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Video

The #1 Magazine of Home Video

Are You Ready for Component Television?
How Camera Filters Improve Home Movies
Preview of First Editor for Home VCRs

BERGER-BRAITHWAITE VIDEOTESTS

Zenith Portable VCR Toshiba Disc Player Jensen Audio/Video System Akai Color Camera

VCR Breakthroughs

**Will Hifi Sound
and a 5-lb. Camera-Recorder
Revitalize the Beta Format?**



1st Test of Beta Hifi!

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April 1983

Volume VII, Number 1



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Beta vs. VHS, cont.: Beta chieftain Sony whips out two trump cards. One is 'Beta HiFi,' the VCR stereo system to end all VCR stereo systems. The other is 'Betamovie,' a compact all-in-one camcorder unit. Cover photo by Hank deLespinasse.

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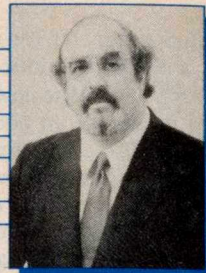
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Computer Ease

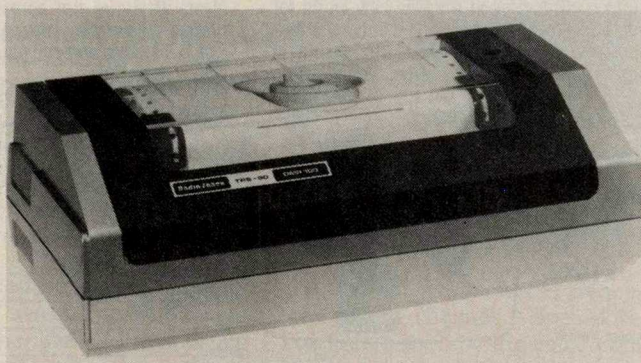
The Human Interface

by Ivan Berger



Printers — A Screen Is Not Enough

Radio Shack's
DMP 100 printer,
for the TRS-80,
is a dot-matrix
model.



Another dot-matrix
printer is the Atari
1025, compatible with
the 400 and 800 computers.



Our image of the computer involves a video screen. Indeed, most computers have them, which is why (as I said last month) this column runs in VIDEO.

But a screen is not enough, which is why most computer systems include printers—gadgets that look a bit like typewriters without keyboards, controlled by the computer. Even if you own or are planning to get a computer without one, you'll probably add a printer to your system someday. Here's why.

To begin with, paper is portable. The odds are that your newspaper was originally written on computer screens—but would you want to carry and read a computer while you waited for your ride to work? How many could your paperboy deliver in a day, and at what cost? And imagine the crash as he threw a terminal onto your front porch! But print out a document or file from your computer and you can read it at your leisure, anywhere there's light—no power (not even batteries) required, at least by day.

In the past three years I've written for 40 or 50 publications. Only about 10 percent of them have computers. Someday, as computers become more common and the modes of data interchange between computers grow more standardized, a lot of paper will go out of circulation and mailmen will roll their carts more easily. Not yet, however.

Much of the information in home computers never leaves the house. Why buy a

printer, then?

One reason is for ease of reading documents. A computer screen can show far less information at once than a piece of paper can. The most that home computer screens can show is 24 lines of 80 characters (1920 characters total, or about 320 words), and most show a great deal less. A typical typewritten page, single-spaced with one-inch margins all around, can hold 54 lines of 65 characters (3270 characters, or 534 words). Printing small, as many home computer printers can, you may squeeze in more than 5500 characters, or better than 900 words.

Too much crowding makes anything hard to read. But until you reach that point, the more that's on a single sheet or surface, the more quickly you can take it in. You lose time turning pages, and more time having the computer replace the "page" of information on its screen with a new page of data.

Seeing more of a document at once (be it an article, shopping list, or computer program) and being able to jump quickly between pages makes it easier to see how the different parts of that document are related. Should this paragraph be moved over there? Did you list bananas twice and leave milk out? Does your program require steps that you left out? All these become easier to see when you're looking at a single piece of paper, or leafing through a slender sheaf of them, than when the document is flipping or gliding

past your eyes on a computer screen.

That's especially true if you write your own computer programs. Program "bugs" caused by errors within individual program lines are easy to spot; most BASIC interpreters will even point out such lines for you when you run the program (Sinclair and Timex computers flag these errors when you first try to enter the program line). But it's harder to spot bugs caused by program lines that are correct in form but don't relate properly to other lines within the program. A typical example is calling a variable by two different names at different places—e.g., $LET\ N=10$ at one point, then multiplying a number by X instead of N later on. Since you never set a value for X , this leaves it set at zero—with results that can be comical, maddening, or heartbreaking depending on how long it takes you to figure out what's wrong.

Usually there isn't room on the screen for all the lines causing the problem, and scrolling back and forth between them to check one at a time makes the problem hard to see. But print the program out and your eye can quickly compare lines anywhere within the program, and the error becomes easier to see. Printouts also let you compare different versions of a program to see how it has grown. And you can look back to see what you did in an earlier version that worked.

There are many models of printers at prices from about \$300 to several

thousand dollars. Above \$2500 or so, you're mostly paying for high speed that pays off in big-business applications but is seldom needed in personal or small-business use. Below \$750 or so (suggested retail price—you may find discounts), most printers are dot-matrix types whose printing is made up of many dots, rather than continuous lines and curves like a typewriter's. You can always tell such printing came from a computer, and it's not as pleasant-looking as a typewriter's output. But many matrix printers can change type sizes and styles (including bold and sometimes even italic type) in midline if the computer is programmed to send them the appropriate commands.

Character printers cost more and run slower, but they produce prettier output more like a typewriter's. Some, in fact, are typewriters—new electronic models with interface circuits added for computer control. Most have their type on thin-spoke plastic or metal “daisy wheels” which can be quickly changed if you want a different typeface.

There are two main ways to connect a printer and computer: “serial” and “parallel.” Parallel connections are faster and cheaper; serial connections let you separate the printer and computer by a longer distance. Most printers are available with either interface, and some even have both. Computers, however, are more likely to offer only serial or only parallel, though many also offer both. Make sure your computer and printer have the same interface type.

Also make sure that all the programs you plan to use can talk to the printer you'll be getting. On the TRS-80 Models I and III for example some programs such as word processors usually work with serial and parallel printers, but others such as BASIC are oriented for parallel printers. Ways exist to adapt such programs, but they aren't always simple. Radio Shack doesn't say much about this directly in its catalogs. But it does give experienced catalog readers a hint: a parallel printer port is standard on the Model III (and was on the I's expansion interface box), while a serial port is an extra-cost option.

Printers also differ in the way they print. Most are “impact” types which press inked ribbons against paper, like a typewriter, to leave marks. A few are “thermal” machines which darken the paper by applying heat to it, usually in a dot-matrix pattern. Thermal printers are smaller, quieter, and less expensive than impact types, but they print only on special paper which costs more and isn't always easy to find. Some printers are “electrosensitive.” These darken aluminized paper by applying electric charges to it. The paper is, again, expensive and hard to find. It's also hard to read under some light because of its shiny surface.



Arcade Alley

A Critical Look at Video Games

by Bill Kunkel & Arnie Katz



Zaxxon, Turbo, and Two for Apple II

Welcome to the first expanded edition of "Arcade Alley." The first regular column to review video-game cartridges in a serious manner has now widened its focus to include the burgeoning field of computer gaming.

This is not a change lightly made. Although video games should continue to prosper, home computers are taking hold. Several computer manufacturers sold more home systems in 1982 than the entire industry combined had sold the previous year. Nearly two million American homes now have a personal computer, and industry observers estimate that this number could reach 5.5 million by the end of the year.

It should come as no surprise to readers of "Arcade Alley" that game software is one of the computer's biggest drawing cards. More than half of all computer software (programming) sold in 1982 fell into the entertainment category, and that situation is not likely to change much in 1983.

The analogy to the early days of broadcast television is inescapable. Just as Uncle Miltie got folks to shell out for the newfangled gizmo, games spark computer sales. Once people had a TV set, they often discovered the joys of the nightly news and other fare, and the multifaceted capabilities of the computer will come into ever-increasing use once people have the machine set up at home. For the present, however, the mental and physical challenge of computer games is the stellar attraction.

One event that may delay the complete takeover of computers from video games by a year or two is the introduction of Coleco's ColecoVision "third wave" programmable video-game system. With tons of resident memory and outstanding graphics capability, the ColecoVision can hold its own against the computer competition when it comes to presenting fabulous electronic games on the home screen. The new video-game machine



In 'Zaxxon,' a shootout game with graphics so vivid that they look three-dimensional, Coleco has produced one of the greatest challenges in home arcading.

proved a virtual sellout last holiday season, indicating that at least some folks have opted for this deluxe game player rather than leap right into the low-end computer market currently dominated by Atari (Atari 400), Commodore (VIC-20), Texas Instruments (TI 99/4A), and Tandy (TRS-80 Color Computer). So before moving on to our first-ever reviews of computer software, let's examine a couple of the titles that have put ColecoVision on the gaming map.

Zaxxon (ColecoVision) is a colorful scrolling shootout featuring brilliant graphics which produce the illusion that the action takes place in three dimensions. The arcader uses the joystick to pilot a highly maneuverable attack fighter through a deadly mission against a pair of sky fortresses. The only serious criticism of the Sega coin-op original was that many players felt they needed flying lessons to have even a ghost of a chance of performing well. The simplest of the ColecoVision version's difficulty levels presents a stripped-down scenario that permits the would-be pilot to concentrate on using visual clues—such as the altimeter at the left edge of the screen, the shadow of the craft on the ground, and the path taken by laser blasts fired from the ship's nose—to accurately determine the plane's position relative to other objects on the playfield.

As you steer your speedy aircraft across the screen from the lower left to the upper right corner of the field, you first reach the protective wall: your first sight of the first sky fortress. Swooping through a niche in the barrier, the ship must then descend

nearly to the ground to get into position for a strafing run. Unfortunately, your ship cannot drop bombs on the enemy targets from a safe height. You've got to get right down to ground level to hit anything. After weaving around and hopping over various barriers on the sky fortress, the ship enters the second of the game's three major scenarios, the dogfight. Steering clues are harder to find out in deep space, though crosshairs do appear a short distance in front of your ship to help your marksmanship.

Then it's on to the second sky fortress—even more lethal than the first. Coleco's designer has introduced a menace not found in the Sega machine in the form of the mobots. These semispherical foes cruise just above the surface of the second platform, shooting lasers at the fighter as it attempts to break through the defenses. Sitting at the far end of the second sky fortress is the giant robot Zaxxon. The player must shoot the missile the robot carries two more times than the number of the skill level or run a sizeable risk of getting destroyed by the rocket once it is launched.

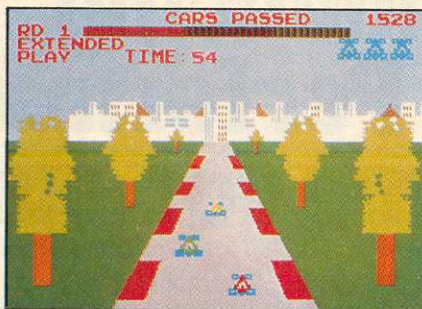
"Zaxxon" isn't an easy game to learn to play at a championship level even at its easiest difficulty setting. Yet those willing to take on one of electronic arcading's supreme challenges will find themselves amply rewarded by one of the most thrilling games available.

Although it would be unreasonable to expect the home edition of **Turbo** (ColecoVision) to match the breathtaking visuals of the Sega play-for-pay arcade machine, this cartridge comes mighty

close. The images are slightly more blocky than in the original, but there's always something fascinating to watch in this multi-scenario driving game as the miles click by.

"Turbo" is the first ColecoVision cartridge to use a newly developed steering-wheel control module. This piece of equipment gives the arcader a steering wheel and gas pedal to greatly enhance driving realism. A standard ColecoVision control doubles as a gearshift to lend an additional note of verisimilitude.

The routine of play is fairly standard for driving contests. The player takes the



wheel of a stock car and cruises a highway attempting to dodge traffic and other obstacles while passing as many other vehicles as possible. Besides the other cars,

'Turbo' is a virtual video-game travelogue, with its variety of play screens showing different kinds of terrain—which you can enjoy if you evade the hazards that threaten highway safety.

ambulances pose the greatest threat to highway safety in "Turbo." When you hear the siren, you must immediately move away from the preferable center-line position so the emergency vehicle can barrel through unmolested.

Video driving games have often embraced graphic minimalism more out of necessity than desire. It simply wasn't possible to handle the movement of the car and manipulate complicated scenery at the same time with the limited memory available. ColecoVision is so powerful, however, that home arcaders can have their cake and eat it too. A series of terrain features are cleverly combined in various ways to make the player's route of travel in "Turbo" a continual delight. If you drive well enough, you'll see everything from big cities to desolate stretches of desert as you roar down the road. Many "Turbo" fans report that the main reason they practice constantly is to improve their scores enough to drive their car into never-before-seen play screens.

"Turbo" is the king of the video road.

Although low-end computers are clearly the choice of mass-market buyers, it is only fitting to start our computer reviews with coverage of a couple of disks designed for play on the Apple II. Although its over-\$1000 pricetag keeps the Apple from participating in the sales explosion that has so aided the Atari 400 and VIC-20, the Apple was the computer that ushered in the first golden age of computer gaming. Its 6502 microprocessor gave it much greater ability to present arcade-like visual imagery on the screen, while large memory (48K has become almost standard) makes complex programs practical.

Aztec (Datamost/Apple II/48K disk) posits a fabulously valuable idol hidden somewhere deep in the ruins of the Aztec temple. As archaeologist-explorer in the mold of Indiana Jones, you must creep down the staircase to the multi-room labyrinth and, once inside, move from room to room fighting monsters and delving into the treasure chests they guard.

The game shows the player a side view of the action. One chamber is shown at a time. When the on-screen character walks, crawls, or jumps out of one room, the picture of the adjacent one replaces it on the screen. Movement and other activities are performed in response to the gamer's orders as communicated to the Apple via a straightforward system that uses single keystrokes. It'll take a few games at the easiest of the eight skill levels to memorize the control scheme, but even those used to doing everything with a joystick or paddle will soon have

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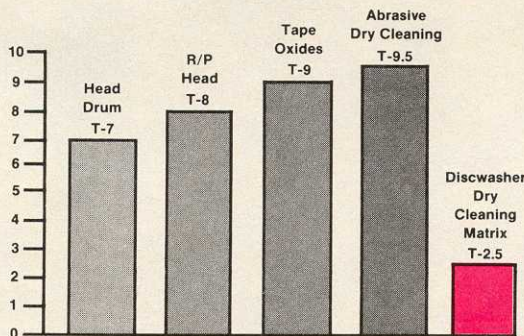
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their electronic explorer performing acrobatic feats to escape danger.

Killing for its own sake is beside the point in "Aztec." There's no bonus for destroying the various creatures which inhabit the rooms of the Temple, though the ones that threaten your life or bar the way to the idol will have to be attacked in most cases. This solitaire game is a "must buy" for Apple-ites. It offers the variety and challenge that separates great games from merely good ones.

Finely detailed graphics are also a big plus in **Repton** (Sirius Software/Apple II/48K disk), a duo-directional scrolling shootout. Sirius has used the system's graphics capability to design a combined force to oppose the player's squadron of three rocket-firing helicopters (available one at a time).

Some enemy ships are merely observers; others are skilled at draining energy from your city's power grid; another kind builds the alien super-weapon brick by brick (dismantling parts of your city in the process), and other varieties may release mines or fire horizontal laser beams that cleave the screen from side to side. Part of learning how to play "Repton" well is discovering the best way to combat each alien. For instance, since power is at a premium, you may want to concentrate on the draining aliens during the first moments of each new wave of attackers.

If ordinary missiles—launched by hitting the lower of the joystick's two action buttons—don't do the job, you can always resort to the limited stock of nuclear weapons. You begin with five such super-bombs. You receive an extra one, up to a maximum of five, each time you complete a wave by eliminating every alien ship in play. Detonating a nuclear weapon, accomplished by simultaneously pushing both action buttons, wipes out every enemy visible on the screen at the time. The helicopter is also outfitted with a shield. When the upper action button is depressed, the detailed rendering of the chopper is replaced by a simple outline drawing. Though the ship cannot be steered while it is shielded in this fashion, timely use of this feature can save your craft at crucial moments, such as when you've just hit a Nova ship, which fissions into five smaller vessels when struck.

Action is the hallmark of "Repton." There's little room for a breather as you zip your helicopter back and forth across the multi-screen playfield to hunt down the aliens you've spotted on the radar screen, located at the center of the control panel directly beneath the principal display. Though computers open the door for many kinds of games (such as elaborate adventures) which are not really practical for video-game systems, "Repton" proves this doesn't mean computers must take a backseat in the arcade arena. This game is pure excitement from start to finish—an involving and satisfying battle game loaded with extra features to enhance playing pleasure.

