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HANDHELD AND VIDEO ELECTRONIC GAMES '83

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VIDEOGAMES

VIDEO GAMES

Videogames 1983
Handheld/Tabletop Games
Games That Talk
New Software & Add-ons
Atari ★ Coleco ★ Starpath ★ Vectrex
R-E's Top Ten Videogames

There are those who say that videogames are on the way out. Judging from what's coming this year, though, that's far from being the case.

DANNY GOODMAN

VIDEOGAMES '83

IF YOU THOUGHT HOME VIDEOGAMES WOULD SIMPLY FADE away as home computers became more popular, you may have to reconsider. Atari and Coleco sparked the industry last year with two new high-resolution game systems. And, from the looks of this year's new system introductions, home videogames may hold their own for some time to come.

Mattel Electronics has redesigned and lowered the price of its *Intellivision Master Component*—now called *Intellivision II*—while showing a broad line of add-ons. Also in the wings is *Intellivision III*, a supergame to appeal to the high-end game market. Over at Odyssey, the price of the venerable *Odyssey*^{2} has dipped below $100, and a second, more capable system is in the offing—the *Odyssey Command Center*.

Intellivision II

The Mattel Electronics home-video product line seems to have exploded overnight. From one *Intellivision* console, one *Intellivoice* speech-synthesis module, and a modest cartridge library, the company has shifted into high gear with a compatible and intelligently upgraded *Intellivision II*, plus a series of modules featuring speech synthesis, Atari-*2600* cartridge compatibility, computer-keyboard capability, and music synthesis.

Having learned from its experience with the original *Intellivision Master Component*, Mattel endowed the new console with several notable improvements. The small addition of a red LED pilot light on the unit will save countless players from leaving the game on overnight—frequently a fatal mistake for the unit, especially if the console is left on a carpet that blocks some of its ventilation holes.

Hand controllers have been restyled to match the console's cosmetics, but are functionally identical, except that the cords are now terminated in a plug and stretch out farther. If a controller goes bad now, you'll be able to replace it without taking or sending the entire unit to a repair center. That also leaves open the possibility of adding a joystick controller for games in which the flat direction-disk is clumsy.

NOT JUST A VIDEOGAME. When used with an optional telecommunications module, the Odyssey *Command Center* offers computer terminal capability.

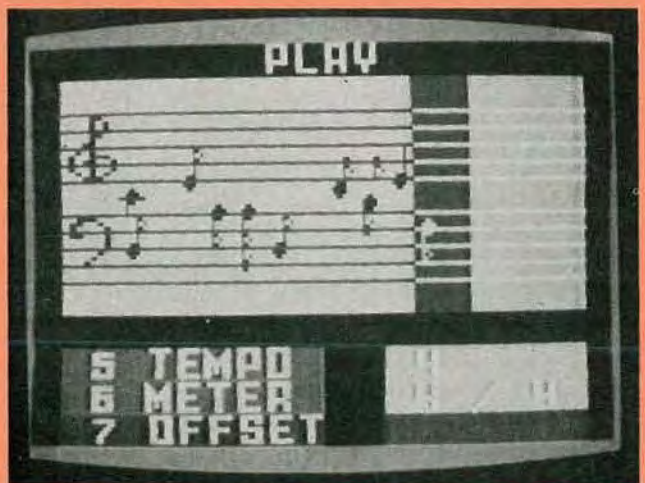
Luckily for both old and new *Intellivision* owners, game cartridges are compatible with both systems. That means that original *Intellivision* owners will be assured of being able to play the new cartridges as they become available for the *Intellivision II*. Also, *Intellivision II* buyers have a fairly large library to choose from immediately.

As expected, a re-styled *Intellivoice* speech-synthesis module plugs directly into the *Intellivision II*. The module is compatible with the original console, as well, but frankly, the light-gray and red, modern-looking box will look odd sticking out of the brown-and-walnut-finish cabinet of the old one.

An unexpected but welcome add-on is called the *System Changer*—an adaptor that lets you play Atari *2600*-compatible cartridges. Two game-controller jacks are provided on the adaptor, so you can use the Atari controllers, or any of the dozens of accessory controllers on the market. Unfortunately, the Atari adaptor is not directly compatible with the original *Intellivision* console; a factory modification costing $19 will be required. The conversion will be worth it, however, if you plan to hold onto your *Intellivision* for a while. It is one way to get a second system—one with almost 200 cartridges to choose from—for less than the cost of a new system.

Next Mattel bridges the videogame-computer gap with another add-on, the *Computer Adaptor* and its companion keyboard. The adaptor adds 12 kilobytes of ROM (*R*ead *O*nly *M*emory)—which also contains a BASIC language interpreter—and 2K of RAM (*R*andom *A*ccess *M*emory) which may be allocated to enhanced graphics capabilities with new software. The *Computer Adaptor* can be upgraded by yet another cartridge that contains 8K of ROM (with an extended BASIC) and 16K of RAM for more computer-like applications. For programming and educational games, the keyboard offers 49 pushbutton keys in a standard QWERTY layout, although the locations of some keys—CONTROL and those for cursor movement—are not where experienced computerists would look for them.

In place of the computer keyboard, you can plug in a four-octave music keyboard. By combining the powers of *Intellivision II Master Component* and *Computer Adaptor*, a remarkable six voices are at your disposal. Three software cartridges are planned for music alone, the most impressive of which is tentatively called *Melody Maker*. With it, you can use the keyboard to create and record up to six musical voices for playback later, along with a display of the actual music notation on the screen. While playing back a selection, you can easily alter tempo,



WITH THE OPTIONAL *Intellivision* music synthesizer, *Melody Maker* can be used to help you learn about and compose music.

IF YOU'RE NOT SATISFIED with the games available on the market, *Intellivision's Game Maker* helps you to create your own.

THE MOST TRUE-TO-LIFE video baseball game yet, Intellivision's *World Series Baseball* even offers split-screen views.

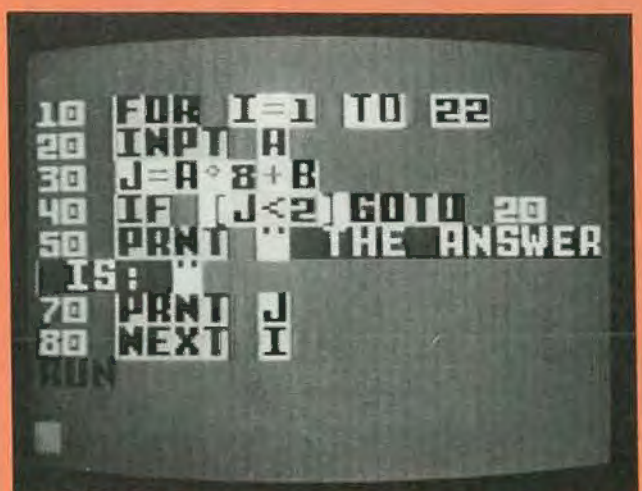
meter and key in real time. *Melody Maker* should be a great help to anyone trying to learn how to read music.

Other software planned for the *Computer Adaptor* includes BASIC language tutorials, elementary education activities with familiar cartoon stars like the Jetsons and the Flintstones, a three-dimensional strategy game similar to chess, and the now-famous baseball game (the one TV spokesman George Plimpton teased us with last Christmas) featuring TV camera-angles and split screens of the game action.

All the computer modules are fully compatible with the original *Intellivision* console without modification.

Intellivision of the future

That's not all Mattel has up its gaming sleeve. Scheduled for delivery late this year is *Intellivision III*, a do-everything game that will try to outperform *Colecovision* and the Atari *5200*. The published specifications are impressive. Graphics resolution is rated at 320 × 192 pixels (versus 256 × 192 for *Colecovision* and the *5200*). Up to 64 objects can be in motion on the screen at once (versus 32 and 5 for the Coleco and Atari systems, respectively). (By "at once" we mean every 1/60 second.) There's still more: six-voice music, built-in speech synthesis, stereo sound-effects, microwave wireless hand-controllers with tactile keypads and real joysticks, automatic antenna-switching, and multi-colored LED status-readouts. Look for most of the first cartridges to play up the improved graphics resolution with a number of three-dimensional screen simulations with receding corridors and *Zaxxon*-like views.



ONE UNUSUAL FEATURE of Intellivision's *BASIC Programmer* is its color-coding of BASIC instructions.

Compatibility is also a strong feature for the *Intellivision III*, which is capable of playing old *Intellivision* cartridges and can be expanded with modules for the *Intellivision II*, including the Atari *2600* cartridge adaptor, the *Computer Adaptor*, and the *Music Synthesizer*. Like Atari's *5200*, *Intellivision III* will be the high end of Mattel's line. *Intellivision II* will continue to be supported on its own. No price had been announced as we went to press.

Odyssey Super Game

The Odyssey folks in Knoxville, Tennessee haven't been napping, either. New for 1983 is the Odyssey *Command Center*, not simply a modestly priced high-resolution game (under $200, like *Odyssey*^{2} was), but a game with the flavor of a computer. Bearing no family resemblance to *Odyssey*^{2}, the *Command Center* nevertheless features a full typewriter-style keyboard, but this time with pushbutton keys. There are even ENTER, SHIFT, and CAPS LOCK keys where a computerist would expect to find them. A separate row of keys features math symbols, three "soft" (user definable) function keys (F1–F3), HALT, CLEAR, and RESET.

Joysticks have been redesigned and store within the console for a neater appearance when not in use. Another improvement is that joysticks are not factory-wired into the console, making repair or replacement easier. An expansion connector in the back will accept a small add-on voice module, a BASIC programming module, and others, including a communications interface (phone modem).

That's right—part of the "computer flavor" of the *Command Center* is its ability to become a home communications-terminal for access to consumer databanks like CompuServe, The Source and the Dow Jones services. Also planned is a computer-programming module housing a Z80B microprocessor and 16K of RAM. Suddenly it is clear why the *Command Center's* keyboard is more computer-like than *Odyssey*^{2}*'s*—the *Command Center* itself is more computer-like.

The *Command Center* is no slouch when it comes to graphics resolution, either. It is reported to have a resolution of 320 × 210 pixels, or greater than that of the *Intellivision III*.

For current *Odyssey*^{2} owners, the software compatibility news is pretty good, but somewhat complicated. First of all, any current *Odyssey*^{2} cartridge will work with the *Command Center*, with *Odyssey*^{2}-type graphics. Gradually, a number of the best selling *Odyssey*^{2} cartridges will be redesigned to take advantage of the added graphics capabilities available when using the *Command Center*. Essentially, the redesign will consist of the addition of new, colorful backgrounds to the basic game. For example, in *Pick Axe Pete*, instead of a black background there will be an inactive backdrop resembling the brown craggy walls of a mine shaft, and other paraphernalia. The action part of the game will be the same as before. If you plug one of the enhanced cartridges into an *Odyssey*^{2}, all you'll see is the original game on a black background.

With that in mind, expect to see about a dozen *Odyssey*^{2} hits enhanced for the *Command Center* by the end of 1983. (*Command Center* delivery is scheduled for the third quarter of 1983.) Additional cartridges will be created for use on both the *Odyssey*^{2} and the *Command Center*—thus further supporting the *Odyssey*^{2} into 1984.

There will be, however, new game cartridges that will work only with the *Command-Center* and will take full advantage of the new unit's features. About twelve *Command-Center*-only cartridges should be ready by the end of the year, including new deluxe *Master Strategy Series* games.

All that action by some big hitters indicates that there is still plenty of life to home videogames. Home computers are popular, to be sure, but serious computing and serious gaming just may not go together on the same equipment. **R-E**

NEW FOR COLECOVISION

Although it got off to a slow start, Coleco has recently shown a burst of energy and creativity that makes its new products worth watching for.

DANNY GOODMAN

IN THE PAST, VIDEOGAME-SYSTEM MANUFACTURERS WOULD introduce a console and a handful of cartridges to get the ball rolling, and then release a trickle of cartridges every several months. Early owners suffered from a lack of new challenges, and it took potential buyers a while to notice any growth in the variety of cartridges. It could be a couple years before you would legitimately be able to call the game selection a library. And, even then, all you'd have would be a console and a few cartridges.

That may still be true today for some companies, but not for Coleco. In the last six months of last year, the firm not only began shipping one of the most advanced videogame systems in the industry, but two expansion modules as well, along with cartridges containing the most popular arcade game titles at the time. In the succeeding 12 months—by the end of 1983—the Coleco system will have more state-of-the-art hand controllers, expansion modules, and computer add-ons than any other home game. That includes their *Expansion Module #3*, that will add a megabyte to *Colecovision's* memory.

Colecovision lives up to its claim of being a "third generation" videogame. Graphics resolution is equal to that of the best home computers, thanks to a Texas Instruments graphics-generator IC. It allows up to 32 different moving objects to be on the screen at once. The sound circuits are versatile enough to recreate arcade-game music and sound effects. Most importantly, the entire system was designed from the start to be expandable.

Console specifics

The *Colecovision* console's cabinet is a low profile, black plastic box with only two controls—an ON-OFF slide switch and a RESET pushbutton—both of which are flush with the cabinet. Two plug-in, coiled-cord hand controllers, when not in use, nest in separate bays, with only the joystick knobs extending above the case surface. There is ample room in the bays for the cords.

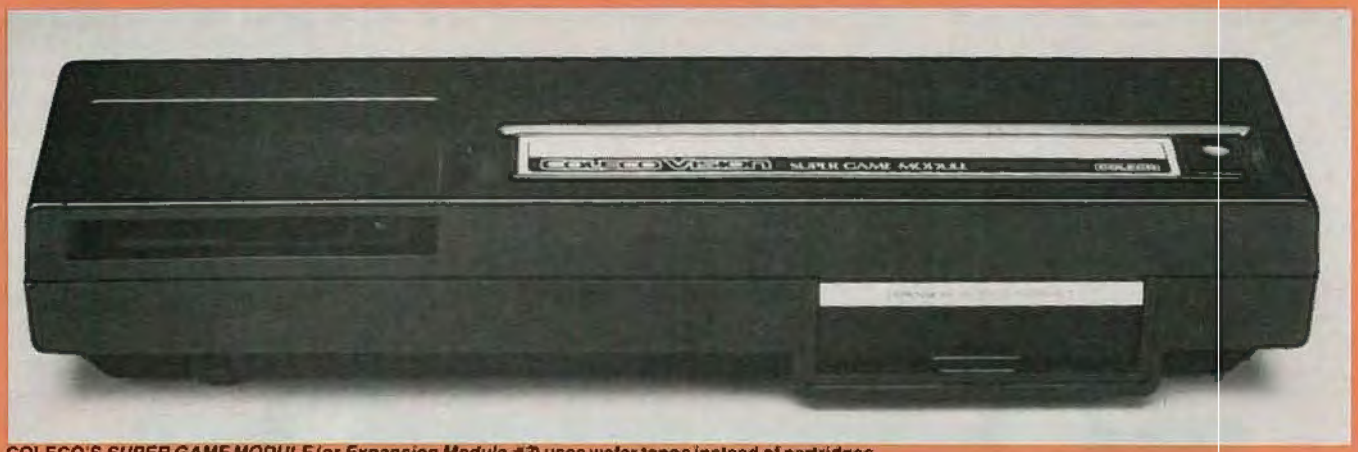
Power to the console is provided by a large wall-plug supply at the end of the power cord. While the transformer is apparently large enough to handle future console add-ons, having such a large and heavy box plug directly into the AC socket is awkward, since the box may also block access to another socket.

The procedure for connecting *Colecovision* to a TV set's antenna terminals is the same as that used for most videogames. A TV/game switchbox is included with the unit.

Colecovision cartridges plug into a top cartridge-slot protected by a hinged metal door that gets pushed out of the way as a cartridge is inserted. The door helps keep dust out of the circuit-board connector inside. On the front panel of the console is another slot with a sliding plastic door. That slot is where some of the expansion modules plug in.

Controller design

The standard *Colecovision* hand controllers have rightly been criticized for a couple of faults. For small hands—even small adult hands—they are awkward to hold. The body of the controller feels too wide for a comfortable grip. It would be accept-



COLECO'S *SUPER GAME MODULE* (or *Expansion Module #3*) uses wafer tapes instead of cartridges.

able if you only had to hold a controller with one hand, and let your other hand do all the action. But trying to use the side-mounted FIRE button is exhausting. And, when both fire buttons are used, cramps may set in. It is not unusual in a tense moment for the entire controller to pop out of your hands.

The joystick is also awkward. The big knob would be much more effective if the stick beneath it were longer. As it is now, you can't get the grip that you would expect from an arcade controller. For one-player games, you can plug in a more comfortable joystick—provided it is compatible with the Atari *2600*. You'll still need one *Colecovision* controller plugged in, because you need to use the keypad to select game levels and to restart games. There's an alternative, though—you can use Coleco's new super controllers (see below).

THE SUPER ACTION CONTROLLER gives you complete control over all the action.

A strong point of the controller is its numeric keypad. It's a touch-sensitive, membrane type, with each of the digits deeply recessed. Overlays, when needed, slide underneath the plastic grid. That way, you can feel your way around the keypad while keeping your eyes on the screen action—in sharp contrast to the *Intellivision* and Atari *5200* controller-overlays that make you look at the controller if you want to hit the correct key.

Adaptors abound

Coleco was the first on the market with an adaptor to accept Atari *2600* cartridges for play on a different system. The *Colecovision Expansion Module #1* is about one-third the size of the *Colecovision* console, into which it plugs via the expansion slot. The module has all the control switches used on the *2600* console handy. Two controller-jacks face the front (as they should on any console) for plugging in *Colecovision* or any *2600*-compatible controllers. With the expansion module installed, the *Colecovision* cartridge slot is disabled, and graphics resolution is the same as on the *2600*. While waiting for the *Colecovision* library to grow, players can take advantage right now of the nearly 200 cartridges on the market that are compatible with the *2600*. The module may also be an incentive for *2600* owners to upgrade to *Colecovision* without sacrificing a hefty investment in their *2600* software.

It is possible, however, that some *2600*-style cartridges may not work with the expansion module. Apparently, the cartridge-slot specifications for the module are not completely identical to those of the Atari *2600*. The difference is only a tiny fraction of an inch, but some cartridge cases (and the Starpath *Supercharger*) prevent all the contacts from making proper connections to the *Colecovision* adaptor. Coleco is working with *2600* software developers to make sure that won't happen in the future. Starpath, for one, is including a special extender with each *Supercharger* for use on the *Colecovision* adaptor.

Expansion Module #2 is a unique driving controller designed to convey the arcade realism of driving games like *Turbo*. Surprisingly, you can really get both hands on the steering wheel. A wired-remote foot pedal is your throttle. One of the hand controllers fits securely in the module at a convenient angle so its joystick can be used as a gearshift. Packaged with the module is the *Turbo* cartridge, a home version of a successful arcade game by Sega. Another driving game, *Destruction Derby*, is scheduled for introduction this year, with more on the drawing boards.

If you were already impressed by *Colecovision*'s fidelity to original arcade games, you'll be blown away by the capabilities of *Expansion Module #3*, planned for release this summer. The $125 add-on makes *Colecovision* the first videogame system to use a small magnetic tape format called wafer tape. Small cassettes contain very narrow recording tape that can transfer computer data much faster than typical computer cassette-recorders. That lets a game designer break up a very long program into sections. As the game progresses to new screens,

the tape quickly loads the screen information into the console.

Coleco can now offer a *Super Donkey Kong* wafer that not only plays all four screens of the arcade original (as opposed to three in the cartridge version), but throws in the amusing interludes between screens. And because the wafer is also a recording medium, all-time-high scores are stored even when you turn off the game. Wafer titles planned for later this year are *Super Donkey Kong Jr., Super Zaxxon, Super Turbo, Super Smurf, Super Sub Roc*, and others.

A roller controller is new for 1983. Made popular by a number of arcade hits like *Missile Command* and *Centipede*, a roller controller gives the player 360-degree control of the central character or cursor around the screen, with a velocity that varies depending on how fast the ball is spun. Coleco's adaptation is a separate console with slots for the two standard hand controllers. An important added design feature is that FIRE buttons are integrated into the roller panel, making it more closely resemble an arcade control panel. The first cartridge to employ the roller is a licensed game called *Slither*. Only games designed for the roller will benefit from its action, but more such cartridges are promised.

Super controllers

For something completely different, Coleco has "one-upped" everybody with a set of *Super Action Controllers* that gives you more control over the action than any other hand controllers around.

Packaged with a TV-camera-angle baseball game, the new controllers feature four buttons on the grip, a 10-button raised keypad (in a 2 × 5 arrangement), an easily grasped joystick, and a speed roller. With so many controls at your fingertips, very realistic play is possible. For example, in baseball, the defense can shift individual outfielders. On offense, the base runner can move at different speeds, according to how fast the roller is spun. Two more cartridges for the *Super Action Controllers* are scheduled for the immediate future—*Contact Football* and *Rocky Battles The Champ*, based on the movie hits.

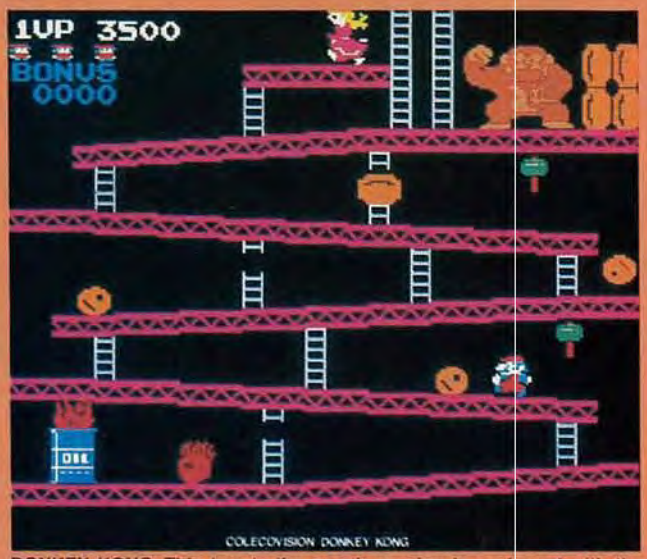
Further expansion modules are planned for this year, including a computer-keyboard expansion, details of which Coleco will not release until it is formally announced.

Software

Each time you plug in a new cartridge and turn on the console, a title screen appears for about 15 seconds. Then you are presented with a computer-like menu that supplies the game options available to you. Most games offer eight choices: four skill-levels for one or two players. Pressing the appropriate digit on either controller keypad starts the game. To replay the game, you need only press the star ("*") button on the controller, or the pound ("#") button to select a different game option from the menu.

Because *Colecovision* is targeted first toward the arcade-game crowd, it is not surprising that the company would choose a classic arcade hit game as the cartridge to be packaged with the console—*Donkey Kong*. Although there are minor flaws in the program that only experienced gamers will detect after considerable play, the *Donkey Kong* designer (perhaps "translator" would be a better term) has brought the true flavor of the arcade game to a home version. The graphics are crisp and finely detailed. Successful players are treated to three different screens of play, of which the third is an intense challenge even for experienced players. The home version is every bit as good a contest as the arcade original.

Zaxxon is *Colecovision*'s most expensive cartridge (about $50). The home version doesn't have quite the high resolution pizzaz of the arcade original—the variety of ground targets is much more limited—but players will still get the banking and flying feeling while guiding the jet over the floating space cities. As in the original, there are two cities and a free-space battle in between. Experienced players will find the *Zaxxon* robot scene easier to reach than in the arcade version of the game, but successive levels require more hits of his missile to be successful. Also at higher levels, some of the ground targets shoot sideways at you when you least expect it. The home version also lets you experiment freely with the altitude indicator at the screen's left edge in squeaking through tiny passages in walls guarded by deadly rays—where most quarters are lost.



DONKEY KONG. **This true-to-the arcade version is packaged with the *Colecovion* system.**

Other new arcade cartridges for 1983 include: *Donkey Kong Junior, Looping, Gorf, Wizard of Wor, Pepper II, Mr. Do, Space Panic, Victory, Space Fury, Wild Western, Frenzy*, and *Buck Rogers' Planet of Zoom*. Another Smurf cartridge is planned for the kids, as are a role-playing game called *Tunnels and Trolls*, and *Horse Racing, Blackjack/Poker*, and a game based on Count Dracula.

It's one thing, of course, to promise great products, and quite another to actually deliver. So far, though, Coleco has racked up an admirable track record in living up to its *Colecovision* system promises. That makes the future of *Colecovision* all the more exciting to watch. **R-E**

"Talk about pressure and tension...I don't mean in school, but trying to stay on top playing all the video computer games!"

ATARI 5200

With its high-resolution graphics, advanced controllers, and expansion capabilities, the Atari 5200 offers twice as much as the 2600, in more ways than one.

DANNY GOODMAN

THERE ARE A FEW PRODUCTS THAT HAVE HAD SUCH A DRAMATIC impact on the marketplace that either their brand names or the names of their manufacturers have become synonymous with the industry as a whole. How many of us cover a sneeze with a Kleenex, have a Coke with our lunch, or make copies on the office Xerox machine?

Atari hasn't had quite that kind of impact—at least as of now; still, thanks to its superior marketing and large game library, when most people think of videogames they think of the old reliable *2600*. Exact figures are hard to come by, but as many as 75% of the 15 million households that have videogame systems, probably have that first-generation programmable videogame.

On the market since 1977, the *2600* is an anomaly in the consumer-electronics industry, which rarely sees a product remain on the shelves a for more than two years before some "new, improved" version hits the street, condemning the earlier version to the pile of obsolete products. But, years after its introduction, the *2600* still flourishes.

But experienced game players—both home and arcade—seem to always want more from game manufacturers: more detailed graphics, more sound variety, more realistic game play, more challenging play, etc. For them, the *2600's* capabilities don't measure up to the kind of action they see in the arcades or on friends' personal computers.

To meet the demands of such players, Atari introduced its long-awaited advanced system, the *5200*, late last year. Originally announced to the trade in January 1982 as "System X," the *5200* was under development quite a long time before Atari decided on an official name. One inside Atari source claimed that the unit was officially nameless even during its early stages of production. That the machine's final name is a number that is equal to *2600* × 2 would lead us to believe the new unit offers twice as much as *2600*. In many cases that is true.

Good looks

While it may be difficult to think of a videogame as being "professional," the *5200* without question is the most professional-looking unit to generate a space invader on a color TV. The console is shaped like a gently sloping wedge, made out of black plastic with liberal trim including smoked plexiglass panels on the top surface and a brushed-aluminum band. The smoked panels and the brushed aluminum are protected in shipment from the factory by easily removable self-adhesive plastic sheets. Other than the trim, the only features of note on the top surface are the wide cartridge slot and a single ON-OFF pushbutton.

The console is not small, measuring 4¼ × 15 × 13 inches, and therefore takes up quite a bit of space wherever you set it up. And while it is undeniably attractive, unlike its durable brother, this system's console may not take well to careless children—the plexiglass and brushed-aluminum surfaces are more susceptible to scratches and other damage then the *2600's* tank-like case. But overall, the *5200* is the prettiest game around to look at, even when it's off.

One advantage Atari had in developing the *5200* that it didn't have when it developed the *2600* was feedback from players

ATARI'S *TRAK-BALL* controller gives the *5200* that arcade feel. It's a great improvement over the joystick supplied.

about hardware features they'd like to see. Just about every design oversight of earlier videogame systems has been corrected in the *5200*, and several interesting innovations have been included.

One less wire

Perhaps the biggest headache associated with owning any earlier home system is the unavoidable rat's nest of wires linking the console to AC outlet, TV antenna-terminals, and hand controllers—a minimum of four cables. And, there is the pesky switchbox that selects the TV input (either the TV-antenna or game) to contend with.

Engineers at Atari attacked the problem head on, coming up with an ingenious new switchbox that manages to eliminate one of the wires to the console as well as the manual switch. In the new setup, the switchbox is an active component. Power from the AC transformer goes to the switchbox. From there, power passes to the console along the same cable used to convey the video output to the switchbox. Excess cable between console and switchbox can be wound around a recessed channel under the console. The real magic, however, comes when you want to play a game. When you press the console's ON-OFF button, the switchbox electronically selects the game input. When you're through playing, press the ON-OFF button again, and the switchbox selects the TV antenna. Nothing could be easier.

Of course, the custom switchbox arrangement means that you must use Atari's box, even if you have a fancy video switcher.

A brief word about the power transformer. Following the sensible example set by its *400/800* computers, Atari places the actual transformer box midway along the power cable. The advantage to that over the more standard wall-plug-type transformers is that a transformer of ample size can be used without too much concern about the space it takes up. Otherwise, the wall-plug unit is likely to take up so much space at the AC socket that access to the other sockets is hindered—sockets that are needed for such things as your TV, VCR, and so on.

Another nice feature of this system is that you don't have to remember to turn off the console before changing cartridges. That is a convenient feature to be sure: Although most experienced game players are by now conditioned to turning off the power first, many of their friends and neighbors are not. Pulling out a *5200* cartridge causes the screen and sound to go blank but will not cause damage to either the cartridge or the console. (Sometimes, though, when you re-insert a cartridge, a quick on-off cycle is needed to clear the screen of "garbage.")

The console also has another feature that, although simple, could save you a couple of service calls. Due to the lack of any kind of on/off indication, all too often owners of almost every other system have come back to their unit only to discover that the game has been left on all night. That could prove fatal to a game, especially to units with inadequate ventilation. The likelihood of that happening is reduced in the *5200*, as it features a pilot light that glows whenever the unit is on.

Advanced controllers

Borrowing an idea from home computers, all four hand-controller sockets (ports) are located on the front of the console, closest to the players. That arrangement gives players much more effective cord length for the controllers.

But even more important is the controllers themselves; they look like they have a lot going for them, and they do, with the two exceptions noted below. They are, of course, all-in-one controllers, with both a joystick and twelve-button keypad. There are two FIRE buttons, called the upper and lower FIRE

A REALISTIC-LOOKING PLAYFIELD is the highlight of Atari's Soccer.

***MISSLE COMMAND* looks very much like the original.**

buttons, located on each side of the controller (to accommodate left- and right-handed players). The buttons are located close enough to each other so that repositioning your hand to hit either one (a drawback in the *Intellivision* controllers) is not required, and they are not so stiff as to cause discomfort during rapid firing.

A row of buttons along the top of each controller gives one player the ability to reset and start games without reaching for the console. A third button is the key to a helpful innovation—it lets the player pause at any spot in a game to answer the phone or plot a possible escape from impending destruction.

There is, however, one serious problem with the joystick—a problem that will be particularly troublesome for anyone who has played another videogame for any length of time. Unlike the joysticks for every other system on the market, these are not self-centering and, because of that, make the action on the screen hard to control. Problems with that design become very apparent in a number of games. For example, in *Star Raiders* you must carefully position a tiny cursor within a small box representing a sector of a galactic grid-map, but valuable time is usually wasted trying to keep the cursor steady. A self-centering joystick lets you gently nudge the cursor to the appropriate box. In *Super Breakout*, the cartridge supplied with the unit, the joystick provides nowhere near the level of precision offered by the *2600's* rotary paddle-controllers. Most of the problems will be solved nicely by the optional *Trak-Ball* controller, but Atari still should have made the joysticks more controllable.

Another disappointment is the keypad. At first touch, the keys have a nice "feel" to them, and it seems as though it might be possible to find your way to the right buttons without looking away from the action on the screen. (That's nearly impossible with the barely articulated bubble keys on Intellivision controllers.) But it doesn't take long to discover that the keypad overlays take you backward one step, by essentially converting real keys into flat membrane keys. In playing *Star Raiders*, in which swift interaction with the keyboard can make or break a mission, a player can be blasted to bits while fumbling to turn on his shields. Game play is often much easier if the key functions are simply memorized and the overlay discarded.

One really nice thing about the controllers is that they nest completely out of sight under a plexiglass panel when not in use.

Software Library

Because it is a new home videogame, the *5200* is somewhat light in the software department, but that status should change as more machines are sold. Initial offerings consist of eight time-tested arcade winners and a few sports games.

Because the circuitry of the *5200* resembles the Atari family of computers (the same 6502 microprocessor, graphics resolution, and sound generation) it's not surprising that most of the first cartridges to hit the market are adaptations of Atari computer games. They're not *exact* copies, however; they have been slightly enhanced in places.

For example, in *Super Breakout* you have the same four game-variations (Breakout, Double, Progressive, and Cavity), but each time you bounce a ball up to one of the bricks, the bricks dissolve, rather than just disappear.

Pac-Man is unquestionably the best home version of the all-time great. For the *5200*, Atari's designers took the already fabulous home-computer version and added humorous intermissions, similar to those found in the arcade version of the game.

Galaxian and *Missile Command* look very much like their arcade originals, while *Space Invaders*, although an exciting rendition, lacks the alien rocket ship along the left side of the screen found on the computer version. Other arcade titles include *Defender*, *Centipede*, and *Qix*.

Sports titles are limited so far, with high-resolution action available only for soccer, football, and baseball.

Independent cartridge-designers like Activision are keeping a close watch on sales of the Atari system to determine when (or whether) there will be enough units to make it worthwhile to design cartridges for the new machine. Imagic, however, has already announced its intentions to have *5200*-compatible cartridges available by Christmas.

Expandability

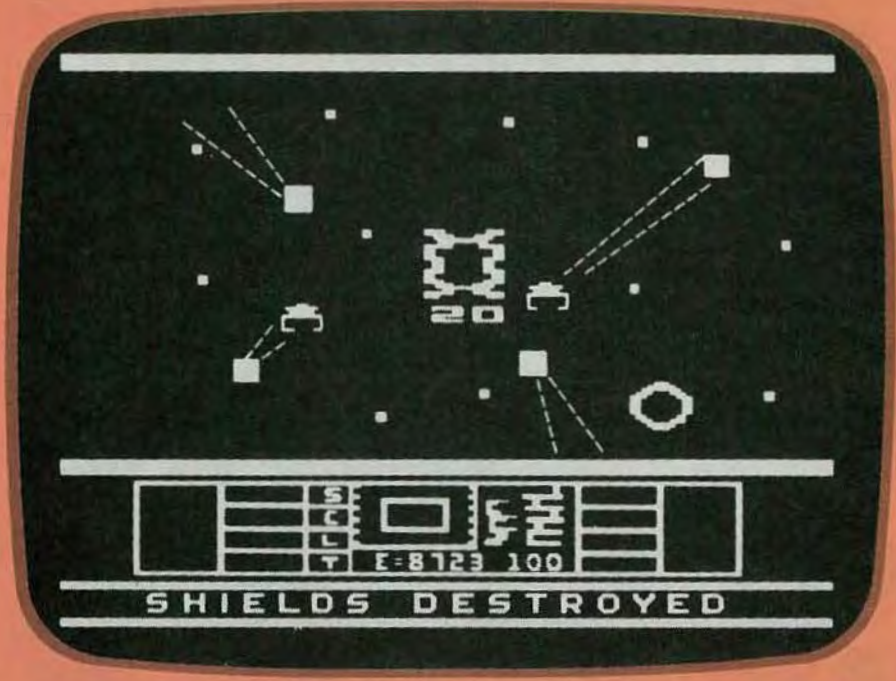
Among the features that are sure to draw gamers' attention is the fact that additional options will make the unit even more desirable in the future. The first option to come to market is a roller-ball controller that provides 360-degree directional control of the cursor or character on the screen. The *5200 Trak-Ball* controller features two sets of keypads and fire-button pairs (presumably to accommodate both left- and right-handed players). Of all the home roller-ball controllers available, that add-on has the most arcade-like feel and the largest surface area around it for controlled play even under panic game conditions.

Other accessories announced include a voice-synthesis module and a *2600*-cartridge adapter. Atari might have won over many of the gamers who chose *Colecovision* if that *2600* adapter had been ready from the beginning. That's because the only serious drawback that the *5200* has is the small library currently available for it.

The *5200's* $250 price tag is high, especially when you consider that you can buy an Atari *400* computer for about the same price, and there is a far larger game library available for the latter machine. But as add-ons and new, distinctive, software become available only for the *5200*, it may be one of the few systems to survive the computer gold rush of the 1980's. **R-E**

STARPATH'S SUPERCHARGER FOR ATARI

VIDEO GAMES



Perk up your Atari-2600-compatible videogame console with this new accessory. Its combination of added RAM and high-quality games is hard to beat.

DANNY GOODMAN

TO MOST OWNERS OF AN ATARI *2600* (OR AN ATARI-*2600*-compatible machine), the cartridge slot is simply where you plug in your ROM-based game cartridges. But to owners of Starpath's (324 Martin Ave., Santa Clara, CA 95050) new *Supercharger* unit, it is the launching pad for a new series of games that make the *2600* do a lot more than most game players would ever have thought possible.

The exciting new system offers a unique combination of features that include enhanced graphics and the ability to load games from cassette tapes; you can play more complex games than ever before on the *2600*, yet at a cost-per-game that's half that of its nearest cartridge competitors. By mid-year, Starpath (formerly called Arcadia) expects to have about a dozen games on the market; all are playable only through the *Supercharger*, which plugs into the cartridge slot on the game console. Besides offering the best graphics ever devised for the *2600*, a high percentage of the games are first-rate in their own right, pointing toward even greater things to come.

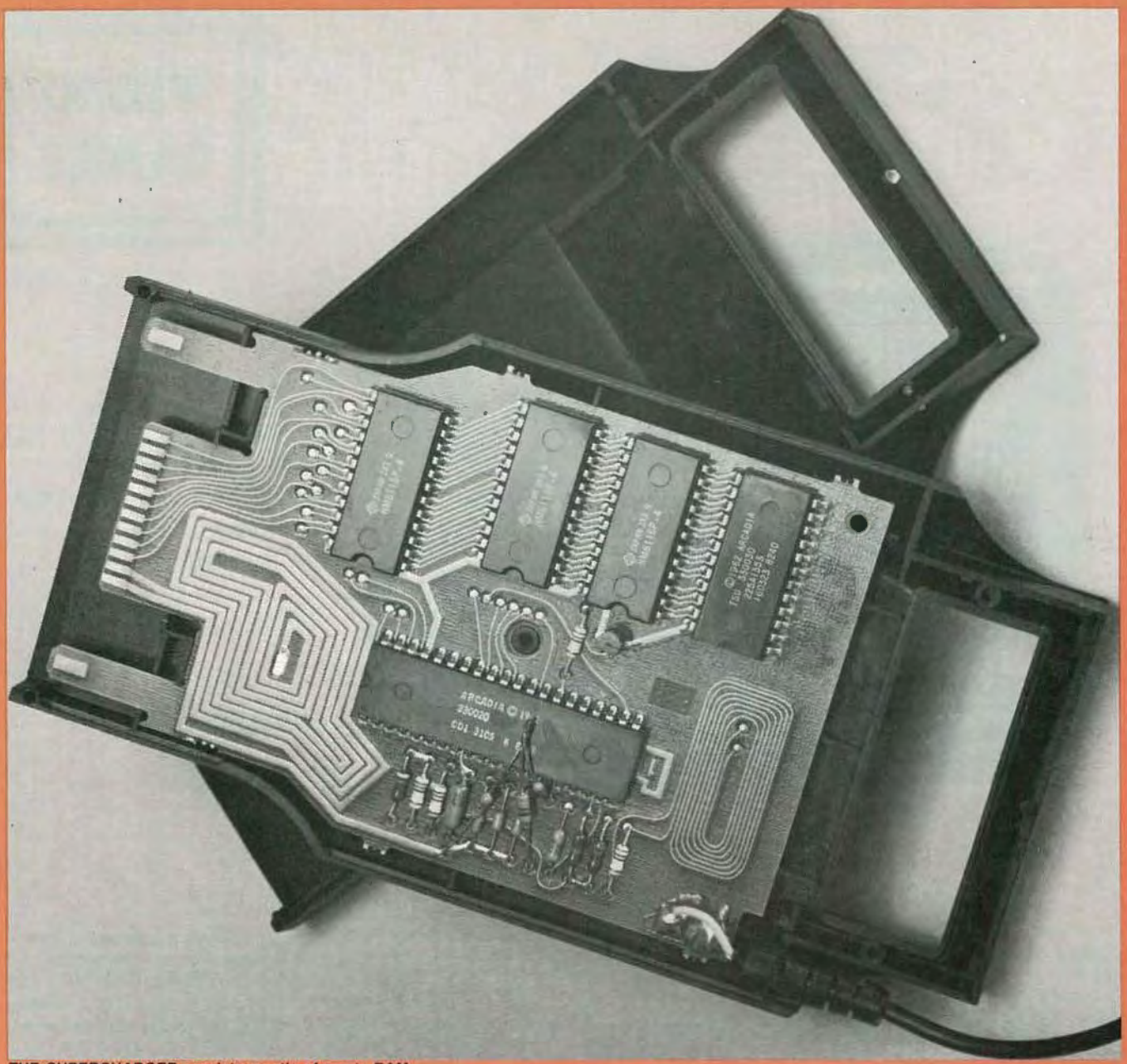
Atari graphics

To understand how the *Supercharger* works its magic takes a little knowledge of what goes on inside that Atari *2600*. The *2600* offers only 128 bytes of internal RAM (*R*andom *A*ccess *M*emory), some of which must be held in reserve to keep track of information like score digits, the number of turns left for each player, the instantaneous location of objects on the screen, and the like. That limited amount of RAM can sometimes be severely taxed, such as when the *2600* sometimes needs to perform a split-second calculation while a scene is being "painted" on the TV screen (as the picture tube's electron beam scans horizontally across the screen). It's obvious that some compromises have to be made. For instance, during calculations, the *2600's* video generator simply repeats the last line it painted until it receives further information to do otherwise. Therefore, much of the time the resolution of the graphics is limited to just every other line. But the *Supercharger* changes that.

Under normal circumstances, a game cartridge consists of ROM (*R*ead *O*nly *M*emory) that is factory-programmed to turn the *2600* into a *Missile Command* game, or whatever—the *2600* gets its instructions from the ROM in the cartridge. The *Supercharger*, on the other hand, consists primarily of empty RAM (plus some ROM containing factory instructions on how the system is to "behave"), and boosts the *2600*'s overall RAM capacity to over 6000 bytes. All the electrical power the *Supercharger* requires comes from the cartridge slot—a definite convenience.

To play a game, the game information (similar to the information contained in a cartridge's ROM) must first be loaded into the RAM. The procedure to do that is similar to the one used when loading a cassette-tape program into a personal computer—only easier. Games are downloaded through a 34-inch cable that is wired into the *Supercharger*. That cable is terminated in a ¼-inch mini phone-plug that can be connected to any cassette-tape recorder, even "walky-type" personal stereo-cassette players.

Unlike a computer, which requires typing some BASIC command on the keyboard (CLOAD for loading from a cassette, for example), the *Supercharger* prompts the user right on the



THE *SUPERCHARGER* consists mostly of empty RAM.

screen. Over a background of twinkling stars, the words REWIND TAPE and PRESS PLAY appear. In a few seconds the program begins loading into RAM. Vertical blue bars fill the screen during the 30-second load, indicating that everything is going smoothly. If an error crops up, the screen immediately reverts to the prompt messages for another try. Once the full program is loaded, the screen tells you to STOP TAPE. When you do, you see the title screen for the particular game you've loaded.

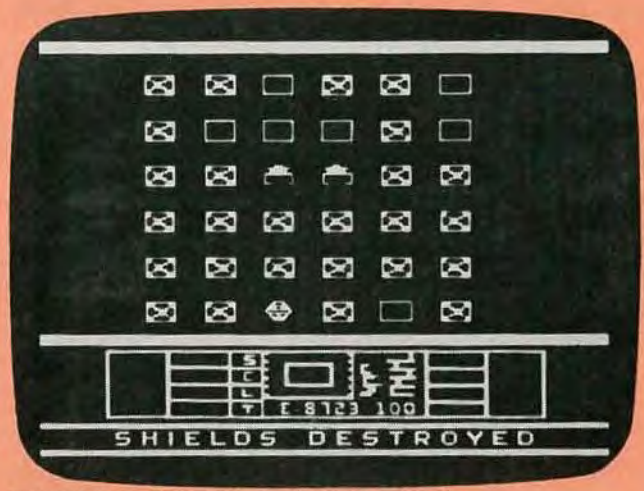
The bulk of the *Supercharger's* RAM is devoted to game-play information, taking the place of a cartridge ROM; but even so, more RAM is devoted to storing screen images than would be possible using the *2600* alone. The extra RAM allows the game system to perform any calculations needed during the vertical-blanking interval (the period during which the black bar you see when the vertical hold is misadjusted is scanned). Thus, information for a complete picture frame can be "read" without interrupting the screen painting. The result is a video image that can address individual horizontal scanning lines on the TV screen. Images are sharply defined and detailed, much more so than you would think possible using a *2600*.

Multiple-load games

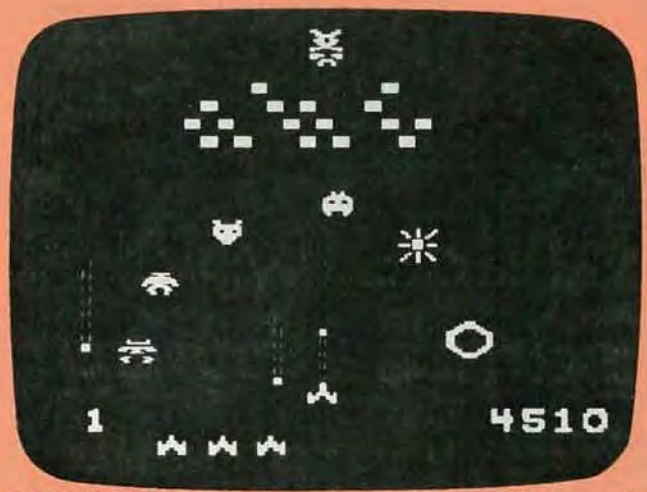
Cassette loading of programs into the game system produces an added benefit—increased game playability. A ROM-based program is limited in the variety of game play and/or the variation in screen displays—or "boards" as arcade gamers would call them—it can provide. The problem is that the *2600* can access only a small amount of memory (either RAM or ROM) at any given time. One method of building multi-level, multi-screen game play is to develop a series of cartridges that use knowledge from earlier games as the basis for further play. Atari is doing just that in its *Sword Quest* series, and Imagic is using a continuing theme in *Atlantis* and *Cosmic Ark*, with others perhaps to follow.

Starpath has a better solution: successive levels on multiple loads of the same cassette tape. *Escape from the Mindmaster* and *Dragonstomper* (one thing's for certain, this company has some of the most imaginative game titles on the market) were the first two to use that technique.

Escape from the Mindmaster is the first *2600*-compatible maze game to feature realistic three-dimensional effects; it appears as if you are really walking down corridors and through



***PHASER PATROL* is shipped with the *Supercharger*.**



THE ACTION IN *Communist Mutants From Space* is even better than its name.

doorways. That creditable job is the result of the *Supercharger's* high-resolution graphics that reduce to a minimum the "stairstepping" effect so noticeable on diagonal lines in the basic system.

The predominant game play is much like a psychological test of perception and memory. Scattered about a maze's dead-end alcoves are several shapes and the respective "holes" in which they belong. A radar screen gives you a better appreciation for the layout of each maze. First you must find a shape, pick it up with the action button (you can carry only one object at a time), and find its hole elsewhere in the maze. Press the action button again and the object flies up to the hole, and you can move on. In early levels, the shapes are easy to remember—a square, circle, etc.—but they get far more complex and similar as play progresses—some even resemble tinkertoy-like objects, for example. The locations of shapes and holes change each time you load the program so the game always presents you with a fresh challenge. When you've completed a level, you have to find a secret doorway that gets you upstairs to the next level. Each load of the tape contains two mazes, or a total of six mazes in all that must be solved in order to escape the Mindmaster. A fourth load contains a score and rating screen.

There's more to the game, of course. Another creature is also in each maze. If he touches you, you lose a "life." Fortunately, his movements are restricted to main corridors, and an audible alert lets you know whether he is near. If you're about to go through a doorway and the tone is high-pitched, you can be sure he's right on the other side of the door waiting for you. At higher levels, some interior corridors have deadly force-field panels flying by. You've got to time your passage just right and stop on a dime before the next one comes at you. Don't be fooled into thinking that, since you start with ten lives, you'll have no trouble getting to the top. It will probably take weeks before you make it to the third load.

When (*not* if) you lose all ten lives, you are instructed to PRESS PLAY on your tape player. The tape loads each successive level into the system, but the console knows that it must automatically continue to the last, the scoring level.

Also, in an alcove within the first five mazes is a game-within-a-game for a chance to earn bonus points. Each one is different—some are strictly hand-eye coordination tests, while others are reflex challenges or memory quizzers. Oh yes, they also help you forget where you may have seen shapes and holes you're trying to remember for later reference.

When you add up the superb graphic imagery of the hallways, good sound package (including the audible alarms), distracting sub-games, and far more board variety than possible from any other existing ROM-based cartridge, *Escape From the Mindmaster* ranks among the finest videogames on the market.

Dragonstomper

Another multi-load game, *Dragonstomper*, is a graphics adventure game with three complete loads. Each load level is a completely new graphics environment for your character. The first territory takes up about about six screens as the view scrolls around the "landscape." You do battle with a variety of enemies, picking up strength, gold, and other possessions along the way. Your interim goal is to acquire an identification paper, or enough gold to bribe the guard at the bridge.

The second load is a city. It is only one screen big, but there are four shops in which you can buy or trade possessions for supplies you may need in the last journey to the dragon. Once equipped with your supplies, you pass into a cavern where many dangers and hand-eye challenges await before you can meet that beast.

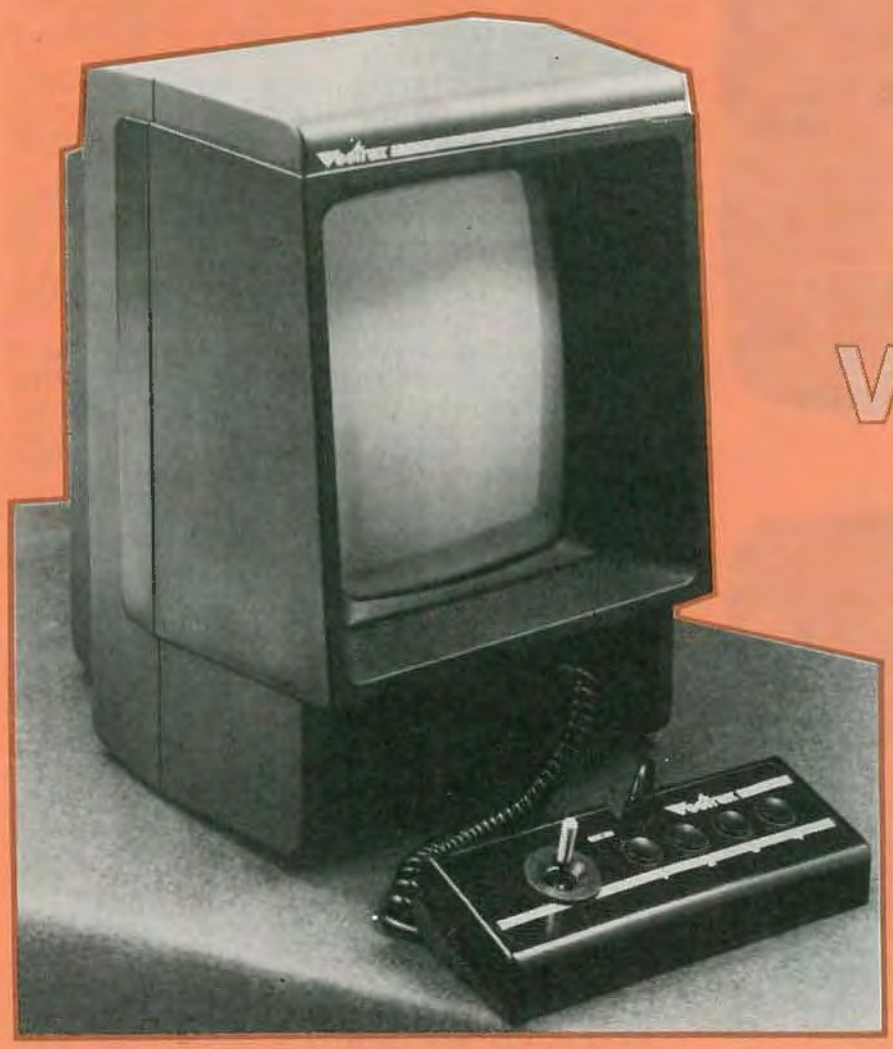
Typical of adventure-type games, the instructions are sketchy, leaving you to experiment with the effectiveness of your various possessions on the hazards.

As you can probably gather from those two examples, some Starpath games are not for the novice videogamer. The challenges are tough, and even the single-load games like *Fireball* and *Communist Mutants From Outer Space* are likely to hold the interest of even the veteran videogamer. The cassette packaged with the *Supercharger*, *Phaser Patrol*, is perhaps the best *Star-Raiders* variation available for any home game.

Not everything has gone smoothly for Starpath. It ran into a small obstacle in late 1982 when Coleco started shipping its *Colecovision* expansion-module for Atari *2600*-compatible cartridges. For want of a few thousandths-of-an-inch clearance in the adaptor slot, the *Supercharger* (and some *2600*-compatible cartridges as well) do not make complete connection. Starpath is now including a small extender for use with the adaptor. Owners of earlier units can obtain an extender at no charge, if they need one.

The good news for Atari *computer* owners is that Starpath is adapting some of its games for a single load into the computer. Games like *Escape From The Mindmaster* take up about 32K of memory, so only specially upgraded Atari *400's* (which come with a factory maximum of 16K RAM) or Atari *800/1200XL* computers can play them.

The bridge to computer software is not an unlikely move for Starpath. The company insists that although its first product was hardware oriented, it is not developing hardware simply for the sake of selling hardware. To reinforce that statement, Starpath recently reduced the suggested retail price of the *Supercharger* to $44.95, or slightly more than the list price of a top-of-the-line cartridge. When you consider that additional, deluxe games are available on cassette for only $15 to $17 each, it is clear that the *Supercharger* is a great value for the *2600* owner looking for more. Its combination of great games and great graphics is one that's going to be hard for any videogame system to beat. **R-E**



VECTREX

One of the most important considerations in a videogame is the quality of its graphics. The Vectrex system takes an unusual approach to providing images of extraordinarily high quality.

DANNY GOODMAN

RECREATING THE "ARCADE EXPERIENCE" HAS BEEN THE GOAL of several home-videogame manufacturers ever since the boom in arcade action caused by *Space Invaders*, *Asteroids*, and the unforgettable *Pac-Man*. However, the limitations of home color-TV receivers prevent full reproduction of the high-resolution color graphics used by the arcade machines, no matter how sophisticated the game or computer console hooked up to them.

One system, though, does manage a creditable job of bringing a genre of arcade-game display and action to the home versions of vector-scan games like *Asteroids*, *Tempest*, and *Reactor*. The game system is called *Vectrex*, and is manufactured by General Consumer Electronics, Inc. (GCE), a Milton Bradley subsidiary. To capture the arcade realism, the GCE folks had to equip the console with its own black-and-white video monitor. Yet, they managed to do that for under $200, with plug-in cartridges ranging in price from $30 to $40.

What the game player ends up with is an entirely self-contained, challenging videogame system that is no longer tied to a color TV in the home. Since GCE developed the entire system itself, it had the luxury of orienting the video monitor vertically, as are most arcade displays. That makes the *Vectrex* quite compact; it takes up little tabletop-space. Moreover, it is very portable. Since you need only connect it to an AC outlet, you can move the *Vectrex* anywhere.

The vector-scan display

The *Vectrex* is the first home videogame to use a vector-scan display. Vector scanning does not rely on a series of raster lines—the basis for ordinary TV-screen displays—to create an image. Instead, the video images are practically "drawn" on the screen in outline form by the CRT's electron beam. No areas are filled in with color, but the outline shapes can be very high in detail. Objects can grow larger or smaller, rotate about one or more axes, and move smoothly about the screen, all without flicker. Although the video monitor is black-and-white only, color is added to every game by screen overlays supplied with each cartridge. The overlays are sturdier than what you may remember from the old videogame days. Back then—only about ten years ago—playfields printed on clear plastic had to be taped over the TV screen as simple flying dots or blocks responded to hand-controller movements. But with the *Vectrex*, a colorful transparent plastic screen is held in place by a cardboard frame that fits over the face of the display. Two small tabs on the console prevent the overlay from sliding out. Any attempt to work the games without the overlays proves at once that a little splash of color adds a great deal of enjoyment to the play.

Using the *Vectrex* in an area with strong overhead light can be disturbing, though, because the light is reflected by the screen behind the overlay (there is a small gap), diminishing the visual impact of the video images gliding along just below the surface of the overlay.

Controllers

If you press a small tab under the display, a hinged controller-box drops down; it can be moved to any comfortable playing position. On the control panel are four pushbuttons and a joystick. For each game, any combination of controls may be called

VETREX'S GRAPHICS capabilities are shown in *Web Warp*.

PINBALL ISN'T DEAD yet! Shown here is Flip Out pinball.

into action. As a reminder to the game player, the function of each button is summarized at the bottom-right of every game overlay. The buttons don't have the same degree of travel as those in arcade games, but the feel of complete control and the capability for manual rapid-fire is there. The joystick, however, is too short and has too much travel for some games. Perhaps as more *Vectrex* units are sold, someone will market an upgraded controller panel. It will be easy enough to install because the standard panel plugs into the console. A second controller jack is also provided but, so far, two-player games have the opponents taking turns, instead of participating in head-to-head (or hand-to-hand) competition.

In a recessed cavity behind the control panel is a RESET button, the ON/OFF-VOLUME control, and a small speaker. The audio amplifier within the unit can produce enough sound for even the noisiest playing environments. Sound quality could be enhanced, however, if it were possible to hook up an external amplifier and larger speaker. Game cartridges plug into a slot on the lower-right side of the cabinet; if no cartridge is inserted, the unit automatically starts with its built-in game.

Cartridges

GCE's initial library of cartridges includes some excellent-looking, -sounding, and -playing, games. Several are in the Asteroids vein, with a central rotating spaceship shooting at debris floating by. One of the favorites, however, is *Scramble*, based on the arcade game of the same name. A jet fighter must maneuver through several levels of horizontally scrolling scenes. Various ground-based missiles and airborne enemies are out to blow away your fighter. At the same time, your fuel gets used up, requiring you to bomb fuel tanks along the way if you're going to have enough gas to destroy the enemy fortress in Level Six.

New for 1983 are six cartridges, bringing the total to 18. Most notable of the new batch are *Web Warp*, *Flip Out Pinball*, and *Spike*.

Web Warp is a two-screen adventure, starting you out piloting a space jet in a webbed, U-shaped trench receding to infinity. As you maneuver up and down the sides of the trench, the monitor's perspective of the web changes slowly. The net effect will give some players vertigo—that's how well graphics can be executed on the *Vectrex*.

The pinball game is the first home-video version to provide a proper, vertically oriented, playfield. Flipper action is one of the best in home games, but still not up to the real thing. Ball movement, however, will rival that of any other home pinball-game. One thing no videogame has yet done successfully, though, is to find a way to communicate to the video screen the effects of body-English on a pinball box.

In *Spike*, the first talking videogame cartridge that doesn't need a synthesizer box, the skill required to help Spike rescue Molly makes up for the frivolous use of speech synthesis. In the first screen, for example, you must make Spike hopscotch from tile to tile before the one on which he is standing dissolves or scrolls off the top of the screen. A successful trip to the end of that challenge reveals a doorway off to one side through which Spike must leap—only to encounter a different challenge of hand-eye coordination.

The *Vectrex* games are complex. For the most part, they are designed to keep even the "hot shot" arcader engrossed or challenged. At that GCE is very successful. Most of the games start out tough, and get more difficult from there. That's good news for home gamers who don't find Atari-type games challenging enough. Just remember, though, that until a broader range of cartridges appears, the *Vectrex* is more for the serious videogame player than for the novice. **R-E**

SOFTWARE & ADD-ON'S FOR '83

There are some innovative and exciting games scheduled for release this year. Here's a look at just a few of them.

DANNY GOODMAN

A VIDEOGAME EXECUTIVE, EARLIER THIS YEAR, LIKENED THE Atari *2600* to a Chevrolet, in that it is something of a mass-market standard and should enjoy a degree of longevity, even in competition with Maserattis and Rolls Royces. There are so many *2600* consoles installed in homes—10 million by some estimates—that an attractive market exists for new cartridges, new controllers and other add-ons just to expand the use of those existing videogames. And just as Chevrolet has a runner-up, Ford, to contend with, so Atari watches the second-best-seller, Mattel's *Intellivision*, get the benefits of providing a lucrative aftermarket as well.

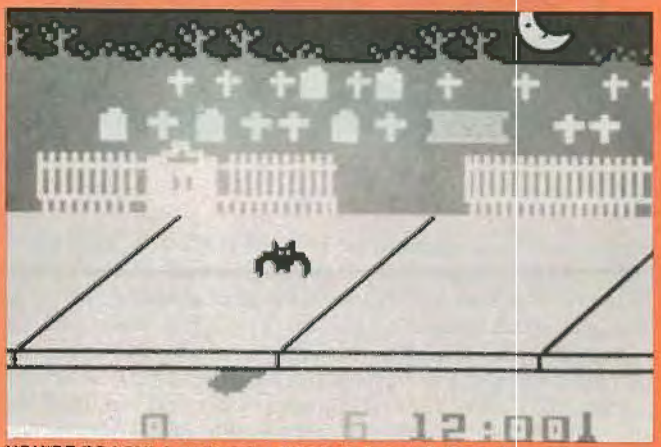
With so many engineers in dozens of companies poking around *2600* and *Intellivision* consoles, it's not surprising to see novel applications and software still coming around. Last year we saw Starpath's *Supercharger* soup up *2600* graphics resolution. (See the separate article on the Supercharger elsewhere in this special section.)

In 1983, CBS Video Games (41 Madison Avenue, New York, NY 10010) is introducing a series of games that perform graphics enhancement within the cartridge itself. A special integrated circuit, developed exclusively for CBS, adds RAM capacity to the *2600* from inside the cartridge. One of the first two games to use the *RAM-Plus* IC is *Wings*, an aircraft simulator that displays several instrument-panel readings, and the horizon line through the windshield. Another enhanced game, *Tunnel Runner*, attempts a three-dimensional perspective of walking down corridors in a maze. From a prototype we saw, however, the effect, though good, was not up to the illusion accomplished in Starpath's *Escape from the Mindmaster* game for the *Supercharger*.

Spectra Video, Inc. is at work on three-dimensional games for which players must wear red-blue glasses like the ones they hand out at 3-D movies. The spatial effect in *Vortex* is of a three-dimensional field of meteors, through which you must maneuver a spaceship.

2600 computers

Emerson (One Emerson Lane, Secaucus, NJ 07094), Spectra Video (39 W. 37th St., New York, NY 10018), and Entex (303 W. Artesia Blvd., Compton, CA 90220) have introduced computer keyboard add-ons for the *2600*. The Entex version has a number of impressive features for a simple videogame supplement. Central to the Entex *2000 Piggyback Computer* (about $130) is a Z80A microprocessor, 8K of ROM with a limited BASIC language instruction set, and 3K of RAM, which is expandable to 18K with an optional memory-expansion cartridge. A standard, full-travel keyboard includes nine function keys, four cursor-movement keys, and several other important



YOU'RE DRACULA and you're thirsty in Imagic's *Dracula*.

SOME GAMES CAN be played much easier with a roller controller. Shown here is Atari's *Trak-Ball* for the *2600*.

functions not found on other low-end computers. Software cartridges will focus on home management, self-help and elementary education. An optional cartridge will allow programs to be saved or loaded on cassette, and RS-232 communications capability is planned.

Atari will also have its own *2600* computer keyboard later this year. Probably called *My First Computer*, the add-on will offer enhanced graphics with a new series of cassette tape-based software.

One of the more practical devices to appear on the scene this year is the *Videoplexer*, by Compro Electronics (365B Clinton St., Costa Mesa, CA). For about $60, you get a box capable of holding up to eight cartridges. At the press of a button, the *Videoplexer* selects one of the cartridges for play. That will save wear and tear on both cartridges and console slot, if you like to switch among several cartridges during a play session. Models are available for the *2600* and *Intellivision*. The toughest part, though, may be selecting only eight cartridges from your library to store in the *Videoplexer*.

Controllers

New joysticks and controllers abound, especially for the *2600*. Questar (670 NW Pennsylvania Ave., Chehalis, WA 98532) offers a small rapid-fire box that goes in-line between any joystick and the *2600* console. The firing speed is adjustable with a knob on the box. The same company makes heavy-duty controller consoles that replicate the feel of arcade control-panels with joysticks and FIRE pushbuttons (one each for left- and right-handed players). A version with two fire buttons (for lefties and righties) is now available for Colecovision.

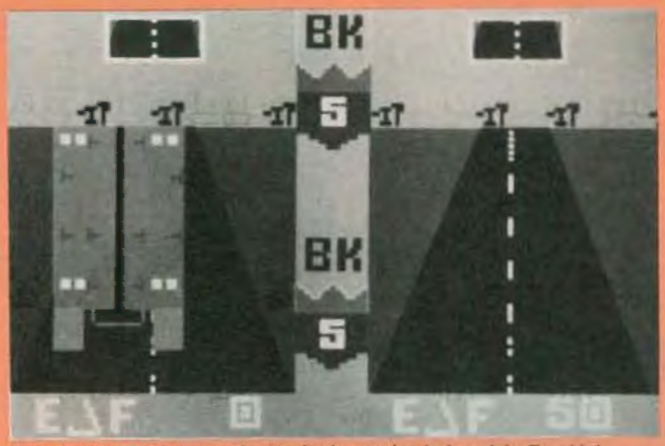
Amiga (3350 Scott Blvd., Santa Clara, CA 95051), a new company in the game business, has demonstrated a *Joy Board* controller—a combination joystick and skateboard. You use the device standing up, controlling the eight-contact switch by throwing your weight in the appropriate direction. One application is with Amiga's skiing cartridge, in which you have a skier's eye view of the slopes as you try to maneuver through the gates.

Atari has finally emerged with a few new control packages for the *2600*. A track-ball controller should be available soon, as will a *Proline* joystick with a hand-contoured grip and faster response than the standard units. A new wireless joystick set will finally let Atari partially fulfil one of its dreams—a wireless all-in-one-controller console—that never made it to market.

For less experienced *2600* players, a new *Kid's Controller* will be usable with Atari's latest educational software endeavor with the Children's Computer Workshop (part of the Children's Television Workshop). Apparently, little hands have difficulty managing joysticks. Atari's answer is a 5 × 7-inch, 12-button, keyboard that uses overlays from each cartridge activity to let the kids move characters more easily or enter keyboard input. In one game, for example, four "arrow" buttons are used for direction and another button is pressed in place of a FIRE button.

Atari cartridges

The first five titles in the series for 3-to-7-year-olds are

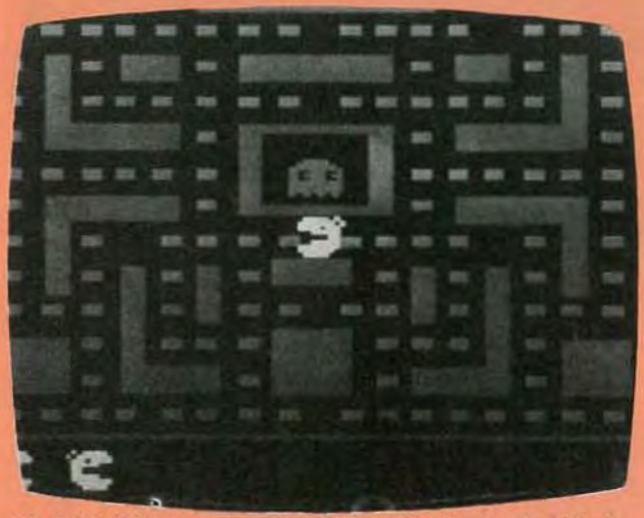


YOU CAN LEARN some of a trucker's worries in Imagic's *Trucklin'*.

(tentatively), *Oscar's Trash Race*, *Cookie Monster Munch*, *Big Bird's Egg Catch*, *Grover's Music Maker*, and *Alpha Beam*. Later this year, the Atari *Kid's Library* will have new characters join the learning experience—including the Peanuts gang, and Walt Disney favorites Mickey Mouse, Donald Duck and others.

Most of Atari's other introductions for the *2600* are from arcade titles. *Centipede*, *Ms. Pac-Man* (which does more justice to the arcade original than Atari's *Pac-Man* does), *Vanguard* and *Dig Dug* will probably be the most popular.

While most other software companies pursue arcade titles and



MS. PAC-MAN **does a creditable job of adapting the arcade original.**

other popular-culture tie-ins (movie hits, TV shows, etc.) some of the best work is coming from the small group of successful, fresh game companies like Activision (2350 Bayshore Frontage Road, Mountain View, CA 94043) and Imagic (20665 Fourth Street, Saratoga, CA 95070). The best games of 1983 are more likely than not to come from one of these two companies.

Among contenders for the top *2600* cartridge crown will be Activision's *Enduro*, a challenging car-race game, complete with the most convincing fog sequence on home video. *Robotank* will be a favorite among hard-line gamers, as they steer a remote-control tank (the TV screen is looking through the tank's video camera) to meet the enemy under all kinds of environmental conditions. Even those two, however, will have a tough time beating out *River Raid* for its unending challenge. In that vertically scrolling game, you're never quite sure how tricky the next series of waterways will be (you must steer your bomber only over water), nor how far it will be to the next fuel tank to get more gas.

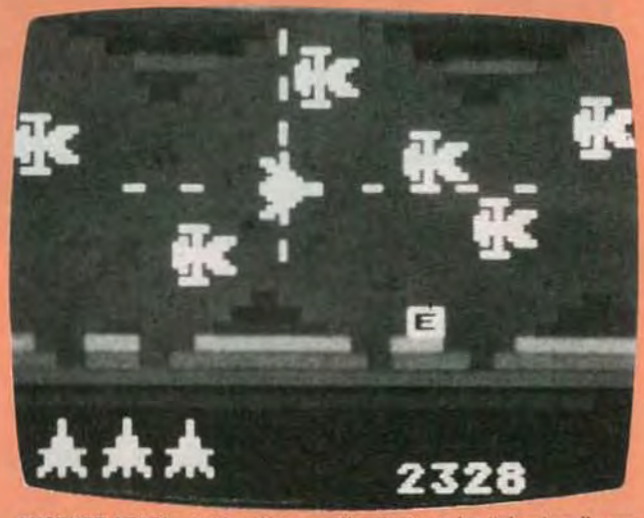
Parker Bros. (50 Dunham Rd., Beverly, MA 01915) seems to be about the only software company to consistently take a pop-culture theme and create an interesting, good-looking game around it. Two more cartridges in its Star Wars series are planned for later this year, as they also tackle some of the most graphically challenging arcade conversions.

New for Intellivision

The Imagic team has been busy working on *Intellivision*-compatible cartridges, and will likely take *Intellivision*-cartridge honors in 1983. *Ice Trek* is a nerve jangling challenge to build an ice bridge across open water. With a rope and hook, you must catch chunks of ice as they float by and join them to the bridge you're already built. The catch is, however, that ice flowing in the water can also knock away pieces of the bridge you've made.

A more strategic activity is *Truckin'*, best as a two-player game. The rules are complex in this simulation of a trucking business. You make decisions about which loads you want to carry to specific destinations. You then follow true-to-life roadmaps, as you drive down the road (viewed out of the truck cab), through open country, into cities, etc., to drop your load and collect payment. Money goes out, too, for gas, speeding tickets, repairs (if you're in a wreck) and so on. If you drive too long without resting, your top speed drops as you fall asleep. You may encounter a mad trucker who tries to run you off the road. There is so much going on, both on-screen and off, that you forget you're playing a simple home videogame.

Imagic, by the way, has also demonstrated that the *Odyssey*^{2} system is capable of interesting graphics after all. Odyssey



ANOTHER ATARI cartridge, ***Vanguard*** **is a fast-moving "shoot-em" game.**

versions of the popular *Demon Attack* and *Atlantis* bring out some of the system's finest capabilities.

One final mention of a cartridge from a company new to home games, but a respected veteran of the arcade scene: Sega-Gremlin Industries (16250 Technology Dr., San Diego, CA 92127). One of its new Atari *2600* cartridges should prove to be a favorite among the dyed-in-the-wool shoot-'em-up crowd. *TracScan* is one of the fastest action space fights around. The solitaire game uses the *2600's* paddle controllers for nimble response of your multiple fighters as they twist and turn in free space. The play alternates instantly between offensive and defensive maneuvers and offers quite a challenge to those with quick hand-eye skills.

There are now so many videogame cartridges available for the *2600* and *Intellivision* that there would never be enough space here to comment on all of them. So keep tuned to **Radio-Electronics** every month, as we help you separate the great games from those that aren't, to stay on top of this fast-moving industry. **R-E**

Whenever home-videogame enthusiasts gather to play and talk about games, there's almost always an argument as to which is the best videogame around. In this article we'll try to settle those arguments, or perhaps start a few new ones, by giving our choices of the best 10 videogames to be introduced in the past 12 months.

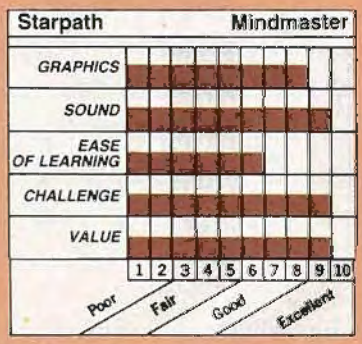
VIDEO GAMES

THE TOP TEN GAMES OF '83

DANNY GOODMAN

1

Starpath's Escape From The Mindmaster For Atari 2600



As many of you know by now, the *Supercharger* add-on for the Atari *2600* greatly expands the graphics and memory capability of that game system. (If you are unfamiliar with that device, it is detailed in its own article elsewhere in this section.) Developed by Starpath Corporation (324 Martin Ave., Santa Clara, CA 95050), the *Supercharger* uses specially designed tape cassettes rather than the usual cartridges. There are several advantages to that scheme. For one, cassette tapes are much cheaper to produce than cartridges, which allows the games to be sold at relatively low prices. More important, however: Some cassettes, like *Escape From The Mindmaster*, use multiple loads. What that means is that the games can be made far more complex, with each load presenting new screens and challenges.

Escape From The Mindmaster makes good use of the *Supercharger's* enhanced graphics, providing you with a view down corridors in a maze that rivals anything we've seen, even in computer games. There are four cassette loads in all. Within three of those loads are six completely different mazes. The fourth and final cassette load reveals your final score, plus a rating assigned to you by the "Mindmaster." Each maze challenges you to find four distinctly shaped "pegs" and their respective holes. Each peg has to be carried, one at a time, to its proper hole. When that task is completed, you have to find the secret door to move to the next, more challenging maze.

One reason that the mazes get more difficult is that as you move up, the pegs become more difficult to distinguish from each other. Also, the mazes themselves get more complex. And then there is the problem of an alien stalker roaming the maze; he's out to eliminate you. You do have the advantage, however, of sound clues that give you a little forewarning when he's sneaking up on you or when he's just on the other side of a doorway.

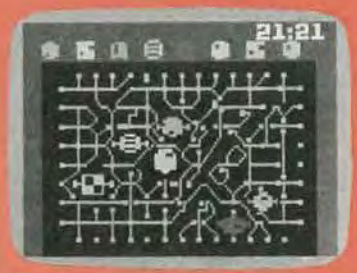
There are other obstacles you must overcome. For instance, in mazes two and up, dangerous force fields zap across some of the corridors you need to travel. Also, in the first five mazes, you will run into tests of coordination, memory,

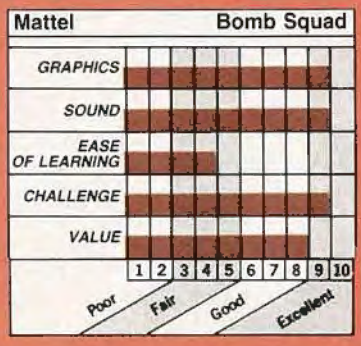
reflexes, agility, and dexterity. In the meantime, you'll probably forget where you saw that missing peg. There is a radar screen, however, that helps you see the entire maze from above, and where you are in it.

Escape From The Mindmaster is not a casual game, one that you can play around with for a few minutes. A session can last twenty minutes, or more if you're really good at it. The challenge for even very experienced game players will be much greater than it seems at first. And even though you start out with nine chances to beat the "Mindmaster," it will be many dozens of hours of play before even the best players can escape.

2

Mattel's Bomb Squad For Intellivision





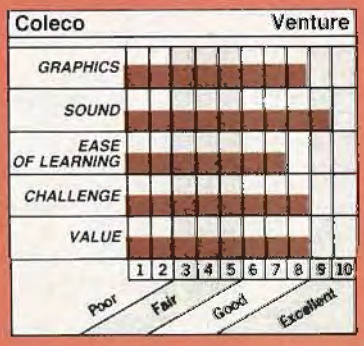
OF ALL THE EARLY CARTRIDGES introduced for mattel's (5150 Rosecrans Ave., Hawthorne, CA 90250) *Intellivoice* speech synthesis module, *Bomb Squad* is the one you're most likely to play again and again. Multiple display screens, a well-integrated electronic voice, and enough levels of difficulty to keep players challenged practically forever, make this game a worthy addition to the *Intellivision* library.

In this game, you become a bomb-disposal expert (that is, if you become good at it) racing against the clock to disarm a massive bomb set to destroy the city within about twenty minutes. Your overall goal is to deduce the secret code number(s) hidden behind a grid of twenty squares. Each square represents an electronic circuit, which must be repaired to reveal part of the secret number. With three tools (wire cutters, pliers, and a soldering iron), you follow instructions given to you via the voice module by your electronic associate, "Frank." Some components need to be replaced by jumpers, others by similarly shaped or colored parts from a kind of parts box on screen. Cutting out a piece in the wrong order starts the countdown timer going even faster, and Frank tells you if it's the wrong part.

As with many Mattel games, this one is not easy to get the hang of at first and a thorough reading of the manual is in order. But once you get the idea, you'll be hooked. If, in the course of a game, you run out of time or guess wrong: Frank gasps, "Oh no!" and the city skyline loses about one-third its buildings in the blast. By solving the puzzle, however, you're treated to a fireworks display and verbal plaudits.

3

Coleco Venture For Colecovision



Early owners of *Colecovision* videogame systems by Coleco (South Quaker Lane and New Britain Ave., West Hartford, CT 06110) have had only a handful of high-resolution games to play, but most of those have proven to be very appealing. The best of the bunch, however, is *Venture*, a home videogame that has proven to be more popular than its arcade ancestor.

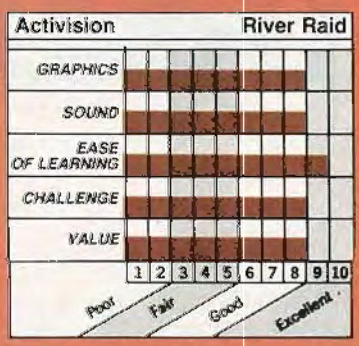
You could call *Venture* an adventure-type game, but it's not in the tradition of *Dungeons & Dragons*. Rather, your screen character, called "Winky," must retrieve treasures from a succession of rooms. Each room has two entrances from a master hallway. Hallways are guarded by deadly "Hall Monsters." Inside each room, a group of three creatures guards the treasures. Winky can shoot the creatures with his bow and arrow, or dodge them to retrieve the treasure and scram from the room without being touched. If Winky waits too long, however, a Hall Monster will come into the room and invariably catch him.

What is so interesting about *Venture* is the number of different screens and music tunes that appear during the course of the game. The first screen is a "macro" shot, with your Winky just a small dot. You maneuver him to an entrance to one of the rooms. Then the screen changes to a blow-up of that room, with its treasure and creatures. Each level has four rooms. After three levels (12 rooms), the rooms and their respective creatures repeat, but the creatures are a bit more aggressive.

Venture is a joystick-crunching good game for the hard-core player. There is plenty of challenge as you try to pick up all thirty-six treasures indicated on the scoring screen. The experienced player will, in time, "top out" and find that the last four rooms repeat. But the graphics resolution of the creatures and extremely wide variety of music makes *Venture* fun to play over and over.

4

Activision River Raid For Atari 2600



Although the prevailing attitude among game-industry observers is that women don't like to play heavy artillery shoot-'em-ups, they apparently haven't taken *River Raid* by Activision into account. That cartridge, which puts the player at the controls of nothing less

sinister than a B-1 bomber, was designed by a woman, Carol Shaw.

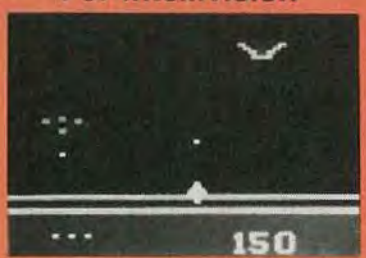
Colors on *River Raid's* vertically scrolling screen are vivid, although the graphics are not necessarily more interesting than those of many other games on the market. The view is from above a low-flying bomber on a strafing mission up a river deep in enemy territory. Targets include ships, helicopters, bridges, and fuel tanks. Fuel tanks also contain precious fuel for the jet as it penetrates deeper into the mission. You have the choice of flying over the tank to pick up gas, or blowing it to smithereens for points if you have enough fuel to get to the next tank.

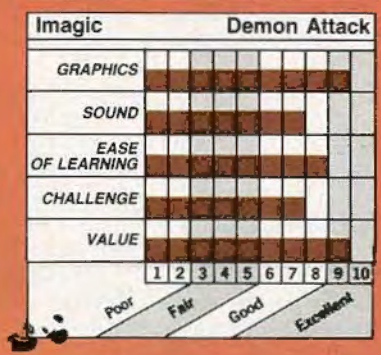
On the ground below, the river breaks off into narrow channels in places. Joystick control of the bomber lets you bank left or right (with an accurate representation of the banking maneuver by the jet), or speed up and slow down as needed to time shots or collect more fuel.

What makes *River Raid* so appealing, is that if there is a pattern to the river and all its ships or tanks, it will take a good long time to figure it out. There seems to be a wide variety of channel designs and density of enemy hazards. With the scrolling field below, you're never sure what kind of formation to expect, so you've got to look ahead, while making sure you don't run into a ship or river bank. You're also never quite sore when the next fuel tank will come—one more thing to worry about in this very enjoyable "quick-hit"-type game.

5

Imagic's Demon Attack For Intellivision





Imagic (981 University Ave., Los Gatos, CA 95030) has quickly become one of the foremost producers of third-party software for Mattel's *Intellivision* console. Instead of merely converting graphics and game play from Atari-compatible cartridges, Imagic is busy pursuing entirely different games for their *Intellivision* line. And, while some very exciting games are due from Imagic in the second half of 1983, last year they produced a version of their most popular game ever, *Demon Attack*.

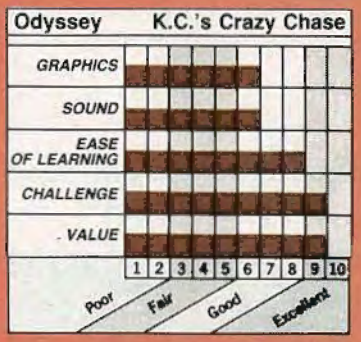
The *Intellivision* adaptation of that game is much more colorful than the ones available for the Atari *2600*, *Odyssey*^{2}, and Commodore *VIC-20* computer; it also produces two alternating screens. The action in the first screen takes place on the Moon's surface, complete with craters and a view of the Earth in the background. Your job is to fire your laser cannon at the descending, bomb-dropping demons, which at first come individually, then in pairs, and then in squadrons of six across. In multiple demon waves, the enemies split up as you start making direct hits. If you survive that part of the game you move on to the second screen, which puts your laser cannon out in space. Your mission there is to try to destroy the demons' "flagship." This ship is a beautifully crafted piece of videogame art. Suicide patrollers (bird-like creatures) impede your shots as you wait for a chance to shoot at the revolving "Window of Vulnerability." A direct hit at the right instant destroys the flagship, and you return to your moon base to take on more intense waves of demons.

Game play options allow for one-player, two-player competition (each player takes turns), or two-players working together (each player gets alternating four-second turns against the same wave of attackers). Imagic also offers an automatic firing option, which, as in Mattel's *Astrosmash*, saves the thumb from the strain caused by repeated pressing of the "fire" button.

Demon Attack is surely one of the best shoot-'em-ups for the *Intellivision* we've seen.

6

Odyssey K.C.'s Krazy Chase For Odyssey^2



Although Odyssey's (I-40 & Straw Plains Pike, Knoxville, TN 37914) overuse of mazes in so many of its games tends to make them look alike after a while, *K.C.'s Krazy Chase* is nevertheless an entertaining, non-threatening game that the entire family can enjoy; it is clearly one of the very best available for that game system. It is also one of the first cartridges to make use of the *Odyssey*^{2} voice-synthesis module.

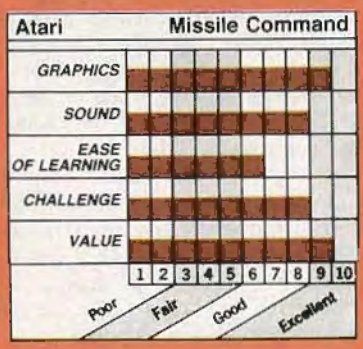
The object of the game is for your "K.C." character to munch up a multi-segmented, caterpillar-like creature called a "Dratapillar," as both maneuver through a maze. The Dratapillar has two aides, called "Drats," who are also in pursuit of K.C. Every time K.C. manages to eat a rear segment of the Dratapillar, it's open season on Drats, and K.C. can disable them temporarily, while claiming bonus points. The real danger for K.C. is the head of the Dratapillar, which is not disabled until K.C. finishes all the rear sections. At that point, a new, faster Dratapillar appears and the chase is on again.

Without the voice module, the game sounds are not all that spectacular. But that is definitely not the case when the module is used. With it, for example, K.C. has something to say after completing each Dratapillar: "Incredible." He also lets out a contagious laugh that always elicits a chuckle from human players and onlookers, even after many, many times. Not all the bugs have been worked out of the voice-synthesis module, however, as occasionally the words don't match up with the action on the screen. In particular, words of warning or danger are issued, yet there is no hazard anywhere near. That detracts slightly from an otherwise thoroughly enjoyable game.

The game may sound and look simple, but it is not a snap to master. The Dratapillar takes on considerable cunning and speed at higher levels. Compared with maze games available on comparable systems, *K.C.'s Krazy Chase* ranks well above *Pac-Man* and *Night Stalker* in that all-important element of good game play: playability. It

appears to be extremely popular with young and old alike, and that's the best way to gauge any game's worth.

Atari Missile Command For Atari 5200



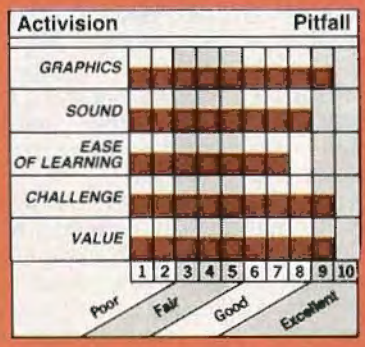
Very few videogames have maintained their popularity for as long as *Missile Command*. Originally made famous by Atari's arcade game, the version developed for play on the Atari *2600* home system is generally thought to be one of the industry's best early arcade translations. Now Atari has introduced an even better version for their high resolution *5200* game system, one that offers exciting graphics and true-to-arcade action.

In *Missile Command*, the player guards six cities with a missile launcher located at the bottom of the screen. Coming in from overhead (out of the sky, from satellites, and from low-flying aircraft) are ballistic missiles that leave trails as they fall. You don't actually shoot at those missiles, however. Instead, you have to detonate an anti-ballistic missile in mid-air in the path of an oncoming missile; that's done by directing your cursor to the assigned spot and pressing the "fire" button. If you are successful, your anti-ballistic missile sets off an explosion that engulfs the enemy missile. Those you miss come to just above the planet's surface and, like any nuclear bomb, let off an explosion that can wipe out the nearest city.

Of course, as the game progresses, the waves of enemy missiles increase in speed and intensity. At best, you try to fill the sky with your own missiles' blasts, but your resources are limited.

The display on the *5200* version is very crisp and colorful, as you might expect. If you have seen the arcade version, you'll marvel at the close resemblance. Perhaps the only difficulty you'll have with *Missile Command* is controlling the cursor accurately with the hand controllers non-self-centering joystick. But when used with the optional Trak Ball (the arcade version was one of the first to use that type of controller), you'll barely be able to tell you're not popping quarters for the privilege of playing.

Activision Pitfall For Atari 2600



If *Pitfall* by Activision (Drawer 7286, Mountain View, CA 94042) is the best-selling videogame cartridge of all time, it is deservedly so. It is one of the few long-session, adventure-type games that attracts players who otherwise prefer quick-hit, arcade-style activities.

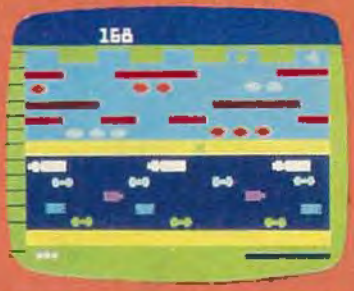
The goal is simple: Within twenty minutes, maneuver your screen character, "Pitfall Harry," over and through numerous hazards in search of dozens of treasures scattered about in the jungle. Mastering the hazards takes considerable practice, as it requires fairly precise timing to deal with the quicksand openings, swinging vines, and alligator mouths ready to eat Harry.

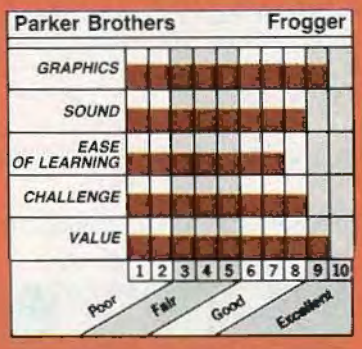
The charm of *Pitfall* is that there are so many avenues to explore and so many hazards to master that you can keep playing it for weeks and never exhaust its possibilities. Sure, the hazards repeat themselves after a good long time, but the opportunities for scoring more points and discovering new shortcuts don't diminish, no matter how good you get.

The game is graphically appealing, giving Harry much detail, and keeping the background, foreground, and hazards also interesting throughout. Sound doesn't play much of a role in the game, but the simulated Tarzan call as Harry swings on a vine is just the right kind of icing on this prize cake. This is one cartridge that should be on your "must have" list of *2600*-compatible cartridges.

Pitfall is also available for *Intellivision*. Although that version doesn't make full use of the console's graphics capabilities, the game play is definitely worth adding to an *Intellivision* library.

Parker Brothers Frogger For Atari 2600





While the limitations of the Atari *2600* console usually makes the exact duplication of arcade graphics and sound impossible, Parker Brothers (50 Dunham Rd., Beverly, MA 01915) has introduced a singularly faithful translation of a graphically complex arcade classic, *Frogger*.

A favorite among members of the whole family, *Frogger* is a defensive dodging struggle to get a series of green hoppers across the numerous hazards posed by a city and swamp. One or two players maneuver a frog through lanes of racing street traffic, and then make him hop onto moving rows of turtles and logs until he can leap into one of five home bays at the top of the screen, provided, of course, there is no alligator there.

The game contains several fine points that the designers successfully integrated into the home cartridge. For example, on

continued on page 108

VIDEO GAMES

VIDEOGAMES THAT TALK

The words that ushered in talking pictures are now heard again on the videogame front... "You ain't heard nothin' yet!"

DANNY GOODMAN

WHEN EVALUATING VIDEOGAME SYSTEMS AND CARTRIDGES, home gamers place first emphasis on graphics, the most readily apparent quality in the predominantly visual medium of television. Not enough attention is paid to sound quality or its effect on game play. Unfortunately, it seems that the designers of many cartridges pay equally little attention to the importance of sound. They borrow from a familiar library of sounds already employed in earlier generations of cartridges, and in many cases add sound elements as pure ornament.

The advent of low-cost solid-state speech synthesizers holds the promise of a greater use of sound as an interactive part of game playing. Instead of hand-eye coordination dominating the game play, clues can be "spoken" to the player, thus bringing into play the hand-*ear* connection. And since the hands, eyes, and ears are all controlled by the brain, there is an opportunity for well designed home-videogame cartridges to more fully exercise the mind's ability to react to multiple stimuli.

But, judging from early attempts by the few home-game makers to dabble in voice synthesis, a lot more work remains to be done in applying the technology meaningfully to game playing. GCE's *Vectrex*, *Odyssey*^{2}, and Mattel's *Intellivision* all offer voice games having varying degrees of quality and game-play integration.

Voice-synthesis basics

Intellivision and *Odyssey*^{2} use add-on modules to produce what are among the most natural sounding electronic voices available at consumer-product prices. Speech from the *Vectrex* system, on the other hand, is created by carefully programming the sound-generation circuitry already incorporated within the unit.

The two add-on modules contain a speech-synthesis IC-set manufactured by General Instrument. Instead of the "robot-like" speech created by linking synthesized phonemes (the basic sounds from which words are formed) together (Votrax offers such a synthesizer for a number of personal computers), the GI IC's generate speech according to a method known as linear-predictive coding, or LPC. To put it simply, LPC takes information stored in ROM (*R*ead *O*nly *M*emory) and produces speech according to a set of pronunciation rules programmed into the GI IC's. The more ROM available to the GI synthesizer, the larger its resident vocabulary.

The information stored in the ROM is actually a highly compressed digital recording of a real voice. Human speakers—male or female, in any language or accent—can record sounds that are later "reconstituted" by the GI IC's. Real sound-effects can be similarly recorded.

COLECO ADDS VOICE to the Atari *2600* with the *Gemini* madule that uses special cartridges & tapes.

Although both *Intellivision* and *Odyssey²* use the same speech-synthesis method, that is where the similarity between the two ends. Each has taken a vastly different approach to marketing its voice technology, to designing its voice game-cartridges, and to the degree of interaction between voice and game play.

Voice of the *Odyssey²*

Odyssey²'s voice module—designed to match the game console in appearance—fits over the top of the console without hindering access to the flat membrane keyboard. All power for the module comes from the original cartridge slot, and a new slot for cartridges is located on the module. A sliding volume control is located beneath its speaker.

The voice-module circuitry contains a vocabulary of more than 100 words spoken by a male voice, plus many "pre-recorded" sound effects, and musical tones covering a two-octave range. Also stored is a complete set of allophones (speech sounds) that can be linked together in any order to produce any word, although in a very artificial-sounding fashion.

The words and allophones can be called up by a properly coded game cartridge. The cartridge does not need to contain the digitized voice data, but, rather, instructions that will cause the voice module to utter its words. The game cartridges, therefore, can be used either with or without the voice module. Game play is only "enhanced" (Odyssey's word) by the voice. In other words, you can fully enjoy a game like *K.C.'s Krazy Chase* or *Smithereens* without the voice module. With the speech module, a voice is heard in the background; its purpose is to heighten excitement, and to add humor in spots. While that approach makes any voice-enhanced cartridge compatible with non-vocal systems, it also means that speech must not be so integrated into the game as to be essential for game play.

An odd thing happens when playing voice-enhanced *Odyssey²* games. During a game, the words coming from the module don't seem to correspond very closely to the action on the screen. *K.C.'s Krazy Chase* is the most disturbing example. In that game, you control a munching creature (K.C.) who must devour each aft section of a multi-segmented caterpillar-like character (the Dratapillar) as it wends its way through a maze. Two other characters, called Drats, float about the maze. K.C. mustn't be touched by drats or the Dratapillar's head, or the game is over. The voice, presumably that of some supreme videogame being, urges you to "hurry," "look out," "run," etc. Even if K.C. is a long way from the nearest hazard, the voice is likely to tell you K.C. is in danger.

Only at the end of each round, when K.C. lets out a high-pitched laugh and says, "Incredible," while his lips move and his eyes wink, does the voice help that cartridge.

As *Odyssey²* game designers continue to work with the capabilities of speech synthesis, they seem to be making the words correspond more closely to the action on the screen. In the two-player game *Smithereens*, the voice module reproduces the digitized sounds of explosions and the whistle of boulders screeching out of the sky. And in *P.T. Barnum's Acrobats* (a version of *Circus Atari*), the voice output coincides with your scoring a string of points ("Grrreat!" and "Good"), or is heard when you fail to place the teeter-totter under the falling clown (a mixture of "Oh!," "Aargh!," "Squash!," "Ouch!" etc.). Still, the words are only an ornament for an otherwise playable game.

An educational cartridge, however, brings along its own vocabulary. *Sid the Spellbinder* adds 99 new words to the *Odyssey²* in a children's activity that is half arcade-game, half spelling bee. Starting out with 20 missiles, the student must shoot away segments of Sid, a large centipede-like creature, as he snakes across the screen. The player earns points for each section hit. If he misses any by the time Sid reaches the bottom

BOMB SQUAD **makes good use of speech capabilities.**

VIDEO GAMES

of the screen, Sid eats up some of the reserve missiles. Next comes a spelling bee, in which the voice asks for the spelling of three words from the cartridge vocabulary. Proper spelling (input by pressing the keys on the keyboard of the *Odyssey*^{2} console) earns more ammo for future rounds with Sid.

Some words, like "said" and "than," are not easily intelligible, even using the high quality LPC system. And, oddly enough, the cartridge quite frequently combines a prerecorded LPC voice with the cruder allophone-type speech within the same sentence. Perhaps children won't be as critical of the unevenness of voice quality as adults may be.

Educational cartridges, in which speech plays a crucial role, can be used only with the voice module. And, should the *Odyssey*^{2} game designers wish to experiment with games that need speech synthesis to be effective, the capabilities are there for that, too.

Intellivoice

The folks at Intellivision seem to believe that synthetic speech from their *Intellivoice* module should be a completely integrated game element. Voice games can be played only through the *Intellivoice*, and, unlike the Odyssey system, the voices come through the TV speaker together with the rest of the sound effects. The first few cartridges demonstrate the basic application of speech as a device to alert the player to action taking place off-screen.

The complexity of most Intellivision games in general makes speech a welcome addition. The best-selling voice cartridge, *B-17 Bomber*, gives the pilot/player no fewer than seven different screen displays to choose from: a situation map of Europe, aircraft controls, four horizontal views from the plane, and the view through the bombsight. While you're busy watching for fighters at 12 o'clock (ahead of you) a voice may warn of bandits at 9 o'clock. While you're trying to shoot an enemy plane down at 9 o'clock, your southern-accented bombardier alerts you, "Target in sight," which gives you only a couple seconds to change screens (via keyboard controllers), get your bombsight on target, and press the button. The bombardier shouts, "Bombs away!" and then a John Wayne-sounding voice urges you to, "Watch out for flack." The voices are triggered only in response to specific actions or warnings.

In "Bomb Squad," another long and involved game for the *Intellivoice*, speech plays the critical role of supplying you with instructions to replace time-bomb circuit-components with others. While you're busy with the wire cutters, grippers, and soldering iron on screen, the voice (your partner) guides you in the proper component sequence or tells what you're doing wrong. There's room for some humor as well. While you're feverishly working against the ticking clock to disarm the city-destroying bomb, the terrorist's voice taunts periodically saying, "It won't be easy." A different type of voice module is being offered by Coleco for the *2600* and their own *Gemini* system. Instead of synthesizing sounds and voices, the *Gemini Sound I* uses game-driven cassette tapes. The games available now suggest that it will be primarily for younger game-players.

That it takes great care to develop a fully integrated voice game can be deduced from the as yet small library of *Intellivoice* cartridges. The fifth and latest game, tentatively titled *Space Shuttle*, puts you on board one of those magnificent delta-winged birds from countdown, through the deployment of payloads, to touchdown on Earth. So far, no other Intellivision cartridge manufacturer has joined the *Intellivoice* movement; perhaps the feeling is that even more should be done with speech synthesis to make it a valuable element for games.

No modules

The newest method of making games talk, demonstrated in the cartridge, *Spike*, for the GCE *Vectrex* system, uses no external speech-synthesizer. Instead, the cartridge designers have found a way of making the regular game sound-system produce sounds like those of human speech. The complexity of speech is no small challenge to overcome, especially within the limitation of sound IC's best suited for musical notes, explosions and other noises.

The voice quality is far from that provided by linear predictive coding. As Spike's girlfriend, Molly, is grabbed by a bad guy, she yells, "Help Spike!" Her high voice sounds raspy (more like she's gargling than talking), and artificial, as if in a cartoon. To make sure the player understands the words properly, a cartoon-like balloon emanates from her mouth, with the spoken words showing up on the screen.

Purely software-driven speech synthesis, like that used by the *Vectrex*, may also be available soon for the Atari *2600*. Spectra Video, Inc. a relative newcomer to the videogame and computer hardware/software market, recently demonstrated a program for the Atari computer that spoke a few ornamental words in the course of the game. A versatile sound circuit, as offered with the Atari computer, makes it easier to accomplish that, but the implementation is the result of some clever programming. The company claims it will be able to work similar wonders on the *2600*. Perhaps an equally brilliant Intellivision designer will have the wherewithal to make the "Yer Out!" announcements in *Major League Baseball* sound more like an umpire really calling the play than just blowing his nose.

The most exciting feature about voice synthesis is that its use in home videogames has barely begun. As game designers learn from each other and launch new ideas of their own, we can look forward to a better understanding of how speech can be integrated with videogame playing, and to seeing games that really stimulate more of the senses and mind. **R-E**

HANDHELD AND TABLETOP GAMES

Not all the electronic-game action is taking place on TV screens.

DANNY GOODMAN

WHILE HOME VIDEOGAMES HAVE BEEN GETTING ALL THE MEDIA attention, games of the non-video sort have not been idle. There continue to be new units hitting store shelves in the handheld and tabletop categories, including the more sophisticated strategy-games like chess. This year, even handhelds are getting into the cartridge act, including the first-ever programmable pocket LCD game.

We have seen plenty of tiny LCD games (many with built-in digital clocks) over the past two years, and 1983 will be no different. Almost all those games have what appears at first to be a multi-colored LCD display. But, on closer inspection, you'll find that the colors are overlays on the display window, and the moving figures are in the traditional black against the LCD's light gray background.

Nintendo, a company best known for its arcade games like *Donkey Kong*, now offers twelve different *Game & Watch* models. Four of them even feature two different LCD screens, one on each side of their folding cases. In *Donkey Kong, Green House*, and *Mickey & Donald* (of Disney fame), a vertically oriented scene, like the "girders" screen in *Donkey Kong*, is split into two horizontal half-scenes. The balance of Nitendo's line are called wide-screen games, and feature some familiar characters: Donkey Kong Junior, Snoopy (playing tennis), Popeye, and Mickey Mouse.

From F. Hattori & Co., Ltd., a well known Japanese manufacturer of electronic timepieces comes in a new lineup of pocket LCD games—*Pop Games*—with more-advanced time functions than most other similar games. All thirteen units have an alarm as part of the timekeeping functions, while a few also have stopwatches. Three models also include AM radios (audible through an earphone), yet the units easily fit into a shirt pocket. Prices range from $24.95 up to $39.95 for the radio games.

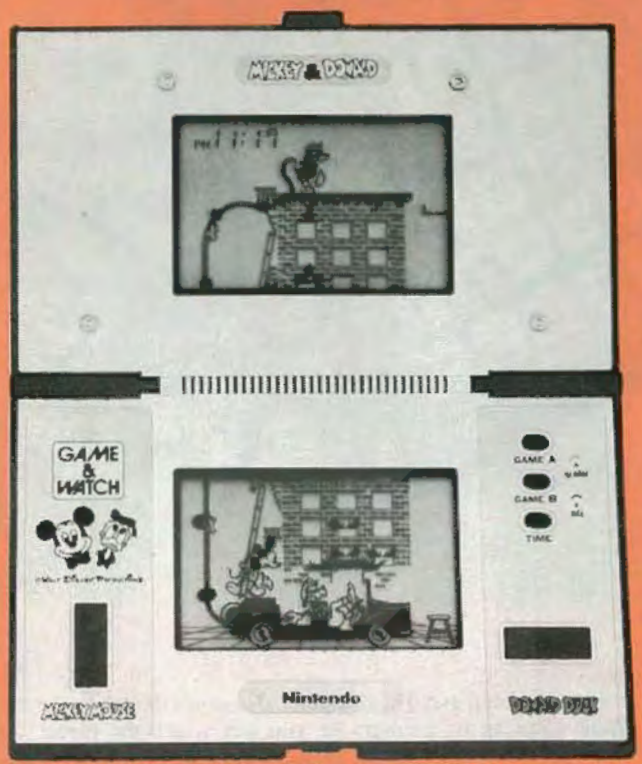
A potential source of annoyance with games like these is the beeps and other noises they generate whenever an action button is pressed or a big score is made. With the *Pop Games*, and another set of games from Thumb Power, however, you can disable the tones if you'd rather play quietly.

Pocket adventures

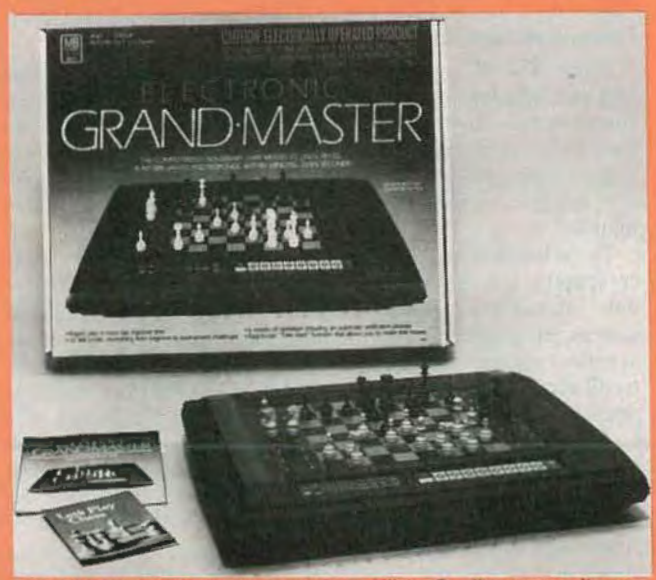
For 1983, Mattel Electronics is adding two new games to its varied and quality line of inexpensive handhelds. Likely to be a favorite is *Master of the Universe*, a maze-adventure-type game similar in concept to the LCD *Pocket Dungeons & Dragons* game introduced last year. Instead of being hand-eye reaction games (as most thumb-type games tend to be), *Dungeons & Dragons* and *Masters* are tests of memory and exercises in strategy as you move the central character through a grid. You see only one intersection at a time (its coordinates, such as "A6," denoted on the screen). Aural and visual clues alert you to dangers in nearby quadrants, as you plot your attack.

Programmability is second nature to home videogames, and is not unknown to tabletop games. But Palmtex takes the prize for the first LCD pocket game to offer plug-in cartridges. The *Command Console* ($29.95 with one cartridge) is a hinged case (like a cosmetic compact case) measuring 4.5 × 2.8 × 0.8 inches when closed. Each cartridge ($19.95) has its own multi-colored display screen to customize the graphics for the game. Twelve cartridges are planned for release by the end of 1983.

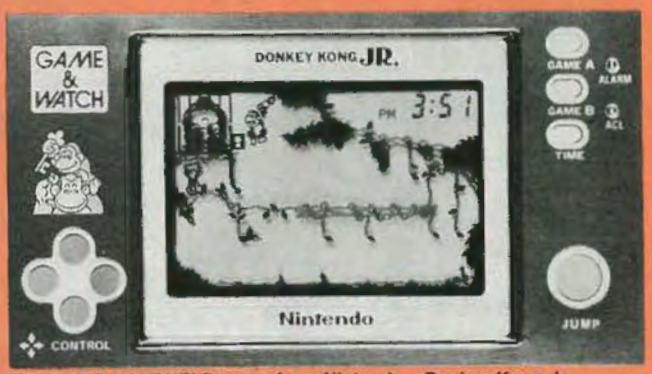
Bandai America has developed a very sophisticated dual-panel LCD handheld game that recreates a nine-hole golf game.



NINTENDO'S *Mickey and Donald* offers two separate LCD screens in its folding case.



THIS ELECTRONIC CHESS game from Milton Bradley moves its own pieces.



ANOTHER HANDHELD game from Nintendo—*Donkey Kong Jr.*

The top panel of *Challenge Golf* can display nine different holes from a bird's-eye view. Each hole has different combinations of hazards and surrounding terrain. That panel also displays the relative position of the ball as you hit it down the fairway. The bottom screen is a TV-camera-angle view of the golfer and surrounding area. A single button controls the backswing (you see the club and arms in several positions through the swing) and the instant the ball should be hit. A late or early hit will slice the ball into the rough. Six screens depict the golfer at different positions along the hole; at the tee, down the fairway, and at a few distances from the pin. A digital score-display lets the player know the distance from the cup in meters to help in judging the power he should use for the next stroke. At under $40, this game is quite a value.

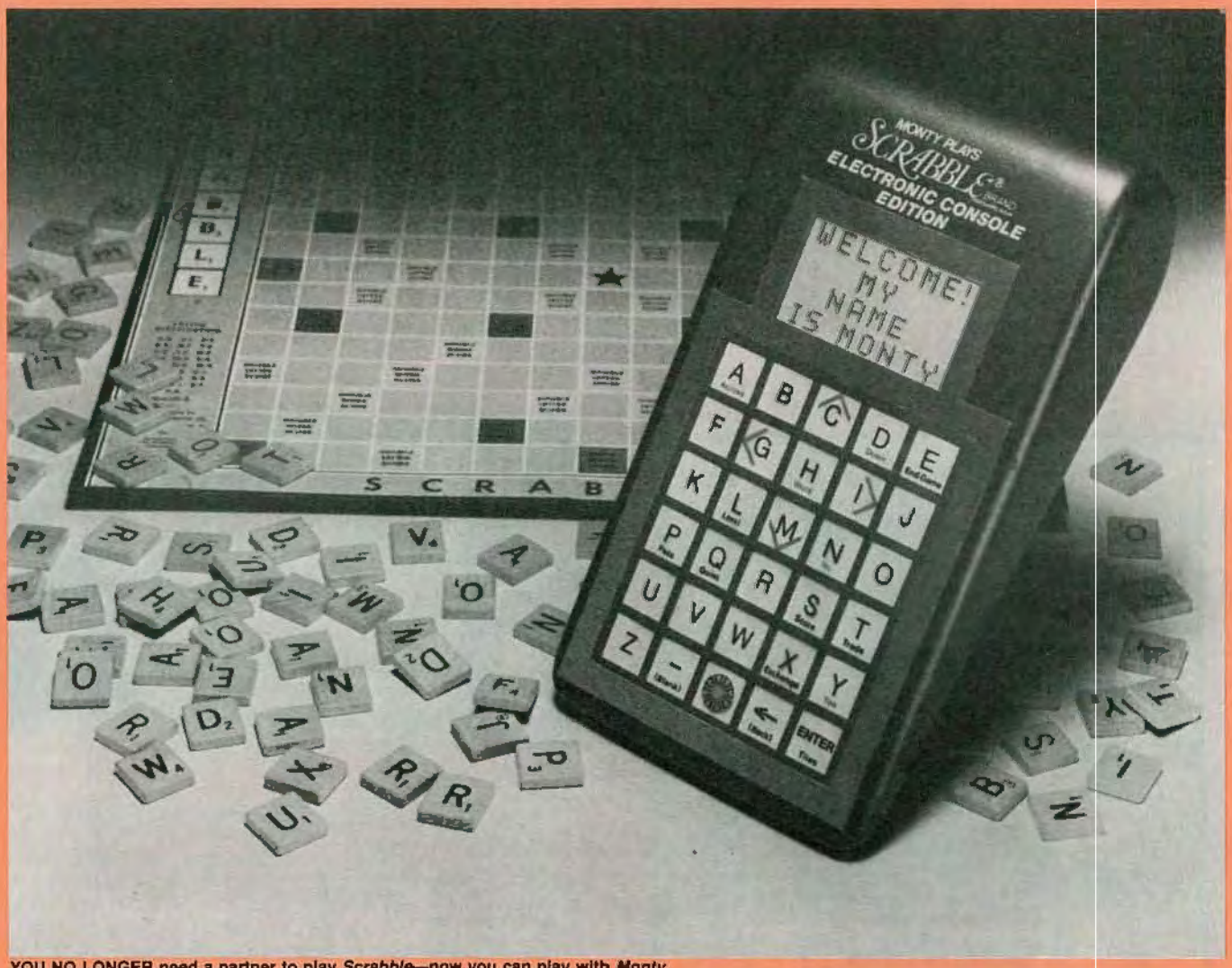
Arcade hits

In the tabletop-game area, arcade titles still dominate the action. Coleco has added a few new "hot" titles to its impressive, though expensive, collection of tabletop arcade games.

Ms. Pac-Man is properly decked out in the multi-colored vacuum-fluorescent display with a red ribbon. As in the original, the bonus fruit (cherries) are on the move through the maze. In addition to the standard game, the Coleco version includes a two-player, head-to-head game, in which players try to outdo each other in scoring points for gobbling dots, monsters (when Ms. Pac-Man is properly energized, of course) and bonus fruit.

Donkey Kong Junior was sure to follow on the heels of *Donkey Kong*. In Coleco's version, "Junior" is a solitaire game only, with two different multi-colored vacuum-fluorescent screens.

One of the most graphically difficult games to reduce to a home version is the three-dimensional space adventure, *Zaxxon*. In Coleco's new vacuum-fluorescent-display tabletop edition, a visual perspective similar to that of the original is retained. There is no scale along the left edge to guide you to the proper altitude, but with some practice, you will be able to identify your position within the range of movement available to you.



YOU NO LONGER need a partner to play *Scrabble*—now you can play with *Monty*.

Parker Brothers will also get in the tabletop arcade action with an adaptation of the hilarious *Qbert* game. *Qbert* will sell for about $60.

Three dimensionality is Tomy's goal in their new series of 3-D games. Each is housed in a binocular-styled case. All three games, *Planet Zeon*, *Thundering Turbo*, and *Sky Attack* have multicolor displays whose designs recede to a single focal point, creating the 3-D illusion. Most of the player action involves simply moving your ship or car left or right to avoid oncoming obstacles, and firing shots with buttons on the top of the case. The games, which will be priced under $50, need to be played under an external light-source.

Invisible chess

If your electronic-gaming preferences lean toward more strategic endeavors, computer-chess games are more likely your style. Of the few new chess games this year, the most striking is surely Milton Bradley's *Grand Master*.

You may have seen robot chess games before, in which the chess computer, in response to your move, activates a mechanical arm to pick up a piece and move it to the appropriate square. While you may not understand all the computer wizardry going on inside the game, at least you can see your "opponent" move his piece almost like a human player. But with *Grand Master*, there is no robot arm. The computer's pieces merely slide along the board from one square to another. It's like playing chess with the Invisible Man. The game offers twelve skill-levels, and some features you don't find on any other games. If you want the computer to give you a hint for your next move, it will wiggle the piece you should use. The computer also stores the moves for the entire game in its memory so you can watch the pieces go through a replay of the last match. And unlike robot games that have sold for well over $1000, Milton Bradley hopes to offer its marvel for around $500.

Computer Scrabble

There is hardly a traditional board game that has been ignored by electronic designers. *Monopoly* has been computer-enhanced since last fall. Now, *Scrabble*, one of the all-time-favorite word games, has two electronic editions that allow solo play. One is available as a program from the *Applie II* and *Apple II + computers*. In that version, the entire board is shown on the video monitor.

The other version, called *Monty Plays Scrabble* (Monty is the computer), is a tabletop unit. An LCD screen acts as a "window" to an entire *Scrabble* board, which Monty remembers. Letters are supplied to the human player at random (from the usual assortment of tiles). When you've formed a word, you can scroll around the board to place it where it will earn the most points. Monty does the same, but he has the advantage of a built-in 12,000 word dictionary. Additional modules of 16,000 words are also available. Monty keeps score (he knows where all the bonus squares are). *Monty Plays Scrabble* really needs to be played with either a standard *Scrabble* board, or with the printed paper pads available from Selchow & Righter. All in all, it's a clever and engrossing translation of a time-tested game. Such sophistication won't be inexpensive, however. Monty is priced at around $125. **R-E**