsoid screen imaging, sound, verbal player-machine communication, pod-motion capability, and forced feedback. Arcade operator can set up machine for a variety of games by changing interface modules and software. Player must insert profile card coded with his speech patterns and physiological reactions to stress. Once inside pod, player chooses one of four featured games and excitement level desired. Wearing of headband is necessary during all game action.

Games are of two types: "Hand-held implement" games and "piloting" games. Example of the former appears at left. Others under development include "History Lesson," wherein the player, wielding a sword-like device, encounters Goths, Huns and other assorted barbarians. One piloting game is called "Last-Minute Shopping," wherein the player finds himself directing a robot-arm equipped cart in an awesome mart amongst a mob of frenzied shoppers. Objective is to reach "check-out" with all items on a specified list by "closing time." Player has one offense: to fire items from his cart at fellow shoppers. He must, however, replace each item before "checking-out."



TOP: MANUAL IMPLEMENT INTERFACE MODULE. PLAYER CHOOSES GAME VIA VERBAL INSTRUCTION; BIN OPENS MAKING IMPLEMENT AVAILABLE. HEADBAND SHOWN IN STORAGE RECEPTACLE.
BOTTOM: GENERAL-PURPOSE PILOTING INTERFACE MODULE. OMNIDIRECTIONAL JOY STICK, EQUIPPED WITH MULTI-KEY TOUCH SENSITIVE FIRING PAD, GLOWS UNTIL GRASPED BY PLAYER.

VIDEO GAMES' DREAM MACHINE FOR 1983

DESIGNED BY: A.R. WALLERSTEIN	PATENT STATUS T.A.I.	© 1982 A.W.
SCALE: ~	SHEET 1 OF 1	DOCUMENT NO: T.I.E.14 DM	REV: B

pattern, it'll go 'Ah-hah, all these people are using this same strategy so I'm going to change my approach entirely.' That's artificial intelligence.

"As this sophisticated technology becomes less expensive it'll show up in the arcades first and eventually filter down to the home. In a relatively short time we'll have flat screen TVs that will hang on the wall like pictures. Those screens will be our windows on the world—a combination information/communication/education center that will play games with you or deliver your newspaper, whichever you want."

Richard Winn Taylor II

Whether or not you loved Tron, *you had to love the way it looked. Richard Winn Taylor II led MAGI's team that created those other-worldly visuals for Disney. The process is called computer-synthesized imagery and MAGI is at the head of the class. Taylor is another of the dreamers and a force to be reckoned with.*

"Playing movies is an expensive, but very real possibility."

"There are a number of possibilities. One would be to have a central computer running a number of very complex games. Another would be to have that same computer running a movie theater wherein the audience could affect the outcome of the feature. In certain parts, then, the audience could guide people in the movie or 20 of them could take sides and do battle in 20 spacefighters. What we'd see would be a number of seats in the theater complete with smaller screens, joysticks, maybe a couple of buttons. This is an expensive, but very real possibility.

"One reason I see this happening is that going to the movies isn't a special occasion anymore. In the old days, you got a stage show—some live entertainment all in this incredible-looking showplace. Now you go to the shopping mall and watch a tiny screen and listen to bad sound. Surrounding people with an Epcot-style curvelinear screen or an Ultimax style vertical screen—filling the audience's entire view—and then offering them some control over the course of a laser-projected movie will transform the movie experience.

"Movies have already made some differences in the way games look. The game you saw Jeff Bridges playing at the beginning of *Tron*—Space Paranoids—was a full-shaded game. In other words, instead of just flat colors you can see shadows, curves, real-looking shapes. Sega is close to getting a full-shaded game on the market using videodisc technology. For now, this may be the closest you can get to playing a movie."

Dave Bischoff

Photo by Jay Klein

"I want a game that will lie to me, make me use my brain."

Dave Bischoff is a young science fiction writer with five books to his credit, including his latest, The Selkie, *from Macmillan. Bischoff used to hang out in the arcades until he bought a home computer to help him with his writing.*

"I've pretty much stopped going to the arcades since I got my own computer, unless I go with a bunch of friends, and then it's like going bowling. The arcades could bring me back though. I like to play adventure games at home and I like movies. If a game could combine those things they'd have me and my quarters surrounded.

"My ultimate game is one with 3-D screens all around me, great sound and a good story. I don't just want a shoot-'em-up. I want a game that'll lie to me, make me use my brain. The program for Zork (an adventure game) that I run on my Atari 800 has a couple of things built in like that.

"I even have the perfect story for my ultimate game. My book *Nightworld* would be the pip. It's a quest across a planet where no one is what they seem. Nearly every person the player would meet would turn out to be a demon, vampire, werewolf or other baddie, and they're all after you because their boss, a gentleman named Lucifer, has decreed it.

"Seeing the world that I've imagined, walking across it and fighting and talking with the people I've created, the monsters I've made would definitely be the ultimate."

We have our dreams on the drawing board." Translation: Be hopeful, but don't expect too much right away. Everybody knows that big things are happening but, right now, everyone is playing their cards very close to their vests. For example, nobody was willing to talk about video game/disc fusion—even though rumors of videodisc shoots for the video games are rife in the movie industry. Maybe that's too close to reality to show up in anyone's crystal ball. (See Ralph Baer's comments on this subject starting on page 20.—Ed.) Whatever, '83 and beyond promise 3-D action, stereo sound, better controls, and a whole host of new playthings. So, if you have a dream, get a drawing board. ▲

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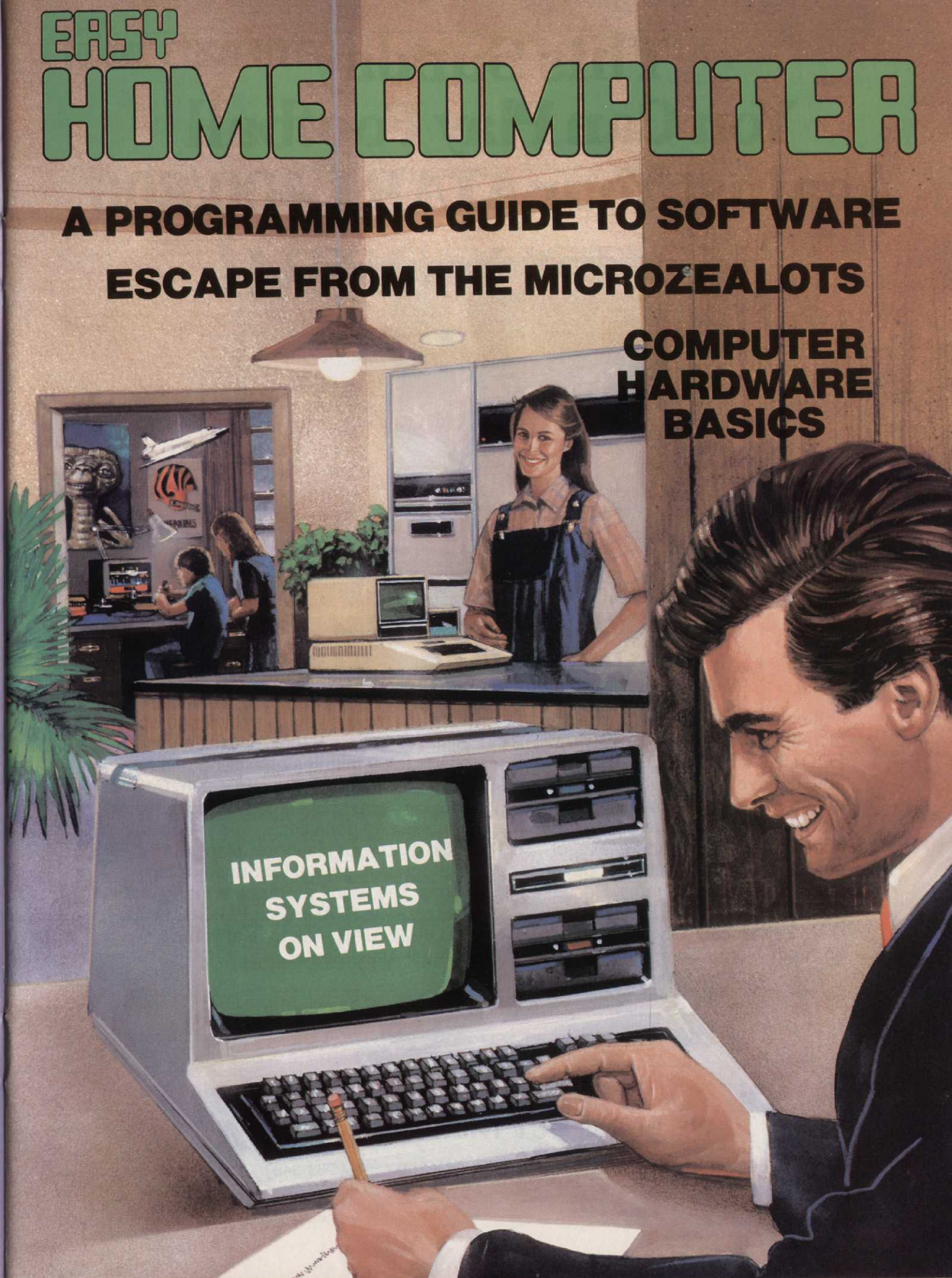

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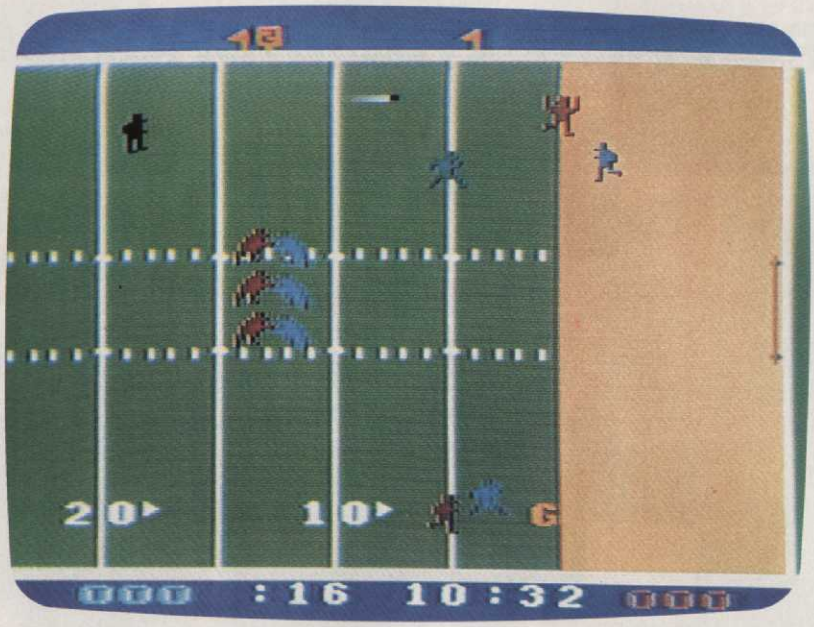

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INTRODUCTION

Welcome to the computer age! At a time when predictions are that one out of every two households will own a computer by the end of the decade—we bring you Easy Home Computer magazine, a simple, concise, easy to read publication, that breaks through all the technical jargon to allow for a better understanding of the fundamentals of home computer use and operation. From selecting the system that's just right for your needs to choosing the right services, you'll learn that there's more to home computers than just balancing your checkbook or coordinating your finances. You'll discover that there's a wealth of educational programs along with a host of entertainment software that goes far beyond video games. But if video games are your forte those available for home computers dwarfs those of any game system in amount, variety, complexity, and sophistication of graphics and play.

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If you're just beginning to get caught up in the computer revolution and you've been looking for a publication containing features and articles covering it, then Easy Home Computer is must reading. Easy Home Computer. . .our name says it all.

Edited by Roger C. Sharpe

WELL-EQUIPPED

Getting the basics about computer hardware

By Jerry Willis

Twenty years ago, mechanical pinball machines dominated the arcades and the family television did little more than bring The Honeymooners and Johnny Carson into our homes. In those days computers were giant, expensive, somewhat threatening beasts that few of us ever saw. The computer was a powerful but specialized machine that could be operated only by highly trained professionals. When mere mortals such as you and I needed to use the computer, we didn't approach it directly. We talked to the specialist, and they talked to the computer. When it answered they let us know what it said.

The way computers were used in the Fifties and Sixties could be considered the "High Priest" era. Regular folks didn't presume to go directly to The Computer. Just as in ancient Greece and Egypt, contact with the gods was handled strictly by the High Priests. All that began to change rapidly in the early Seventies when the *microprocessor* was developed. This little device, which looks a lot like a mechanical centipede with tin legs, forms the foundation upon which the computer revolution of the Eighties is based.

Today there are microprocessor "chips" in everything from Fords to fantasy games. They're at the heart of every video game and personal computer currently available and also made possible a new way of dealing with computers. You can now talk to one directly, though you may not always like its response.

The situation has changed so much that many educators are now raising the flag of "computer literacy," alerting us to yet one more basic skill necessary for coping with the society of the not-too-distant future. You have to understand how computers operate and how they influence your work, play and society. From lawyers and doctors, to poets and preachers (in addition to most of us in between), dealing with computers is increasingly becoming a fend-for-yourself situation. We can't depend on the High Priests of computerdom anymore; it will be up to us! We've got to understand and successfully manipulate computers in order to just get by and do our jobs.

There's more than a little truth in the concept of computer literacy. Computers have, in the course of only a few years, become a more obvious and important part of our daily lives. And they'll do more in the future. There are, however, really only four major questions (and, yes, about a million smaller ones) most people want answered about small computers:

What is a microcomputer?
What can computers do?
How do they work?
Can I use one and which one is best for me?

WHAT IS A MICROCOMPUTER?

Before this question can be answered, some attention must be paid to the microprocessor chip, which is an electronic device that can be given instructions. A typical microprocessor chip is the 6502 used in Apple, Atari and Commodore PET computers. The 6502 can "understand" well over a hundred different instructions which are given to the microprocessor in the form of electrical signals. The microprocessor senses, or "reads," the pattern of signals being sent to it and then "executes" the instruction associated with that pattern. For example, the 6502 chip has forty different "legs," or pins, protruding from it. Eight of these pins are wired to receive "instruction" codes. Programmers think of these codes as patterns of ones and zeros, but the computer actually deals with voltages of 0 (for a zero) and +5 (for a one). If a 6502 microprocessor receives the instruction code below, it performs a particular kind of addition:

01101001

This code of eight ones and zeros tells the chip to add the next number it receives to the number currently stored in a special location inside the microprocessor chip. The "next number" will be another set of eight ones (+5 volts) and zeros (0 volts).

That is the essence of how a microprocessor chip operates. It works with

The TRS-80 Color Computer.

two signals, +5 volts and 0 volts, being designed to "understand" a certain number of instructions, which it can carry out (*execute*). All of the instructions are relatively simple ones, involving math, simple comparisons between the voltage patterns stored in one part of the chip with those in another, or with duplicating patterns stored in one location at a separate location. The microprocessor can't perform complicated instructions since it's relatively dumb. But it *is* fast, very fast. Thousands of those simple instructions can be performed in a matter of seconds. That is its strength.

A programmer can create a list of instructions (patterns of ones and zeros), put them in an electronic "memory" connected to the microprocessor and tell the microprocessor to execute them. When a video game plays PAC-MAN with you, when a stockbroker uses his or her computer to plot trends in stocks, when a student writes a term paper on a word processor, the same type of process is happening. A microprocessor is following a set of instructions written by a human programmer. From simple patterns of ones and zeros can come a variety of useful, entertaining and educational programs. Individuals have even been able to write instructions which allow the microprocessor in a computer to "understand" something besides ones and zeros. The computer language BASIC, for example, lets you write instructions with words such as PRINT, INPUT, GOTO and RUN. When you tell a computer to follow instructions in a BASIC program, what really happens is that the computer converts each BASIC instruction into many simple instructions which then are presented to the microprocessor as, you guessed it, patterns of ones and zeros.

"...you have to understand how computers operate and how they influence your work..."

Is It a Videogame or a Computer?

You'll find a microprocessor in every video game and at least one in every personal computer. Many home appliances use microprocessors to control their operation. (The ads for some microwave ovens and washers make the claim that the appliance is "computer controlled." Is it? Not really. It's "microprocessor controlled.")

There may be microprocessors in your new television, automobile, telephone and even your Christmas toys. When present in these products, they follow instructions, which were supplied by programmers at the factory, stored in the memory circuits attached to them. These enable the microprocessor to control the operation of one type of appliance.. You can't change them, nor can you use that microprocessor for some other application. This is a *dedicated microprocessor*, which means that the circuits with which it

Commodore VIC 20 Home Computer System

The IBM personal computer.

operates, have been designed to let it do only one type of job well.

The same type of logic is the basis for distinguishing between a *video game* system and a personal computer. The heart of each is a microprocessor, and in both of them microprocessors follow a set of instructions stored in electronic memory. Mattel's Intellivision, for example, uses the same 6502 microprocessor chip that the Atari 800 and 400 computers do. The Intellivision, however, can't be programmed by the user. You must use programs written by someone else. It's a very good video game machine, but it's not a computer—because you don't have the option of programming it yourself.

The Atari 800, on the other hand, accepts game cartridges and can use several types of game paddles and joysticks. It is a computer, however, because you can write programs yourself that will then be executed by the machine. The Intellivision is a dedicated microprocessor device that does one thing well. The Atari 800 is a general-purpose device that can be programmed by the user. That's the difference between a video game player system and a computer.

"...it's a very good video game machine, but it's not computer..."

Nothing in this field, however, is quite as straightforward as our distinction between video games and computers. The Intellivision, for example, can be transformed into a programmable computer by adding extra circuits. Also, some video game machines let you plug in a cartridge and write programs in the BASIC computer language.

If you can program it yourself, it's a computer. That doesn't mean it's a good computer, however. In the next section we'll cover the basics of a typical personal computer and what makes a system a good one.

The Elements of a Personal Computer System Figure 1 diagrams the elements in a typical computer system. The abbreviation CPU stands for *central processing unit*, which is another way of saying "microprocessor." Similar to video game systems, a computer must also have a power supply, and it must have "memory." There are two types—*ROM* and *RAM*—with the former being *read only memory*. The CPU can "read" from this type memory to determine what codes are stored there, but the CPU can't change those codes. Game cartridges, which plug into video game machines, or into slots on computers, are really just ROM packages.

Not all the memory in a computer can be ROM, however. At least some memory must be able to be programmed, or "written," by the user.

RAM *(random-access memory)* is memory the CPU can both read from

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and write to, which means that change is possible. For example, as you write the Great American Space Game and prepare to make your first million, the codes for the game will be stored in RAM memory as you type them in on the computer's keyboard. If you decide to change some previously written instructions, it's a simple matter to replace the code in RAM with new codes.

Computer memory is generally calculated in *kilobytes*, or "K." Each K of RAM can store 1024 characters. If you buy a computer with 16K of RAM, this means there's room for storing 1024 X 16 or 16,384 different characters at once. Programs you write will be placed in RAM. Programs that you buy "on tape" or "on diskette" will also use RAM. It's possible, then, to buy programs in three different mediums: in a ROM cartridge, on a cassette tape and on a floppy diskette.

To use programs where the instructions are stored in a ROM cartridge, you simply plug the cartridge into the slot in the computer. A program whose instructions are stored magnetically on a cassette tape requires you to put the cassette into the tape recorder (already connected to the computer) and then tell the computer to "load" the program into RAM memory. The computer then listens to the codes stored on the cassette and converts the high and low tones it hears into patterns of high and low voltages. Those patterns are then placed in RAM. It works the same way for programs on a diskette. (A diskette looks a little like a flexible 45 rpm record that's been slipped inside a protective envelope.)

"...computers are supposed to be useful to people..."

Codes for the program are stored as magnetic signals on the surface of the diskette. A computer equipped with a disk drive can "read" the codes stored on a diskette and duplicate those codes in RAM.

Programs in ROM can't be modified by the user, but programs on cassette and diskette can be to suit your own tastes—if you understand the computer language in which they were written. In addition, you'll want to store the programs you write yourself on cassettes or floppy diskettes for later use. Anything in RAM is lost forever when the computer is switched off, so some means of creating a permanent record of your handiwork is necessary.

Figure 1 also shows several types of I/O circuits. I/O is short for *input/output*. Before a computer can receive (i.e., input) data from an external device such as a cassette recorder, it must have appropriately designed circuits for that purpose. The same goes for output to a video monitor or a television. There are also two types of general-purpose I/O circuits known as serial and parallel. Computer keyboards are often connected to the CPU via a parallel I/O circuit while printers are available that use either serial or parallel I/O circuits. Separate, specialized I/O circuits connect the computer to a video monitor, or television, and to a cassette recorder and/or one or more disk drives.

To summarize, a typical small computer is made up of a "central processing unit" (CPU) that does all the computing, memory that is used to store instructions and data, ways of inputting data such as keyboards (as well as joysticks and game paddles), some means of safely storing programs and data (cassette recorder or disk drive), and methods of output such as video displays and printers.

CAN YOU USE A COMPUTER?

Many people find themselves considering buying either a video game player or a personal computer. If your only interest is in great video games and in other types of programs that are likely to be available in cartridge form, a good video game machine is likely to be your best choice. Suppose, however, that you want to learn how to write programs yourself, or you have some uses in mind which don't seem to be possible on video game machines. Perhaps you want something that will play video games, but also double as a word processor. Computers are general-purpose machines, able to play a great space adventure in the morning and balance your books in the afternoon. All in all, there's more than enough to choose from in satisfying your needs. It just takes some basic understanding and the familiarity with terms to decide which model is right for you. ●

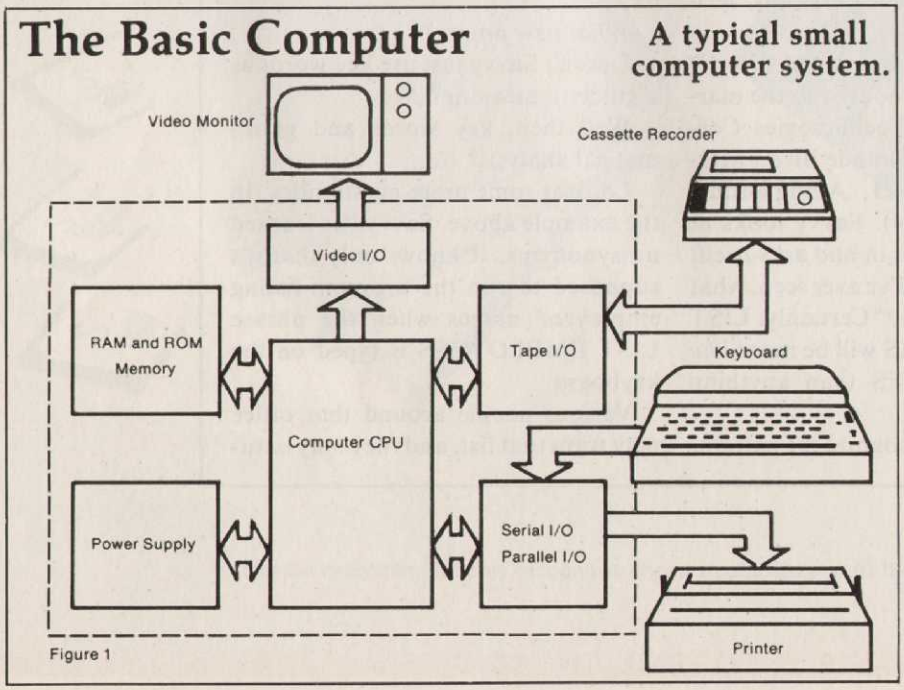


Figure 1

EHC

BITS AND PIECES

Getting personal with Savvy

By Nelson Winkless

Say you're sitting at the keyboard of a small computer that can display the names of the employees of a small company. Chances are the program that does the job is called LIST EMPLOYEES. If you type that, the names will appear on the screen.

If you type instead LIST THE EMPLOYEES, the machine will ignore you.

If you type LIST EMPLOYES, it ignores you.

The traditional machine doesn't understand the meaning of the instruction, it merely responds to a highly specific code. If the code is LIST EMPLOYEES (don't forget the space), then nothing else will serve. Of course, you could put in LIST THE EMPLOYEES as an alternative code, but even then, if someone typed GIVE ME THE LIST OF EMPLOYEES, he'd be out of luck.

Except on a system called Savvy™ that's just been introduced to the market by Excalibur Technologies Corporation (800 Rio Grande Blvd., Mercado Mall, Suite 21, Albuquerque, New Mexico 87104). Savvy looks at the phrase you type in and asks itself: "Of all the phrases I've ever seen, what is this one *most like?*" Certainly, LIST THE EMPLOYEES will be more *like* LIST EMPLOYEES than anything else it has seen.

This ability to recognize the pattern, and to associate a *meaning* with that pattern, is something completely new to computing. It represents raw, new power ready to be harnessed and put to work on jobs computers have never been able to handle. What jobs? Well, nobody knows exactly. Really, *no*body knows, not even the developers of Savvy at Excalibur, and they have more experience with adaptive pattern-recognition processing than anyone else in the world.

In fact, Savvy's inventor, Jim Dowe, has said: "We're certain of only one thing as we turn this capability loose in the world: we can't know in advance what people will do with it." Excalibur expects individual experimenters to make the major discoveries and develop major applications. Meanwhile, the games-makers are just beginning to tap the new power.

What new power?

Doesn't Savvy just use key words as a guide to meaning? *No.*

Well then, key words and grammatical analysis? *No.*

Look at some more possibilities. In the example above, Savvy has learned no synonyms. It knows only that it's supposed to run the program listing employees' names when the phrase LIST EMPLOYEES is typed on the keyboard.

Various people around that office may want that list, and they may natu-

The Savvy System not only recognizes phrases but understands their meaning as well.

rally use different phrases in asking for the information. For example: WHO WORKS HERE? Any user of mainstream English could interpret that to men LIST EMPLOYEES. Savvy should, too.

The person training Savvy would type the command: ASSOCIATE, and Savvy would display:

ASSOCIATE new phrase.

The trainer would add the new phrase:

ASSOCIATE new phrase WHO WORKS HERE

Savvy would add:

ASSOCIATE new phrase WHO WORKS HERE with old

And the trainer would finish:

ASSOCIATE new phrase WHO WORKS HERE with old LIST EMPLOYEES.

Savvy now knows that the phrases have the same meaning, and will run the appropriate program when somebody types WHO WORKS HERE.

The trainer might go on to associate more phrases with LIST EMPLOYEES:

WHO'S ON STAFF

WER ARBEITET HIER

HAGA UNA LISTA DES EMPLEADOS

NAME THE STAFF

And now the power becomes more apparent. Savvy will run that program in response to phrases like these:

WHO IN HECK WORKS HERE, ANYWAY

NAME THE EMPLOYEES FOR ME

HAGA UNA LISTA THE PEOPLE WHO WORK HIER

GIVE ME THE NAMES OF THE STAFF

WER IST ON STAFF

How many other inquiries might get the same response? Dozens, certainly. Scores, maybe. The answer depends not only on the phrases Savvy has learned to associate with this particular program, but on everything it has ever learned.

Recall the question it asks itself: "Of all the phrases I've ever seen . . ." Savvy may learn to perform hundreds of tasks, to deal with hundreds of file folders full of information, containing hundreds of different items of information. It may learn thousands of associated phrases that call for specific actions involving these many things. Every time Savvy learns something new, the context in which it makes its judgments is expanded.

Savvy is similar to the child whose judgment improves as his experience in the world grows broader. What can you do with Savvy? Well, what can you do with that child?

Playing with children is approved activity in society. Playing with Savvy is an attractive possibility. All interactions with computer processes in any form, including video games, have given a great deal of freedom to the machine, and very little to the player. By and large, the player can "steer," triggering a small variety of specific events.

Savvy permits something else. What? Again, nobody knows, because game designers have yet to work with a machine that actively tries to understand you.

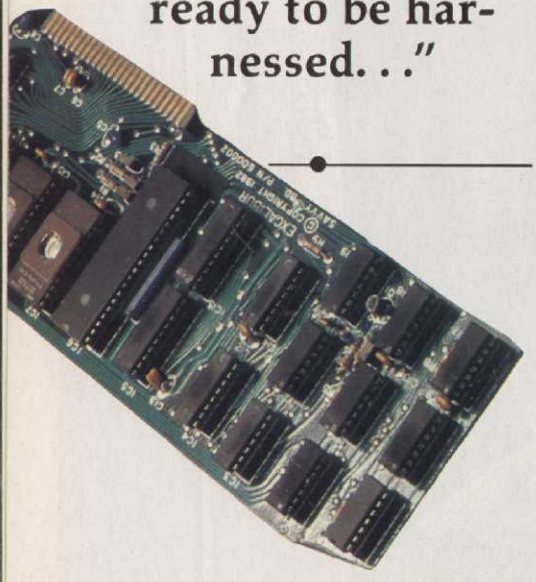
From the game designer's view, Savvy is still a mystery, with its undefined power throbbing behind the quiet facade of a business computer. Savvy has already been put to work as an office clerk, doing payables, inventory, spreadsheets and all the conventional business tasks. It's been taught to deal with graphics, but only the simplest level, not even color. No imaginative game designer has taken this new kid in hand and taught it how to play seriously.

But someone will do that; probably many will, because Savvy isn't running on a big, expensive, institutional computer in a sterile artificial-intelligence lab. It's packaged as a plug-in for the Apple II computer, available to wild-eyed games players at all levels.

Actually, one game is in the works now, Dar Scott's Adventure variant. In it, the player crashes on a distant planet and can escape, conquer the place, or achieve other goals by giving instructions to his four robots, Alpha, Beta, Gamma and (Oh no, it's . . .) Prudence. Dar is even now training those robots with different personalities, different strengths, weaknesses and perceptions. When they let him out of the back room, we'll have a first look at a Savvy™ game.

Unless you beat him to it. ●

". . .it represents raw, new power ready to be harnessed. . ."



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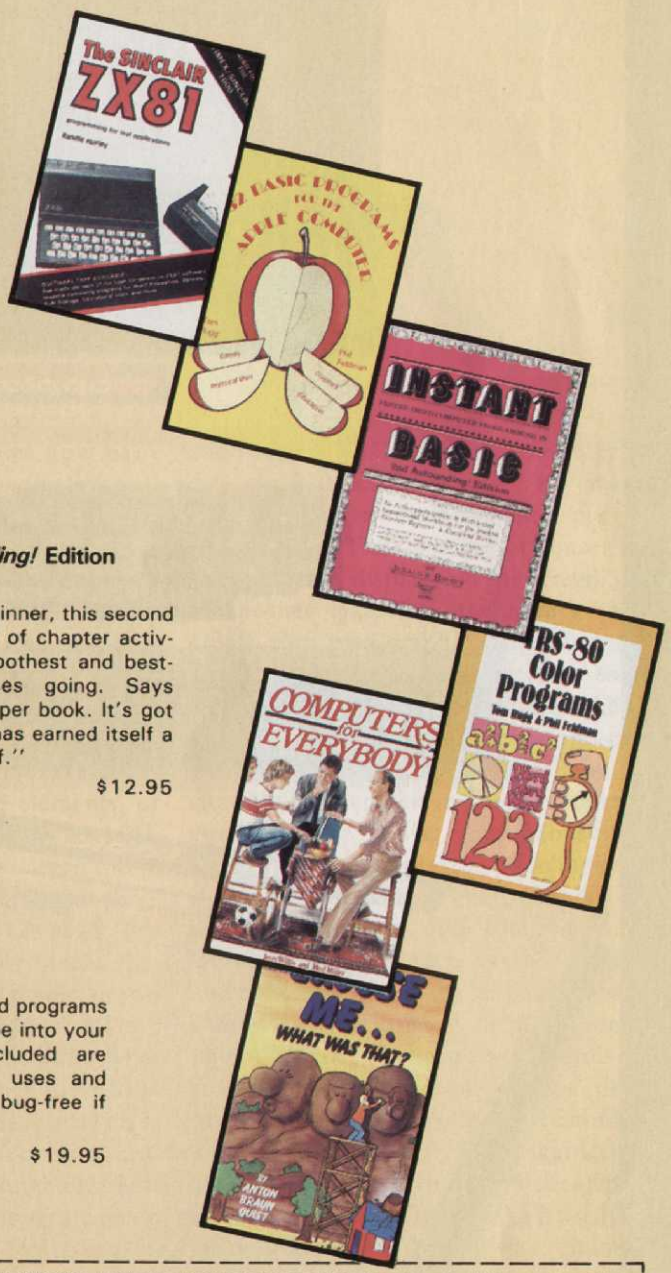

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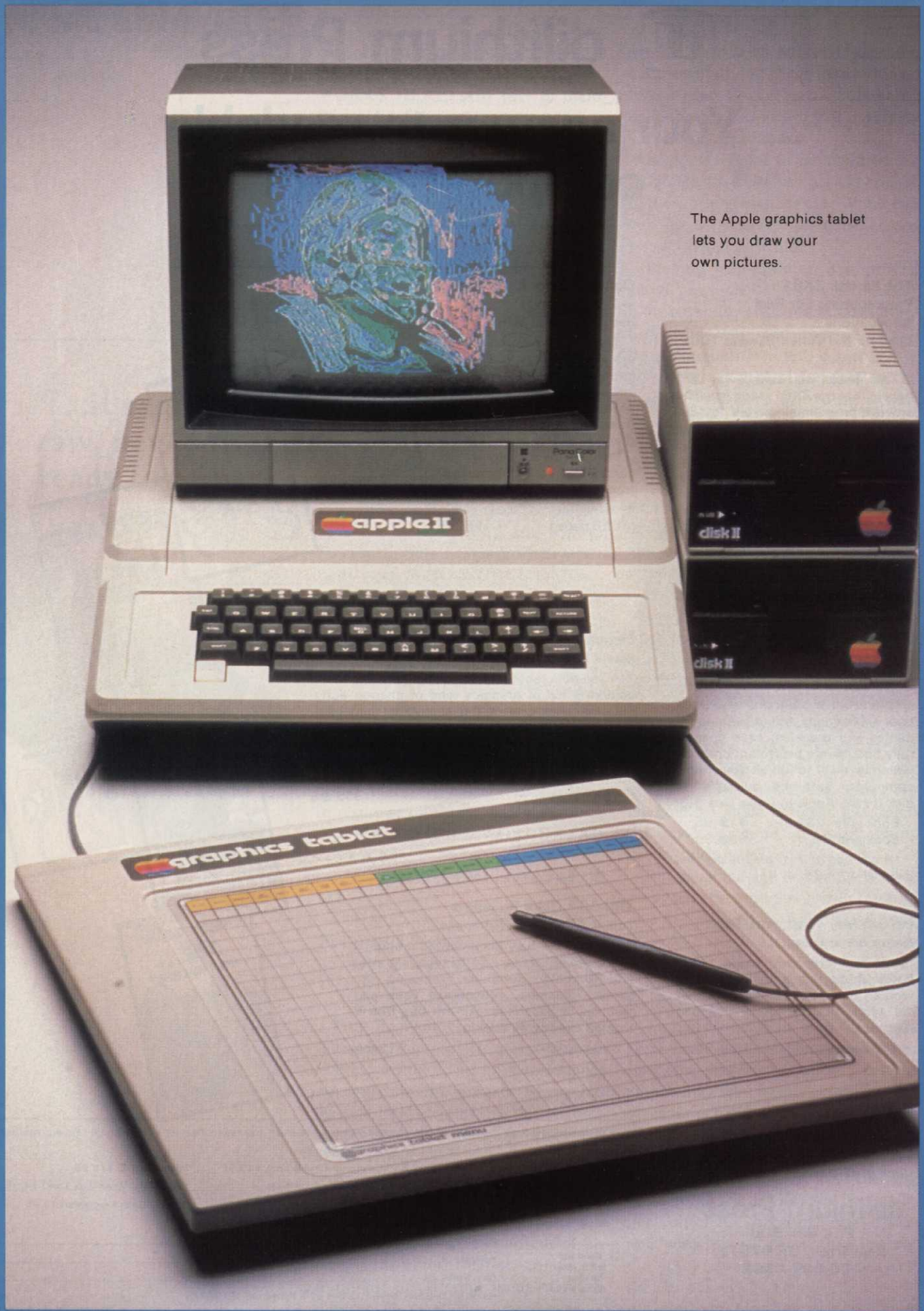


The Apple graphics tablet lets you draw your own pictures.

THE OPTIONS ARE YOURS

Features to look for in selecting a computer

By Jerry Willis

Buying a home computer is really a very personal decision (maybe that's why they're called *personal* home computers) which can be predicated not only on financial considerations, but on a unit's capabilities and features. After all, there is no single "best" computer that should be purchased by everyone. In fact, manufacturers often target their products to a particular segment of the market and try to design a machine that's ideal for those applications.

A good business computer, however, isn't necessarily a good educational computer, nor is a model that's great for games also as capable for word processing or bookkeeping. To help you better understand the variables involved, which differentiate models, we'll look at major features that will have a bearing on your selection. All in all, the computer we'll be looking for should offer excellent video games, function well for other home applications and at least be adequate for professional and small-business uses such as accounting and word processing.

Video Display Color graphics give video games much of their appeal, but are also useful in many business programs. It's important, therefore, to find out if the computer can generate high-quality color graphics, how many different colors can be displayed at once, and how difficult it is to program the visuals. You'll want to ask if the computer allows you to type in graphic symbols as well as letters and numbers from the keyboard. How many different picture elements are available when using graphics?

Computers, with color graphics, generally divide the video screen into rows and columns of picture elements, or *pixels*. The Radio Shack Model III, for example, divides the screen into a 48 by 128 grid, which means that there are 48 pixels on each of 128 rows. The screen thus contains 6144 pixels. Pictures, tables, figures and graphs shown on the screen of the Model III are created by telling the computer what to display in some, or all, of those 6144 positions. The Model III, however, is relatively crude when it comes to graphics, producing only rough approximations of shapes that aren't made up of straight lines. That limitation, in addition to the fact that the model III has a black-and-white display, makes it a poor choice for buyers interested in video-game applications. In comparison, the Commodore 64 computer has 320 by 200 or 64,000 pixels! The Apple II has 280 by 193 or 54,040 pixels, while the Atari 800/400 computers have up to 320 by 192 or 61,440 pixels, and the new NEC Rainbow computer can use 240 X 800 pixels. The end result is that computers with more pixels can create finer-grained or denser, more detailed displays on the screen.

Another feature is the ability to create your own graphic shapes (e.g., an alien star fighter or dangerous sea serpent) and move them about on the screen as an integrated shape. Suppose you create a threatening blue sea monster that is 320 pixels in size. On some computers to move your monster about the screen requires you to move it one pixel at a time. That's cumbersome to program and often slow. Other computers, such as the Atari and the Commodore 64, let you create shapes and then move them as one unit. You can even keep track of collisions between different shapes or cause one shape to move behind another on the screen. These features make it easier to create sophisticated animated-graphics displays. (Virtually all manufacturers, by the way, claim their computer is "high resolution" regardless of the number of pixels it uses. So look for numbers, not claims.)

Business and professional applications generally don't rely heavily on color graphics, but they do call for the ability to put upper- and lower-case letters on the screen. Such applications are regularly done with computers

that put 24 lines of the 40 characters on the screen at once (the Apple II and Atari 800/400 are two examples). Twenty-four lines of 80 characters is far better, but more expensive.

Finally, some computers let you use your color television as a display; others require a color monitor. Televisions are less expensive, but monitors produce a higher-quality display. Newer computers such as the IBM PC are capable of generating extremely high-quality color graphics on special RGB (red, green, blue) color monitors. Again, however, quality is even higher than standard monitors, but a typical RGB monitor costs almost $1000.

Sound and Music Synthesis—Many small computers, especially the older models, can't make a sound. A few can make simple beeps. New models, however, are often capable of producing high-quality sound effects and synthesized music, as well as play different sounds (voices) at once. This sound generation involves the control of several different variables—volume, frequency, waveform and duration. The wider the range possible and the more variables you can control, the better the sound. In fact, many of the sounds used in the movie "TRON" were created with Atari 800 and Apple II computers.

Input Options—Playing a fast-paced video game on a computer, which only has a keyboard for input, is often clumsy and seldom satisfactory. Game-oriented computers need input provisions for joysticks and game paddles.

Another consideration is that the computer is capable of displaying the graphic characters on the keys along with the standard letters and symbols a key can generate. Each key on a typical keyboard can be used to generate an upper- and lower-case letter, and at least one graphic symbol. It's also convenient to have displayed, somewhere on the key, all the symbols each can produce. Not all keyboards are so helpful, however.

Less expensive models such as the Commodore Max and Atari 400 use *membrane* keyboards, which are actually flat pieces of embossed plastic. These are fine for occasional use, but if you plan to write a great number of programs yourself, then you'll definitely prefer a standard typewriter-style keyboard.

Early Commodore PET and Texas Instruments' TI 99/4 computers used small, hard-to-use, calculator-style keyboards and were roundly criticized for them. Except for the $180 Max, all of Commodore's computers now use full-size standard keyboards. In 1981, TI also changed its keyboard, but didn't quite go all the way. The 99/4A has what appears to be a standard keyboard, but it's actually too small by about four inches and remains difficult to use, especially if you touch type.

Try out the keyboard of any computer you're thinking of buying, and be sure you're comfortable with it. The IBM PC computer uses a detachable keyboard that contains over 100 keys. Some people consider it one of the best on the market, others dislike the audible "click" a key makes each time it's pressed and the location of the left shift key (one key over from where it is on a typewriter).

"...many of the sounds used in the movie "TRON" were created with Atari 800 and Apple II computer..."

ROM Cartridge Options—Computers such as the Radio Shack Color Computer, the TI 99/4A, the Commodore VIC and Model 64, the Atari 800/400 and the Exidy Sorcerer have provisions for using ROM cartridges much like the ones used in many video games. When you want to play a different game, just plug in another cartridge and you're set. It's convenient, relatively foolproof and fairly reliable. If you plan to frequently use your computer to play games, you'll probably prefer a model that is capable of playing ROM cartridges. In addition, some business programs have even appeared recently in this format, which can save you time compared to those on diskette or cassette, while also being less fragile in use.

Storage Options—Every computer now sold for the home can use cassette tapes to store programs and data. (The tape recorder itself, however, will usually cost you extra.) Should you be content with the slower, less reliable, harder-to use cassette method? Or should you spend $500 to $1000 more and buy a disk-drive system?

Well, if your primary use will be for electronic games and as a means for learning computer basics, a cassette system will be enough. However, any envisioned professional and/or business applications as well as plans to do a great deal of programming yourself, should sway you to get at least one disk drive, if you can easily afford the extra cost. And once you've taken the first step, realize that two are even better.

A suggestion is that you may want to start out with cassette storage only and then add disk drives later. Fortunately, drives added after the first one usually cost less since the same I/O circuits that run one, also accommodate two, three, or even four drives.

Be prepared that if you mention you're thinking of business applications, a salesperson may try to sell you a *hard disk*. These store data on a spinning platter of solid metal, which are fast, reliable, and generally cost $2000 to $5000. Hard disks store from 5 million characters to more than 25 million, which may be more than you'll ever need. However, be aware that they do exist and might be an option sometime in the future.

You may even want to buy two computers, one for home and video-game use and another specifically for business applications. The floppy disk systems currently available can store between 90,000 characters and 1,200,000 characters on each diskette. In today's market, a system that can store only 90,000 characters on a diskette is outmoded. When diskettes cost you between $2.50 and $8.00 each, you'll want to be able to store as much as reliably possible on each.

Most computers in the range we are discussing use 5¼ inch diskettes, while a few may give you a choice between

Atari 800.

5¼ inch and 8 inch disk drives. (In addition, some new sizes such as 3½ inch may be available soon.) If you plan to buy programs on diskette from commercial sources, it's generally best to select the most popular drive system and size on the computer you're considering. That's 5¼ inch in most cases.

What About a Printer—If you plan to use the computer for writing term papers, a club newsletter, or your general correspondence, a printer is absolutely necessary. Writing programs also calls for a printer since it's easier to find mistakes and make corrections if you have a printed copy of your program to examine. But many home, educational and game programs don't require a printer for operation.

Should you decide your interests call for a printer, you'll have a wide selection to choose from. There are well over a hundred models available, at prices that begin at around $200 and go up to $5000. Three factors generally differentiate printers: speed, quality of print and the ability to print graphics as well as letters and numbers. Speed is usually figured in characters per second, or *CPS*. Slow printers are very slow, around 12 CPS, while more expensive models can put characters on paper at rates above 200 CPS. That's more than two lines of print every second.

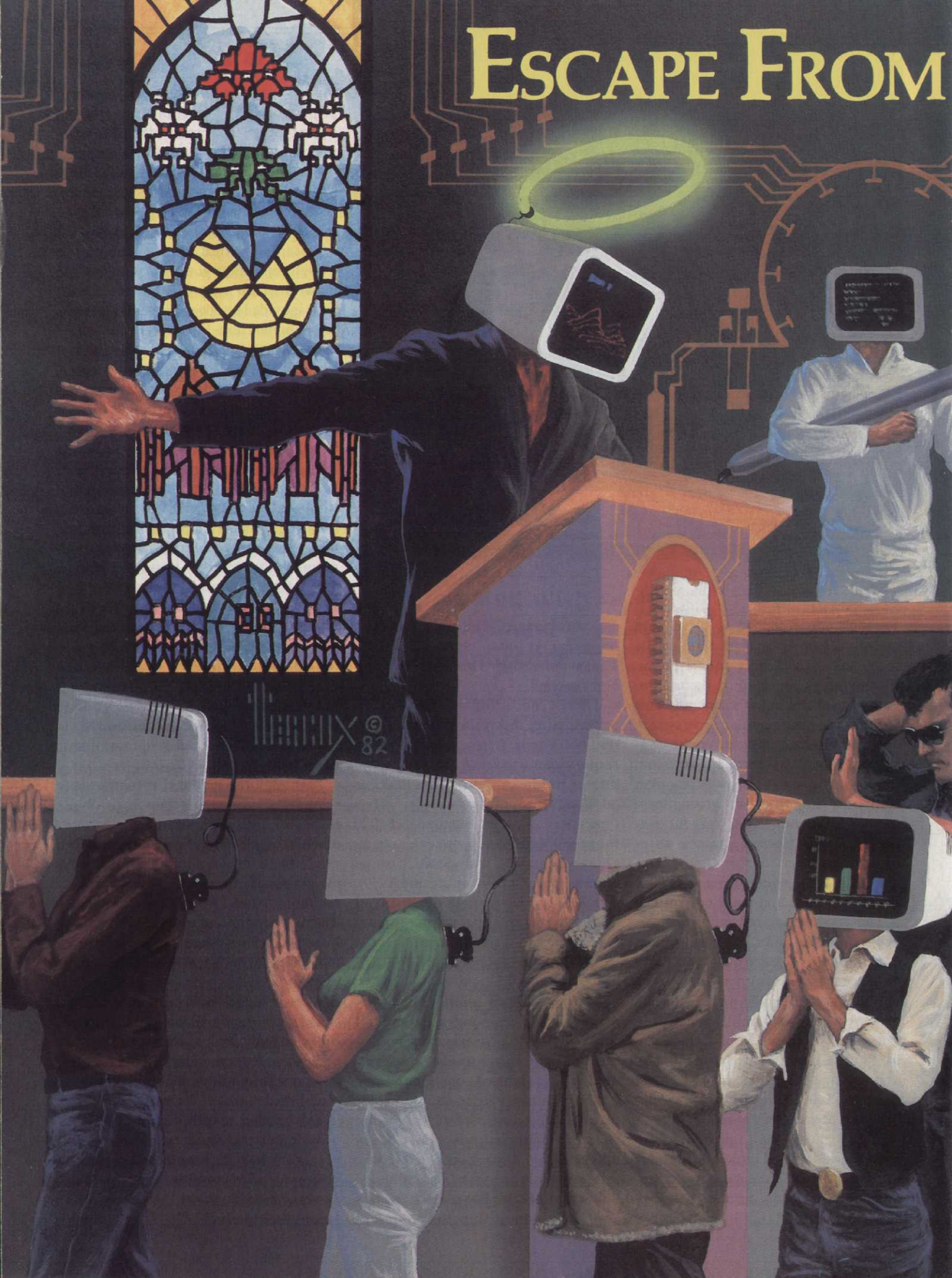
There's no standard measure of print quality, but two terms are currently in vogue: *letter quality* and *correspondence quality*. A "letter quality" printer produces output that looks as good as that of the typical office typewriter. Few in the under $1000 range can legitimately make this claim, although the TP-1 from Smith Corona can and does (it lists for around $850). The TP-1 gives you high quality at 13 CPS. Letter-quality printers from Qume, Diablo, and NEC are faster (25 to 35 CPS) but cost between $1700 and $3000.

Manufacturers often state their printers are correspondence quality if they're better than average but not letter quality. Increasingly, however, models are labeled correspondence quality whether they're above average or not. Most in this category create characters with patterns of dots. Many bills and lots of junk mail letters are printed using *dot-matrix* technology. Some of the better dot-matrix printers approach letter quality; the poorest of this group produces barely legible print, while being generally faster than other types. Some models can print on paper virtually anything your computer can display on your screen. This feature, however, is usually specific to a particular computer. A printer that prints Radio Shack graphics won't necessarily produce Apple graphics.

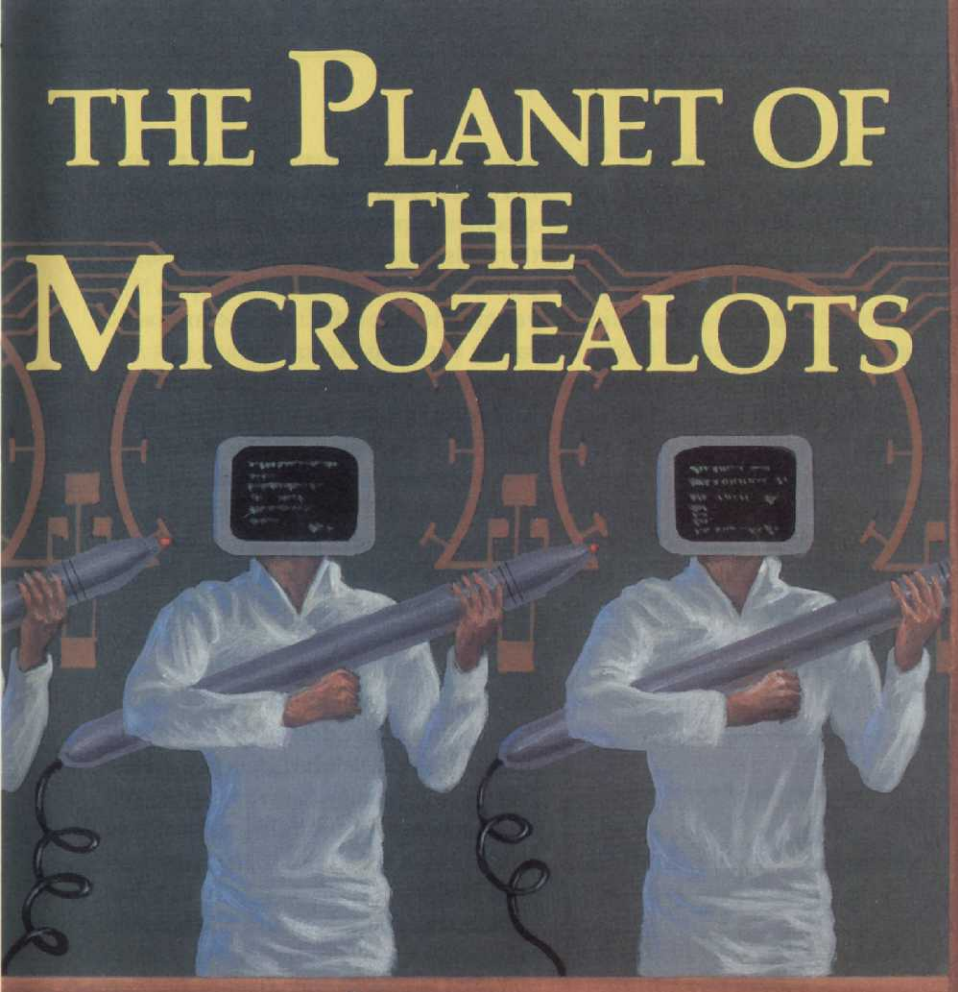
Determine how you'll use your printer and select a model that matches your intended applications. One strong recommendation, however, is that you avoid printers using special thermal or metallic paper. Whatever model you do select, it should use regular paper (either single sheets or continuous form paper that tears apart at the perforation). Special paper is often hard to find and usually more expensive.

Software: The Big Question—This final feature may well be the most important one. If a computer is popular, many programmers write programs for it, and you thus have hundreds, even thousands, to choose from Less popular models don't attract the interest of independent companies and you may be able to select from only a few programs. The APF Imagination Machine and the Exidy Sorcerer computers are examples of relatively good computers that never caught on. It's quite difficult to find programs for them today.

Although the Apple II computer is relatively outmoded technologically, there are several thousand programs available for it. That facet contributes mightily to its continued popularity even though there are several new computers that do more and cost less. The new models, however, haven't yet built up their software inventory. You may, in fact, be faced with the choice of an older model with lots of software or a newer model that has more sophisticated graphics and sound features but currently lacks software. If the programs for an older model meet your needs, consider sticking with an established model. If the improvements in new models seem worth the risk of waiting for programs to come, or if you plan to write programs yourself, you can safely consider one of the newer computers. In any case, Happy Computing! ●


ESCAPE FROM

THE PLANET OF THE MICROZEALOTS



The almost endless crusade for computer literacy

By Anton Braun Quist

Watch out—microzealots are loose in the land, promoting "computer literacy." If they catch you, you'll have to swear you're not afraid of computers, and that you really wish you knew more about how they work. You won't be able to bluff your way, because there's a test that needs to be passed. Only then will you be on your own, although always watched, while the next victims are sought to face their own test of fire.

Every sign of reluctance to embrace computers is interpreted by those who have been won over, as an expression of fear—at best—but in hard cases as a loutish and immoral lack of self-discipline. It's enough to make one run to an est seminar or try to do yet another remake of "Invasion of the Body Snatchers."

Statistics produced by an informal survey showed that when captives of the computer zealots were given a choice between becoming "computer

EHC

literate" and eating worms, some 80 percent chose to eat the worms.

The matter is somewhat complicated by the inability of the zealots to settle on a definition or test for "computer literacy." One school holds that mere tolerance of a small computer in action, in the same room with you, demonstrates a sufficient "loss of apprehension" that qualifies you for release. Another insists you be able to answer idiotic questions the machine puts to you such as "How much memory will you require?" in the course of programming. You must also demonstrate good humor when you inadvertently omit the space that belongs before the backward slash after the asterisk in the password, and the machine spits in your eye.

"...most captives of the microzealots successfully contrive their escape..."

As ever, these quarrels among the experts are resolved by practical action on the part of their victims. Most captives of the microzealots successfully contrive their escape, eventually.

On one thing, the 80 percent who prefer worms can agree:

COMPUTERS
ARE NOT LITERATE,
AND THEY SHOULD BE

Computers are supposed to be useful to people, aren't they? At least we are led to believe that this is the case. They should play games, answer questions, put things in order, make forecasts, tell you about the mistakes you made in your checkbook, type letters and make life easier in many little ways. . . . *all in plain English.* That's what every manufacturer claims these days for his whizbang applications package. "Use this in plain English!" "No more computerese!"

Well, admittedly, the computer shows you something like plain English on its little screen. You are presented with a "menu," a list of things you might want the machine to do, if you knew what they were.

1. "Text Editor"
2. "Matrix Inversion"
3. "Play Snout"
4. "Recipe Recap"
5. "SHOW EMPLISTB"
6. "Help"

"Please enter the selected number on the keyboard."

Oh?

The machine can display plain language, any that its programmer wanted you to see, but *you* are compelled to say what you mean with a tiny vocabulary of words, phrases, numbers and odd symbols under an extraordinarily rigid set of rules.

It's like trying to talk with a novice spy from Minsk, newly arrived in Grand Island, Nebraska, seeking information about neighborhood Minuteman silos. He's been trained to speak a handful of useful phrases in English . . . things that let him blend inconspicuously into the scene at the Amerikanski drive-in.

He smoothly uses his good lines:

"Can I having hamburger with fried french?"

"How many of automobiles are passing by daily?"

"Please, the room of gentlemen?"

"Where is tramcar to Lincoln?"

If you respond with a satisfactory answer to one of these utterances, he gives you another programmed phrase If you ask him a question that he's not specifically prepared for, he tries something else from his list of programmed phrases. If all fails, he clams up, while you ponder the difficulty of communicating with this curious stranger.

Even so, they train them far better in Minsk than they do at the computer factory. This fellow in the natty upholstery-fabric suit will at least try to make sense of what you say. If you observe that a bus is leaving for Lincoln within the hour, he has a pretty good chance of connecting your remark with his question about the tramcar and then asking how to get to the passenger kiosk. He *tries.*

The computers don't try.

If you say: "What do you mean by EMPLISTER or whatever that was?" the machine will probably show: "INVALID ENTRY" and just stare at you. It doesn't try.

If you say "Help what?"—it won't help.

You'd better figure out *exactly* what it wants to hear, and deliver the right stuff, buster, or you'll get INVALID ENTRY until Hell freezes over.

If the programmer hasn't anticipated your needs, habits, or manner of expression, you're out of luck. The machine is complacently inflexible. It's a narrow-minded, fat-headed bureaucrat of the type who inflames entire populations to revolt.

Of course, if you spend a couple of years studying Russian, you can chat handily with the chap in the Grand Island malt shop. If you spend a couple of years struggling with BASIC, or some other crabbed and clumsy computer code, you may be able to catch the computer off guard and persuade it to do something useful. You will be truly computer literate, but after beating your brains out, you'll still be doing exactly what the machine wants.

The little microcomputer is a general-purpose machine, capable of doing many wonderful things. However, it's about as flexible as a block of iron, which can also, with sufficient effort, be transformed into many wonderful things. You have to be as flexible as a snake and as crafty as a weasel to make the machine do anything *you* want.

You must also be as patient as the Sphinx, because it never wises up. No matter what, the computer will remain obdurately illiterate.

It's a shame because if the zealots concentrated on improving the character of the computer, perhaps progress would be hastened.

"But aren't we making dramatic progress already? Aren't we marching the kids off to computer camps, cranking everybody through BASIC courses in grammar school, training everybody to repel invaders from space?"

Well, yes and no. An educator commented at a meeting recently that his group was starting systematic research to find out why some children jump at the chance to learn programming, and others avoid it. Indeed, the 20 percent number was his. And while far larger percentages of children would rather fool with a computer than study arithmetic or history, only about 20 percent of those his group worked with really seemed interested in the computer for its own sake. These numbers may be arguable, but the suspicion arises that the zealots are missing something.

The unavoidable truth is that some people enjoy working through logical processes, and others don't. Even the ones who don't enjoy analytical procedures may discipline themselves to do it well, against their natural leanings, with the ability to put the computer to work, sufficiently rewarding to them. Others either can't, or won't, tolerate the process.

Apprehension aside, a significant portion of the citizenry finds computer procedures distasteful. The cost of using a computer is too high if you *have* to learn BASIC or pay for a canned package that forces you to express yourself only in babytalk. At the moment, all systems are concentrated at the analytical end of the spectrum. Those who enjoy BASIC and its siblings can have a ball, but what about the rest of us?

Perhaps intuitive people will never be able to deal directly with computers, and will always have to settle for giving babytalk responses to applications programs. This won't make the use of computers any less valid, but it's not the message the zealots are delivering. They simply ignore the view that people are not all alike. Instead, their plan is to force everybody to love computers the same way they do.

There's been talk about "natural-language programming," which seems to boil down to the application of scores of thousands of rules of grammar to every string of words that the user tries to feed the computer. The intent may be noble, but in practice it doesn't necessarily work. If you inadvertently use language that hasn't been rigorously codified, and isn't supported by a massive thesaurus, the computer is still baffled.

The fervent hope is that there could be some way to make the computer behave like the spy at the drive-in. Can't the machine study in its off hours, so that every day it comes to work with a little more knowledge in an attempt to help it understand what people want from it? Somehow, the computer must learn to read for meaning, not just mechanically converting the text to some other form.

If the computer could try just a little, we might have something.

... and surely games provide the way in. The rapid give and take of games permits elaborate experimentation with nonfatal consequences in the event of failure. Nobody wants to bet his business on the judgment of an experimental computer, but nobody minds accidental devastation of an occasional imaginary planet.

Some computer wizard out there should be encouraged to develop a class of games in which the player and the computer work together as partners who support and respect each other. Each provides what the other lacks, if both could only understand the mutual needs. This would place a premium on the ability of the computer to figure out what *is* needed.

The games might all be based on the theme "Escape From the Planet of the Microzealots." In the story, one microzealot would discover that the captives in his charge are not merely lazy dumbbells, but in fact have some redeeming intelligence. At great personal risk, this good microzealot would divert some of his energy to improving the character of the computer, instead of improving the character of the captive.

The captive, given the power of this wonderful new approach to using computers, would not only escape from the prison planet, but would also take the good microzealot along. On some other, better world, both the former captive and the microzealot would become rich and famous, spreading their wonderful new powers among the grateful populace.

Better still, they would return to the Planet of the Microzealots, conquer it, free the people from bondage, give them the new technology and show them how to live in tolerance and peace within a diverse society, using computers that will respond either to clear instructions or ambiguous instructions, giving every user his due.

An improbable premise, perhaps, but attractive to the desperate, disorderly half of our population hiding out from the microzealots and wishing desperately for literate computers.

Ooops. Here they come. *Run!* ●

"...their plan is to force everybody to love computers the same way they do..."

SERVICE STATIONS

Tapping into the world of tele-communications

By Merl Miller

Using a computer for communications is probably its least understood application today; yet that use may introduce more people to computers than any other. Its impact on our way of life may even equal that of television or the telephone. In the future, it might even surpass these mediums.

We're entering an era of communication that will change not only the way we get and use information, but perhaps the ways we communicate with each other as well. This new era, in fact, has already arrived for many, via the use of computers to check on airline reservations, pay bills, look at movie reviews, get detailed weather forecasts, and display information and ads from local or out-of-town newspapers. In the near future, you'll be able to go shopping by sitting down at your computer and selecting whatever items you want to purchase. (To a limited extent you can currently do this.) You'll be able to compare different stores' prices without spending time and money driving to each one.

There are really five different ways you can turn the world on with your computer: managing information, sending electronic mail, obtaining consumer services, getting new programs and gaining access to large-scale computing.

INFORMATION MANAGEMENT

With a computer, you can tap into all types of *electronic information banks* where data is sorted and stored. A doctor can check for information on a new disease, a stockbroker can check the markets and a shopper can locate a store that sells a particular item or brand.

ELECTRONIC MAIL AND ELECTRONIC PUBLISHING

When you're hooked up to a communications network, you can send messages to other members of the network. Each time you connect to the service, there'll be a notice indicating whether you have any messages. In addition, there are a myriad of electronic bulletin boards or newsletters which contain special types of information. Network members, for example, who own a particular brand of computer may be able to read notes giving advice that's pertinent to just their computer.

CONSUMER SERVICES

Shopping and paying bills by computer are two examples of consumer applications. The range of services available in most areas is still rather limited, but future users are likely to have their choice of many competing systems and services.

As an example, a system jointly developed by Atari, CompuServe and a cable television system called Qube will let you access information about the stock markets, read up-to-date movie reviews, shop and do many other things. All the instructions on using the service are provided by the cable network. This revolutionary service, or something similar, will be more readily available in a few years.

DOWNLOADING PROGRAMS

Some services offer computer programs to their users. If you'd like to buy one of these programs, the service will transmit *(download)* the program to your computer and bill you for its cost at the end of the month. Once it's safely in your computer's memory, you can copy the program onto a cassette tape or disk.

COMPUTING

It may seem redundant to say a computer can be used for computing, but this is a little different. One advantage of small computers is that they can be used by themselves (e.g., as *stand-alone* systems) or as terminals on a gigantic $5 million computer. You may not be able to afford such a machine, but having a small computer in your home or office allows you to connect to a large, *mainframe* computer and use its computing power for a nominal charge.

MAJOR NETWORKS

Currently there are two established, national, general-purpose communications networks: The Source and CompuServe. Both can be used by anyone with a small computer, a credit card (so they can bill you monthly) and a telephone. The only special equipment you need is a device called a *modem,* which allows you to connect your computer to the telephone line and transmit, as well as receive, information over the phone. In most major cities, you can reach these two networks by placing a local call. (If you live in a smaller city or in a rural area there might be an additional charge for each minute of *connect time.*)

THE SOURCE

The Source originates as a service of Source Telecomputing Corporation (1616 Anderson Road, McLean, Virginia 22102, 703-821-6660), a subsidiary of Reader's Digest.

If you want to sign up with The Source, you can do so through the mail or at many computer stores. Similar to cable television, there's an initial hookup charge, of $100. After that, The Source charges $5.75 per off-peak hour (6 P.M.–7 A.M. weekdays, all day

The Atari 400 telecommunications link up.

weekends and holidays) and $18 per hour during prime time (7 A.M.–6 P.M. weekdays). You'll pay a minimum monthly charge of $10 even if you don't use the system. Calling The Source is a local call in over 300 cities. Few people will want every service The Source offers, but it's nice to know they're there. Some of the most interesting services are described below:

Consumer Services—With The Source, you can check airline schedules worldwide and make hotel, car-rental and airline reservations. There's a classified-ad bulletin board where you can check for bargains across the country (or sell a bargain yourself). In addition, there's a discount buying service: you select the brand-name products from the service, place your order and pay with your credit card. The Source even has a real-estate service that helps you buy or sell a house.

Computing Services—The Source allows you to write and run programs of your own or run *canned* programs available on the system. These programs include games; business software, such as accounts payable; and software for special applications, such as statistical analysis of large amounts of data. You can't buy these programs or run them at all without being connected to The Source. In essence you're *renting* them from The Source each time you want to use them.

Data Bases—A data base is an organized collection of information on a particular subject. You have access to a large number of data bases on The Source, such as the news articles of United Press International. For instance, you can have all UPI's news reports scroll by on your screen as you scan them. Or you can search the UPI data base for just those stories you want to read. If you'd like to find out about the latest crisis, you can do so simply, and all the recent stories filed with UPI about that situation will be displayed. It's easy to get in-depth reports on any subject you're interested in. at any hour you want it. The UPI data base is only one of many The Source offers. Learning to use them effectively may take some effort, but it will quickly prove worthwhile.

Electronic Mail—To send a message to another Source subscriber, you enter and flag it for that person and then store it in the memory of The Source's computers. The next time that subscriber signs on, The Source will indicate that a message is waiting. It's even possible to call a toll-free number and dictate a letter over the phone, which is put in the electronic-mail file.

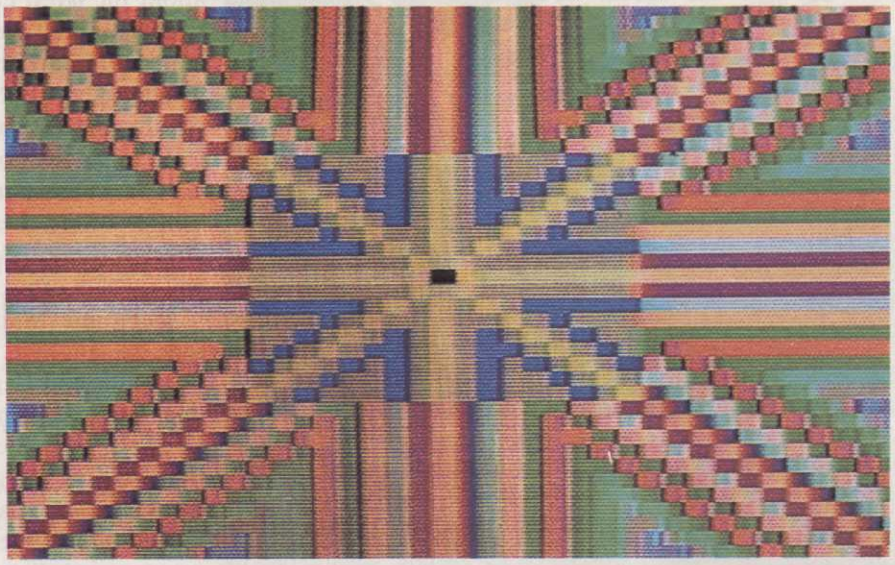
COMPUSERVE

The Source's major competitor is CompuServe Information Service, originally known as MicroNET. The two share many similarities but do have some differences. CompuServe isn't available during normal working hours because the company that runs it uses its computers to service commercial customers during that time. The connect call is local in 260 cities.

CompuServe offers services similar to those of The Source. Instead of UPI, CompuServe uses the Associated Press news wire (as well as the New York Times service). CompuServe also offers information on topics as diverse as home repair, personal health and recipes. Like The Source, it has book and movie reviews available, as well as a sports-information service. There's even a file of *computer art* that can be copied on your printer.

Again like The Source, CompuServe has a number of financial data bases that you can use to investigate and track the stock and commodities markets. The CompuServe package can be conveniently purchased at many Radio Shack stores or from CompuServe (5000 Arlington Centre Boulevard, Columbus, Ohio 43220, 614-457-8600). ●

The KALEIDO program generates an endless variety of shapes and patterns.



SOFTWARE SIGHTS

A brief overview of computer programs

By Jerry Willis and Merl Miller

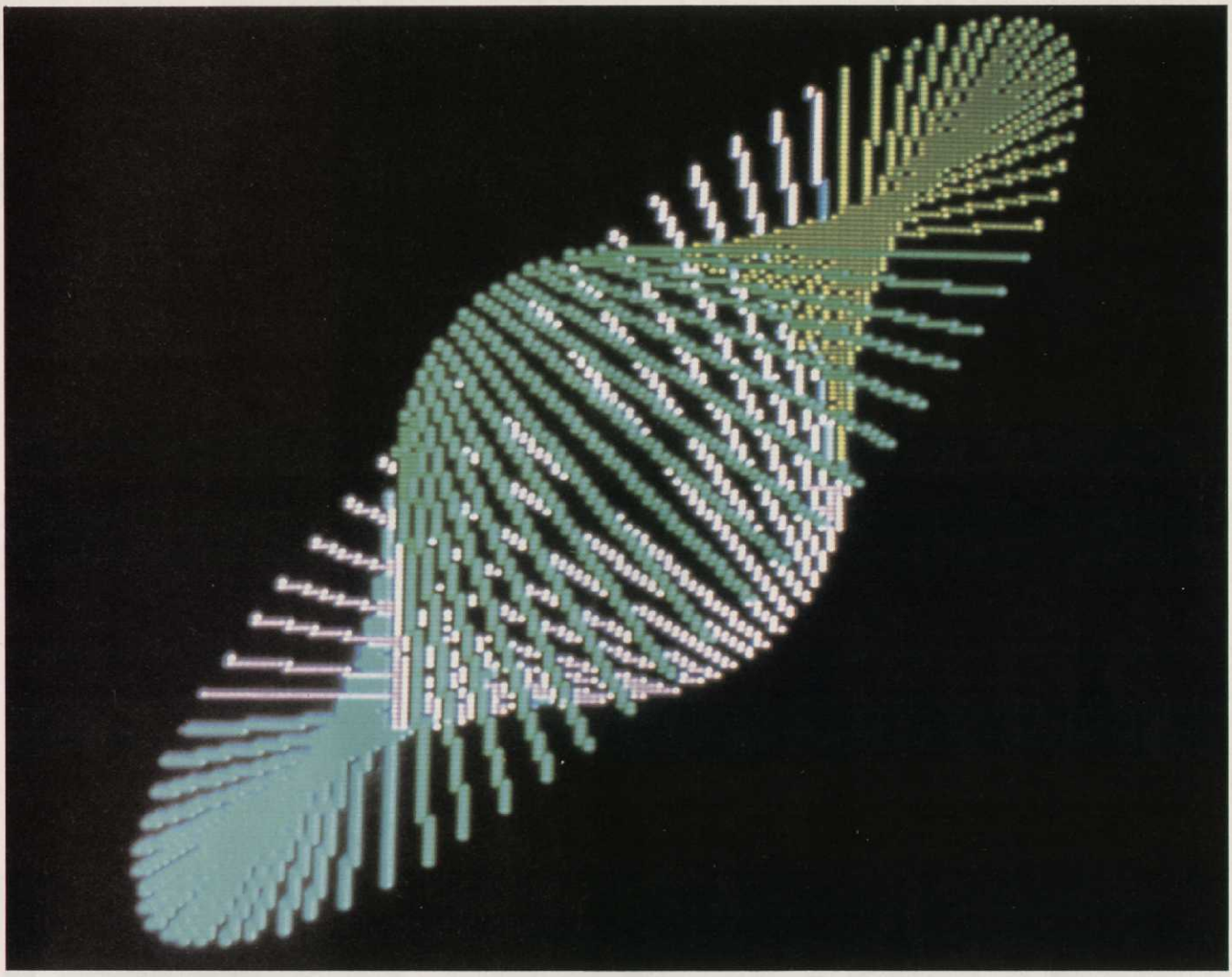
For the beginner, computers often appear just short of magical. Even with their covers off, computers give few hints of how they operate. There are no gears turning, no dials revealing tell-tale signs of activity and, if computer machinery seems mysterious, the software is equally enigmatic. Currently, there are thousands of programs available, on a variety of subjects, but all you have to do is pop a cartridge into your computer to be off and running.

Before looking at specific categories and titles of computer programs, it's important to understand the basic functions a system can perform, no matter what your needs might be. Admittedly, the main attraction today seems to be for entertainment, whether it's composing music, drawing color pictures, or playing games. This latter group has gained the most attention and popularity, while, not so surprisingly, affording the greatest number of choices in terms of programs.

You will typically need to hook up joysticks or game paddles, rather than using the computer's keyboard. However, once this is done, you will find an array that includes action-oriented games which borrow heavily from the themes found in arcade video machines, plus strategy games, where the focus is on thinking skills and the ability to logically solve problems. Examples of the latter are *Deadline* (Infocom), where players are detectives investigating a murder which must be solved within twelve hours, and *Eastern Front* (Atari) where players are in command of an army during World War II. Other recreational game programs include simulations of competitive team sports such as football, baseball and basketball, as well as those classic board games—chess and checkers, which also have found a new home in the computer age.

Personal development programs are another broad grouping where you might be able to learn a foreign language, or how to type, as well as a range of other educational subjects including mathematics, and science. Although many of these programs are geared to children, there is ample opportunity for adults to broaden their knowledge and skills as well.

Personal finance and record keeping programs can both aid and teach users how to budget expenses, balance checkbooks, better understand investment options and evaluate potential returns as well as organize tax records. One program, *Stock Charting* (Atari), can help you keep track of a given stock's performance for a period of days, weeks, months, or even years, retailing the stocks price variations, the numbers of shares traded, high/low prices, etc.



An example of the Apple computer's excellent graphics

GETTING SPECIFIC

Within each category of programs there are numerous options to choose from, although one consideration will have to be the computer you now own, or are contemplating buying in the future. The reason behind this is that not every title is available for every computer type. Some will have many more compatible programs than others. You will have to decide what your needs and wants are and whether a given computer model suits them.

The following is a brief listing of programs available within each category:

PERSONAL

Lunar Lander (Interactive Microwave) puts you in orbit over the moon. Your mission is to try to land, which takes skill as well as practice.

Sargon: A Computer Chess Program (Hayden) lets you play either black or white. You can play against the computer or set up chess problems and watch them get solved. Whatever your decision, the computer will display a chess board on the monitor and, show movement of the pieces as play proceeds.

Three Mile Island (Muse Software) is a realistic simulation of a pressurized nuclear reactor. Hopefully, you can be more successful than the program's namesake by learning how to operate a reactor and study safety factors.

Kaleido (Dilithium Software) is a program which creates a series of kaleidoscope-like designs with each one overlapping the next.

Market (Creative Computing Software) is a two-player game where you and an opponent are both manufacturers of racing bicycles. The program sets up all production and variable costs, then assigns initial values for inventory, cash on hand and total assets. The task is to make the right marketing decisions, with the program telling you how you've done at the end of each quarter.

Microcomputer Flight Simulator (Dynacomp) isn't really a game, but rather a realistic simulation that lets you take off, fly, navigate, and land an airplane.

EDUCATIONAL

Micro-Deutsch (Krell Software) gives you the chance to learn German. The 24 grammar lessons use substitution transformation drills, item ordering, translations and verb drills.

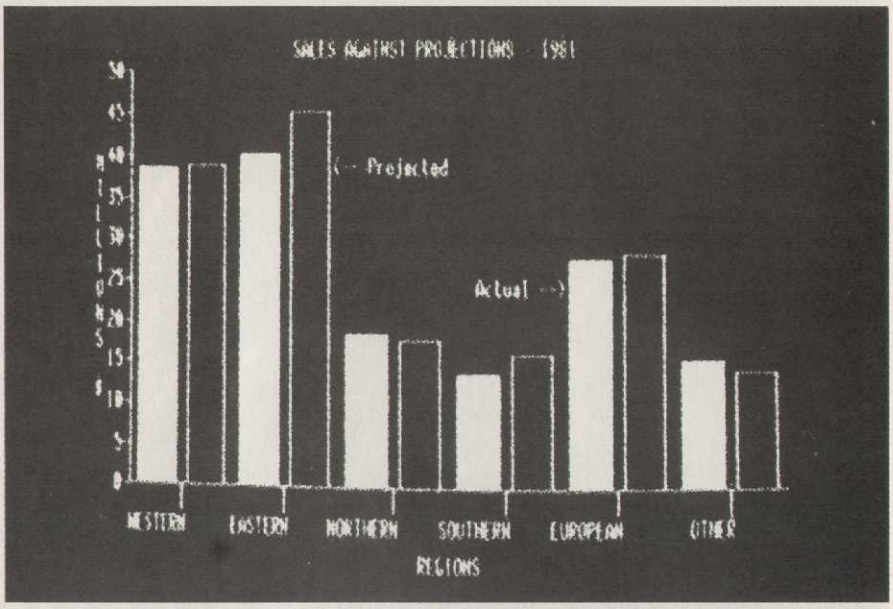
SpeedRead (Optimized Systems Software) is a speed reading tutor which will train your eyes and mind to function together by recognizing phrases and columns as well as exercising your peripheral vision.

Calorie Counter (Ohio Scientific)

considers your height, weight, sex and age, and then estimates your metabolism. Next, by evaluating your activity levels, the computer estimates your average caloric requirement.

Early Learning Fun (Texas Instruments) uses color graphics and sound on a TI computer to teach preschool children shape, number, and letter recognition as well as counting, sorting, and the alphabet.

Map Reading (Micro Power and Light Company) is another child-oriented learning program that is also useful for adults. It teaches basic map reading skills using the color graphics features of the Apple II computer.



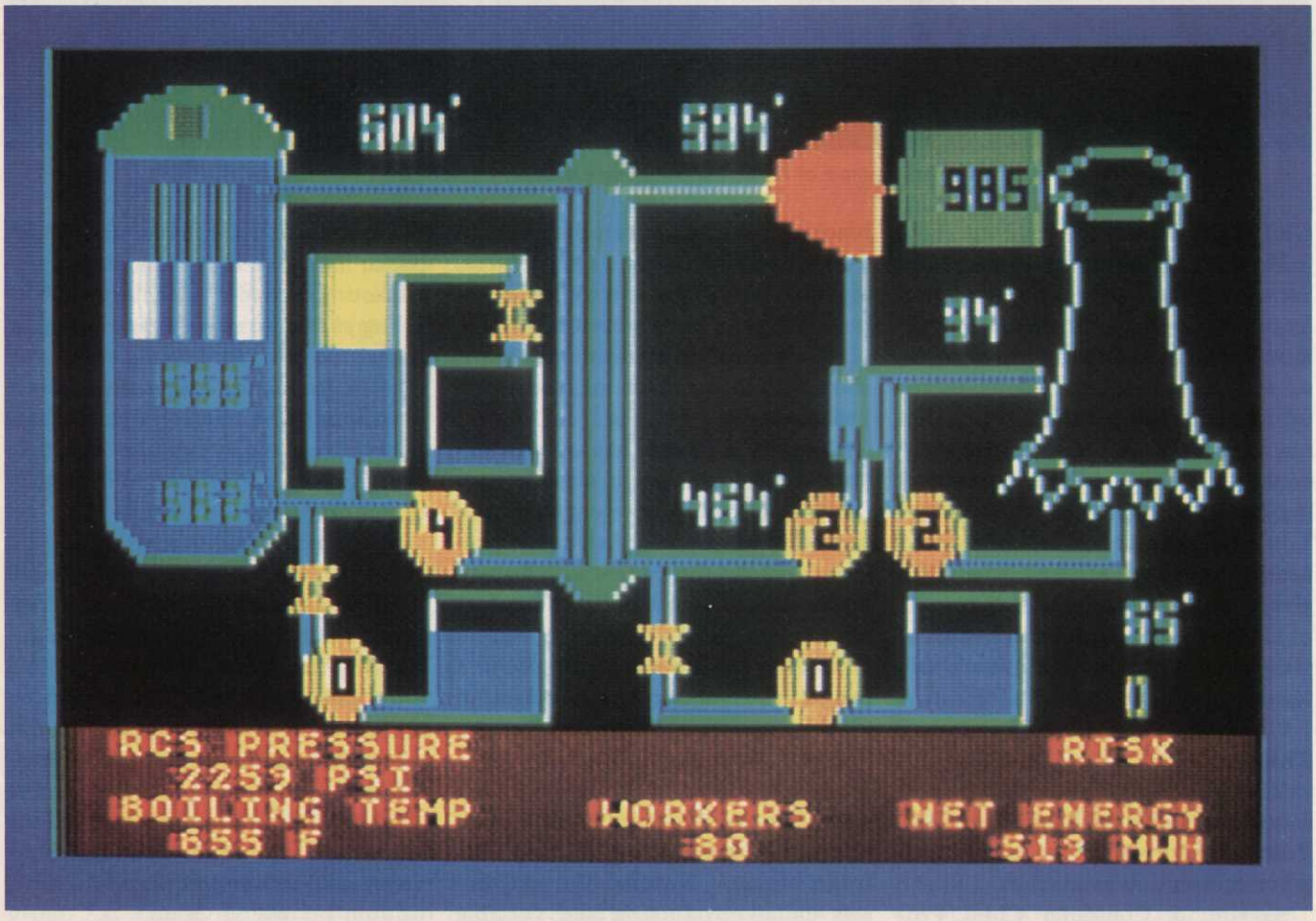
The Visicalc program for the Apple II projects vivid graphs for financial analysis

BUSINESS AND FINANCE

VisiCalc (VisiCorp) is an extremely popular program that lets you create an electronic spread sheet, which allows for financial analysis, sales projections, expense accounts and portfolio management.

Dow Jones Series Portfolio Evaluator (Apple) allows you to store, modify, and update approximately 100 individual portfolios of up to 50 stocks. It also includes a terminal program that lets you access the Dow Jones News/Retrieval System.

Real Estate Package (Dilithium Software) gives you an opportunity to determine if you can make money by investing in real estate. The package consists of six programs: Landarea, Payment, Sellwhen, Taxgains, Cashflow, and Whichdeal. ●



SCRAM is a nuclear power plant simulation.

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By Norman J. Wazaney Jr.

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Illustration by Paul Chadwick

Playing Games with Cable

By David Smith

Whenever I read that a new wave of technology is about to sweep us away, I think back reflexively to the primitive 10-inch RCA television set my grandparents brought to their Bronx apartment in the late 1940s. Radio reigned supreme then, and television was just a curious gadget that had been trotted out at the 1939 World's Fair. So, like a mechanical E.T., this tiny box caused quite a stir in the neighborhood. On a typical Tuesday evening, a dozen neighbors would pile into the living room to watch a luny Milton Berle mug, dance, and wisecrack his way across the TV screen. Sometimes the damn set would go on the blink, and they'd have to shake it to get the picture right. But when Uncle Miltie unloaded a punchline and turned them into a collective jelly of laughter, they knew they had a good thing. Real live vaudeville at home. That you could see!

Back then, the TV-set carried a narrow range of programming for only a few hours a night. But once ensconced in the living room, the little

mechanical creature developed a voracious appetite for more turf and soon began enrapturing entire families for all hours of the day and night. In the next few decades, it would become the hub of the domestic universe.

So here we are some 35 years later, and that little innocent creature has finally taken over. People are hooking up stereos to it, making phone calls on it, computing on it, showing electronic photo albums on it, video taping on it. And we're told by the prophets of technology that we'll soon shop, bank and read our newspapers on it, and use it to communicate with other homes and other people. It's called interactive television. All of these things are already possible—indeed, already happening, just not on a large scale. Perhaps it will never get off the ground, but if it does it will revolutionize the American home.

But amid the thicket of the different technologies and services competing in this area is a serious marketing problem: how to prepare the consumer for the interactive age. Establishing such a presence in the home is a sensitive matter. This is where video games enter the picture. Several entrepreneurs and corporate executives perceive them as a tool that will chip away at the barriers.

The Games Network's co-founders Thom Keith and Larry Dunlap see video games as their meal-ticket. "We're laying the groundwork for the interactive age," says Keith.

This has been at least part of the thinking behind the effort to wed video games and cable television, and produce an embryonic form of two-way television. Two ventures, PlayCable and The Games Network, are already in operation. Using local cable TV systems to bring video games into the home, these systems require no cartridges, offer a revolving list of 20 games for a monthly fee and utilize a microprocessor that hooks up to the TV. PlayCable, a joint venture between Mattel and General Instrument Corp., offers Intellivision games and an adapter that hooks into the Intellivision hardware (which the subscriber must buy); the Games Network package includes an assortment of programs it has licensed from the major software houses, plus a 64K Wizard I component. You call up games on these systems just as you would retrieve a file from a computer directory. They both, more or less, operate on the same economic hope: that each will save you the $30 you normally pay for one cartridge by satisfying your video game appetite. Once over that barrier, the road will have been paved for the interactive age.

Right now it's tough to find a Wall Street analyst willing to predict the future of these ventures. PlayCable has been in operation for only two years, and The Games Network is just starting a test run on the West Coast. "A million things can happen between now and then," says one analyst about PlayCable's goal for a million subscribers by 1985. "The concept is in its infancy. But it has exciting and far-reaching implications."

While most analysts concede the technology has potential, some have their doubts, particularly over cable systems' struggle to establish themselves and pay off the huge costs of development. "I tend to see cable as being involved with slightly different material than games," says Barbara Isgur, an analyst at Paine Webber. "Cable is still searching for the best mix of entertainment to offer. I'm not sure that games fit in as the most likely to succeed."

But the marriage is at least interesting to look at—if only because it will help test the diversity of cable programming and give us a hint at how home video games will be played in the next decade or so. Conceivably, as more cable systems become wired for interactivity you will be able to play a game simultaneously with someone in another part of the country. Meanwhile, this concept could give ailing cable operators a boost. In a nationwide study, Cable Marketing Systems of Columbus, Ohio, found that at least one-third of cable subscribers would like video games offered on their cable systems. And, in a survey of non-subscribers, it concluded that the introduction of a games channel would increase cable operators' subscriber lists by nine percent.

To Myron Leff, a Cable Marketing vice-president, video games are an excellent way to lure computer technology into the American home. "It's a nice way in," he says. "It gets people accustomed to working with a keyboard and joystick. And once you're

in, you don't have to enter the home again. It's just a matter of adding to what's already there.

"It's not the only way to do it," Leff adds. "It's just one of the better ways."

That, of course, is the hope of The Games Network (TGN) of Los Angeles, one of Cable Marketing's clients. A joint venture between International Cable Casting Companies Inc. (ICCI) and Westwood Corp., a Salt Lake City investment banking firm, TGN is presently being tested in about 95 homes on the Group W system in Fullerton, Calif. Larry Dunlap, who founded ICCI with long-time cable TV mainstay Thom Keith, says the network has already lined up agreements with about 40 cable operators around the country. TGN's goal is to capture five to 10 percent of the nation's cable subscribers.

In the meantime, TGN executives say they may be in a position to add financial muscle. They say they've already met with representatives of Time Inc., Warner Communications, and several movie studios. "Eventually, boasts Dunlap, "we will be positioned to install a brain in the home,"—a central computer that not only links up with two-way cable but interfaces with devices in the home" Dunlap calls this "the automated home."

But this is heady talk for an operation just getting off the ground. TGN first has to prove to wary cable operators, who are reluctant to surrender one of their few channels, that its product can really attract subscribers—the bottom line in the cable TV business. The venture's success will depend largely on the popularity of its game library. For $14 a month and a $50 fee for installing the Wizard I computer and button controller, a subscriber will receive 20 games, including Sentient's Congo and Gold Rush, Datamost's Swashbuckler, On-line's Cribbage, ISDI's Juggler and Broderbund's Apple Panic and Labyrinth. TGN is also looking into games that take months to play and at others that have a realistic, cinematic effect, like Aztec, in which an Indiana Jones-type character descends into a dungeon to retrieve a priceless idol. About 25 percent of the selection will be educational.

Jim Summers, director of programming acquisitions, reports that TGN has already signed license agreements with at least 80 percent of the major software companies. "It's like we're the first radio station and all the companies are sending us records," Summer says. "We get to pick the cream of the crop."

Keith is especially interested in creating a "true family experience," not in recreating an arcade in the home. He says it is more important for the games and microprocessor to be compatible with the home environment, and perhaps have a softer edge. "We want to be careful to measure the impact on the family," Keith comments. "Some of the games we intend to offer are learning tools in economics, math, physics and language. It will be an enjoyable kind of learning experience. We want to give audiences more control over entertainment."

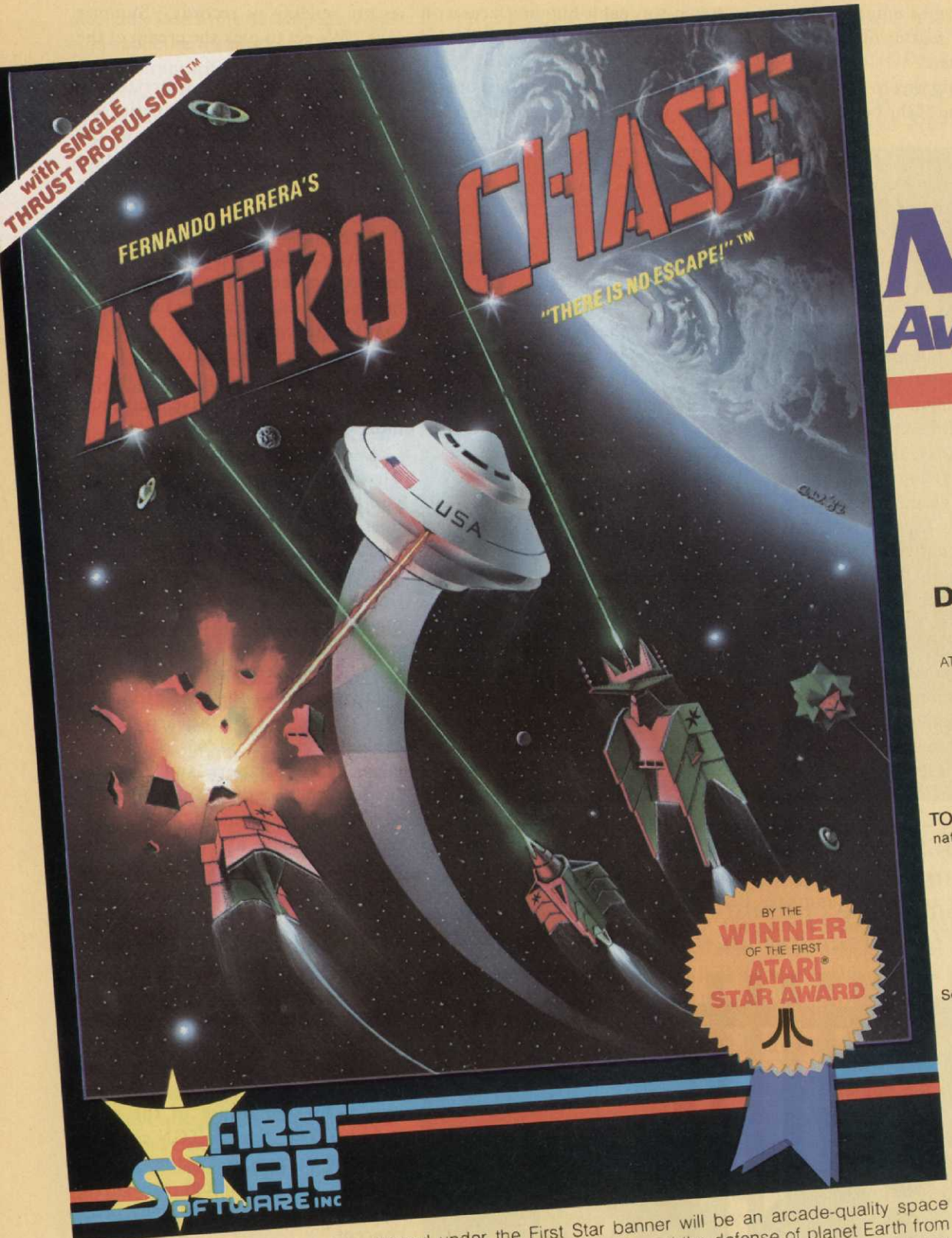
Also in the works is something called The Fantasy Channel, which will allow you to choose from a variety of plot lines in a movie or a play. A one-hour murder mystery with 10 characters would consist of 10 hours of production for each character from a variety of perspectives. It's up to you to decide what happens next. Keith concedes this is a year or two away.

Dunlap and Keith, the two founders of ICCI, met back in the early days of cable TV in the mid-'60s. Dunlap, a game enthusiast born and raised in Indiana ("Where there's not much else to do but play games."), owned a recording studio at the time. Keith, perhaps the first person to produce programming specifically for cable (Some people at TGN have billed him as "The Father of Cable." But as one cable operator notes, "Cable is a child that has a hundred fathers."), was operating two southern California cable stations. He later became a special consultant to Congressmen and Senators who were drafting legislation critical for the future of the cable industry. The idea for TGN came up just over a year ago. "Actually," says Dunlap, "the technology existed for some time. The thing that's new is the concept."

"We're laying the groundwork for the interactive age," adds Keith. "Any interactive communication can be accomplished through our technology."

The memory-packed Wizard I is their pride and joy. It's connected to two head-end mini-computers in TGN's Los Angeles headquarters and is fully equipped for two-way communication on compatible cable sys-

Despite slow-moving sales and equipment problems, PlayCable's Jim Wiesenberg and Gary Smith are optimistic. Mattel's rebate offer for Intellivision is the reason why.



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TGN is offering the 64K Wizard I microprocessor (left) and an assortment of licensed computer games for $14 a month, plus a $50 installation charge. For $12 a month, PlayCable gives you 20 Intellivision games, but no Intellivision.

tems. Capable of high resolution (280 x 192) graphics and complex sound effects, the Wizard comes with a control box that consists of 10 touch-sensitive keys, two sets of four-way directional buttons, and a fire button. Joysticks don't come with the package, but can be added as can other accessories. "It's an expandable device," says Dunlap. "It's up to the subscriber what to add on . . . keyboards, disc drives, printers. You can build an entire home computer environment around it.

"What we will see," he continues, "is a central brain interfacing with mechanical devices that will take some of the drudgery out of people's homes. A computer is a freeing device and an environmental manipulator, not an environment manipulating you."

He likes to give Betty Crocker as an example. There's a software program for a Betty Crocker cookbook, and it prints out a shopping list of things to buy for a particular recipe and tells you what will complement a main course. It lets you know how much to buy if, for example, eight people are coming for dinner.

Computerized cooking in the home? "I'm not saying cooking should be done by robots," says Dunlap. "But it's nice for American housewives to have a choice. If the brain can sit there and print out the shopping list, then accomplishing it (the cooking itself) is only one step away."

I am sitting on a stool in the basement of a two-and-a-half story brick house on a tree-lined street in Bloomfield, New Jersey. In the distance, you can hear the loudspeaker blaring from a band competition in the high school stadium a few blocks away. The wood-panelled basement is warm and cozy. In front of me, beneath a long, mock-mural Schlitz light is a TV set. Connected to the set is an Intellivision master component, accompanied by a grey General Instrument adapter for PlayCable. Beside me is Paul Spychala and his friend Debbie Lynch. We're watching Paul play a fierce game of Space Hawk.

"It relaxes me to come home at night and play this for awhile," says Paul, as he shoots down some menacing figures.

"Yeah," Debbie laughs. "You have to watch out. He'll get into a game and never stop, and it will be hard to drag him away."

Paul, 25, is a good person to talk to about new video technology. As the assistant sports director at Suburban Cablevision, the local cable system, he is at a key spot in the cable revolution sweeping America. He does almost everything: play-by-play, graphics, sound, mediates debates between local politicians, serves as the moderator on Challenge, a local brain competition between high school students modeled after the old College Bowl. He says he plays PlayCable for four half-hour sessions a week.

"It's good," he says. "You can try out games like Football, and if you like it you can buy the cartridge. It's better than spending money for one and finding out you don't like it. When you buy cartridges you find that some of the games you thought were great are not so great."

At a cable TV convention in June, 1981, PlayCable proudly trumpeted the promotion: "Today, PlayCable introduces your subscribers to the exciting world of interactive cable with the fun of their favorite games. But the games are only the beginning." Unfortunately, for PlayCable, the beginning has been rougher than expected. Launched just after Mattel came on the TV-game scene with Intellivision in 1980, PlayCable has been plagued by equipment problems and slow-moving sales—primarily due to the $200 or so price tag on the Intellivision unit that is needed to operate the system. Two years after it began, PlayCable is on only 15 cable systems. Recently, the company decided to put on hold plans for expanding into other markets; instead, it will concentrate solely on boosting penetration where it already is.

Some analysts and cable operators think PlayCable, as well as TGN, has misjudged the nature of the video game player. At $12 a month, the selection of 20 games equals purchasing about five cartridges a year. But what about the games that are taken off the service to make room for others? It has also been said that the menu of Intellivision games alone is just too limited.

"I'm not a fan of PlayCable," says Gordon Crawford, an analyst with Capital Research in Los Angeles. "I think it's an attractive idea, and the cost factor makes a great deal of sense. But I don't think that the proper configuration of a system has been worked out yet. The ultimate solution is years ahead." He has two specific problems with PlayCable: the microprocessor capacity is limited compared to a home computer, and "the public has already

(*Continued on page 89*)

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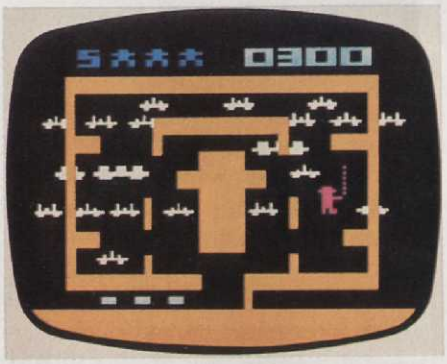
SOFT SPOT

15 Reviews: Old Wine in New Bottles

By Perry Greenberg

Imitation is said to be the most sincere form of flattery. Suffice it to say some games are being flattered to death. Hence, the 15 TV-game cartridges reviewed herein fit into neat categories: three each mimic Galaxian, Berzerk and Donkey Kong (one somehow combines the latter two concepts); two follow Pac-Man's lead; and one is fashioned after Missile Command. Two others are fire-related, what may be the newest video game category. Let's start with them.



U.S. Games' Towering Inferno proves you can't judge a game by its graphics.

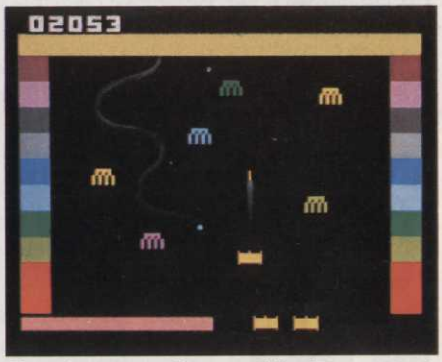
Imagic's **Firefighter** lives up to that company's reputation for peerless graphics. The visuals in this game of a burning building with a frantic, trapped tenant, and a firefighter holding a hose, scurrying along the ground near a parked engine are quite effective. The object is to save the tenant by dousing the flames and manipulating the engine's ladder so that you can climb up to the appropriate floor. If your firefighter gets there in time, the trapped man disappears, indicating he has been rescued.

The problem with Firefighter is it's too easy. The firefighter can always be positioned one floor above the flames. Do this by positioning the ladder at one of the higher floors, racing your firefighter up the ladder, and then have him wait there for the flames to drive the man to him. In fact, fighting the blaze actually wastes time, and time is what you're really competing against.

U.S. Games' **Towering Inferno,** on the other hand, may have cruder graphics, but has better gameplay. Basically, you want to move your firefighter from the bottom of a maze that represents the blazing floor of a skyscraper to the top where a white box is located. This box holds the trapped survivors. Equipped with a hose to battle the flames, your firefighter has to race the clock to rescue the survivors. The more time you take, the more likely it is that a survivor will perish. After you successfully reach the survivors you still must make your way back down the maze, battling flames all the way. Towering Inferno may not look as good as Firefighter, but it is a far superior game. It just goes to show you: You can't judge a game by its graphics.

Galaxian games

Threshold is one of several computer games Tigervision has licensed from On-Line. It's a wise acquisition. In Threshold, you're not stuck on the bottom of the screen, able to maneuver only from side to side; you can move your ship all over the bottom half of the screen, just as you can in Centipede. However, the game doesn't look like much: the graphics are austere, and the shapes of the aliens are primitive. To spice things up a bit, the playfield is bordered on two sides by rainbow-like bars of constantly changing colors. Still, the key thing here is that the game plays well. If your library is missing a solid Galaxian-type game, Threshold may well be the one to choose.



Freedom is another word for Tigervision's Threshold.

On the other hand, I wouldn't recommend **Commando Raid** by U.S. Games. The whole game consists of using a rotating gun to shoot down paratroopers as they drop from the sky. If you miss, they reach the buildings surrounding your gun site and start eating away at the structure. Burrows and tunnels move closer and closer to the gun. Then they contact it, it explodes and—Bingo!—you're dead. Not much to it. But I will give this much credit to Commando Raid: It is colorful, and the representations of men and planes are as good as any I've seen (except for the coin-op Red Alert) on the video screen.

Timelord, an Odyssey² cartridge, is a Galaxian game with a diabolical flavor: Before each round, a red skull appears menacingly on the screen. This is the demonic visage of Timelord, who moves the lower part of his jaw and alternately admonishes, threatens and dares you. "Defend your planet," he will say. Or: "Your planet is doomed, good-bye Earthman." Or still more: "Attack and destroy." All of this is made possible by the Odyssey Voice Module.

The attack begins when a string of saucer-shaped objects appear, zig-zag-

ging in formation all over the screen. Unlike the challenge in other Galaxian games, your shooter is not threatened by collisions with the saucers. All you have to worry about is bombs, and there are plenty of them. The anti-matter mines and annihilator bombs can smell out where you're headed. And then, there is the deadly nucleonic time killers, insidious weapons that anticipate human reaction.

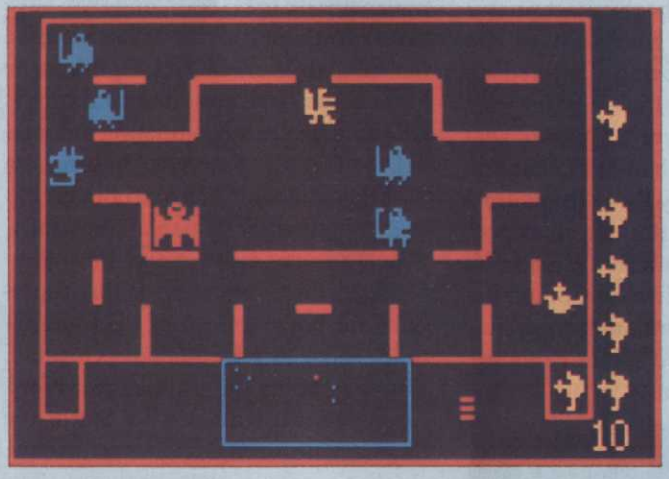
This all sounds good, but it's really not that much fun. As for the graphics, they are flat, stilted and dull. Only the talking gimmick saves Timelord from being tossed onto my scrap pile.

Pac-Man games

A better Odyssey² voice game is **K.C.'s Crazy Chase,** which is obviously a relative of K.C. Munchkin. Remember him? Well, if you've forgotten, K.C. is that cute little gobbler with a disarming smile and a voracious appetite who got zapped by Atari's lawyers last year. He's returned with a vengeance in Crazy Chase. K.C. keeps busy devouring parts of a caterpillar, ghost-like figures and other bonus munchies while avoiding the insect's lethal jaws.

Roger Dionne's Guide to Three New Games

If you own an Astrocade or Intellivision system, you needn't worry. VIDEO GAMES *hasn't forgotten you. Here are appraisals of three recent offerings:*



The key to Astrocade's Incredible Wizard is good defense. That is, until you reach "the pit."

For its sound effects and graphics, its variety of challenges and the ease with which the hand controllers allow you to play this game, Astrocade's **The Incredible Wizard** currently ranks at the very top of my TV-game list. After a colorful prelude during which you're told to get ready and go, you begin maneuvering a "worrior" through one of numerous dungeons or mazes, seeking to destroy three types of monsters who spring phoenix-like from their dead predecessors. The garwors (yellow) and thorwors (red) are invisible except when they round a corner into the same passage in which you find yourself. However, you can track these monsters on a radar screen located below the playfield.

Once you destroy these monsters, a speedy worluk appears and zooms crazily around the maze with a wild, whirring sound. Sometimes, after the worluk is either destroyed or escapes unharmed, the wizard himself enters, alternately spraying machine-gun fire and disappearing until either he or your worrior is killed. When the wizard gets it, his entire lair puts on a buzzing light show of mourning or perhaps triumph.

After the first seven mazes, which are highly complex, the mazes have fewer walls. The most difficult maze of all is "the pit"—it has no walls at all. In each successive maze, points double in value when you kill the worluk, and double again when you zap the wizard. You start with seven worriors and get a new worrior at the start of the fourth, eighth, and eleventh mazes. You also receive a bonus worrior each time you enter "the pit."

A smart strategy in The Incredible Wizard is not to chase the monsters, but to occupy a good defensive position and fire at them when they come at you. To fight the wizard, position yourself in the tiniest, most protected passage in the maze; then nail him as he passes. The only thing you can do in "the pit" is keep moving and make a lot of U-turns.

If you haven't yet found a game to fascinate you as arcade Pac-Man did when it first appeared, then The Incredible Wizard (which, of course, was also originally an arcade game) may very well be it.

I'm not as high on Mattel's **Lock 'N' Chase** (also an arcade conversion) since it is just too much like Pac-Man. You play the part of a cute little thief who must elude four cute little cops as he picks up gold coins, worth 20 points apiece, that are evenly distributed around a maze of a vault. As in Pac-Man, you can escape via tunnels on either side of the playfield. In the center of the vault a large dollar sign appears every so often. When the thief grabs that, he gets 500 the first time, then 1,000, then 2,000, then 4,000 points. Lesser treasures, worth a lot fewer points, also occasionally appear, but they're rarely worth risking your neck for. Once the thief picks up all the gold coins and escapes from the vault, a new board begins.

The novel aspect of Lock 'N' Chase is that doors arbitrarily open and close in the vault's passages. At the same time, when the player presses a button on the side of his hand control, the thief can temporarily lock a door behind him, foiling any cop who might happen to be in pursuit. It is primarily through the judicious use of this feature that the player can rack up big points. (Only two doors can be locked at a time.)

The four cops in Lock 'N' Chase follow predictable routes, and so, as with Pac-Man, the player can beat Lock 'N' Chase by developing pat-

The graphics are unspectacular, but acceptable. That awful Odyssey joystick, however, is not.

The Voice adds flavor to the game, but doesn't really enhance it. The same warnings and instructions are repeated time and again. Some are slightly askew, such as when K.C. has eaten a segment—this is when he can go for the ghosts—yet is told to "watch out."

terns. The key to high scoring is to develop patterns that allow you to get the 7,500 bonus points on each board.

One non-arcade TV-game that has caught my interest is Mattel's **Deadly Discs,** the first of several *Tron*-related cartridges. It's a futuristic sports game that pits you against the computer (no two-player action here), which perhaps is the way sports will be played some day.

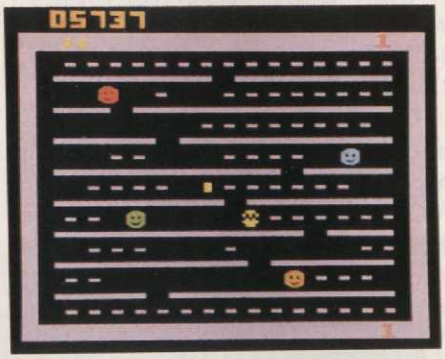
In Deadly Discs, you confront wave after wave of warrior threesomes on a 16-square grid. Both you and the warriors jockey for position on the grid and are armed with deadly boomerang discs, which you hurl at each other. Even though you're outnumbered, you have one advantage: a shield that wards off enemy discs. When you hit and destroy a warrior you get anywhere from 50 to 10,000 points, depending upon the difficulty of the level you have reached. If you destroy all the warriors in a single wave, before substitutes come in from the sideline doors, you're awarded bonus points. On the other hand, if you suffer three hits it's time to hit the reset button.

One way to get around that is to jam the sideline doors open and recover one hit when a warrior passes in one and out the other. But soon the mighty Recognizer, which looks like a stylized Arc de Triomphe, appears on the scene to repair the doors. By hitting the Recognizer directly in his white, cyclops eye, the player can rack up a bonus worth 10 times whatever the warrior value is at that stage in the game.

Deadly Discs is a clever, advanced sports competition that does not simulate any live sport currently known to man. ▲

But big deal. Who wouldn't be charmed when K.C. eats the last bug segment, laughs impishly and says in self-praise: "In-credible."

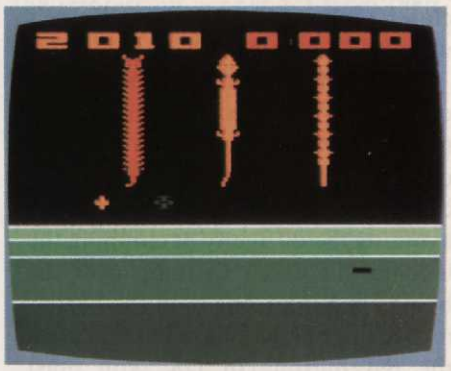
Tigervision's **Jawbreaker** is heaven-sent, especially for anyone who's still smarting from the turkey of 1982—Atari's Pac-Man. In Jawbreaker, a pair of hungry jaws roam a maze of horizontal lanes. The idea is to gobble up candy bars and avoid multi-colored, rotating faces. You do this by slipping through openings in the middle and at the end of the lanes. This may not sound like much, but the action gets pretty fast and furious. Fortunately, the VCS joystick is very responsive in this game, and the faces are vivid, solid electronic images—not flickering ghosts, as in Pac-Man—they change color when a vitamin (power dot) is consumed. Jawbreaker even has some charm: Between boards, an electronic toothbrush appears and brushes the jaws back into shape for the next round. If there's a dental video game, this is it.



Tigervision's Jawbreaker should satisfy the hungriest of gamers.

Missile Command games

Bugs, by Data Age, reaches back into TV-game history to revive the paddle controller, thus becoming one of the few games recently produced for the VCS that doesn't require the ubiquitous joystick. It's a good move. In this Missile Command derivative, the paddle allows for lightning fast reactions to the giant bugs that emerge from the bottom of the screen. Without this freedom (it's the next best thing to a trakball), you wouldn't have a chance. Not only must you prevent the bugs from reaching the top of the screen, but you have to worry about getting wasted by an odd-shaped object called a phylax that moves along the same



Data Age's Bugs may be more than most video exterminators can handle.

plane as your cursor. You can only kill the phylax when it is just about to touch—and thus blow up—your cursor. Survive this challenge and you have your work cut out for you in the next round: You face two phylaxes.

Bugs gets high marks for graphics—especially for its eye-opening explosion of waves of colorful bands between the rounds. But Bugs may be more than most video exterminators can handle. Anyone who lives in a big city apartment can tell you that getting rid of bugs is usually impossible anyway.

Donkey Kong games

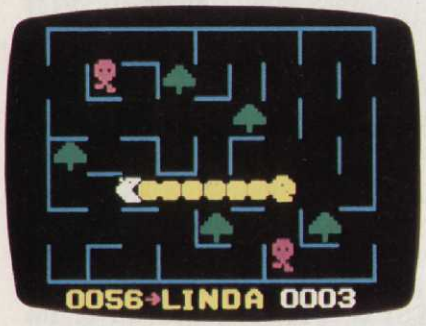
Just as Atari bombed out with Pac-Man, Coleco's **Donkey Kong** (for the VCS) is a sorry re-creation of the arcade classic. There are only two screens, which immediately reduces the game's credibility by half. Kong bears little resemblance to an ape or anything else living, and Mario is so poorly drawn he hardly looks human, much less Italian. But I will say this: Mario is more responsive than his ColecoVision counterpart, probably due to the fact that the VCS has a far better joystick. If you fell in love with the Donkey Kong in the arcades, stay away from this version. You're bound to be disappointed.

King Kong, by Tigervision, was the first of the many Donkey Kong clones to hit the market. It's more like a fraternal, rather than an identical, twin brother of Donkey Kong's. At the beginning of the game, an ape scales a building, as one does in the arcade DK. It tosses blue and red bombs at our intrepid hero, who looks nothing like Mario, instead of barrels. The hero here is a thin, gaunt, somewhat

preppy fellow. If we were able to get a closer look, we'd probably find he's wearing a Lacoste shirt.

Other differences: King Kong has one screen that incorporates the features of Coleco's two; when you leap over a blue bomb, you're automatically carried to the next floor, thereby avoiding the difficulty of climbing the ladders; it's easier to jump over the bombs in King Kong than the barrels in DK since all you have to do is press the red button (In DK, you must simultaneously press the button and move the joystick to avert disaster.); when you get hit by one of the bombs, not only is there an explosion, but the little guy tumbles down to the lower floor where he is ignominously flattened like a pancake.

King Kong's graphics are more colorful than DK's, but no more realistic. Which of the two Kongs should you buy? Neither one has a distinct

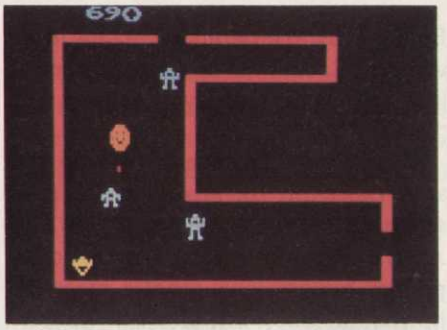


K.C.'s Crazy Chase is all talk and plenty of action.

edge, so you might as well flip a coin.

Another Donkey Kong relative is Data Age's **Airlock.** An attractive and exciting distant cousin, Airlock breaks the family mold with new twists in gameplay and an entirely different scenario. The object here is to get to the top of a sinking, multi-tiered submarine that is gaining water fast. You are allotted only 10 seconds on each tier to leap up and retrieve two hatch keys that will clear your passage to the next tier. At the same time, you must jump over barrels and torpedoes that keep getting in your way. The alternative is to go down with the ship.

Again, I offer kudos to Data Age for a fine graphic package. I particularly like the visual of the submarine, partially submerged, lying lifelessly as schools of fish rapidly pass by. Airlock



Coleco's (VCS) Venture is a shoot-'em-up with a little something extra.

is a welcome variation on the Donkey Kong theme.

Berzerk games

Lately, Atari has begun to redeem itself after the Pac-Man blunder. Its translation of the arcade sensation, **Berzerk** is probably the surest example of this redemption. As would be expected, there are fewer robots in a given maze than in the original, but that's about the only drawback to this cartridge. The best thing about it is its 12 variations, one of which allows you to go at it with Evil Otto, as in Berzerk's arcade sequel Frenzy. Admittedly, Berzerk lends itself to the VCS; this is more the reason to buy it.

Coleco's **Venture** (for the VCS) is another must-buy. Again, here's an arcade game that translates well to the VCS. For those of you who may not be familiar with Venture, the game goes something like this: You control a dot that transforms into a character named Winky once you slip inside one of the various chambers. The object is to go for the treasure while either shooting or eluding the monsters that lurk within. Like in Berzerk, if you stay in a chamber too long, a monster similar to Otto will make a beeline for you. Some chambers don't have monsters at all; instead, there are lethal, moving electrified walls to avoid. Venture is a shoot-'em-up with a little something extra. Definitely a must.

Tigervision's Berzerk-style offering, **Marauder,** is deceptive to the eye. Graphically, it's nothing special—the marauder looks like a bloated question mark, and the robots resemble small, partially eaten chunks of Swiss cheese. But once you get by these deficiencies, you discover Marauder has enough drama and variations—for instance, the marauder can don an invulnerable suit of armor—to make for exciting gameplay. Not only do merciless robots follow you through the maze, but you have to find the power center and destroy it before time runs out. Marauder is one of those games that plays better than it looks.

With **Infiltrate,** Apollo takes the imitation syndrome one step further. Not content to mimic one hit game, Infiltrate mimics two—Berzerk and Donkey Kong. Call it Berzerk Kong.

As the infiltrator, you go from floor to floor via elevators and vertically moving platforms, not stairs as in Donkey Kong. Getting on and off the elevators requires waiting until you're exactly at the same level as the platform. This can be the most frustrating part of the game. When you fail to time the jump just right, you get stuck on the elevator. Watching yourself go up and down is tiresome and perilous since the infiltrator's firearm won't shoot while on an elevator. At this point, you're almost helpless to defend against the strange-looking, troll-like creatures called assassins.

The assassins are dangerous. They can kill you by either shooting or touching. They appear out of nowhere and have a much easier time getting on and off the lifts. They can also fire when they're on the lifts. Let's face it: If you stay on the elevator too long, you're a dead duck.

But the infiltrator does have one trick up his sleeve: He can duck the assassin's fire! Apollo deserves a pat on the back for finally giving a protagonist in a Berzerk-type scenario another line of defense.

Infiltrator comes complete with a stunning array of colors. But is it a great game? It's hard to say. Or am I just *ducking* the issue?

Overall, the games reviewed here are an improvement over previous entries. I think the reason for that is all of the new competition. Even Atari seems to be finally kicking back into gear.

The next step is to provide new challenges and obstacles to hurdle, more adventurous and imaginative gameplay. Hopefully the companies that pass the survival-of-the-fittest test in the TV-game jungle will be the ones that appreciate this need the most. ▲

Baer

(*Continued from page 24*)

vice-president. Shortly thereafter, we received an invitation to come out (to Magnavox's then-headquarters in Fort Wayne, Ind.) with our presentation. Well, that day we came out, Jerry Martin, their vice-president of marketing, filled up a conference room with 30 or so people, mostly engineers. The reaction to the demo was lukewarm to good. Every engineer thought it would be next to impossible to create a TV-game system at a reasonable price. But Martin was in charge and said, "We're going with it." That was the day you could say the Odyssey 100 was born.

VG: By my recollection, the Odyssey 100 was a bit of a dinosaur according to today's standards.

Baer: The design was based on discrete transistors, not even integrated circuits for the simple reason that ICs back then were so damn expensive. Inside was basically 40 transistors and a pile of diodes. But with all that you couldn't have anything more complex than a line down the middle to indicate the net, and paddles and balls. We made copious use of plastic overlays that went over the screen because generating complex backgrounds then was just out of the question pricewise. Scoring was also too damn expensive. It wasn't until three years later that General Instruments developed ICs for Magnavox that could generate scores—which came after Atari had built the first IC machine with support from Sears.

VG: Didn't the 100 come with some sort of cartridges?

Baer: That was really the remarkable thing about it—the 100 *was* plug-in programmable. It had cassettes that you stuck into a slot out front just like in any system today. They were basically circuit cards that reprogrammed various circuits that were already programmed inside by interconnecting them differently for different games. This was really the elementary forerunner of ROM (Read-Only Memory). It's the same damn thing but only in a different form. So we were there long before Fairchild (Camera & Instrument) ever showed up with plug-in programmability (Channel F).

VG: For a new product, the 100 sold perfectly well in 1972 (about 100,000 units), but business tailed off the following year. By '75, Magnavox's Consumer Electronics division had reported losses totalling $60 million. What happened?

Baer: Magnavox made four serious mistakes as I see it: 1) they restricted sales to their stores only, which was their way of distributing; 2) they got the idea across that the machine could only be played with a Magnavox TV. That was manifest nonsense, but that's the impression people got from their early ads; 3) they were in the plug-in programmable games business, only Magnavox didn't know it—or at least behaved as if they didn't. At $5.95 a cassette, they sat under the counters of the retailers and got the attention of the bubonic plague. These games never got sold. As a result, a lot of the better features of the basic game machine were never made visible to the public; and 4) after the first year, the product got very poor support. They made more than they sold in '72 and got worried, so they didn't build, push or advertise at all in '73.

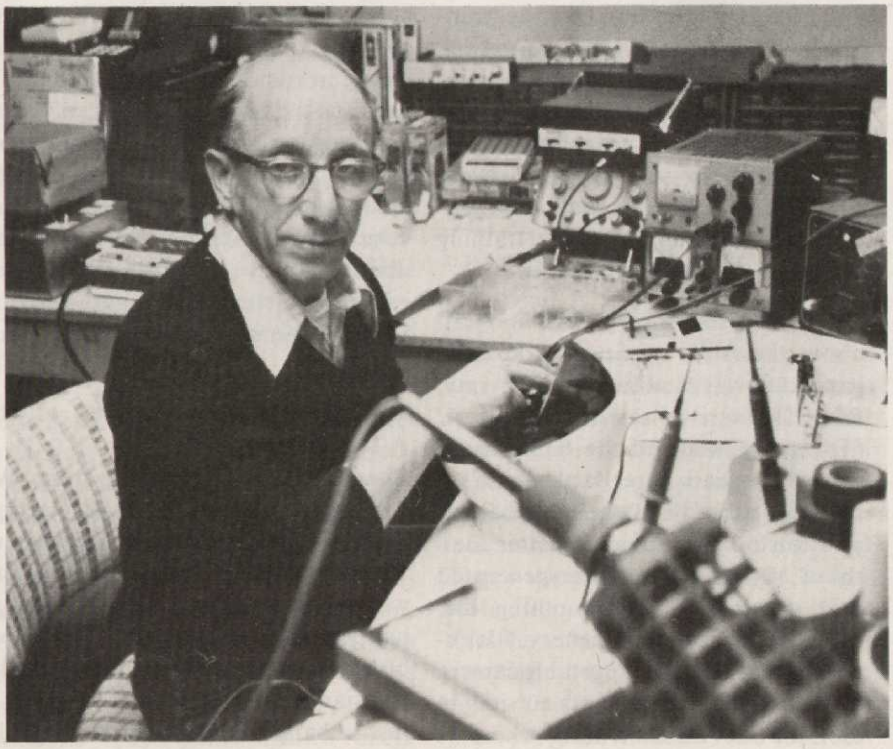
If it hadn't been for the coincidence that Nolan Bushnell started in the arcade business in the fall of '72 with the first Pong machine, I think the whole thing would have gone down the drain.

VG: Let's get this straight once and for all. Which came first—Odyssey or Pong?

Baer: Pong was no coincidence. Pong was a derivative of Odyssey, not the other way around by any means. It's a matter of record. Bushnell or one of his boys actually saw Odyssey sometime during the course of '72. On that slim piece of evidence I rest my claim that even the coin-op games are derivative of what we did back here in the '60s.

VG: Did you ever work on any coin-op games over the years?

Baer: Once. I came back from the A.M.O.A. (Amusement & Music Operators Association show) in '75 and Roy Sanders asked me: "Why aren't we in this business?" We spent a substantial amount of money in '76 to build 10 upright video games. They were based on a rather elaborate two-player hockey game that could be modified by the operator. We even put them out in a few local arcades for a test. We held our own versus Midway and Atari, but how were we going to manufacture them at Sanders? We were in the military electronics business and had no capability whatsoever to build low-cost commercial equipment. Anyway, I did a business plan—they turned out not to be interested. It all disappeared and so I went back to the lab, stepped out of my role as div-



Baer at work: "I haven't done too badly. I can't complain."

ision manager of consumer product development and became an engineering fellow.

VG: I guess the next question should be—what have you done for us lately, as they say?

Baer: Well, for the past three years I've been working on an Interactive Video Training System, which is really an outgrowth of my Interactive Television Gaming System (patent number 4,034,990, issued July 12, 1977). Originally, we built a game machine from scratch and interfaced it with a video tape recorder. To demo this technique, we designed a pinball game in which the pinball playing field was camera-generated. The computer generated the ball, the flippers and a couple of bumpers, and the score. Digital data buried on the tape tells me where things are on the playing field—how can my computer-generated ball bounce off a video bumper or flipper unless I know where they are?

VG: What is the Video Training device you mentioned?

Baer: I'll get to that in a moment. During the course of demonstrating the pinball game in-house, some of the military people came by and asked: "Can you shoot at Russian tanks?" I said, "Sure." Three months later we had converted the system to where you could stand five feet away from a 19-inch screen, have Russian tanks zip by on a papier-mache landscape that looked just like Vietnam, and optically interact with what was happening on the screen. All you had to do was point a one-shot rocket launcher at the screen. If you hit the tank, a computer-generated explosion would appear. Out of that started a whole business here at Sanders—we're in the Interactive Video Training business now.

VG: Have you approached any of the armed forces with this?

Baer: As a matter of fact, we just did a job for the Army. We emulated the gunner's position in a tank. You sit there and you've got a handwheel with which you elevate the gun, depress it, rotate the turret, all while you're looking through the binocular at a scene. What's the scene? It's totally realistic—trees are blowing in the breeze, leaves are falling down, birds are flying through the picture; things like bridges and targets appear at 200, 400, and 600 meters. The gunner does all the things he's supposed to do—look around, get voice commands from the synthetic voice generator and learn how to shoot.

Showing off his latest patent for Telesketch. "Basically, it allows you to draw on the screen," Baer says. "You can make it do anything you want."

We ran a bunch of trainees through the system recently down at Fort Knox, and there's no question that the training they get on this system transfers. What you're doing is replacing training in an actual vehicle that can only be simulated because you can't shoot that thing (the tank)—it costs $1,000 every time you do. It's really quite impractical to do more than superficial training unless you simulate with video.

VG: Then, I must assume you know all about the Atari coin-op Battle Zone game that was modified for the Army.

Baer: Oh, sure—I saw it at A.U.S.A. (The Association of the U.S. Army) show two years ago. Battle Zone's a neat game, but I can't help but believe you can do a helluva lot better than those stylized, computer-generated 3-D graphics. There's nothing like looking at real-world scenery. It's extremely easy to take a portable camera into the field and take shots outside. In fact, for our A.U.S.A. demo, where we had various tanks running through the countryside, we produced it one morning at a local golf course. We used a sandtrap for the entire shoot. Several ravines were created by rain the night before and we used a rake to create a few other things. Fist-sized rocks looked like big boulders. There were some weeds that for all the world looked exactly like trees, and the sun shone in such a way to make the surface look like snow instead of sand. And, of course, we used radio-controlled model tanks. Incredibly, the whole thing took one morning and cost $300 in materials. Now how long does it take to generate a computer graphics picture that has anywhere near the amount of action we had? Forever!

VG: How was it received at the A.U.S.A. show?

Baer: That's an interesting story. We had set up a Kloss Video Projection System so that you could stand about 15 feet away with a viper weapon, and we had all kinds of wonderful things happening on the screen. A whole lot of brass and several people from the Russian Embassy stopped by. Now it just so happened that one of the tanks we had on the screen was Russian, so

when they came by one of our guys took pains to tell them that this weapon never fails. The Russians said that that wasn't very nice.

VG: All the talk these days is about videodiscs and video games joining together. Have you given this much thought?
Baer: Actually, I've been preaching about that for a long time already. It's a very strong delivery vehicle. I'm very insistent that people pay attention to something that is absolutely necessary—that is, the downloading of data from a videodisc in real-time. Suppose you want to play an Atari game: There's no reason why that videodisc of the future can't download the data into your RAM player, just like Hitachi loads it down slowly and laboriously off audio tape.

VG: What would be the advantage of this?
Baer: In one second—boom—you could download a 16K program off a videodisc. Now, how many programs do you think you could put on a disc? How about every program that was ever created for any machine—on one side?

VG: OK, but let's be realistic. That's not going to happen.
Baer: Let me tell you what will happen then. We have already on the shelves a low-end (under $250) videodisc player from RCA that does everything but interface with a personal computer. The next logical step is putting games onto the discs—for beginners, we might see a $20 disc with five games on it. While you're at it, maybe some games require nice mood for the background, battle noises, guns going off, explosions, planes whistling through the air—all those things are entirely doable on a disc and are all going to happen.

VG: Are you talking about computer graphics for all of this, or strictly video?
Baer: A whole movie or a whole game made out of computer graphics is expensive. That takes a (George) Lucas and $10 million plant to put together. *Tron* was the expensive way of doing it, but to me it's the future. In the meantime, wouldn't you rather play a fantastic space game against backgrounds that look like a Lucas film than the stylized, crappy symbology we have out there today?

VG: How far is all this away?
Baer: I'd say about five years. This is all predicated upon the ubiquity of the videodisc player. And it better be the interactive version, not just the playback version. But unless there's several million out there, there's not too much sense in doing anything.

VG: Then, doesn't it stand to reason that the video cassette recorder would be a better, more immediate vehicle to accomplish these goals?
Baer: People *are* talking about doing it on the VCR because they are in people's homes. So, it's probably going to start there, but you're going to have to restrict yourself to limited things because branching (jumping from one point of the tape to another in seconds) on the VCR doesn't exist. But you can download data, so at least the videotape can replace the ROM cartridge. If it's a matter of background scenery that does linear things where you don't have to stop and go back and forth, fine. The question is whether that's really useful.

"I'd just like to see myself more often identified as the inventor. Why doesn't my name ever pop up?"

VG: As I understand it, the videodisc isn't perfect either. Isn't there this little problem with access-time?
Baer: With respect to laser disc, if it's a matter of jumping to three grooves away, it can do that easily. But if you want to go further out to reach another section entirely, it's always a matter of a second or two or three because you're moving a lot of mass inside the machine, which is very disruptive. That's the problem. In the RCA machine, the problem is the same, but it does have the inherent capability of jumping more grooves—say six to eight. You're just going to have to do your program so if there is a certain amount of time required to jump from one area to another that it doesn't become subjectively objectionable. It's got to be done the right way.

VG: There's just no way around it?
Baer: Ain't no way you're going to physically move the pick-up device—whether it's a laser or a mirror—from one place to another in zero time. It doesn't make sense. You're never going to reduce the requirements for physical motion.

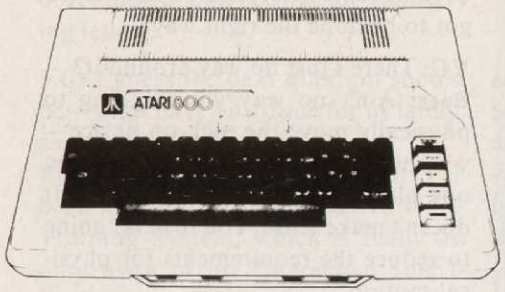
VG: So what is next for the man we're calling the "Godfather of Video Games"? Are there any other patents in the works?
Baer: As a matter of fact, Sanders was just issued a patent for something we filed in '77. It's called Telesketch. Basically, it allows you to draw on the screen. You could defend against invaders by rebuilding earth. You could build your own space station by drawing your own cubicle from which you defend yourself. After all, it's a function of the computer program what this little building around your figure represents. Is it armored, impenetrable, does it vanish after three minutes? That's only algorithms—you can make it do anything you want.

VG: And your future plans?
Baer: There's a profusion of riches around. The question is: What the hell do I want to tackle? I know I'm going to work towards issuing many more patents, mostly for techniques—concepts that have not as yet been introduced into games or training or both.

VG: Do you ever regret having not gone into business for yourself, like Bushnell, for instance? He, of course, became quite a wealthy man after he sold Atari.
Baer: I never wanted my own company and all the headaches that come along with that. I've sort of had my own one-man show here all along anyway. I've also been quite successful as a consultant. I'm satisfied, but I didn't get rich.

VG: That doesn't bother you?
Baer: People look at me like I'm some kind of schmo. How could I *not* become a multi-millionaire? It's easy. But I haven't done too badly. I can't complain. ▲

Portions of this interview are excerpted from Steve Bloom's Video Invaders *by Arco Publishing.*



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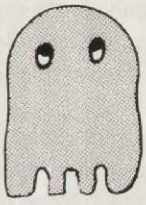

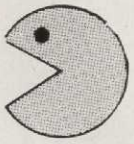

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COIN-OP SHOP

'82 in Review: The Year That Wasn't

By Roger C. Sharpe

Depending on your perspective, 1982 in the coin-op field proved either to be a banner year or at least a bit disappointing. Manufacturers hit it big, producing more machines than ever, as video games began to show up everywhere—restaurants, laundromats, grocery stores. Operators, on the other hand, went through some rough times: As more game rooms opened to milk the coin-op market, the old-timers had to settle for a smaller piece of the pie.

But for the game-freak slipping quarters into the machines, there were real triumphs—notably the three-dimensional graphic innovations in Subroc 3-D and Zaxxon and the pure fun of playing Donkey Kong. Even so, this game player, for one, could not help but feel a little let down with the new diet of coin-op games he was asked to feast on. Those of us seeking *real* video challenges continued to hunger for better game play and action that really captures the incredible sights and sounds of space. The problem here is cold feet. The speed of technological change in the arcade is plodding and methodical because the industry is afraid to disrupt the success-formula of previously released games.

Of course, 1982's biggest trend was the effort to cash in on the Pac-Man phenomenon. Maze game variations arrived in the arcades to the point of overkill as we were offered Round-up, Jack the Giantkiller, Pepper II, Thief, NATO Defense, and Tutankham, to name just a few. But none of these machine rip-offs reached the heights of the game that spawned it, and so, in the end, Ms. Pac-Man walked off with the Kewpie doll. It was more than fitting that it did.

Sega's Subroc 3-D, the showstopper of the season.

One game that did break the mold was Donkey Kong, even if it wasn't revolutionary. All you had to do was just get Mario up the beams or elevators to the top of the screen and avoid the rolling barrels and fireballs. The controls were simple enough, consisting of a single button for "jumping" and a joystick for maneuvering. But the game's appeal was in its charming story line—"a damsel in distress"—and its lovable cast of characters. At a time when every new game seemed like a rehash, Donkey Kong was fun, qualifying it as one of the video hit sensations of the year.

But the best thing to happen in '82 turned out to be the emphasis on improving and expanding the scope of game graphics. The real pioneer in this area was Sega, a company that thumbed its nose at what seems to be the unwritten agreement among manufacturers to perpetuate certain design formulas as long as possible before moving on to the next plateau. Sega was rewarded for its boldness. It scored big with Turbo and Zaxxon, games that added a startling new dimension to the visuals of a basic racing game and an outer space battle, respectively.

Not content to rest on its laurels, Sega one-upped itself by introducing Subroc 3-D. In this game it utilized a viewing system devised in concert with Matsushita, a Japanese company known for its electronics expertise and such product lines as

Sega made TV history with this spacey Zaxxon ad.

Beyond the Valley of the Revenge Games

Sequel games are nothing new. Pong, the primordial video game, begat Super Pong, Quadrapong, Breakout, and finally Super Breakout. Space Invaders gave birth to Space Invaders Deluxe. Sequel fever hit a peak in '82, and there seems no end's in sight.

The way I see it, most sequel games involve some kind of revenge, which can take several forms: The game manufacturer gets revenge against the "How-to" book publishers; the player gets revenge against an evil bastard like Otto; or the machine gets revenge against you.

Ms. Pac-Man is the most popular sequel of our time. Not only has it paced its hubby, Ms. P-M will probably outgross the next three *E.T.* sequels put together. An artistic improvement over the original, Ms. Pac got her revenge against all those "How to beat Pac-Man" books by eliminating patterns and forcing millions of players to fend for themselves. Surprisingly, I haven't heard anyone complain about the missing patterns—yet.

Donkey Kong Junior could be even bigger than Ms. Pac-Man. As of this writing, it is number one with a bullet in the arcades. Again, the main theme of DK Jr. is revenge. Mario, the hero of Donkey Kong, has suddenly turned bad guy. He's put Kong behind bars and keeps himself busy throughout the game unleashing deadly birds and evil snapjaws in the direction of papa Kong's innocent little son.

I have a theory that Mario was driven mad trying to rescue the girl over and over and over again in the original game, and that's why he's turned into such an evil monkey-killer. There are, I must admit, Donkey Kong scholars who believe Mario has been the villain all along. They maintain that those weird industrial settings are obviously the work of a deranged mind, and that Donkey Kong was saving the girl from Mario, who only wanted her to satisfy his depraved appetites. No way. I think Mario is more traditional than that. He has companionship and security on his mind, not revenge. What's got into him these days? Must be sequel fever.

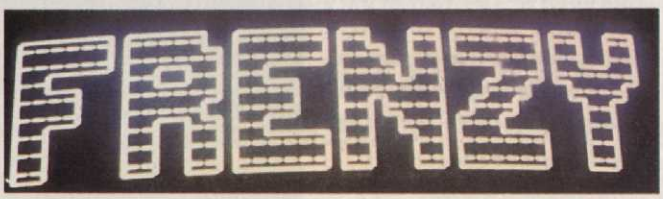
What's got into Mario these days? Must be sequel fever.

Space Duel was the Asteroids Deluxe that never was. In AD, the designers came up with a game that prevented lurking and hunting, two techniques that had made Asteroids scores begin to read like credit card I.D. numbers. This was their revenge for being caught with their pants down. Space Duel is a beautiful, inventive game that hasn't caught on. It's Asteroids in color, but several steps beyond in complexity. It's too bad it'll never make it.

Frenzy made it by offering Berzerk fans just what they'd been waiting for—the chance to blow Otto away. You can also shoot through some walls for an easier escape, bounce shots off other walls and take aim at two different kinds of robots. All of these features are fine, but something was lost in the translation. Call it simplicity of purpose. Alas, revenge is not always so sweet.

One thing a sequel should do is create its own audience, which is what Galaga has done. It's faster than Galaxian, with better graphics and more challenging gameplay. The revenge happens when one of the Boss Galagas captures your ship in its tractor beam. But if you're skillful enough to blast the boss and regain your ship, you're rewarded with double the firepower and double the fun. Revenge can be sweet after all.

Expect to see more sequel games in the year ahead. Super Pac-Man (see Blips) and Millipede (aka, Centipede Deluxe) are definites. Atari's Revenge of the Jedi—scheduled for a May release to coincide with the movie—should be the ultimate sequel game. Can't wait. —*John Holmstrom*



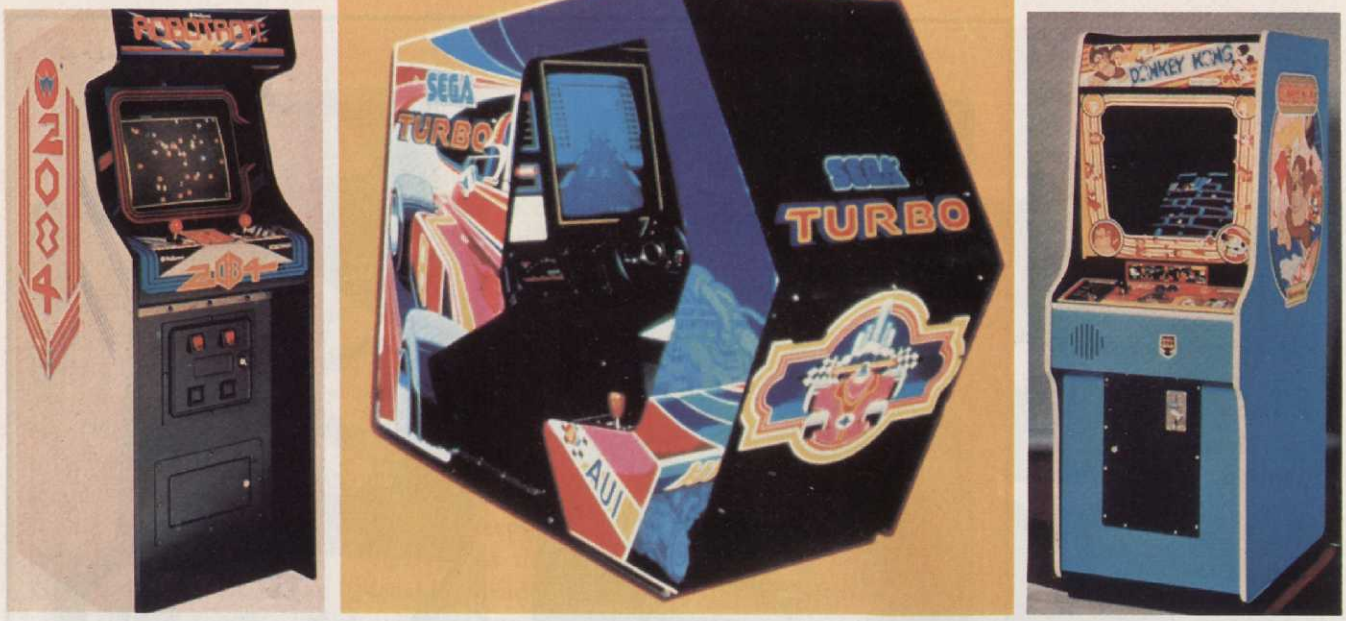
The most popular sequel of our time, Ma-Pac-Man (top) paced her hubby and got sweet revenge against "How-to" book publishers. Berzerk fans took out their frustrations in Frenzy.

Panasonic and Quasar. This system gave Subroc a truly stunning 3-D effect, making the game the showstopper of the season. Unfortunately, Subroc's uniqueness stopped there. Its game play differed little from that of Sea Wolf, the Bally classic.

Another key coin-op development and a big plus for most game players was the trend towards simpler controls. We can thank Pac-Man for this. It made manufacturers realize that not all players were able to handle the complex set of controls such as those in games like Defender, with its joystick and five buttons. Suddenly, games that only featured one joystick began to arrive in the arcades. More often than not, they came equipped with a joystick and a button (Donkey Kong) or two (Tempest). So when Space Duel came along with a complicated five-button control panel the great majority of players passed it by. Robotron, on the other hand, didn't suffer at all with its novel double-joystick approach. In any case, Robotron still proved to be too tough for me to handle—I just couldn't get the hang of it, and so it quickly vanished from my arcade itinerary.

While Bally Midway's Tron (left) never generated the cult following that was anticipated, Sega's Zaxxon added startling new dimension to outer space battle.

Apart from game trends and refinement, the arrival of Tron drew the biggest media splash, owing to the hype showered on its cinematic companion. With its



THREE OF ANOTHER KIND: Williams' Robotron (left) doubled your pleasure with its dual joystick control; Sega's Turbo (center) was the best driving game yet; Nintendo's Donkey Kong offered something borrowed and something new.

blue-illuminated joystick and strong cabinet artwork, Bally's game dared to imitate art, bringing big-screen graphic action down to coin-op size via some pretty faithful recreations of Disney's landmark film creation. But despite all the media attention, Tron never generated the cult following that had been anticipated.

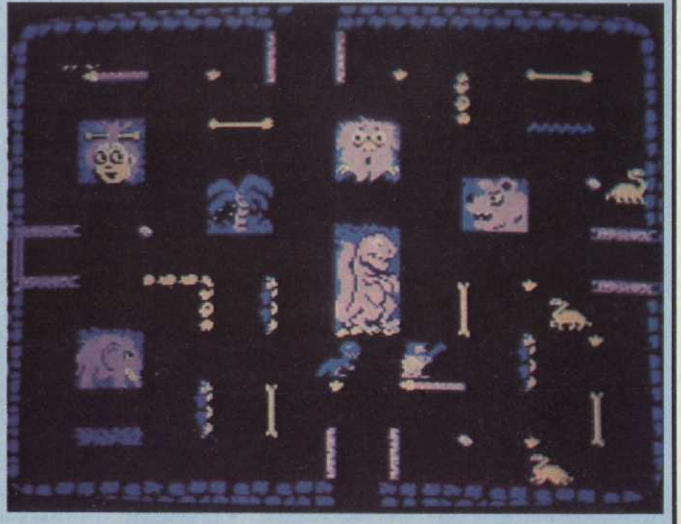
Pinball Goes Through Changes

Pinball as we once knew it went through some serious changes in '82. Factory production was reduced drastically and earnings dropped to about $100 per machine (compared to $200 for each video). Any doubt about the manufacturers' predicament was eliminated when Stern closed its pin operation during the summer after 50 years.

Meanwhile, Williams, Bally and Gottlieb (and Stern, before it pulled the plug) went to extremes to keep flipper fingers alive. Here were some of the highlights:

- Gottlieb's Caveman—pinball meets video head-on. To some, it was the worst of both worlds; to others, a true and captivating innovation.
- William's Varkon—pinball disguised in a video cabinet. It never did catch on, though Williams deserves credit for trying to broaden the scope of the basic pinball playfield components.
- Bally's Rapid Fire—video disguised in a pinball cabinet. Borrowing heavily from William's Hyperball, it had a dual trigger mechanism that fired out a steady barrage of mini ball bearings at a variety of targets and oncoming lights. What seemed a novel gun game for the '80s generated little enthusiasm. Plans to develop more of its kind were temporarily, if not permanently, abandoned.
- Stern's Orbitor 1—pinball for those with strong stomachs only. Its molded, undulating playfield left many players more dizzy than satisfied. The game, Stern's swan song, quickly faded from view, as did Stern.

—*R.C.S.*



Pinball met video head-on in Gottlieb's Caveman.

Overall, 1982 was a relatively "soft" year for the coin-op industry. Some insiders were quick to blame the economy but others argued that in a business that should be "recession-proof" the real culprit was game-motif duplication. There is probably some truth in both these views. But one thing is certain: It didn't help that an increasing number of arcades began boasting multiples of a given model (eight Zaxxons or 12 Pac-Mans—that sometimes translated into 30 or 40 percent of the games available on a floor). Often, the traffic didn't exist to support this glut.

Perhaps what is needed—if the industry wants earnings to rise again next year—is something like what I mentioned earlier: more realistic gameplay. There is no doubt that the technology exists to create this. The question is: Will the fathers of the industry go back to taking the kinds of risks that have catapulted video games to America's top form of leisure-time entertainment or largely continue to hide behind its accomplishments of the past three years? Hopefully we'll find out in 1983. ▲

Movies

(*Continued from page 35*)

into an Apple computer using a graphics tablet and light pen. The results are akin to visuals found in coloring books. "Jim Henson is very concerned about how his characters are displayed," admits Ken. "Certainly, I can't do with my computer what he can do with his camera, but the quality is there.

"There was a reason for giving the name Dark Crystal to our game," he adds. "It *is* Dark Crystal. It's a direct translation of the movie where we add the ability for you, the player, to stand up on screen with the rest of the actors. It's a nice experience to be part of a movie."

The Williamses next mixed media project may involve turning some of their games into films or novels. "We do have some properties that would be good for that," says Ken, referring to games like Time Zone, Wizard and the Princess, and Ultima. "It's not much different than making movies from books, it's just that people don't conceive of computers as being part of the entertainment marketplace. But," he grins, "that's changing every day."

There seems to be no end to the growth of tie-in possibilities and combinations. CBS' Hunter predicts that the "true animation quality" of games in development and the "interesting storylines" being generated by game designers will eventually lead to films based on games, much in the manner of Pac-Man becoming a TV cartoon series. Hunter suggests his all-time favorite, Adventure, as a likely candidate. But the next true breakthrough, Fox's Pepper predicts, will be interactive theaters where the audience actually gets to *play* a movie.

Imagine this: Equipped with joysticks on your armrest and pedals at your feet, you get yourself comfortable just as the curtains pull open. Once the credits roll, you find yourself surrounded by deep space, piloting a small, but efficient, spacecraft. And then, the enemy approaches. Will you: A) Try to communicate with the alien craft; B) accelerate in the other direction or; C) Prepare to fire? You decide to communicate, but you've been overruled. It's the Saturday morning crowd and they want action. ▲

Cable

(*Continued from page 75*)

showed Intellivision is not the preferred video game."

"We've had mixed results," says Jon Salkin, director of new business marketing for Group W Cable, which has been testing PlayCable. "Where we've tested, only one-percent of the subscribers have taken it. Those who want it have to convince themselves it's worth spending $200 for an Intellivision unit. This certainly isn't satisfactory."

On the positive side, Salkin says, "As video games get more popular, there will be more of a market. This is a whole leading edge of true interactivity, a precursor to other developments that will interface with shopping and other information systems."

PlayCable executives concede the road has been bumpy so far. The company has only been able to achieve about one-percent subscriber penetration in the markets it serves, far below the three to five percent figures it will be seeking in the next few years. But they say business has risen substantially ever since Mattel began offering

a $50 rebate for Intellivision, which has lowered the sticker price to around $150. Jim Wiesenberg, PlayCable's marketing vice-president, claims there was a substantial jump in subscribers during the first (mid-August to mid-September) rebate offer.

Wiesenberg also says PlayCable is having success working out its equipment problems. "We opened up last year in the New York area market, and the failure rate was larger than expected. The problem was rushing into the market without hardware with proper quality control methods.

At least one cable system is optimistic about PlayCable. Susan Chapman, who manages PlayCable for suburban Cablevision in northern New Jersey, says this about her subscribers: "They love PlayCable. They're finding out that cartridges are wearing out from constant use so they like the idea that no cartridges are needed. Sales haven't been great, but we never expected this to go like Showtime and HBO."

Meanwhile, PlayCable is keeping close tabs on what is going on in the homes it services, trying to ensure that their subscribers' favorite games are carried over from month to month. According to one survey it took, the average primary player logs two hours of uninterrupted game play during each use; and that in households that have had PlayCable for at least 16 months, the average player clocks 12 hours a week with the games and plays at least half the games available each month.

Will PlayCable and TGN prove successful? Paine Webber's Isgur says PlayCable will have to make some adjustments if it's going to make it. "It doesn't have all the ingredients right now," she says. "Since Mattel's aren't the best-selling games, it needs a more comprehensive pool of games."

And in an observation that is just as pertinent to The Games Network as it is to PlayCable, she states: "You have to remember that when people really like a game they want to own it. An individual is just as likely to pay $30 for a cartridge than risk having a favorite game taken off the rotation the next month. Game players like to improve their scores and master the complex levels of a game. They're not ready to give it up after a month."

Aware of this, PlayCable is trying to expand its game menu. According to Wiesenberg, the company is in the process of negotiating for non-Intellivision games. There are also rumors that Mattel is planning to put out a new, improved Intellivision in 1983.

Another problem is competition with other pay channels. Apparently, the presence of HBO and other subscriber services doesn't worry Gary Stein, PlayCable's vice-president and general manager. "We've found almost no incidence of anybody taking us or not taking us as a result of pay-TV service," he says. But TGN's Summers admits, "Pay-TV is our true competition. You have to wonder how many dollars the average family is going to put in its cable budget. They're already paying $20 for the basic service and another, say, $12.95 for HBO. There's a real competition here for the cable consumer's dollar.

For now, as the pay-TV contenders slug it out, it looks like the interactive age will just have to wait. Says Summers: "What's important is this: Can the average Joe who has a couple of kids and is barely making it pay $14 a month for 80 games a year? Will this be a price he can afford? Really, that's what it gets down to." ▲

HARD SELL

Atari's 5200 Will Take You for a Ride

By Phil Wiswell

If TV-game machines were automobiles, then the Atari 5200 would be a six-door limousine. With power to spare, high-resolution color graphics, arcade-like sound effects, and multi-function hand controllers, this model is a real gem. Extra options will include a Trackball controller and a VCS-cartridge adapter. You can shop from Teaneck to Timbuktu and not find a game machine that gives you more status.

On the other hand, when you see and hear the wonderful special effects of cartridges like Pac-Man, Centipede, and Defender, you'll realize that the 5200 has the strength to be a home computer. In fact, I've heard many industry people refer to it as an Atari 400 computer without a keyboard. Why bother to make this comparison? Because the 400's price has fallen to—or below—the level of the 5200. (Both sell for between $225-250.) Because Atari has programmed a large library of games for the 400 that includes what is available for the 5200. Because the graphics and sound effects are nearly identical. But mostly because the Atari 400 gives you a full (touch-sensitive) keyboard, a library of computer software, and the ability to write your own computer programs. Even though the 5200 has enough "brains" to perform the same functions, it cannot. The Atari 5200 is a chauffeur-driven limousine. You are not allowed in the driver's seat, so to speak.

The 5200: comfortable, status-yielding, chauffeur-driven entertainment.

Hardware

This comparison does not mean the 5200 won't find a home. Understandably, many people are not yet convinced they need or want a home computer. They want entertainment, not a manual on the basics of BASIC. They want arcade-quality video games. Period. And there's no question about it: the 5200 has them.

Down to the last design detail, the 5200 is a functional work of art. The sleek, uncluttered console has but one noticeable switch (for ON/OFF); remote buttons on the controller handle the rest, from reset to pause. Atari, I salute you from my armchair! What a comfort it is not to get up every time a game ends. And now the controllers plug into the *front* of the unit, giving you more room to maneuver the cord with your frantic body English. Still missing on the plug, however, is the word "top," which would eliminate bent pins from improperly plugged-in controllers.

The two controllers store neatly in a compartment at the rear of the console. A smoked plexiglass storage lid similar to the one found in Astrocade, but with hinges, effectively hides unsightly controller mess. And get this detail: The excess AC wire wraps around a special slot on the bottom of the unit, giving the 5200 a markedly cleaner look. Believe it or not there's more: A unique TV switch box changes automatically to normal television viewing when the 5200 power is turned off, so you don't have to keep reaching behind your set. Or leave the power on, which retains high scores and "paused" games, and take a break to watch your favorite *TV* program.

Controllers

The hand controllers that come with the 5200 combine joystick, paddle, four fire buttons, and a 12-character keypad into a single device that is small enough to fit any player's hand. While the joystick moves with unusual ease for a game system controller, it is not self-centering. In other words, move the joystick left and let go, and your object will travel left until it hits that edge of the screen. It takes a lot of

play to get used to this, and at first you'll think you've lost your precision touch. (The Trackball, promised for this year, will really help in games like Centipede.) The joystick is also used as a paddle, another drawback since you need to keep the orientation east-west. If the stick is too far north or south when you try to move sideways, your paddle won't react smoothly. Twin-fire buttons on each side of the controller give left- and right-handed players an equal chance of success, and Atari provides plastic overlays (a la Intellivision) for the keypad to make gameplay and game selection easier.

Now for the neat stuff. At the top of the keypad are three buttons. One resets to the menu of game options; one starts a game; and one allows you to freeze the game action and restart it at any time, which is particularly useful when figuring out patterns. In Pac-Man, for example, you can study the position of the ghosts before deciding which turn to make.

Software

Despite an initial offering of only a dozen cartridges, software is what the 5200 is all about. Every game is proven, popular, arcade-quality stuff. **Super Breakout** comes with the system, but for a little window dressing it's identical to the VCS version. The 5200 **Pac-Man,** though, has little in common with its VCS cousin. In fact, except for the shape of the maze, Pac-Man perfectly mimics that remarkable arcade game. (For more, see Ken Uston's review in Jan. issue.—Ed.) Atari game designers also outdid themselves on **Centipede,** another very faithful coin-op translation. Everything is there: mushrooms, fleas, spiders, and scorpions. But, as I've already indicated, self-centering the joystick and thus nailing the spiders and fleas becomes quite a chore. All the more the challenge, I might add.

The rest of the arcade library consists of Space Invaders, Defender, Missile Command, and Galaxian, all of which—except for the latter—debuted at home on the VCS. All have been measurably enhanced. For example, there are more invaders in **Space Invaders,** and each column or row contains aliens that change shape and flap their wings. All for the price of a new cartridge.

Another adaptation for the 5200 is **Star Raiders,** the 400/800 computer game. There is still nothing quite like Star Raiders. You're at the helm of a space ship : you must monitor the entire ship's operation—this includes radar, tracking, shields, galactic charting, warp speed and hyperwarp—set up defenses and, of course, battle sev-

The Supercharger Is Not a Communist Plot

Question: How do you break into the overcrowded market for VCS software with confidence? Answer: deliver a unique product. At least that's the answer Starpath Corp. (formerly Arcadia) gave when it introduced the Supercharger and an initial lineup of software last summer.

What's a Supercharger? Well, it's a device resembling an elongated cartridge that plugs into the VCS's cartridge slot. It works on the "downloading" computer principle. Connect the Supercharger's single wire to the earphone jack of any cassette tape player, pop one of the game cassettes into the deck, and simply press the "play" button. "Loading" a game into the Supercharger takes about 30 seconds.

What does the Supercharger do? It allows each game to contain up to 6,272 bytes of memory for screen display, compared to the VCS's normal 128. The result is infinitely better graphics and more involving gameplay.

Software

For $70, you get the Supercharger plus **Phaser Patrol,** the best of the Star Raiders genre.

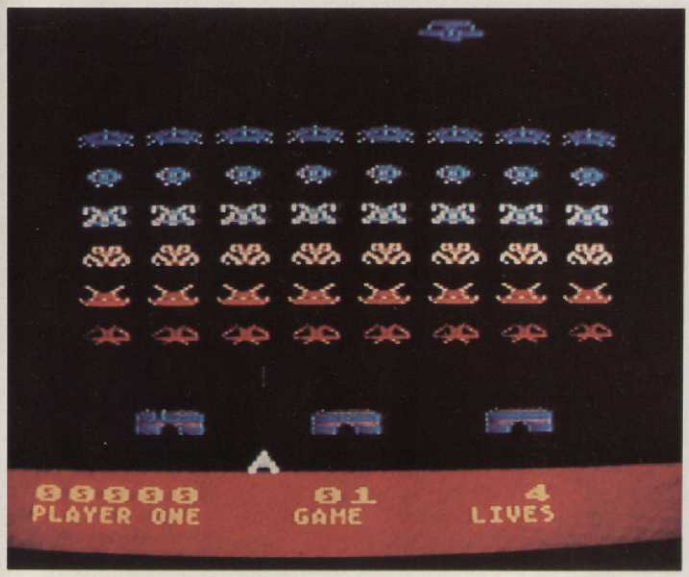
Graphically, it is very appealing:

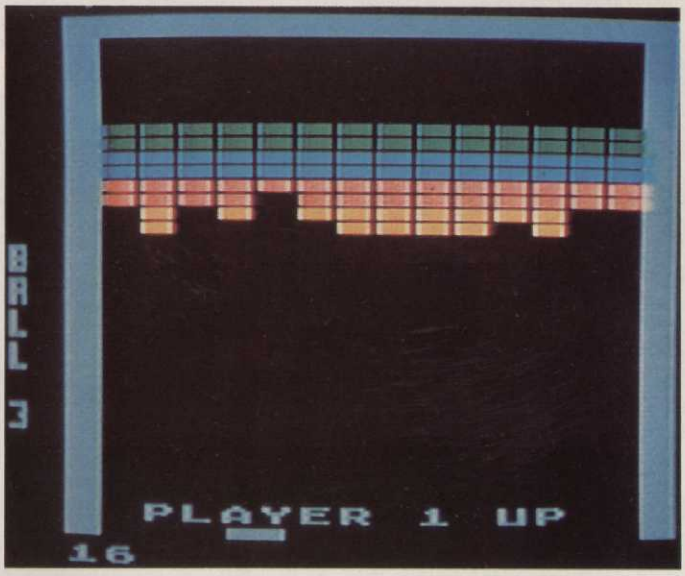
Starpath's Supercharger puts more byte (6,272 of 'em) into the VCS.

Phaser Patrol just isn't as repetitious as other games of its type.

The oddly titled **Communist Mutants From Space** is a thrilling variation on the Galaxian theme. The phalanx of aliens consists of egg-shaped invaders that take on greater point value when they mutate into insect-like creatures just before diving at you. There are four different kinds of mutants, and each has its own style of movement. I played it once at difficulty-level nine (the highest) and felt someone had drugged my coffee with stimulants. "Commie Mutants," as some have begun to call it, is definitely a rush.

Fireball is for Breakout fans only. In this wall-banging game, you can catch a ball, hold it while you change position, then release it. Juggling up to six balls at a time is the ultimate challenge in Fireball—it takes a lot of practice, but is worth the effort. The more balls you have in the air at any given moment, the more points each





Space Invaders (left) and Super Breakout (right) are two of several arcade favorites made especially for the 5200. No, you can't use your old VCS carts.

block is worth.

Starpath has also improved upon another exciting game concept—Asteroids—with **Suicide Mission.** The objects don't flicker, they ooze like blobs around the screen, until you hit them, which turns them into little snakes. Like the other games just discussed, Suicide Mission isn't easy. It's . . . well, suicide.

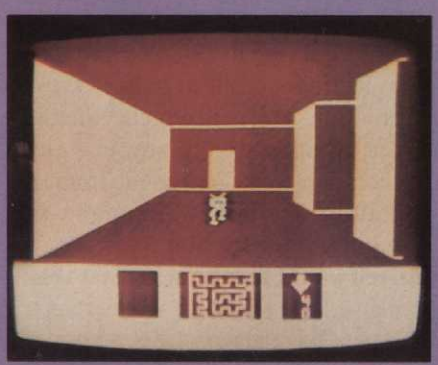
Dragonstomper, one of Starpath's two new "multi-load" games, is a winner. You move around a large kingdom on a scrolling screen, encountering enemies, entering buildings, and falling into traps. As in most computer text adventures, you start with an inventory of possessions—things like magic potions, shields, and gold—and can pick up other items along the way. When faced with possible combat you can choose to attack, defend, or run away. How well you fare in battle depends on your "strength" and dexterity at the moment. You'll need all of the above when you finally come face-to-face with the dragon.

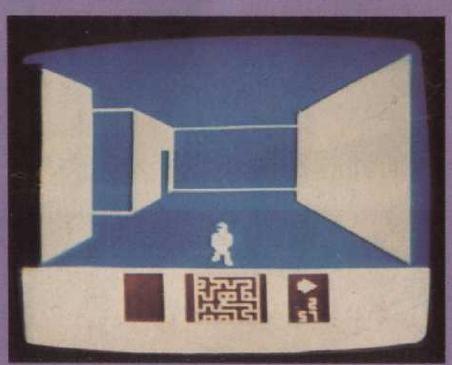
I have mixed feelings about the other new game, **Escape From the Mindmaster.** What could have been a unique approach to maze games turns out to be quite confusing. You get a small radar map of the entire maze, plus an arrow to let you know which way you are facing. But the three-dimensional view of the corridors, hallways, doors, and rooms is so realistically portrayed that it is very difficult to understand—sort of like the drawing of the stairway that, when viewed from two perspectives, appears to lead either way. At first you'll keep asking yourself "where am I!?" You won't be able to go where you want to.

I expected more from such an incredible graphic. I imagined myself walking through this maze, being chased by all sorts of monsters into rooms where I would emerge to find them running away from me. But that's not what Mindmaster is about. The idea here is to evade one robotic enemy—not a difficult task since it's not very difficult to evade. Meanwhile, you're being tested in different ways. You must pick up objects of varying shapes and place them in holes of corresponding shapes. You must react quickly with your joystick to a series of response tests. There's not much fun in all this. There should be more action in Mindmaster, at least enough to compliment its unusual graphics.

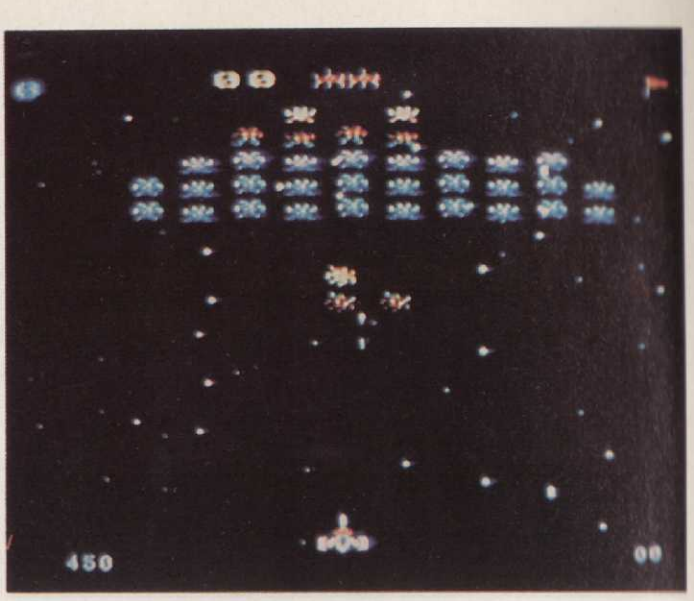
There is a lot of extra room on Starpath's cassette—one suspects enough to fit several games on one $14.95 tape, not just "multi-loads." Some of that room is put to wonderful use by giving the viewer an action preview of other Starpath games. You can't play the games shown in the preview, but you can watch the program play itself for a little while and get a feel for the game. With this innovation, you only have yourself to blame if you buy a game you don't like.

—P. W.





Escape from the Mindmaster will have you wondering: "Where am I?"

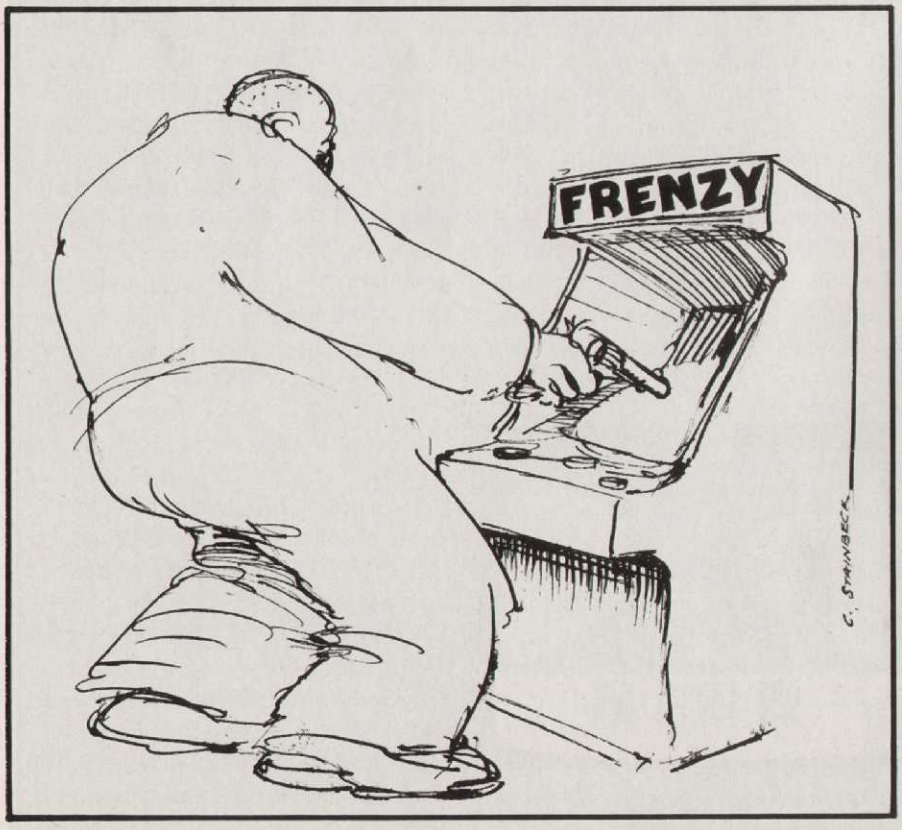


Soccer (left) is on par with Mattel's NASL game. Galaxian (right) is a first for any home system.

eral different types of enemies. If you're looking for an evening of light entertainment, steer clear of Star Raiders.

And, in response to the general claim that Intellivision has the best, most realistic sports simulations, Atari will be providing Soccer, Football, and Baseball games for the 5200. Unfortunately, at presstime, only **Soccer** was available. Briefly, it is a complex, strategic game with visual and sound effects on par with Mattel's NASL Soccer.

As nice as the games are, the 5200 needs more. This machine has so much more potential than its predecessor that games should be designed specifically to take advantage of its increased capabilities. Sure, it's nice to have a Defender game at home that looks and plays like the real thing, but that's not enough. It's already time for games to be developed that only the 5200 can handle. Only then will VCS owners have a real excuse to trade up.



Graphics and Sound Effects

The 5200's special effects are truly special. This is a high resolution color graphics machine containing an Atari custom-designed graphics chip, one of the best on the market. The giveaway is lots of moving objects on the screen that don't flash on and off. The 5200 also is equipped with a sophisticated sound synthesizer that easily replicates arcade zips, zaps, and swooshes. Just wait until you hear the beginning of Defender, with its low-pitched single note that tells you you're in for one helluva fight. It's nasty.

Conclusion

The 5200 is a classy act that needs to develop a following—fast. We know that Atari will continue to take advantage of its coin-op division's games, as well as its financial clout to license the hottest non-Atari products in the arcades; what we don't know is if and when companies like Activision, Imagic, and Parker Brothers will commit to designing games for the 5200. Atari must sell a lot of units in its first year for this to happen. My guess is that it will. There have always been plenty of Americans willing to pay for comfortable, status-yielding, chauffeur-driven entertainment. ▲

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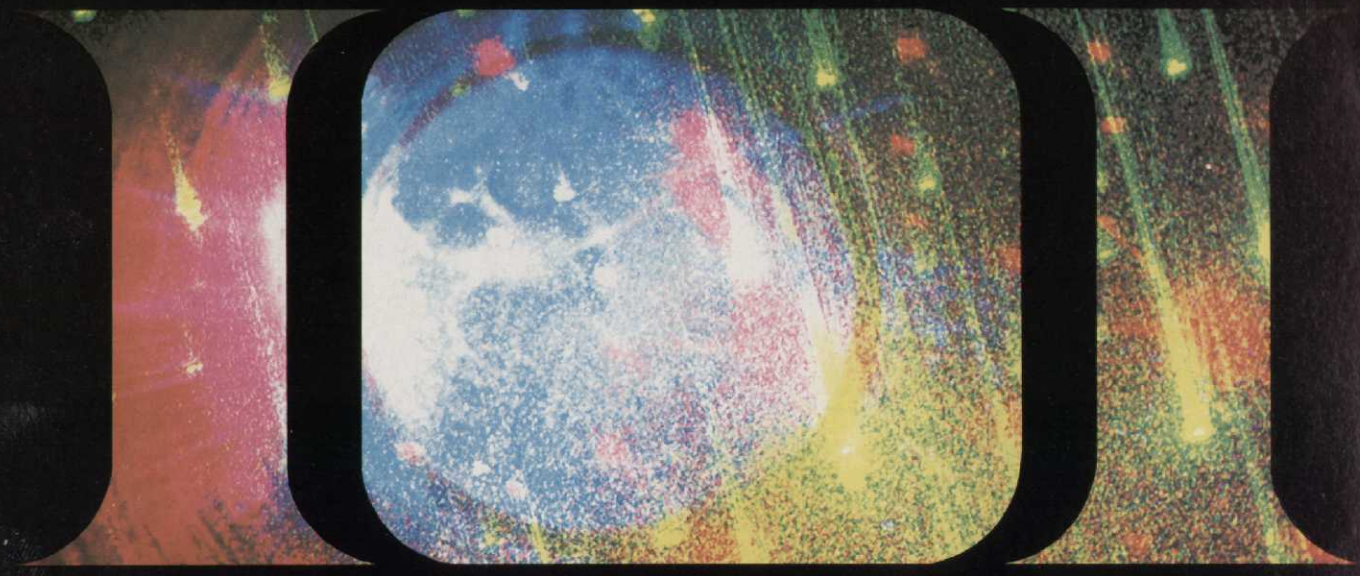

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DR. VIDEO

NCTV Takes Stand On Video Game Violence

By Howard Mandel

The debate over video games' effects intensified recently as they were attacked by several medical authorities for their "violent scenarios" and "graphically aggressive themes." Surgeon General C. Everett Koop charged that video games produce "aberrations in childhood behavior" and that the object of most arcade classics is to "eliminate, kill, destroy." Only days before, the National Coalition on Television Violence (NCTV), a Washington-based watchdog group that has monitored TV shoot-'em-ups, movies and Saturday morning cartoons, announced it was launching a new campaign against video game violence.

NCTV has asked the Federal Trade Commission to ban video game advertisements, claiming they are deceptive. And Dr. Thomas Radecki, the NCTV chairperson, told *VIDEO GAMES* in an interview that "concerned public interest groups and psychologists should be allowed to go on the air and caution people as to their harmful effects."

Radecki, a psychiatrist at Southern Illinois University, charges that "video games teach a violent reaction in a crisis situation." In Berzerk, he wrote in an NCTV press release, "You're a stick figure with a handgun; the object is to kill as many other stick figures as possible, before they kill you. This type of role-playing practice is certain to have long-term harmful effects on the player; it teaches violent reactions. These games are training the next generation of Americans to be even more violent than our current generation, already the most violent in American history."

About Berzerk, NCTV Chairman Radecki says: "This type of role-playing practice is certain to have long-term harmful effects on the player; it teaches violent reactions."

Illustration by Dana Ventura

While Radecki concedes no hard evidence exists linking video game playing, at home or in arcades, to increased violent behavior, he believes research will soon catch up with the industry. "The effects of movie and TV violence on audiences' aggressive behavior have been shown in 750 research projects," he said in the interview. "Scientists I've talked with in the research community are nearly unanimous in the opinion that video game violence will prove no different than that in all other forms of media.

"Certainly," he continues, "if the U.S. Army trains recruits on Battle Zone, they're trying to teach them to be tank commanders. It teaches the reactions to perform the task at hand, which is to drive tanks. Pac-Man has a violent theme, but it's rather abstract—and we'd expect it to have less influence toward violence than Battle Zone or Berzerk. I guess shooting at rocks is okay; most of the action in Asteroids is non-violent. But every once in a while a spaceship comes on the screen, and you're supposed to shoot at it. If not for that space ship, we probably wouldn't object to Asteroids. We think sports games, quiz games that involve the mind, driving games that involve negotiating a terrain are all acceptable, but not chase games with hostile intent.

"There are many exciting problems in life that have one dealing with different situations. How about games

that have people building a space station, landing on planets, or conquering obstacles? I think cooperation should be addressed more often than competition, but we're concerned with the hostility, be it verbal or physical, that these games cause.

"Games like Firebug and Custer's Revenge are teaching people skills we'd rather not have in this world," Radecki says. "Custer's Revenge may be much more abstract, and less objectionable than movies with rape themes like *Class of 84, Concrete Jungle,* and *Death Wish II.* Firebug, however, involves spreading fire and training people to be arsonists. How anyone could think these games aren't encouraging people to be violent is beyond me."

One man who challenges Radecki's claims is Peter Favaro, a Long Island school psychologist and doctoral candidate in clinical psychology. He and Radecki debated the violence issue on Mike Douglas' show last fall.

"Obviously," admits Favaro, "the games have aggressive themes. But no research shows it translates into aggressive behavior. If there is aggressive behavior around arcades, that's a correlation, not proof of cause and effect. Hey, there's aggression in schools and around supermarkets, too.

"In most games, the rules are unclear," he contends. "You have to project a lot. In Missile Command, for instance, you might be saving a city or participating in a terrible war. The way the player thinks of the game is based on all his past experience."

Favaro, who has received some financial support for traveling from Atari, questions NCTV's research methodology. "I don't think Radecki is approaching this matter scientifically, by testing hypotheses in a controlled and certifiable experiment. The social scientist's responsibility is to provide data, and NCTV just hasn't produced any."

Atari lent video games to Favaro for research towards completion of an as-yet-unpublished doctoral thesis. By "modifying the contingencies, changing the rules and providing positive and negative reinforcement to promote sharing, helping, and cooperative play," Favaro found that video games had therapeutic effects on 30 learning disabled and emotionally disturbed children. ▲

BRIEFS

The Fight for Ms. Pac-Man

Illustration by Armando Baez

There are a thousand and one court cases in the video game jungle. Some draw wide publicity, such as Atari's victory over North American Philips concerning Pac-Man. Others go relatively unnoticed, such as the battle over Ms. Pac-Man profits currently taking place in Chicago Federal Court.

In a request for a declaratory judgment, temporary restraining order and preliminary injunction filed on Oct. 27, Bally Midway asked the court to "permanently enjoin" General Computer Corp. (GCC) from "asserting publicly any right to the Ms. Pac-Man and Baby Pac-Man character" and from "interfering with any license agreement or business transaction between Midway and any other party including any licensee or prospective licensee under any right owned by Midway in the Ms. Pac-Man video game."

Why would GCC do these things? Eighteen months ago, GCC created a "modification" of the original Pac-Man called Crazy Otto. The only differences between the two games is that Crazy Otto has legs, "fruit symbols appear at various places in the maze" in Crazy Otto, and in the third cartoon interlude (after the ninth maze) "two Crazy Otto characters, apparently male and female images, appear on the screen, and a stork coming from the opposite direction drops what appears to be a baby Crazy Otto character."

Midway and GCC "entered into a Game Agreement" on Oct. 29, 1981. Essentially, Crazy Otto became Ms. Pac-Man. GCC "performed the computer programming" and has since received "several million dollars in royalties." But GCC wants more: a piece of the licensing action. What's it worth? The court document says the "matter in controversy exceeds $10,000." It's probably closer to $10 million.

Neither side would comment. The decision is expected any day. Stay tuned, Pac-fans. —*Steve Bloom*

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SCORE!

My 40-Hour Defenderthon

Back in the October issue of VIDEO GAMES, 18-year-old Dale Rees, of Cocoa Beach, Fla., slapped our wrist for printing an erroneous Defender high score. Rees added that he would be going for the record—33 million points at the time—and asked if we would like a report on "the event." "Certainly," we replied. Two months hence the following article arrived in the mail.

At the age of five, I was told that my coordination would never be right. I couldn't even touch my nose with my hand. And here I am preparing to top the Defender high score.

It's 10 a.m., Tuesday, Sept. 28, when I pop my quarter into the machine at the Game Tunnel in Merritt Island, Fla. My first ship goes down at 62,375. My first soda goes down as I start to climb to the big bonus level of 990,000.

I'm well into the fourth million when the game room begins to fill up. It's already way past dinner-time when someone brings me a burger; another friend supplies Pac-Man cookies for some quick energy. By 11 p.m.—as I pass the 14 million mark—the spectators are beginning to thin out. A leather pad I designed is doing a good job keeping the cabinet's hard edge from gnawing at my wrists—no soreness yet.

Dwayne Coffman, my Defender-playing partner, talks to me through the wee hours. By 6 a.m. (Wednesday) my score stands at 22 million. I'm hungry again. Dwayne feeds me an Egg MacMuffin and coffee. Suddenly, nature calls—I hold off until the last moment, make a mad dash to the bathroom, throw some cold water on my face and race back to Defender. Incredibly, only three of my well-stocked ships have been lost.

By noon, Milt Salamon, a local newspaper reporter, arrives, followed by the local TV crew. Soon the room is flooded with bright lights, and I'm being asked lots of questions. In the background, I hear a live radio D.J. informing all of Cocoa Beach what I've accomplished so far. Then my mother arrives and spoonfeeds me chili in between attack waves. Even in three-second gulps, the hot food is calming.

At 5 p.m. I reach the magic 33 million point. While friends whistle congratulations for achieving the goal I set, I decide to run the machine up to 34 million before quitting. Then I get some shocking news. According to the Twin Galaxies National Scoreboard, in Iowa, the Defender high score is *52 million!* Even though I hadn't planned on a second night without sleep, I keep going.

By 11 p.m., at 39 million, I'm in pain. The ice packs scorekeeper Guy Kent has been putting on my knuckles are no longer helping; my right foot,

(*Continued on page 105*)

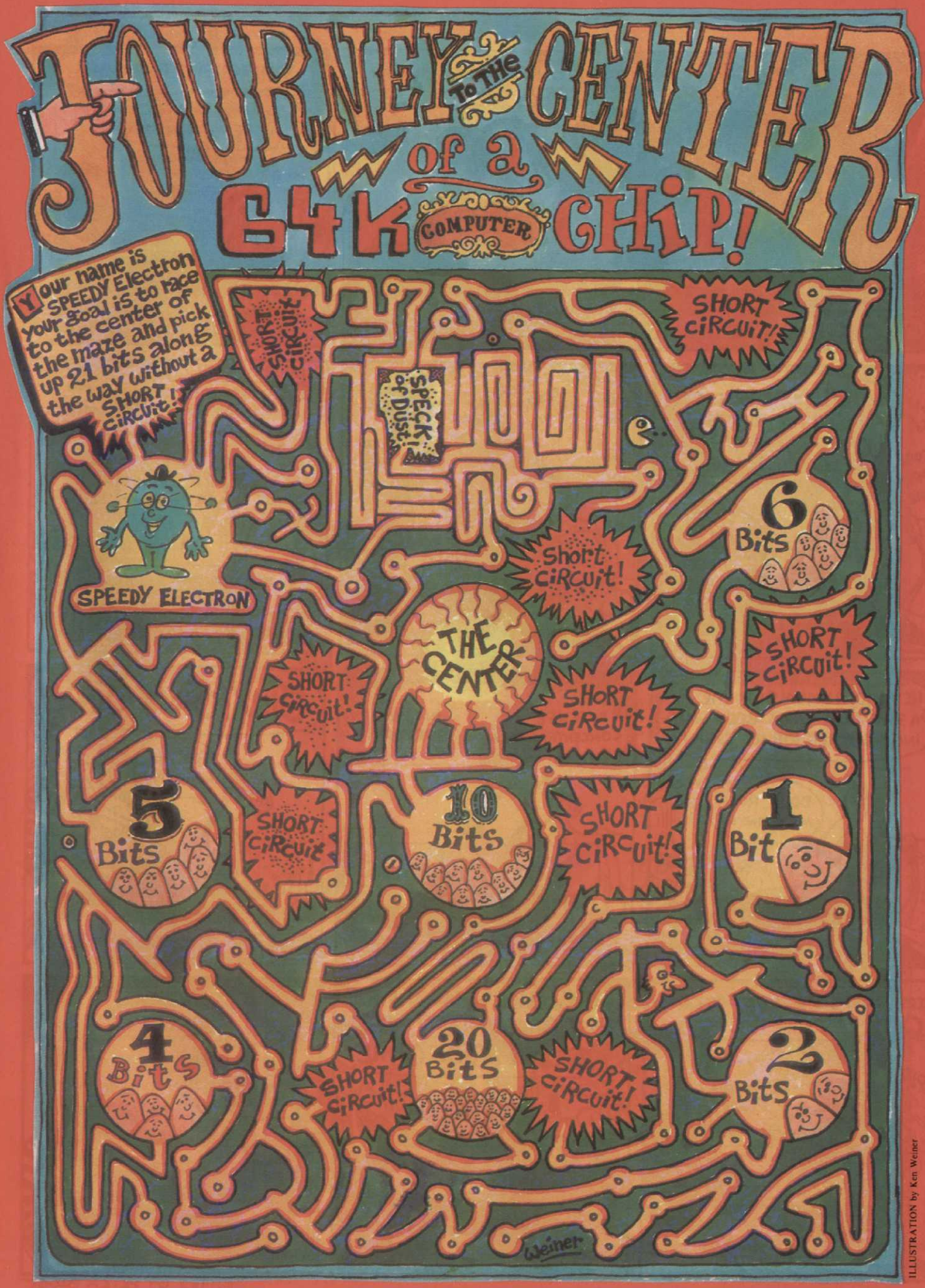

ILLUSTRATION by Ken Weiner

Answer on page 105.


THE VIDEO KID
IN "DIG-DUG DOLDRUMS"
LOOK! A TABLE VERSION OF DIG-DUG! LET'S PLAY!
OKAY!
DIG-DU
YOU GO FIRST, CHAMP!
THANKS! MAYBE I'LL BEAT MY RECORD!
DIG! DIG! DIG!
WOW! YOU'RE REALLY RACKIN' UP THE POINTS!
SCORE! SCORE! SCORE!
5 HOURS LATER....
ZZZZZZZ....
HEY KID, REMEMBER ME? I'M THE GUY WHO'S BEEN WAITING 50 YEARS FOR HIS TURN!
DON'T RUSH ME, WEINER!
INTENSE CONCENTRATION
INTENSE BOREDOM
DIG DIG DIG...
JINX! JINX! JINX!
CUT THE COMEDY!
HERE, HAVE SOME ROOT BEER — OOPS! SORRY, PAL!
SPLOSH!
ILL IGNORE THAT!
HEY! LOOK WHAT THEY'RE JUST BRINGING IN! THE "DOLLY PARTON GAME!"
WHERE?
BLOOP!
MY TURN.
DIG DIG DIG...
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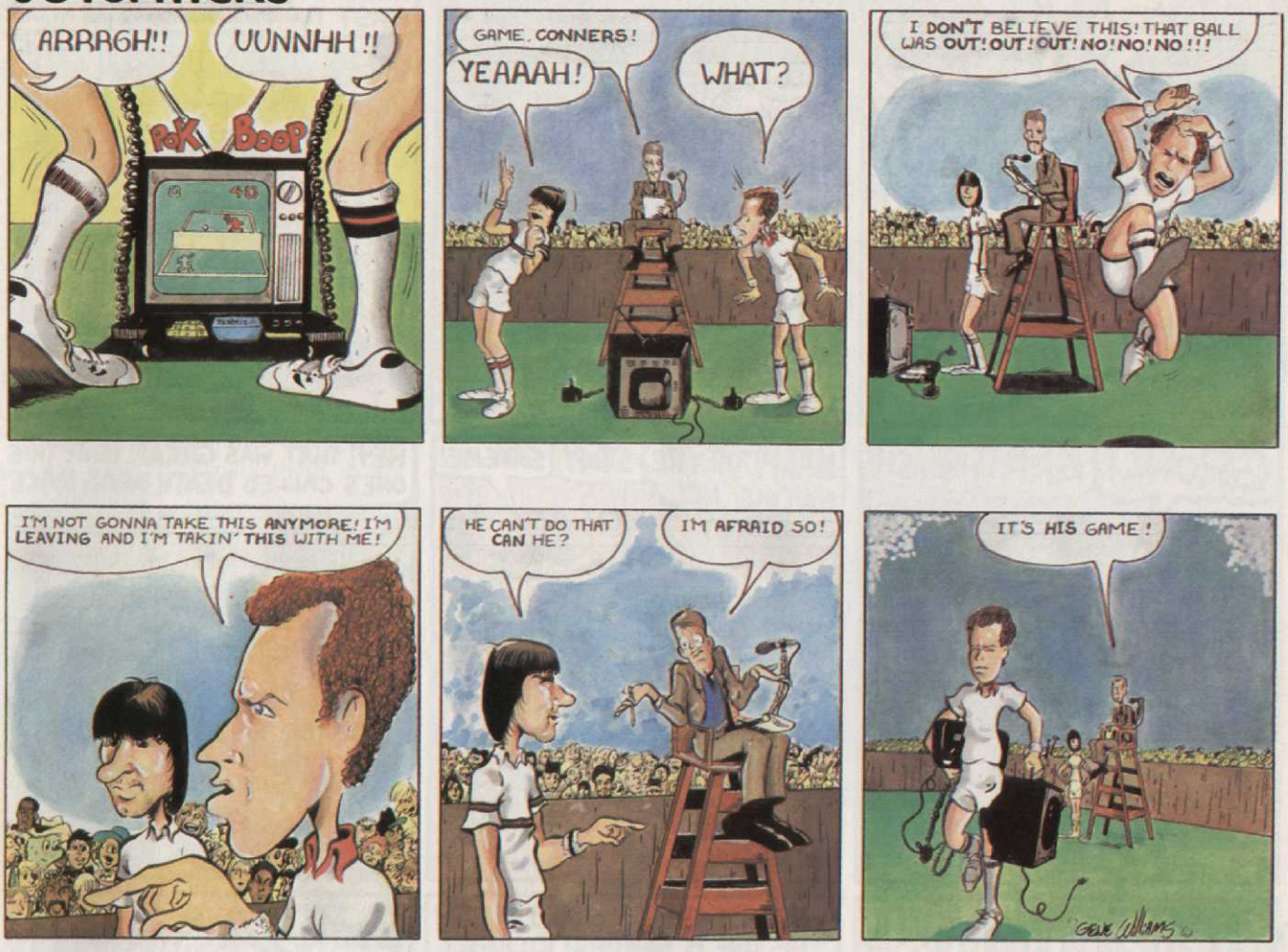
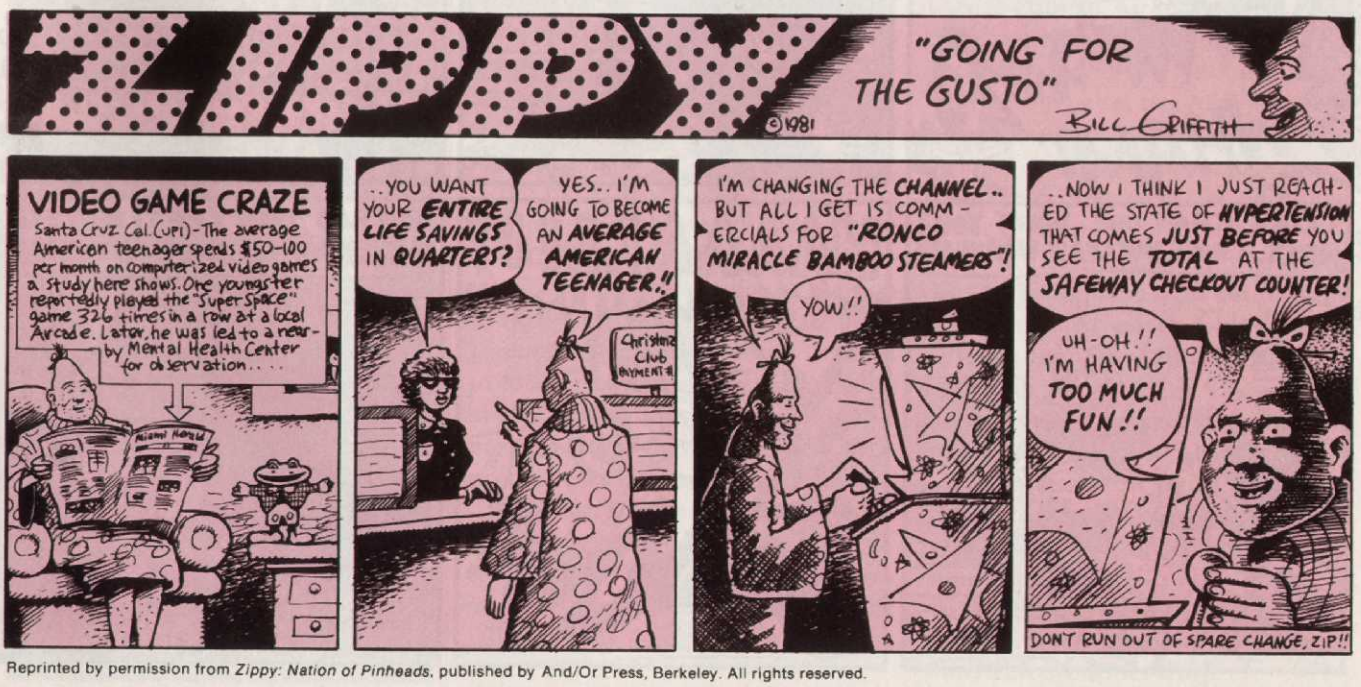
JOYSHTICKS






BERNIE
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HEY, GUYS! C'MON OVER TO MY PLACE! I'VE GOT THE NEW 3-D VIDEO GAMES!
3-D?
OBOY!
WOW!
JUST PUT ON THESE 3-D GLASSES AND I'LL PUT ON THE GAMES, O.K.?
THIS IS WILD!
O.K.!
WOW!
HERE ARE THE CONTROLS... READY? FIRST I'LL PUT ON MONSTER ATTACK!
GROWL!
GRR!
GNASH!
WHAT TH-
UH-OH!
HALP! THEY'RE EATING ME!
STOP!
SAVE ME!
HEY! THAT WAS GREAT, HUH? THIS ONE'S CALLED DEATH DRAG RACE!
VRROOOW!
WHAM!
WASN'T THAT SOMETHING? THIS ONE IS SAMURAI KILLER!
EEEYAAAGH!
SLICE!
I LIKE THAT ONE, DON'T YOU? NEXT, I HAVE NUCLEAR WARHEAD!
HAAAALLLP!
TOO BAD THEY LEFT! NUCLEAR WARHEAD IS THE BEST ONE!!

Score!

(Continued from page 100)

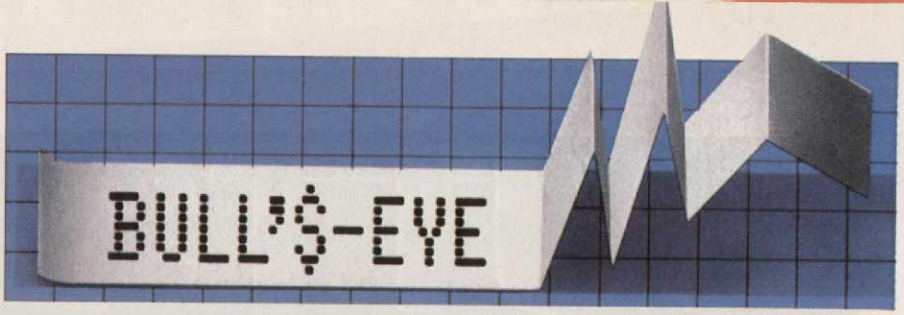
which has been supporting me through this ordeal, is throbbing. At midnight, my concentration starts to lapse. My hands seem to be moving independently of my brain. Suddenly, at 41,410,000, I drop to four ships.

I feel like a boxer who's down for the count. Three, two, now one ship left. I'm smart-bombing everything just to stay alive. A new wave begins. I smart-bomb the pods and regain another ship. Have I weathered the storm? Hardly. My smart bomb stock is down to two. Did I overplay them in my previous panic?

The final moment arrives at 42,335,225. I am, in fact, relieved. I let my head drop into my hands. I could cry, but I am just too tired. Forty hours is a long time Defending.

—Dale Rees

Puzzle Answer



Wall Street's Switcheroo

By David Leibowitz

Illustration by Dana Ventura

For more than half of 1982, the mood of Wall Street was all gloom and doom. Investors were decrying sky-high interest rates, a plummeting stock market, and the worst recession in the post-war era. Yet less than three months later the market reached an all-time peak. The probable key to this turnabout: the Federal Reserve Board's decision to loosen credit policy. As interest rates dropped, stock prices rose. Investor confidence soared.

Nowhere was this striking rebound more evident than in the shares of the leading video game manufacturers. In the first six months of the year, these shares were among the most popular on Wall Street. But then doubts began to surface. By early August, Warner Communications (Atari), Milton Bradley (Vectrex), Mattel and Coleco were all trading well off their highs for the year; in fact, Warner and Mattel hit their lows.

But by early November these stocks had more than recovered. Warner rose above 56½, a gain of 50 percent. Mattel soared 92 percent to 24. Milton Bradley registered a high of 30½, up 80 percent, while Coleco virtually tripled to 43¼, a record share for the company at the time. More important, the proponents of these companies were prophesying even better times ahead.

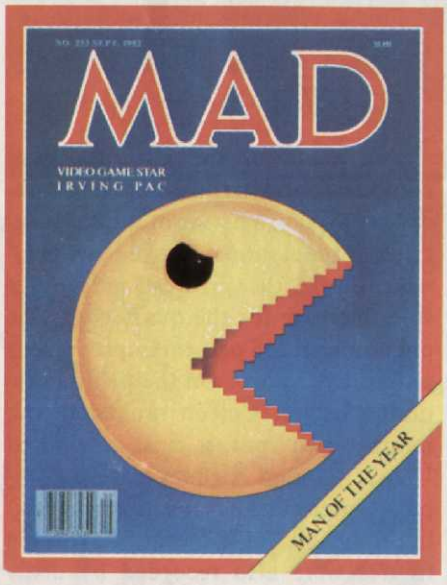
Had circumstances changed that dramatically for the video game industry? Hardly. What had changed was investors' perception. Suddenly, the industry was booming, easing fears about 1983.

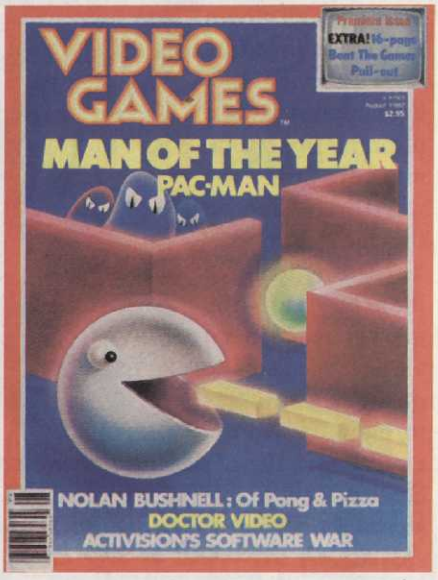
The proof of the last statement could be found in third-quarter financial reports. In a listing of the 857 largest U.S. companies tracked by *Business Week*, the greatest percentage sales increase for the quarter was the phenomenal 238 percent improvement scored by Coleco. On the profits side of the ledger, Coleco ranked in the number two spot, a close second to U.A.L. (United Airlines' parent company), with earnings for the period rising a heady 769 percent. Favorable figures were also recorded by other game companies, and so agreeable was investor sentiment that Imagic filed a registration statement for its initial public offering.

It is difficult to pinpoint what really caused this new wave of enthusiasm, although video games have been receiving an enormous amount of media attention. All forms of video games already dwarf the record and movie industries combined. Clearly, the jury is still out on how much longer the growth can continue. But there is little reason to believe that the future is anything but exciting. ▲

David Leibowitz is a Vice-President at American Securities Corp.

OUTTAKES





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Are you up to the challenge of Wizard of Wor™ and Gorf™?

So you're hot stuff at video games? Joysticks melt in your hand? Don't let it go to your head. Try mastering Wizard of Wor and Gorf, the two Bally/Midway arcade hits you can now play at home. They're new from CBS Video Games.

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WIZARD OF WOR

Dare you enter the Wizard's diabolic dungeon where doom lurks at every turn? Can you keep your composure as the Wizard's henchmen try eating you... ALIVE? Fight back. Use your radar screen.

Vaporize the Burwors. Chase the Worluk.

Until the Ultimate: The sometime-visible/sometime-invisible Wizard. Trust no one.

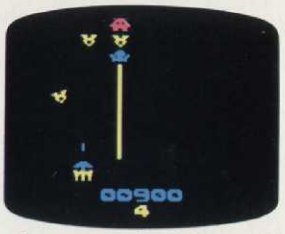
Wizard is designed so two may play at the same time. And since all's fair in Wor, even your best friend can zap you.

Now we don't want you to freak out totally, but if you're still up to the challenge, top the all-time, high score: 99,500 by Frank Merollo (10/82) and Buz Pryzby (8/82).

GORF

Can you hold up under the challenge of four different boards in one game? At nine different levels? Try and beat the high score of 32,700 by Horace Eckerstrom (9/82). No sweat? Well, what if we told you each level was faster than the last? Next time you'll think before you speak. But now you must face:

Gorfian bombs.



Kamikaze crazies & Laser Ships.

Deadly Subquark Torpedoes.

And finally: The dreaded Neutron Flagship.

Gorf's not easy. There's only ONE vulnerable spot on the Flagship. But don't let a little neutronium bomb stop you from hitting it.

Now that you know what to expect, are you still up to the challenge of Wizard and Gorf?

CBS Video Games

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SATAN'S HOLLOW

T.M.

The hot new battle game that dares you to cross the blazing Bridge of Fire to do battle with the Master of Darkness—Satan of the Hollow!

The Dark Scrolls warn of the perils of Satan's hollow. He, the Prince of Darkness, reigns over an infernal underworld so abhorrent, the grotesque gargoyles who safeguard his lair cower at his clovenhoofed approach. 'Tis he who rules supremely his domain, by twisted swirls of flame and obedient creatures so wretched, no mortal dareth traverse the Bridge of Death crossing the River of Fire. Beware him. He is darkness, he is the omnipotent demon Lucifer, he is SATAN OF THE HOLLOW.

Bally/MIDWAY T.M.