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Answers, page 84

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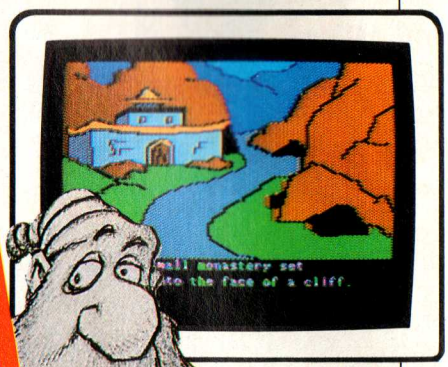

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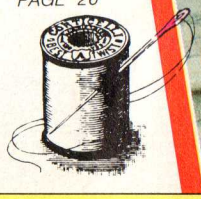

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FEATURES

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CONTEST

DEPARTMENTS

Difficulty Rating Smooth Sailing ★ Uphill Climb ★★ Proceed at Your Own Risk! ★★★ Mixed Bag ★☆

Cover Illustration David Klein **Puzzle** Billy Mernit

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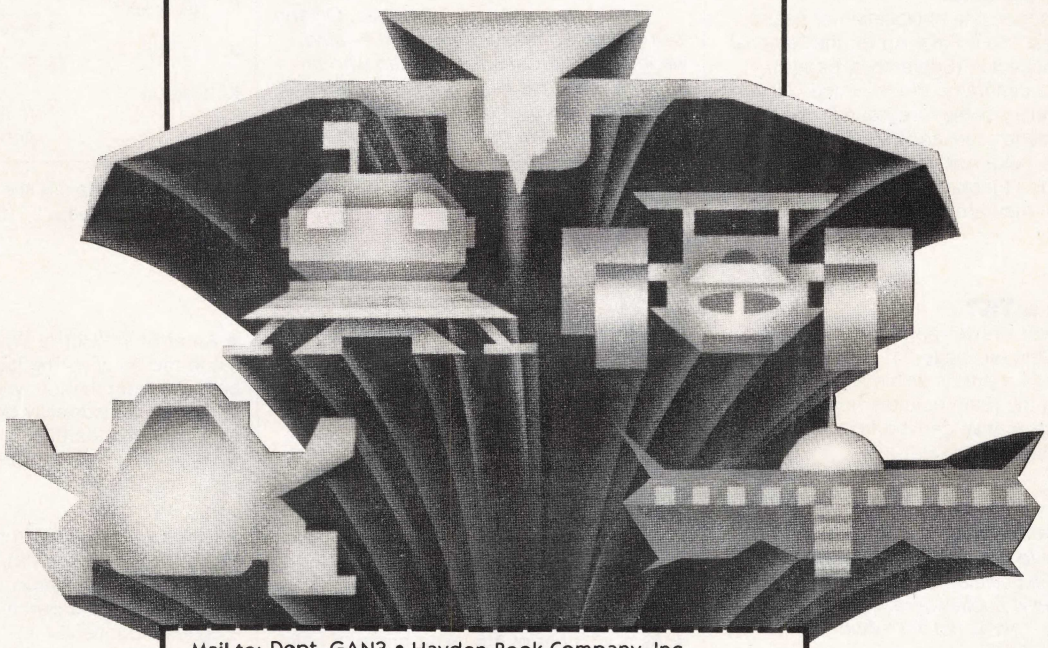

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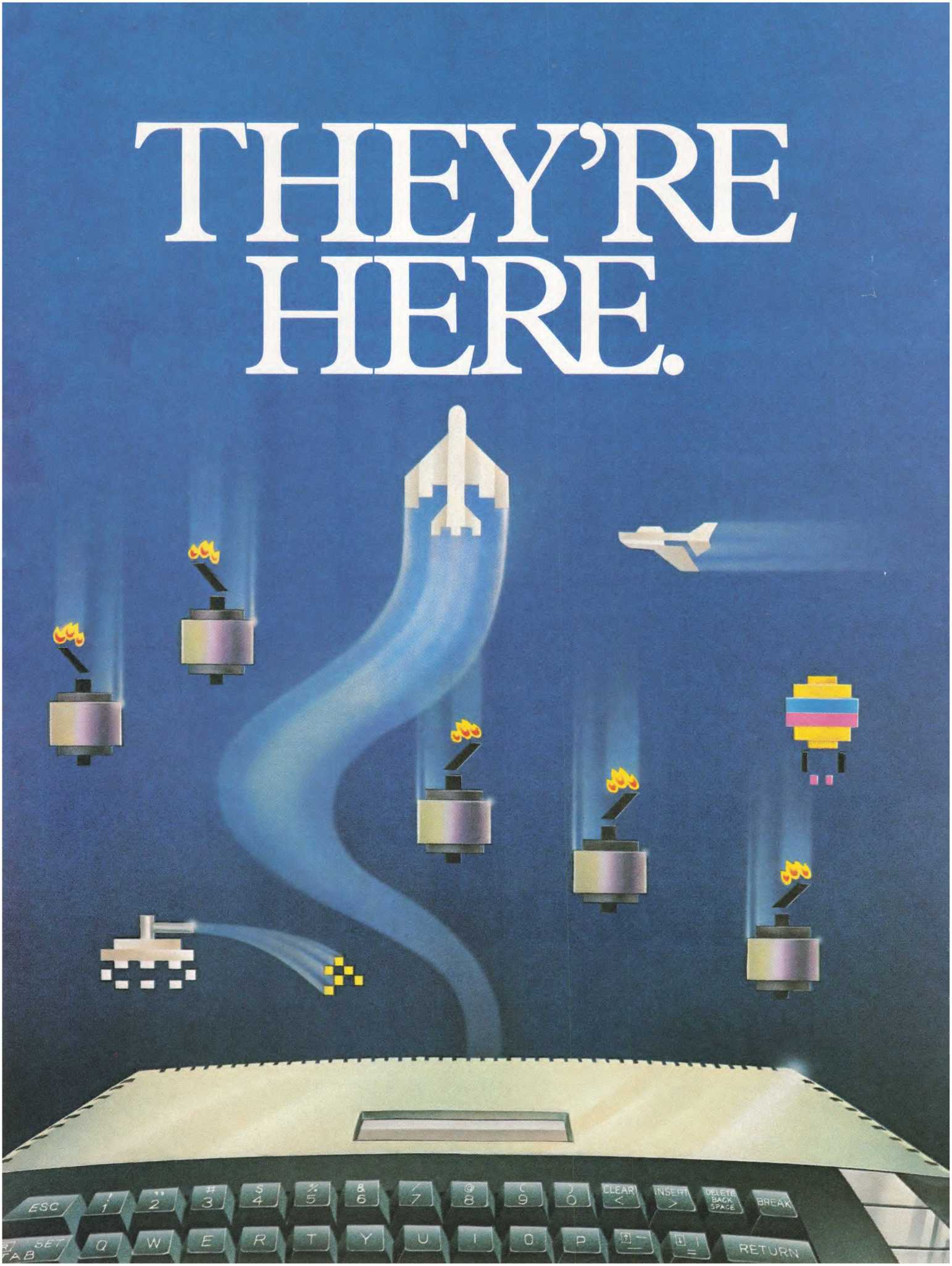

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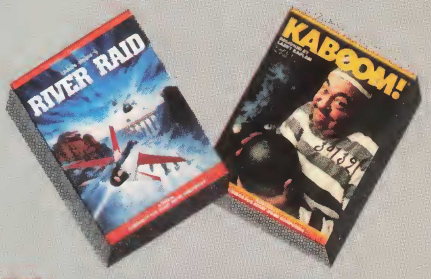

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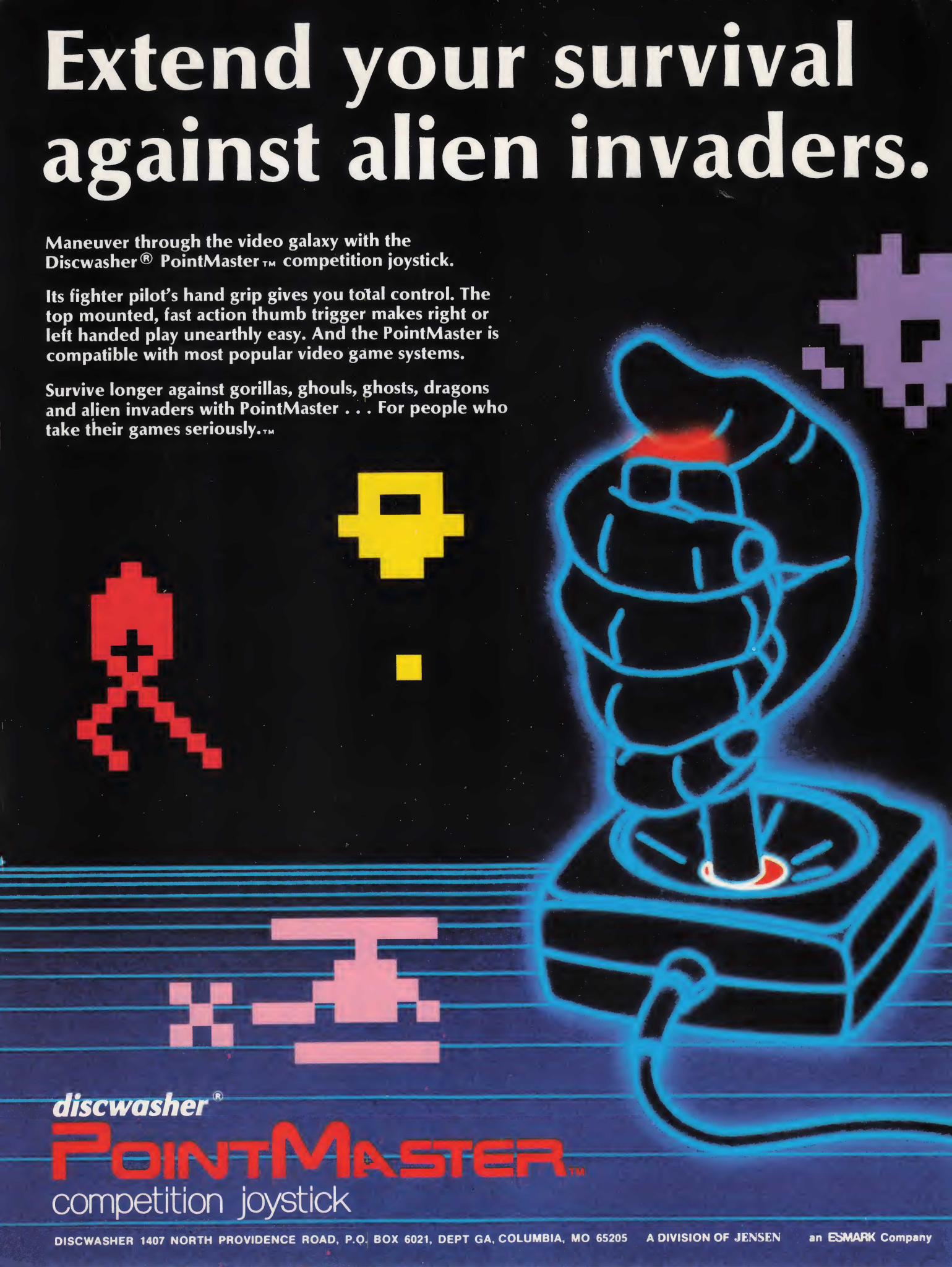

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COMPUTERS at Play

THE *GAMES* GUIDE TO HOME COMPUTER GAMES

If you ask people who are buying a home computer what they're planning to use it for, they'll probably say for taxes, business, word processing, their kids' education, or some other practical application. But if you ask the same people a few months later what they're actually using it for, chances are they'll sheepishly tell you they're just playing games. It seems they expected something else.

And yet, while the computer as a practical tool is finally becoming more accessible—in terms of both price and ease of use—its number-one application is still game playing. And no wonder. Whatever else may be said about computers, they're the greatest advance in gaming since the invention of dice. They're good at many of the tasks required in a wide variety of games: rapid mathematical calculations, accurate record-keeping, creation of random events, and keeping secrets secret. Computers also make ideal opponents, since they never tire of playing and rarely complain when you take too long on a move. They can even put you in touch with other human opponents outside your home.

And what's more, they're fun, and the gameplay they offer is wonderfully varied and extremely challenging.

By now everyone knows the arcade versions of Mr. and Ms. Pac-man and their children, cousins, and clones. They are, at heart, computers, as are the home video-game machines. But while many video maze chases and shoot-'em-ups do exist for home computers—and some of them are outstanding—they're only a small part of what's available.

There are strategy and adventure games that put you at the controls of an airplane, let you manage the ecology of a planet, give you command of troops led by a spell-casting wizard, or charge you with saving the world from a madman's bombs. There are mystery games, sports games, and educational games (many of which are definitely not just for children). There are programs that let you draw elaborate color pictures, animate cartoons, and compose music. There are even games that allow you to create your own games.

All these games have one thing in common: Playing them without a computer would be well nigh impossible. Deciding which of the thousands to include in this section has been one of the toughest and most enjoyable assignments we've ever undertaken. Besides reviewing our favorites, we'll describe the most appealing home computers, with emphasis on their personalities as game players.

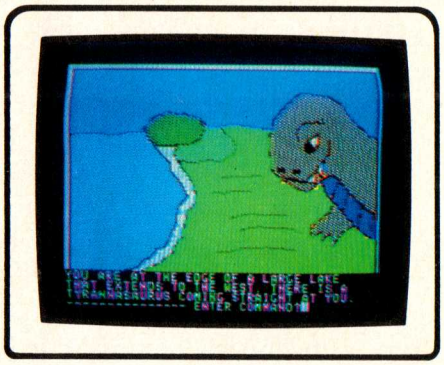
Current estimates are that 85 percent of all American homes will have a computer by 1990. After seeing what computers can do for games, we don't doubt it. So if someone asks you why you're buying a home computer, go right ahead and say "to play games." Everything else they can do is a bonus.

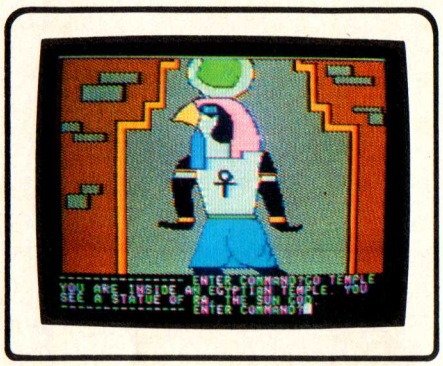
Computers take you to the outer limits with games like GRUDS IN SPACE (see review page 58). It's just one of more than 50 programs described here—games of every type imaginable, and then some.

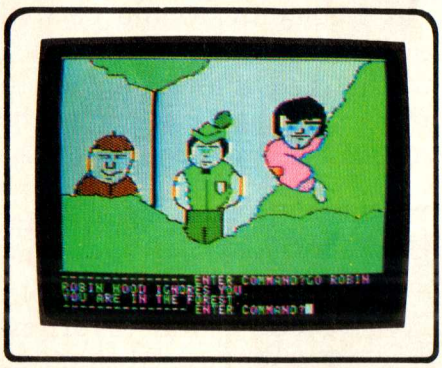
ALL PHOTOGRAPHS BY KIMBERLY BUTLER EXCEPT AS NOTED

EDITED BY R. WAYNE SCHMITTBERGER

ADVENTURE







In TIME ZONE, the adventurer encounters a tyrannosaurus, a statue of the god Ra, and Robin Hood and his men—though not necessarily in that order (review, right.)

PHOTO COURTESY OF PENGIUN SOFTWARE

The werewolf is only one of the fiends that harass players of TRANSYLVANIA, an appealing gothic adventure. The problem is how to acquire useful objects in your quest—and how to find your way through a dark forest, where paths twist and turn in ways that make careful mapping a must. Transylvania, by Antonio Antiochio. Penguin Software, Geneva, IL; on disk for Apple II/II+/IIe; $20.

In a computer adventure game, the player becomes an intrepid adventurer, searching out the hidden secrets of some perilous realm, where he's challenged to solve a wide variety of unusual problems. The first game of this kind was called, appropriately, Adventure. In it, players search for treasure in a lost cave by entering one- or two-word commands to move in a desired direction, examine or pick up an object, or defend themselves against attack. Designed in 1976 by Willie Crowther and Don Woods, it established a form that has been widely followed.

Sometimes the player must come up with an ingenious method—like saying a magic word, or figuring out how to use some seemingly insignificant object—to get from one part of the adventure to another. Other times there are riddles to solve. And in many cases, players will need to keep track of their progress by carefully drawing a map (often a complicated job) of the game world they are exploring.

Strictly speaking, many adventure games are not games at all, but puzzles, since they have little replay value once solved. Happily, they're not at all easy to solve, and often require many long sessions. Adventure gamers who subscribe to computer network services such as The Source and CompuServe use electronic bulletin boards to exchange clues for getting past some of the trickiest problems.

Currently, there are three distinct forms of computer adventure games available on many of the popular machines: all text; high-resolution graphic pictures, which offer still color pictures of each adventure scene as well as some text; and fantasy role playing (some of which have graphics, while others are all text), which allow for character development.

TIME ZONE

High-resolution graphic adventures were first developed by Roberta Williams of Sierra On-Line with the 1979 release of Mystery House. Time Zone, also by Williams, is the most ambitious game ever of this type, and the computer industry's first "micro-epic." Instead of coming on one disk, this mammoth game needs 12 disk sides to contain it, providing an extraordinary amount of play for the money.

The adventure consists of 39 interlocking scenarios and contains more than 1,500 scenes. Not for the average adventurer, this expert-level game represents the ultimate challenge for those who love to play by their wits. Even with persistent work, you should allow nine months to a year to complete it.

The story revolves around an alien warlord in the distant future who is trying to conquer the Earth. The only means of defeating him lies somewhere in time. With a time machine, you search through the ages for items you'll need for success in other epochs and, ultimately, against the warlord. In ancient Egypt, for example, discovering what Cleopatra wants in exchange for favors could consume weeks of work. Is it something you found in a far future time zone? Or something you picked up in Napoleonic France?

Each time zone contains a separate adventure. Some are deadly traps, while others contain potentially useful objects. Often you'll find that the only way to get a special object is to have already obtained three or four other things from other eras.

The game resembles a gigantic jigsaw puzzle. Only when the last piece is in place does the shape of the picture become apparent. A masterful job of misdirection and ingenuity, Time Zone is a classic. —Roe R. Adams III

Time Zone, Sierra On-Line, Coarsegold, CA; on disk for Apple II/II+/IIe; $100.

WIZARDRY I, II, AND III

Graphics that make players feel as if they're walking down a three-dimensional dungeon corridor combine with great game play to make Wizardry the most popular Apple program of all time. Where most adventure games contain about 100 locations, Wizardry I alone contains 4,000.

You feel as if you're alongside your band of six adventurers—each of whose characters you create and develop—as you search immense dungeons while trying to avoid a host of ingeniously designed monsters. The feeling of "you are there!" is incredibly real, and very addictive.

In the first game, subtitled Proving Ground of the Mad Overlord, the powerful wizard Werdna lies in wait on the 10th level of the dungeon. Any adventurers foolhardy enough to seek his mystical amulet must first get past his many traps and fight countless monsters and demons.

In Wizardry II: Knight of Diamonds, the adventure team is seeking to restore the staff of Gnilda to her temple. To accomplish this quest, all the hidden pieces of magical armor that once belonged to a great warrior, the Knight of Diamonds, must be recovered. Each of the six dungeon levels contains a piece, and the monsters on the sixth level are some of the toughest ever created. The game is designed only for use with characters who have been sufficiently developed in the aptly named Proving Ground of Wizardry I.

The third game, Legacy of Llylgaymn, offers an impressive technical breakthrough. Designers Andrew Greenberg and Robert Woodhead have managed to emulate the video display of the highly sophisticated Apple Lisa computer. In Wizardry I and II, the player's view of the dungeon appears in a corner of the screen, while text fills the rest. But in Wizard-

ry III, the player gets a full-screen view. Text information (such as available magic spells or an inventory of objects being carried) can be called up and displayed in as many as six different overlapping "windows" superimposed on the view.

This story concerns the hunt for a mystical orb that rests in a dragon's lair deep within a mountain. During an elaborate rite of passage, the spirit of a character's Proving Ground ancestor bestows power on his descendant—a new twist on character development. Another novel aspect is that neither good nor evil adventure parties alone can solve all levels of this scenario—a joint effort between the two is required.

A game of Wizardry can easily last well into the wee hours. Other adventures allow you to "save game" and pause at a spot until next time you play; but a Wizardry party can only be saved upon safe return to the surface. It's important to make accurate maps as you travel through the dungeons, or you may never see daylight again.

—Roe R. Adams III

Wizardry I, II, and III, Sir-Tech Software, Ogdensburg, NY; on disk for Apple II/II+/IIe and (Wizardry I only) IBM PC; scenarios II and III require scenario I; $50, $35, and $40.

ZORK I, II, AND III

The Zork trilogy, which chronicles happenings in a vast realm known as the Underground Empire, is the most famous of the all-text adventure games. Fantastic creatures, magic spells, and diabolical traps abound at every turn, and each room or area is described in long paragraphs of rich detail, helping the player visualize the setting.

In the first saga, titled The Great Underground Empire, the player begins outside a strange house that holds the hidden portal to the underground. Once below, the adventurer will rarely see daylight again until he finishes Zork III. Inside the house may be found a lamp and an ancient elfin sword. Whenever the computer tells you the sword is emitting a blue light, watch out: Dangerous creatures are around.

The intermediate-level Zork II: The Wizard of Frozzbozz goes ever deeper into the underground realm, and the adventurer must now deal with dragons, unicorns, and a carousel of spinning death. Randomly appearing throughout the dungeon is the Wizard of Frozzbozz himself, who casts spells that all begin with the letter F (freeze, float, fluoresce, etc.). In the third game, The Dungeon Master, which is geared for the expert level, the player is faced with very complicated riddles to solve and finally must duel the dungeon master of the title.

Though interconnected, each part of the trilogy is solvable separately. Zork I, the simplest, is a great game for first-time adventurers. The second and third installments become progressively more difficult.

Created by Marc Blank and Dave Lebling, the Zork trilogy has set a national standard for excellence in puzzle design. It will delight the game player with many months of adventures.

—Roe R. Adams III

Zork I, II, and III, Infocom, Cambridge, MA; on disk for Apple II/II+/IIe, Atari 800/1200, Commodore 64, CP/M, DEC Rainbow, IBM PC, TI Professional, TRS-80 Model III; $40–$50 each.

CRITICAL MASS

You're sitting at your desk at the United Nations when you find a note: A madman has set nuclear bombs to go off in five days in the world's largest cities. Only you can stop him, and your mission will take you around the world. Don't forget to take the flowers from your office (you'll need them in London), or to stop in at the deli around the corner. (What can you buy there that will save your life in Paris?) The uses to which you must put found objects are as ingenious and humorous as you'll see in any adventure game.

All the time you're traveling, the clock is ticking. Every taxi, airplane, or boat ride takes a given amount of time, so you must not only solve the puzzles in each scene, but solve them quickly. (Players who don't want to work against the clock should try the same company's Escape From Rungistan, which is just as funny and a lot easier.) The toughest hurdle is water-skiing in Miami, which requires arcade-type coordination. If you lose time mastering the technique, you'll miss the next plane and arrive in the Caribbean just in time to see the world end. Not with a whimper, but a bang. —J. D.

Critical Mass, by Bob Blauschild. Sirius Software, Sacramento, CA; on disk for Apple II/II+/IIe and soon for Atari 800/1200 and Commodore 64; $40.

SUSPENDED

You are in cryogenic suspension on the planet Contra. Suddenly a tremor awakens you, and you must solve a complex matrix of life- and planet-threatening crises using the six robots of Contra's underground compound. The game is an all-text adventure, but comes with a map of the compound as well as pieces you can move around to keep track of each robot's position as the game progresses.

The robots are linked to your mind through a "filtering computer," allowing you to control them with your thoughts. Each has specific abilities that you must discover, as well as a unique personality that colors the way he or she describes objects and events. It's useful to ask more than one robot to examine the same item or room—the combination of perceptions will give you a more accurate report. Poet, the diagnostician, sees all life as a stage; though obedient, he talks in riddles. Iris, if you can figure out how to repair her visual sensors, is a subdued Mae West type ("Hey, good-looking," she coos). Auda, your ears, and Sensa, who measures electrical forces, are on the quiet side. Whiz, your link to the compound's information stores, is fond of the phrase, "Hmm, that's a tough one." Waldo isn't too bright, but he's the workhorse of the group. The robots' humorous asides ease the frustration of trying to repair Contra before the humans break into the compound and replace you with a clone.

The game includes an advanced level as well as an option in which you can set up the robots' starting positions yourself. Like other Infocom games, the program has such a large vocabulary and good understanding of syntax that you can seemingly type in any relevant command and be understood. —G. D.

Suspended, by Michael Berlyn. Infocom, Cambridge, MA; on disk for Apple II/II+/IIe, Atari 800/1200, Commodore 64, CP/M, DEC Rainbow, IBM PC, TI Professional, TRS-80 Model III; $50–$60.

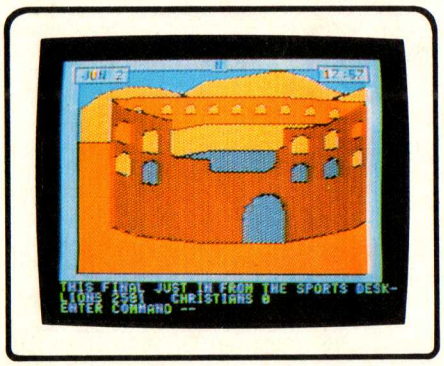
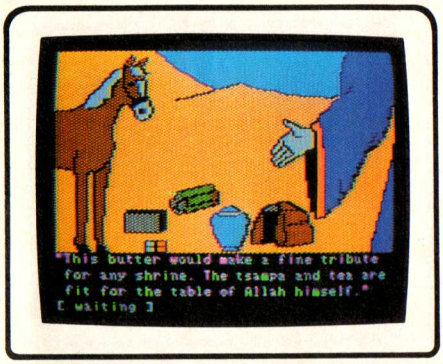
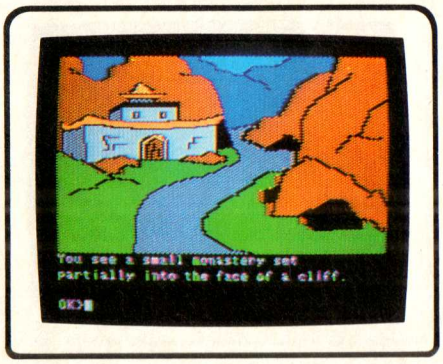
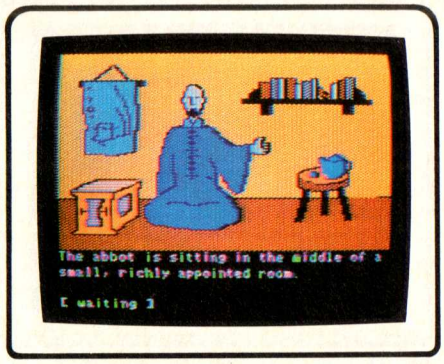


PHOTO COURTESY OF SIRIUS SOFTWARE

You're not in Rome to sightsee in CRITICAL MASS, a race against time to stop a madman's bombs (review, left.)



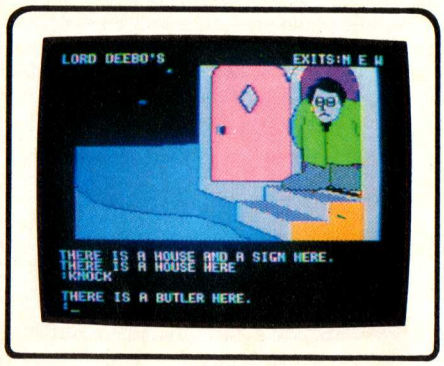


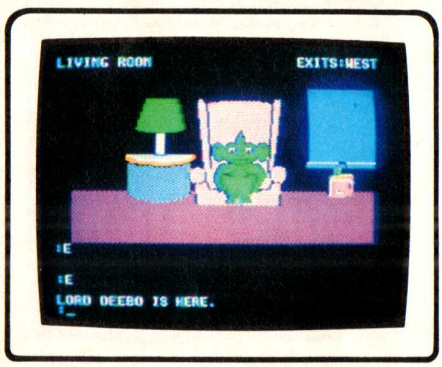


In THE SERPENT'S STAR, you're an archaeologist on the run in Tibet. If you buy the right wares from a merchant (top), you'll have something to offer at the monastery (center), where the grateful abbot (above) might have information to help you find ancient scrolls. The game's still pictures pop on screen so rapidly you have the impression of near-animation.

The Serpent's Star, by Alan Clark and Mike Ormsby. Ultrasoft, Bellevue, WA; on disk for Apple II/II+/IIe; $40.

The local pub is on the itinerary of your ULTIMA II character; review, right.





If you've found a gold coin on your travels in Saturn, you can bribe Lord Deebo's butler (top) and get in to see his boss (center) in GRUDS IN SPACE. Deebo sends you on a mission to Venus, where you must get past a mean Venusian (above). This witty game features a maze sequence that puts logical and mapping skills to the test.
Gruds in Space, by Chuck Sommerville and Joe Dudar. Sirius Software, Sacramento, CA; on disk for Apple II/II+/IIe, Atari 800/1200, and Commodore 64; $40.

ULTIMA I, II, AND III

In fantasy role-playing games, the player creates a character before setting off on an adventure, then develops the character's abilities further throughout the game. In the Ultima system, created by Lord British (a.k.a. Richard Garriott), you begin by generating from a menu of choices a novice hero or heroine who has only the barest of necessities for survival. Then you send your character on his way through a maplike animated landscape. When you enter a town, castle, or dungeon, the scale changes and you see detailed scenes of the new environment. After gaining gold and treasure through combat with many opponents, and rare and magical objects from raids on temples and tombs, the adventurer heads for a town to buy better armor and weapons that will improve the chance of survival.

In Ultima I, the player must develop a character strong enough to find, challenge, and defeat the evil wizard Mondain in an adventure that spans vast amounts of time. It begins in antiquity with only swords and leather armor, and moves to a future age of phasers and reflector suits. Part of the scenario even includes space battles in distant galaxies. Only when everything needed has been acquired is the player even eligible to hunt for Mondain's secret stronghold in time.

In the second installment, titled Revenge of the Enchantress, the player travels through flickering time portals, carefully gathering strength and special weapons. The aim is to discover the means of storming the fortress of Minax, Mondain's young apprentice, who upon the wizard's death has vowed to destroy civilization.

Like a computer *Roots*, the third game in the saga—Ultima III: Exodus—centers on the next generation, the evil offspring of Mondain and Minax, though whether it be human, demon, or thing no one knows. In this game, the Ultima system has been expanded to allow four characters to campaign together, with the help of such props as a cloth map and books of magical spells.

In this engaging trilogy, your imagination will get as much exercise as your wits as you move through scenarios that become ever richer in detail. —Roe R. Adams III

Ultima, Cal Pacific, Davis, CA; on disk for Apple II/II+/IIe and Commodore 64; $35. (A disk version of Ultima I will soon be published by Sierra On-Line, Coarsegold, CA, for Atari 800/1200.)
Ultima II, Sierra On-Line, Coarsegold, CA; on disk for Apple II/II+/IIe; $60.
Ultima III, Origin Systems, Houston, TX; on disk for Apple II/II+/IIe; $55.

SCOTT ADAMS GRAPHIC ADVENTURE (S.A.G.A.) SERIES

First written as all-text games, about half of these 12 adventure game classics (all sold separately) have since had hi-res graphics added, and the rest soon will. Set in exotic locales, and consistently witty and well constructed, they are rated according to difficulty level, from the introductory Pirate Adventure to the moderate-level Voodoo Castle to the very tough Savage Island I and II. —R. W. S.

S.A.G.A. Series, by Scott Adams. Adventures International, Longwood, FL; on disk for Apple II/II+/IIe, Atari 800/1200, $40 each. All-text versions are available on many other systems.

ADVENTURE PUZZLES

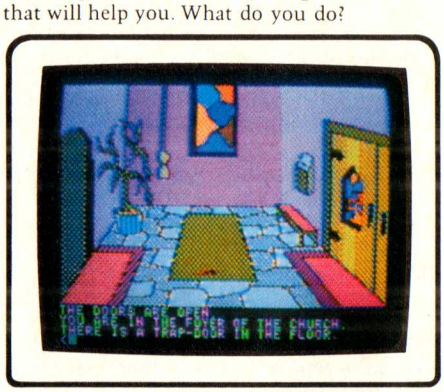
The solution to an adventure game problem is usually logical—at least within the context of the game's "world"—yet often requires players to make some leap of intuition. Try your hand at these.

Answer Drawer, page 78

★ **Puzzle #1** (from Adventure): Your way is barred by a giant green snake. You have: a lamp that is lit, keys, food, a small bird in a wicker cage, and a rusty black rod with a star on one end. How do you get past the snake? (a) Throw lamp (b) Eat food (c) Release bird (d) Attack snake.

★★ **Puzzle #2** (from Zork II): You're trapped in an ice cavern with only a lamp and a sword. To the west the passage is cut off by a giant block of ice. To the east is a fierce dragon. (If you hit him more than twice, he'll fry you.) How do you progress?

★★★ **Puzzle #3** (from S.A.G.A. Series #11, Savage Island Part 2): You're standing naked in an empty room with walls on three sides and a force field on the other. You must reach an airlock 10 steps away, just beyond the force field, but if you cross the field you'll be in a vacuum and your lungs will explode before you take three steps. If you hold your breath you can get further, but you still won't make it to the airlock. You're not carrying anything, nor is there anything in the room that will help you. What do you do?



DEATH IN THE CARIBBEAN's church vestry (top) may look peaceful, but there's one object you must avoid or you'll end up in a tropical grave (above). What is it?
Death in the Caribbean, by Philip and Bob Hess. MicroLab, Highland Park, IL; on disk for Apple II/II+/IIe, Atari 800/1200, Commodore 64, and IBM PC; $35. *Answer Drawer, page 78*

STRATEGY

Computers have made possible a whole new spectrum of strategy games with challenges that simply wouldn't be possible without an electronic referee. We also like the many good programs for classic strategy games, like Odesta's Chess and Odin (reversi) challengers, Ritam's computer Scrabble opponent, and Datamost's Gin Rummy program. But the games reviewed here are unlike anything traditionally played on a board.

WORMS?

In the November 1973 issue of *Scientific American*, Martin Gardner discussed the interesting patterns that could be formed by the path of an imaginary creature touring a grid according to specific rules of movement. Paterson's Worm, as the creature was called, is brought to life in this ingenious game.

Each player controls a worm that starts at the center of an array of dots filling the screen. (The computer can play any number of worms, up to all four.) In turn, each worm moves to one of six adjacent dots, drawing a line segment (and playing a musical note) as it goes. A previously used path may not be retraced. When a worm draws the sixth and final path leading out of a dot, regardless of who drew the other five, it scores a point.

For about the first half of the game, the players must tell their worms what to do by tapping directions on the keyboard. But the worms remember every instruction and use this knowledge to move by themselves whenever they encounter a position they have seen before. Thus, if a worm is at a point from which paths radiate east and west, and you tell it to go northwest, the worm will automatically move northwest for the rest of the game when it encounters a dot with an existing east-west path configuration. Late in the game, the worms are usually so "experienced" that the players have only to watch them race around the screen, racking up points, making music, and sometimes annihilating one another by colliding at a point with no remaining exits. There is no board edge, by the way; worms wrap around from one side of the screen to another.

Although there are no random events in this program, strategic moves are so tough to visualize that you'll find you have to play by intuition. Worms that zigzag sharply tend to be better than those that go straighter, but there is no such thing as a "perfect worm"—a given worm's performance will always depend on the way the opposing worms move. Still, if you like the way your worm performs, you can use it again in the next game, or even save it on disk and take it to a friend's house for a new contest. —R. W. S.

Worms? by David S. Maynard. Electronic Arts, San Mateo, CA; on disk for Atari 800/1200 and soon for Commodore 64; $40.

PLANET MASTER

You're the gamekeeper of a planet that's a giant wildlife preserve for the endangered species of the galaxy. The planet is divided into 12 zones of varying climates, and each of the six species (chosen at random from among a great many at the start of a game) is initially transported in varying numbers to different zones.

At each turn—equivalent to one month on the planet—you decide which of the species, if any, should relocate to other zones. This decision requires careful study of the voluminous data at your disposal, else one or more of your species is likely to die off, resulting in a drastic reduction of your "performance rating." In this mostly text game, the necessary background information is organized for efficient onscreen scanning; it includes facts about each species' life expectancy, reproduction rate, dietary preferences, and optimal habitat, and about the flora and variable climate of each zone. Some species are vegetarians, but many are carnivores and will eat their neighbors, so you have to plan ahead strategically, walking a fine line between protecting the weak and not starving the strong. The job is especially tough in the final months of each year, when populations are at their lowest before new births increase them in the spring. —R. W. S.

Planet Master, by Gary Cuba. Magnetic Harvest, Hopkins, SC; on disk for Apple II/II+/IIe; $25.

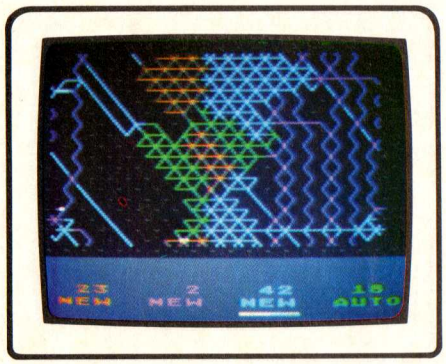
HIGH RISE

You race to build a tower of a certain minimum height from a changing assortment of blocks, which get more oddly shaped as the game progresses. If you stack the blocks in an unstable way, the tower will crumble before your eyes. Foresight is needed, since each block you choose uncovers and makes available for the next turn a different block in the array shown moving downscreen. Quick reflexes are even more important, since the amount of time you have to complete your task diminishes with each successfully built tower. Blockhead fans won't be able to stop playing. —R. W. S.

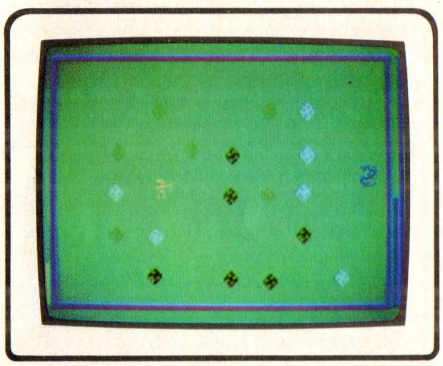
High Rise, by Joe Calabrese. MicroLab, Highland Park, IL; on disk for Apple II+/IIe, Atari 800/1200, Commodore 64, IBM PC; $30.

ROBOTWAR

The object of this game is to design a robot that will triumph over other robots. The player's activity consists entirely of writing a computer program that determines the robot's every action—when, where, and how fast it moves, and when and where it fires its weapons. Using a simple language unique to the game, the program can be written easily by someone with no prior programming experience. Indeed, this game will *give* you

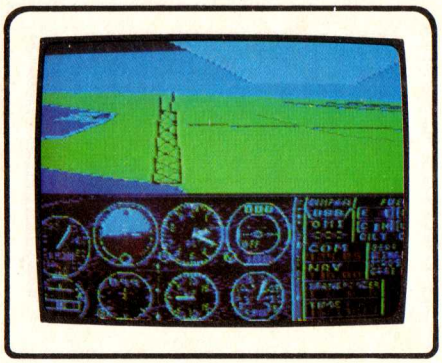


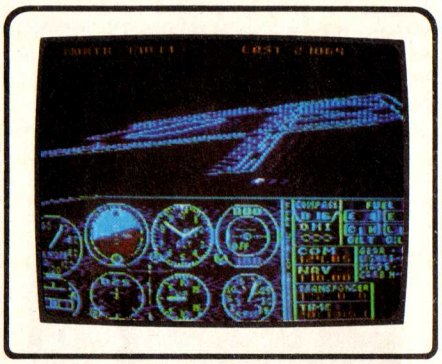
The well-trained blue worm flirts with the aimless purple one as their paths intersect several times on the left edge of the screen, midway through a game of WORMS? The game is reviewed at left.



A weird blend of chess, magic, and head-to-head action, ARCHON is a fight between two opposing armies as they try to outmaneuver each other on a chesslike board (top). When two opposing pieces land on the same square, the scene shifts to a forest (above), where they duel to the death, arcade-style. The pieces vary in speed, mode and strength of attack, and ability to withstand hits. In the scene shown, the more powerful dark Dragon (far right) squares off against the faster yellow Archer. You win by wiping out the other army or by occupying five special squares. The dark Sorceress and the light Wizard can cast magic spells that revive the dead, teleport a piece, even shift the flow of time. Still, the most strategically adept player will generally be outclassed by a better arcade player. You can sharpen up by taking on the computer.

Archon, by Free Fall Associates. Electronic Arts, San Mateo, CA; on disk for Atari 800/1200, and soon for Apple II/II+/IIe, Commodore 64, and IBM PC; $40.

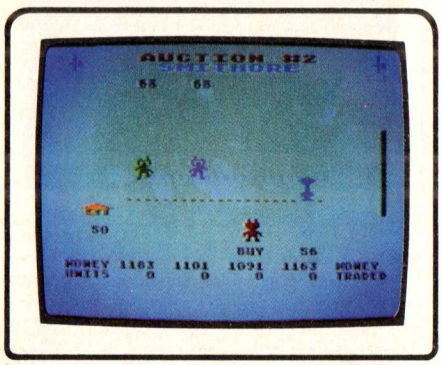




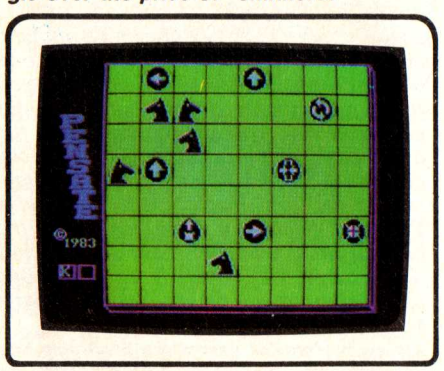
PHOTOS COURTESY OF MICROSOFT

FLIGHT SIMULATOR puts you in the cockpit of a plane that flies among 20 airports. Mastering takeoffs from Meigs Field, Illinois (top), is easy. But your first few landings generally result in crashes as you try to use some 30 keys while watching your gauges. Experienced pilots can fly at night (above, at New York's JFK International), or in bad weather.

Flight Simulator, by Bruce Artwick and Sublogic. Microsoft, Bellevue, WA; disk for IBM PC; $50.



In M.U.L.E., reviewed at right, players haggle over the price of "smithore."



Tough knights ahead for the PENSATE player's piece (third row up); review right.

programming experience.

When you've tested your robot and know that it's working, you put it in an arena with up to four other robots created by other players or selected from among the five preprogrammed robots on the disk. Then the computer takes over, moving and firing robots according to their programming. First time out, your robot will probably bite the dust quickly. Eventually, though, you'll learn how to tell it to change the speed at which it scans with its radar, to move out of enemy lines of fire more efficiently, and generally to increase its chances for survival. Graphics are rudimentary—the robots are little more than dots in the arena—but we didn't mind at all.

—R. W. S.

Robotwar, by Silas Warner. Muse Software, Baltimore, MD; on disk for Apple II/II+/IIe; $40.

OIL BARONS

Starting with equal fortunes, one to eight players attempt to strike black gold. The game comes with a playing board, a 40 x 50 grid on which markers are placed to keep track of land ownership, active oil wells, dry holes, and so on. Each player begins with some land and may buy more at auctions held each turn. The chance of striking oil on any parcel varies according to the terrain and also (in one of the game's main variations) on the proximity of other active wells.

Before investing a bundle in drilling, a player can pay for a survey to find out the odds of success. When the decision is made to drill, the screen changes from text to graphics, and the players hold their breath. Millions of dollars are at stake as the rig goes up and the drill bores downward. The well may be dry, or a black pool may suddenly appear, in which case the player's next problem will be paying taxes.

—R. W. S.

Oil Barons, by Tom Glass. Epyx, Mountain View, CA; on disk for Apple II/II+/IIe and IBM PC; $45.

HI-RES COMPUTER GOLF 2

Good computer sports games can be found on every subject from football to track and field. None, however, offers more varied play, or a finer blend of strategy and dexterity, than Hi-Res Golf. A beginner's course and three 18-hole "pro" courses can be played solo or with up to four players; the computer keeps a running scorecard.

Each hole presents its own problems—fairways vary in length and configuration, and in the positioning of sand traps, trees, water hazards, and roughs. A shifting wind is also a factor. You can choose from among 10 clubs in your electronic bag and vary the power of your swing. Stroking the ball takes some hand-eye coordination: By tapping a key, you guide the clubhead through a 180° swing. After it's hit, the computer shows the "flight" of the ball along the course. When you make it to the green, the screen flashes to a close-up that indicates, for putting purposes, its contours.

Hi-Res allows practice swings, a practice hole, and even an "Auto-Swing" that allows the machine to hit for you. The only thing it doesn't provide is a shower and a drink in the clubhouse.

—C. S.

Hi-Res Computer Golf 2, by Stuart Aronoff. Avant-Garde Creations, Eugene, OR; on disk for Apple II/II+/IIe and IBM PC; $35.

M.U.L.E.

M.U.L.E. is a witty and well-crafted game of exploration and resource development on the planet Irata. (It's also a fine model of perfect market microeconomic theory, so good that it could be used as a teaching aid in a college-level economics course.) The object is to end up with the highest net worth; success depends on choosing what to produce and when to produce it, as well as on obtaining the best possible prices at auction.

The competition is among four players (the computer can play any number of these). Players select characters from among eight types, then are dropped off on Irata with equal endowments of money and supplies.

On each turn, players first stake land claims and decide what to produce: food, energy, or two kinds of ore. Each player then gets a M.U.L.E. ("Multi Use Labor Element") from the corral, and, racing against a timer, dashes to the outfitting shop. He then installs the equipped M.U.L.E. on his land.

After a random events phase—in which space pirates may steal food, an antique personal computer may be sold for $500, or an earthquake may destroy a mine—the computer tallies up each player's production.

In the final phase of each turn, goods are auctioned. A particularly nifty piece of animation shows four characters (controlled by joysticks) marching up or down the screen as their offers go higher or lower. Transfers occur when they meet. Ores usually claim the highest prices, but food is needed to obtain a full allotment of time in the production phase, and energy must be expended to mine the ore and to grow more food.

The beauty of M.U.L.E. is the designers' attention to play balance and game detail. For example, random events are used to equalize players; and, during auctions and land grants, ties go to the player with the lower score. M.U.L.E. also sports some of the jauntiest theme music of any computer game.

—J. A.

M.U.L.E., by Ozark Softscape. Electronic Arts, San Mateo, CA; on disk for Atari 800/1200 and soon for Commodore 64; $40.

PENSATE

Pensate is something like mental Frogger. Your single piece must run a gauntlet of hostile forces and reach the other side of the board without touching another piece.

After the computer randomly places its pieces, you pick a starting position on the bottom row. You may travel one space per move, vertically or horizontally, but you must choose your moves at least two at a time. After each of your moves, the computer moves the other pieces in ways that are predictable but difficult to foresee fully (especially since a piece landing on an occupied square gets to move again). Some types of pieces have a fixed move, such as one space to the right. But most of their moves are a function of yours (for instance, one piece might always move in the exact opposite direction from the one in which yours does).

Each time you make a successful crossing, the computer adds one more piece to its army, up to a maximum of 25. If you get past 18, you're an expert.

—R. W. S.

Pensate, by John Besnard. Penguin Software, Geneva, IL; on disk for Apple II/II+/IIe; $20.

COMPUTER ARTISTRY

Some of the most playful computer programs aren't games at all, but graphics devices that let you create microchip doodles or masterpieces, and in some cases even animate them.

MOVIE MAKER is a most impressive achievement, especially considering its price ($60). With it you can create a cartoon featuring up to six characters moving about the screen at a time, each changing shape and color as desired in up to 300 frames. (This will run about 30 seconds; longer features can be put together by using a video recorder.) Several sequences, including realistically moving animals, come on the disk, but it's easy to create your own. You simply draw by moving the joystick, and you can duplicate any part of your drawing, or its mirror image, anywhere on the screen by manipulating a "window frame." This device, which frames a portion of the screen and picks up and moves anything inside it, saves a lot of redrawing time. The best version of Movie Maker is for the Atari 800/1200, because of those machines' superior graphic capabilities; with one Atari you can use three "zoom" modes that enable you to get different degrees of close-up detail on a character.

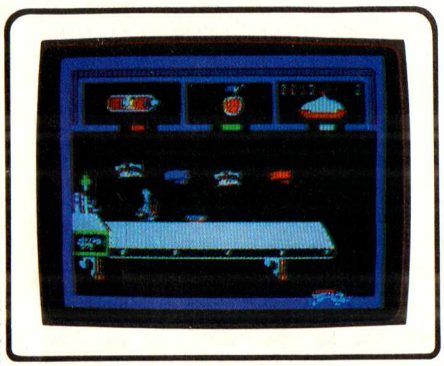


PHOTO COURTESY OF PENGUIN SOFTWARE

THE GRAPHICS MAGICIAN, reviewed at right, is used by its manufacturer to produce animated games like Pie Man (above). The program allows you to accomplish similar feats.

Generating lines and rectangles on the KOALAPAD, then filling with color, produced this city scene. See review, right.

THE GRAPHICS MAGICIAN is another remarkable program that allows a great deal of creative flexibility. The process of drawing and animating finely detailed objects is somewhat laborious (and the instruction booklet lengthy), but the resulting images can be easily incorporated into any programs you've created. Graphics Magician also lets you draw the kinds of hi-res color pictures seen in adventure games. In fact, Penguin Software, which produces this disk, uses Graphics Magician to create its own graphic adventure games, such as Transylvania (a scene from which appears on page 56).

The **LPS II** (Light Pen System for Apple II+ computers) is expensive ($350) but amazing. It appears to work by magic. A "card"—connected by a cord to the "pen" itself—is plugged into a slot on an Apple II+ (some minor wiring changes must be made to install it in an Apple IIe). With the accompanying disk loaded, you point the pen at the screen to choose from the extensive menu of options. You can draw lines in various widths and colors just by moving the pen wherever you want the lines to go, and then fill in, in a variety of colors and patterns. You can point to two places on the screen and watch a three-dimensional building spring up, with the points you chose as two of its corners. It's easy to animate and to write programs that incorporate the pen's many functions.

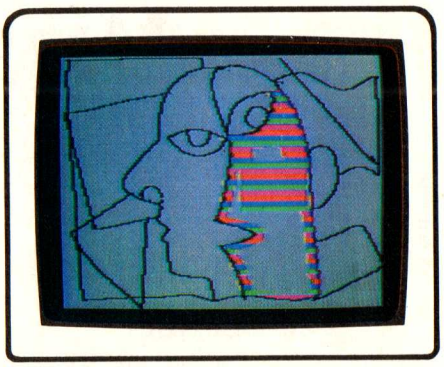
KOALAPAD TOUCH TABLET comes with a Micro Illustrator disk that allows you to draw pictures on the screen by moving your finger on the touch-sensitive tablet. (We found the process awkward, and preferred to use a stylus; one is provided with the program.) The KoalaPad plugs into the joystick port and is equipped with two "fire buttons" (yes, you can use it as a joystick, but don't count on its registering quick turns accurately). By hitting a button, you call up a menu of choices; choose one, and the computer draws lines, circles, or rectangles, or goes into a magnification mode allowing you to "paint" details. Still, the pad does not produce images as finely detailed as the other programs reviewed here. New programs will soon be available for the KoalaPad, starting with a Dancing Bear disk that makes music and simple animation. —R. W. S.

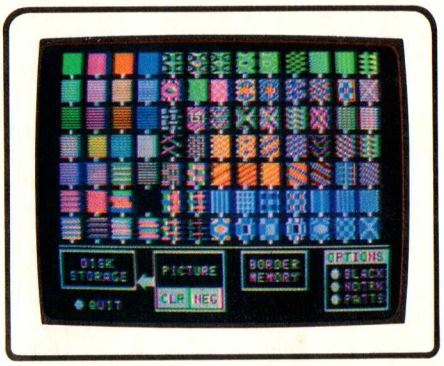
Movie Maker, by Interactive Picture Systems. Reston Computer Group, Reston, VA; on disk for Atari 800/1200, and soon for Apple II/II+/IIe, Commodore 64, and IBM PC; $60.

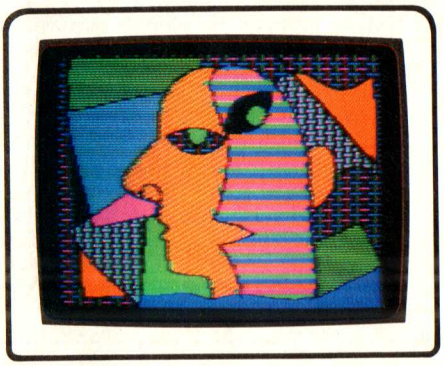
The Graphics Magician, by Mark Pelczarski. Penguin Software, Geneva, IL; on disk for Apple II/II+/IIe; $60.

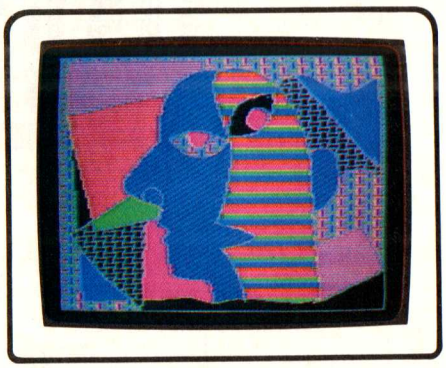
LPS II, by Steven Gibson. Gibson Laboratories, Laguna Hills, CA; available with disk for Apple II/II+/IIe; $350.

KoalaPad Touch Tablet with **Micro Illustrator**, by Island Graphics. Koala Technologies, Santa Clara, CA; available with disk for Apple II/II+/IIe, $125, and Atari 800/1200, $100. Koala also makes versions for other systems: KoalaPainter, by Audio Light, on disk and cartridge for Commodore 64, $100; and P.C. Design, on disk for IBM PC, $150.









If Picasso had had a computer, he might have created a masterpiece like this one, done with the LIGHT PEN reviewed at left. First, an outline is created by touching the "pen" to the screen and drawing. Then, tap the keyboard to switch to the menu (second photo) of colors and patterns. Touch the box of your choice with the pen, switch back to the picture, and point the pen to the area you want painted—the top photo shows the computer in the process of filling in an area. When you're done (third photo), you can convert the picture to its negative image (above).

MYSTERY

Devotees of mysteries will find a number of engaging games that provide stiff challenges. The three reviewed below all involve solving murders, yet they could scarcely be more different.

MURDER ON THE ZINDERNEUF

The time: 1936, or near enough to. The scene: the passenger deck of the luxury zeppelin *Zinderneuf*. The cast: 16 wildly assorted characters, nearly all with murder on their minds, and you, trying to solve one of more than 2,000 different shipboard homicides.

You choose any of eight detective roles, from a casual Colombo type to an incarnation of the genteel Miss Marple. Then, in a format unique among mystery games, you move about the ship by joystick, "questioning" suspects by choosing from a computer-generated list of possibilities. The options are as varied as the results they produce.

Your other basic activity is searching rooms for clues, which may fail to turn up because someone else comes into the room (the passengers run around the ship like demented mice in a maze). It's hard to tell the players without a program, so take notes.

At the end of 12 hours (36 minutes of playing time), you can accuse someone of the murder, at which time murderer and motive are revealed. The computer doesn't pussyfoot around when you goof. It comments on your abilities at the end of each game, and it calls a Spade a Spade. —M. E. S.

Murder on the Zinderneuf, by FreeFall Associates. Electronic Arts, San Mateo, CA; on disk for Atari 800/1200 and Commodore 64; $40.

DEADLINE

Deadline players become involved—even obsessed. When they meet, their conversation might begin like this: "Did you find the pieces of the teacup?" "No, but I caught the gardener with the ladder."

This all-text game looks deceptively simple. Marshall Robner has been found dead of a drug overdose, and you're given copies of interviews with the suspects, a photo of the crime scene, lab and other reports. You enter the Robner mansion and go from room to room, talking to people, eavesdropping, finding objects, having them analyzed, and, if appropriate, pocketing them. What you do or fail to do affects the subsequent behavior of the suspects, whose responses to your questions change depending on such variables as whether you show them a clue, and what room you're in and when.

For those who manage to solve this very tough puzzle and want another, Infocom has just come out with Witness. —M. E. S.

Deadline, by Marc Blank. Infocom, Cambridge, MA; on disk for Apple II/II+/IIe, Atari 800/1200, Commodore 64, CP/M, DEC Rainbow, IBM PC, TI Professional, TRS-80 Model III; $50–$60.

MURDER BY THE DOZEN

Micropolis is apparently a town of only a few thousand souls, and this modest population is diminishing rapidly. A dozen citizens are knocked off in this one floppy disk.

Players are given an onscreen map, the name of the deceased, how, where, and when he or she was done in, and a place to start.

The game's basic gimmick is distance as it translates into elapsed time. For example, in any given location you have six investigative options, consisting of interviews or area searches. As you ask questions, the screen refers you to one or more numbered clues in a printed book. Sometimes you get "no clue"; more frequently you'll get information leading you to another location. This presents you with a dilemma. Shall you go across town to follow a hot lead (half an hour)? Or shall you go next door to pursue a vague, possibly fruitless clue (four minutes)?

Time is important when you're playing solo and trying to beat the clock, and crucial in the more exciting competitive play, because the faster player always goes next. —M. E. S.

Mystery Master: Murder by the Dozen, by Brain Bank. CBS Software, New York, NY; on disk for Apple II/II+/IIe and soon for Commodore 64 and IBM PC; $35.

PHOTO COURTESY OF FREEFALL ASSOCIATES.

Will you "question," "ignore," or "accuse" this MURDER ON THE ZINDERNEUF suspect? See review, at left.

WARGAMES

Among board games, the most complex are historical, science fiction, and fantasy wargames, requiring detailed record-keeping and calculation. Computers do these tasks easily, without losing detail, as seen in the games below.

COMBAT LEADER

Several designers have flirted with the idea of combining strategy and arcade skills in a single game. In Combat Leader, David Hiele has fully realized this idea.

The game simulates small-unit tactics from World War I to the present. Tanks and armored personnel carriers move across the battle zone (visible one section at a time as the map scrolls across the screen), and, on command (via joystick and keyboard), infantry teams are disgorged. Mortar squads lob screaming shells; rifle, machine gun, and antitank (bazooka) squads attack, defend, and otherwise do everything real-life infantry units can do.

Excellent graphics and sound, and the "real-time" action, make this an outstanding game. But perhaps its most exciting aspect is designing your own scenarios. The rules appendix rates tanks and carriers from nine countries from 1939 to the present. With this information and the ability to generate different terrains, the game lets you fight it out almost anywhere. —Russell Sipe

Combat Leader, Strategic Simulations, Mountain View, CA; on disk and tape for Atari 400/800/1200 and soon for Commodore 64; $40.

THE COSMIC BALANCE and COSMIC BALANCE II

Cosmic Balance, a mostly text game by Paul Murray, involves the player both in spaceship design and ship-to-ship combat. The ships are reminiscent of *Star Trek*'s *Enterprise*, complete with warp drives, phasers, photon torpedoes, shields, transporter beams, etc. In all but one scenario, players design their own ships, a critical aspect of the game for success in the ensuing battle.

Cosmic Balance II requires strategic planning for control of the galaxy. In combat, players can use the game's own combat resolution system or (if they're ambitious) switch to Cosmic Balance and fight it out on that game's tactical level. Scenarios are devoted to economic expansion, colonial wars, rebellion, and "The Final Conflict." —Russell Sipe

The Cosmic Balance, Cosmic Balance II, Strategic Simulations, Mountain View, CA; on disk for Apple II/II+/IIe, Atari 800/1200; $40 each.

GUADALCANAL CAMPAIGN

This is the first "monster" game for a microcomputer. In the tradition of similar board games, every ship, plane, and infantry company involved in that World War II struggle fight for control of Guadalcanal and the strategically important Henderson Field.

The game involves forming task forces for combat, bombardment, supply, and submarine patrols, then sending them into action at various map locations. A major part of the game is the cat-and-mouse contest between

NOT FOR KIDS ONLY

Along with programs designed to teach skills like spelling and arithmetic is a growing class of games that teach logical thinking, a prerequisite for writing computer programs of any degree of complexity. The games reviewed here are as challenging for adults as they are for children.

ROCKY'S BOOTS

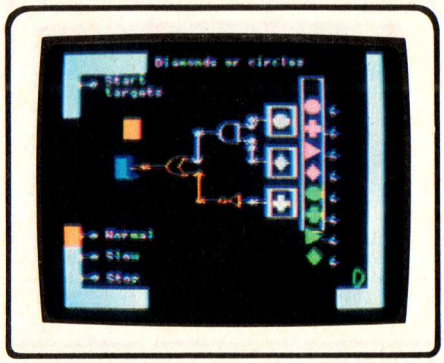
Though billed as a game for ages seven and up, Rocky's Boots gradually builds up to puzzles that may baffle an electrical engineer. Using joystick or keyboard, the player moves a cursor around several adjoining "rooms." The main room contains a conveyor belt displaying a series of objects that vary in shape and color. To the left of the belt are three box-shaped "sensors," each marked with a different shape or color.

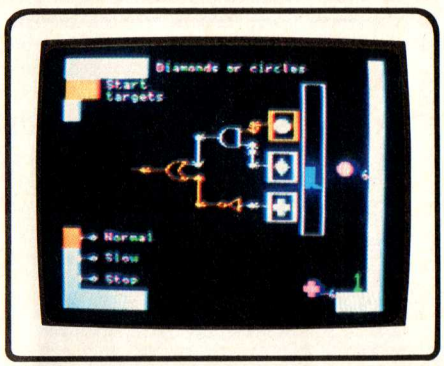
Using a joystick to bring in various wires and electrical devices from other rooms, the player builds a machine and then attaches one end of it to some or all of the sensors. The other end is hooked up to a "boot," which is activated whenever electricity flows into it from the machine. After the conveyor belt is turned on, a visible orange current will flow from a sensor whenever an object matching that sensor in shape or color passes by. Depending on how the machine is constructed, the boot will be activated at various times. It will then kick the closest object off the conveyor belt and return to its starting location until it receives more electricity. Points are scored for each object booted; but since some of the objects score negative points, your very difficult task is to build a machine that will boot objects selectively.

The secret to success lies in clever use of "logical gates" in the machine. These AND, OR, and NOT gates, which are also at the heart of every computer's logic circuits, function as they do in traditional logic. For example, electricity will flow from the output wire of an AND gate only when electricity is flowing into *both* of the gate's input wires, but will flow from an OR gate when current is flowing into *either* input wire. In hooking these together, you may also have to add "delays" (to make sure that electricity flows through various parts of your machine at the proper times), "flip-flops," and other gadgets.

There are 30 puzzles that get progressively more difficult, and you can also make up your own. —R. W. S.

Rocky's Boots, by Warren Robinett. The Learning Company, Menlo Park, CA; on disk for Apple II+/IIe, $50.





In ROCKY'S BOOTS, reviewed at left, wires and other devices are selected from a storage room, then hooked together to create a machine (top). When an electric current, seen glowing orange, flows into the tiny boot on the left, the boot kicks a passing object off the conveyor belt (above), scoring points.

MASTER TYPE

Here's a playful way to learn touch typing, a most useful skill for any computer operator. Enemy missiles are zooming in from the four corners of the screen, each of which also displays a randomly chosen word. When you type the word correctly on the keyboard, your spaceship shoots an energy bolt toward the appropriate corner, destroying the incoming missile. You can set the speed as fast as you wish, then type as though your life depended on it. —R. W. S.

Master Type, by Bruce Zweig. Lightning Software, Palo Alto, CA; on disk for Apple II/II+/IIe, Atari 800/1200, and Commodore 64, and on cartridge for VIC-20 (from Broderbund, San Rafael, CA); $40–$50.

opposing aircraft carriers.

This outstanding game is very playable despite its large scale. Monster board games usually take hours to set up, but you can begin playing Guadalcanal Campaign seconds after shoving it into your disk drive. A monster board game requires a large area and many playing sessions. This game needs no more space than Pac-Man. And since you can save an unfinished game on disk or tape, even a 294-turn campaign is no problem to play. If you can't find a human opponent, the computer will be glad to oblige. —Russell Sipe

Guadalcanal Campaign, by Gary Grigsby. Strategic Simulations, Mountain View, CA; on disk for Apple II/II+/IIe; $60.

EASTERN FRONT and LEGIONNAIRE

These two games, designed by Atari's Chris Crawford, simulate conflicts 2,000 years apart: Germany's 1941-42 invasion of Russia and Caesar's campaigns in barbarian Europe. Yet they use very similar game systems. Eastern Front was a landmark in 1981, showing the capabilities of the Atari computers' scrolling graphics and setting new design standards for ease of play. Its new second edition is even better, allowing a choice of scenarios and levels of play. Playing the German High Command against the computer's Russian forces, you use joystick and cursor to advance your infantry and armor division eastward. The Germans generally rack up points early, but when winter sets in and the Russians counterattack, the Germans are driven back (and your score is driven down). So destroy as many Russian units as you can before the cold.

In Legionnaire, you're Julius Caesar maneuvering numerically inferior legions against various computer-controlled barbarian tribes, from the weak Aedui and Auscii to the fearsome Helvetii and the dreaded Huns. (Actually, the Huns arrived 400 years after Caesar; they're here "to give you a challenge.")

In most computer wargames, players enter commands with the game clock stopped, then watch as they're carried out. But in Legionnaire, the clock keeps running, and indecisive commanders will miss opportunities or find lines of retreat cut off. This real-time aspect, coupled with effective graphics and sound, make the game very realistic. —Russell Sipe

Eastern Front, Atari Program Exchange, Sunnyvale, CA; first edition, on disk ($30) or tape ($27) for Atari 400/800/1200; second edition, on cartridge ($40) for Atari 400/800/1200.

Legionnaire, Avalon Hill, Baltimore, MD; on disk ($40) or tape ($35) for Atari 400/800/1200 and soon on disk ($40) for Apple II/II+/IIe.

IN SEARCH OF THE MOST AMAZING THING

This adventure game provides built-in lessons in bartering, navigation, linguistics, and even music, while also forcing players to learn to take careful notes. After outfitting your "B-Liner" (half hot-air balloon, half dune buggy) with everything you can afford to buy, from compass to computer software, you travel into the Darksome Mire in search of the elusive "most amazing thing" in the universe. (When last seen it was a golden ball, but it changes shape as time passes.)

As you encounter various peoples, you must consult your computer bank to learn about their languages and customs. You might then be able to compose a song of a sort they'll like, and trade it to them for something useful in your quest. The graphics are simple, but the game's complexity will satisfy anyone over age 10. —R. W. S.

In Search of the Most Amazing Thing, by Tom Snyder Productions. Spinnaker Software, Cambridge, MA; on disk for Apple II/II+/IIe, IBM PC, and soon for Atari 800/1200 and Commodore 64; $40.

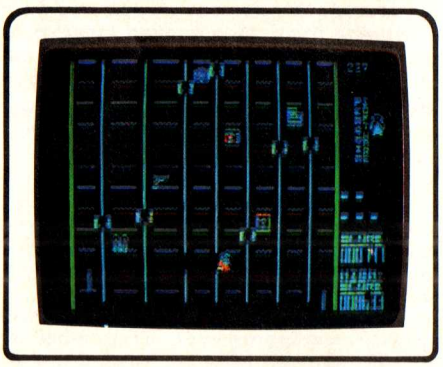
PHOTO COURTESY OF SYNAPSE SOFTWARE

BLUE MAX bomber; reviewed at right.

PHOTO COURTESY OF BRODERBUND

CHOPLIFTER rescue; reviewed at right.

PHOTO COURTESY OF PENGUIN SOFTWARE



SPY'S DEMISE is full of ups and downs. For a review, see opposite page.

PHOTO COURTESY OF SIERRA ON-LINE

Johnny Hart's "B.C." comic comes to life in QUEST FOR TIRES, as Thor unicycles around a prehistoric landscape hoping to rescue his girl from a pterodactyl. His mugging before a death scene is among the best effects in any game.
Quest for Tires, by Sydney Development Corp. Sierra On-Line, Coarsegold, CA; on disk for Apple II/II+/IIe and Commodore 64, disk and cartridge for Atari 400/800/1200, cartridge for ColecoVision; $35-$40.

ARCADE

Most arcade hits like Pac-Man, Frogger, and Zaxxon have also done well in versions for home video systems, and for the most part they're even better for computers. Q*bert, for example, is very faithful to the arcade game in the Parker Brothers' cartridge for the Atari 400/800 home computer whereas it had to be very much simplified for the Atari VCS. (However, many Atari 5200 and ColecoVision games, like Centipede and Miner 2049er, actually surpass their computer counterparts.) Since home video games were covered in "Fine Tunings" (October GAMES), this section will review our favorite action games developed specifically for home computers.

ATTACK OF THE MUTANT CAMELS

A sequel to Gridrunner, a game with some resemblance to the arcade hit Centipede, this game's theme was inspired by a camel T-shirt promotion for radio station KMEL in San Francisco. Thus, shooting a camel is worth 106 points—the same number as the station's frequency. Action is fast and furious, with enemies approaching from all directions. The unique feature that captured us: Some boards announce a "mystery bonus." But what you have to do—or avoid doing—to earn that bonus is left for you to figure out by trial and error. —R. W. S.

Attack of the Mutant Camels, by Jeff Mintar. HES (Human Engineered Software), Brisbane, CA; on cartridge for Commodore 64 and VIC-20; $30.

BLUE MAX

It's World War I and you're flying a biplane through enemy territory in a game that utilizes three-point perspective like that of Zaxxon. The joystick moves the plane up and down and side to side. Points are accumulated for shooting down enemy planes and bombing targets like bridges and ships that dot the landscape below. To continue your mission, it's necessary to land periodically on a short strip, a tricky maneuver. However, the primary thrill of the game is its superior graphics. —C. S.

Blue Max, by Bob Poland. Synapse Software, Richmond, CA; on disk for Atari 800/1200; $40.

CHOPLIFTER!

The most widely acclaimed action game for home computers, Choplifter! may have the cutest graphics of any shoot-'em-up. You fly a helicopter into enemy territory, attempting to rescue soldiers under attack. In your first mission, you'll have to drop bombs to knock out the enemy tanks nearest your soldiers, buying time to land, wait for the soldiers to run aboard, and take off before more tanks arrive (you're defenseless on the ground). When you've picked up a full load of 16 soldiers, you take them back to your base, where they exit and wave goodbye as you take off again. Subsequent rescue missions will pit you against enemy aircraft and satellites.—R.W.S.

Choplifter! by Dan Gorlin. Broderbund, San Rafael, CA; on disk for Apple II/II+/IIe, Atari 800/1200; $35. On cartridge for Atari 400/800/1200, $45, and Commodore 64, $40; on cartridge for VIC-20 (from Creative Software, Sunnyvale, CA), $30.

CROSSFIRE

You move around a grid laid out like city blocks, firing at creatures coming at you from all four edges of the screen. Since the enemies don't move very fast, the game initially looks like a snap. But it turns out to be deceptively hard to react properly to threats from all sides, and you'll play many short games before grudgingly admitting that this is one of the toughest shooting games ever made. —R. W. S.

Crossfire, by Jay Sullivan. Sierra On-line, Coarsegold, CA; on disk for Apple II/II+/IIe, Commodore 64, and IBM PC; on disk and cartridge for Atari 800/1200; on cartridge and tape for VIC-20; $30.

PARSEC

The most graphically appealing space game we've seen for the TI-99/4A, Parsec is also an excellent challenge. Superficially the game seems like a simplified form of Defender, as your spaceship moves laterally to encounter wave after wave of enemy aliens — eight types, each requiring different defense strategies. Besides the aliens, you have to worry about crashing, running out of fuel, and overheating your laser weapon, so you can't simply lay down a steady barrage of fire as you can in nearly all other flying-shooting games. —R. W. S.

Parsec, Texas Instruments, Lubbock, TX; on cartridge for TI-99/4A, $40.

SHAMUS

The Berzerk theme of zapping enemies while moving around a maze of rooms has been taken to its limits in Shamus, one of the most fatiguing joystick games we've played. Graphics are exceptionally sharp and colorful, with a variety of creatures that pose different kinds of dangers. Some rooms contain objects that will give you an extra life, others have a key that will open a particular door somewhere else in the maze, and still others have "mystery" objects that turn out to be good or bad. To get to these objects, you have to blast all opposition mercilessly. The game even has a counterpart of Berzerk's Evil Otto: If you linger in any room too long, the indestructible Shadow comes after you. The sequel, Shamus II, is also excellent. —R. W. S.

Shamus, by William Mataga. Synapse Software, Richmond, CA; on disk for Atari 800/1200 and Commodore 64; $40. On cartridge for Atari 400/800/1200; $45. HES (Human Engineered Software), Brisbane, CA; on cartridge for VIC-20; $40.

SPY'S DEMISE

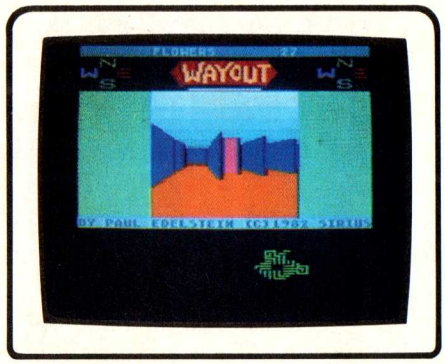
You maneuver your spy to the roof of a 12-story building by running across each floor from the ground up, while dodging guards who are streaking up and down in continuously moving elevators. The middle floors are the toughest to cross, because none of the elevators takes long to reach the ground or roof and make a return trip. When you get to the roof, a piece of a coded message appears, with additions appearing on the successful completion of more boards. If you somehow collect all the messages, you can expect a tough time decoding them (we don't know of anyone who's succeeded). —R. W. S.

Spy's Demise, by Alan Zeldin (Atari translation by Robert Hardy). Penguin Software, Geneva, IL; on disk for Apple II/II+/IIe, Atari 800/1200; $20.

WAY OUT

You're lost in one of 26 different mazes whose walls and corridors are seen in 3-D perspective. As you move around with a joystick, a map of the areas you've explored takes shape in the lower part of the screen, while a compass at the top tells which way you're facing. If the game were this simple, the task of escaping would be hard enough. Unfortunately, the mazes are inhabited by a playful, rectangular-shaped creature known as a "Cleptangle," who likes to sneak up and steal your map and compass. You can track him down and get them back, but he'll soon strike again. —R. W. S.

Way Out, by Paul Edelstein. Sirius Software, Sacramento, CA; on disk for Apple II/II+/IIe, Atari 800/1200, Commodore 64; $40.



The playful Cleptangle (pink figure, center) makes life difficult for players lost in one of 26 different mazes in WAY OUT, reviewed at left.

CREATE YOUR OWN...

Most game players are game designers at heart. Which of us has never made up a special rule to cover a new situation in some board or card game, or experimented by varying a few rules? Now a number of game programs allow the players to design and redesign their own arcadelike computer games, which only recently seemed an impossible dream.

THE ARCADE MACHINE allows you to create your own outer space shoot-'em-up in the Galaxian mold. You can put up to 24 aliens on the screen, animate them, determine the paths of their bombing runs, and decide how the explosions will look. Broderbund, the program's maker, runs an annual contest for original arcade-type games. This year's winner was a game of naval warfare—proving that, with a lot of work, you can even design games that don't look like space battles.

LODERUNNER is such an outstanding action game in its own right—the best climbing maze we've ever seen, in fact—that its game-designing features are an unexpected bonus. The object is to maneuver your man around, picking up all the gold chests on the screen without getting caught by any of the pursuing guards. You can jump safely from any height, climb ladders, run laterally, and—most important—dig holes in some of the floors to your left or right. When a pursuing guard falls into a hole, you can run over him and escape. Digging is also necessary to get at buried chests, but it must be done quickly. The holes will fill in around you if you hesitate too long, and you must also be sure to leave enough extra room to dig yourself out. Every one of the 150 (!) different boards poses new kinds of problems to solve.

Creating your own board is a snap—just move a cursor around the screen and enter a number from 0 to 9 for each area, depending on what you want there (ladder, diggable floor, trap door, chest, guard, etc.). All you really have to think about is how to create an interesting design. Then it's time to play, and the computer will automatically control the guards. Don't be surprised if your creation turns out to be a lot harder than expected; you'll probably find it takes several tries to beat yourself at your own game.

MAZE CRAZE CONSTRUCTION SET allows you to custom-design your own maze chase, complete with monsters and energizers. Although not as rich in variety as the other create-a-game programs, it will keep Pac-Man fans so busy designing that they may never again stop to play. —R. W. S.

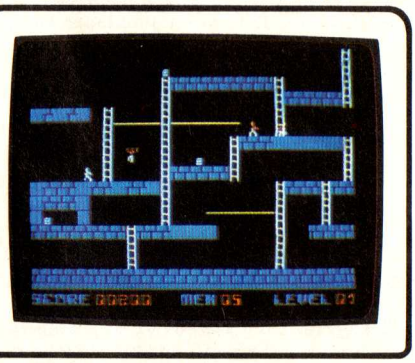


PHOTO COURTESY OF BRODERBUND

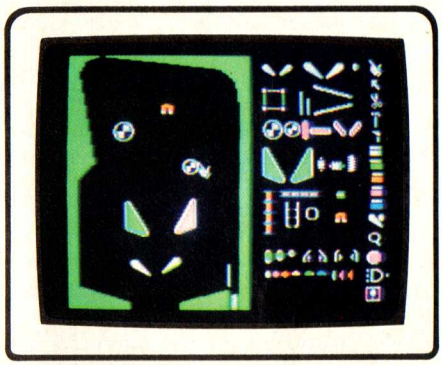
The maze chase LODERUNNER, reviewed above, offers a record 150 screens—not counting the unlimited number of original ones you can create yourself.

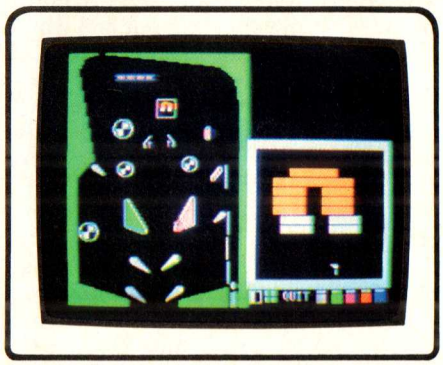
The Arcade Machine, by Doug Carlston and Chris Jochumson. Broderbund, San Rafael, CA; on disk for Apple II/II+/IIe and Atari 800/1200; $60.

Loderunner, by Doug Smith. Broderbund, San Rafael, CA; on disk for Apple II/II+/IIe, $35; and soon on disk for Atari 800/1200, Commodore 64, and IBM PC, and on cartridge for Commodore 64 and VIC-20.

Maze Craze Construction Set, by Eric Hammond. Data Trek, Encinitas, CA; on disk for Apple II/II+/IIe and soon for Atari 800/1200; $40.

Pinball Construction Set, by Bill Budge. Electronic Arts, San Mateo, CA; on disk for Apple II/II+/IIe, Atari 800/1200, and Commodore 64; $40.





Choose bumpers, flippers, spinners, ball-eaters, etc. from the "menu" (top, right half of screen) to build your own game in PINBALL CONSTRUCTION SET. Move them into the frame with a cursor, reshape or paint parts with the help of a magnifier (middle photo shows it zeroing in on a magnet). You can change scoring values, alter gravity, even create invisible bumpers—then play (above).

BUYING A COMPUTER

Choosing a home computer is a puzzle in itself, since even among the best machines, one is apt to do some things better and some things worse than another. Your choice depends on how you plan to use it. For word processing you'll need a comfortable keyboard and an easy-to-read text display—at least 40 characters per line, preferably 80 (the width of a typewritten page). For computer graphics your system will need good color and high resolution (sharpness of screen image). To do financial calculations, the computer needs enough memory to handle all the data you'll feed it. For more than one application you'll probably have to compromise.

Some computer specialty stores let you try the machines on the types of tasks you'll be doing, which is extremely useful. (These stores also sell accessories and service what they sell.) Unfortunately, many low-priced computers are sold primarily at discount and toy stores, where you can't try them out and where salespeople often can't answer even basic questions. The unwary buyer may belatedly discover that to use his ostensibly low-cost computer he'll have to buy additional hardware costing much more than the machine itself.

Books and even magazines about home computers are never completely up to date (because the industry changes so fast), but these sources can at least suggest the right questions to ask. If you're a novice, look for a guide that explains basic jargon like K (kilobyte—actually 1,024 bytes—a measure of computer memory); RAM (random access memory, the amount of storage space you can use, though some RAM is reserved for the computer's own use); and pixel (an individual element on your screen; the more pixels displayed, the greater the clarity).

Planning for future needs can save you a lot of money. Some package deals include computer, extra memory (especially important for machines with less than 48K of RAM), disk drive, printer, and some software. To start with a small system and expand later can cost more—and may not be feasible at all. If you expect your uses for the computer to grow, look for one that easily accepts additional "boards," or "cards," that expand its memory and range of functions. And consider buying a color monitor (around $300). Even though a computer can be hooked up to a TV set by using an RF modulator (which comes with most of the lower-cost machines), both text and images are much clearer on a monitor.

It's important to look at software. Generally, a program written for one machine will not run on another (although a few "boards" can be found that, for instance, allow Apples and IBMs to run a wide range of software written for business computers with CP/M operating systems). Increasingly, software companies have begun to "translate" their more popular programs for different machines; still, the originals are often better. The quantity and quality of the software available will directly affect the computer's usefulness.

Also, the formats in which most software comes—cartridge, tape, or disk—will suggest whether you need a cassette player or a disk drive. Cartridges that fit into a slot built into the computer require no additional hardware to run, but they generally hold less information than tapes or disks.

Even if much of the software for your computer is in cartridge form, if you start to write programs you'll need a cassette tape recorder or disk drive as a storage device. Otherwise, anything you enter into the computer will be lost when you turn the machine off. Cassette recorders (less than $100) are much cheaper than disk drives ($300–$500), but disk drives have the important advantage of much greater speed. Loading a typical game from tape takes minutes, from disk only seconds. Software, by the way, usually costs slightly more on disk than on tape. If you're considering a machine like the Apple IIe or the IBM PC, for which nearly all software comes on disk, you must figure the price of a disk drive in with your cost.

The summaries below are intended to compare the home computers that play the most and the best games. Each review lists the computer's built-in RAM and how much can easily be added (at extra cost). Prices are approximate and are mainly for comparison.

APPLE IIe

(64K, expandable to 128K; $1,000; compatible with earlier Apple II and II+ models, though an Apple II must be expanded to at least 48K to run most of the best software)

Necessary extras Disk drive ($500). RF modulator ($25). Joysticks, not compatible with other systems, are relatively expensive ($50–$65). For word processing an 80-column card ($125) is recommended.

Strengths Programmers have had a lot of experience working with the Apple and know how to make full use of its potential. Thousands of games are available, by far the most for any system. If you love adventure games, this is the computer to own, since virtually all of them are written for it (some are later translated for other computers). Highly expandable, it's well suited to word processing and business applications, for which a wealth of software exists.

Weaknesses Considering the hardware alone, the machine is overpriced by a few hundred dollars. (A "clone" of the Apple, the Franklin Ace 1000, runs most of the same software and usually sells for less; however, its legal status is uncertain.) Apple may lower its prices as competition gets tougher—see "New Computers," below. Since the Apple has no separate sound chip, game sounds seem very primitive. Graphics capabilities are adequate for still pictures, as in "hi-res" adventure games, but not for showing many moving objects at a time, so the Apple isn't the best choice for arcade-type games.

ATARI

The 400 (16K), 800 (48K), and 1200XL (64K) are mutually compatible (except that the 400 has too little memory to play some software available for the other models, and is costly to expand). The 800 has a typewriter-like keyboard; the 400's touch-sensitive membrane keyboard is very hard to use. The 800 is a good buy at about $300. The whole line is being replaced by newer models, beginning with a 600XL; they should play most or all previous software.

Necessary extras Cassette recorder ($90). A disk drive ($450) is recommended, though many games are on cartridge or cassette. A BASIC cartridge ($50) is needed for the 400 and 800 (without it, programs written in BASIC—including some games—can't be run).

Strengths Many game designers prefer writing for the Atari due to its good sound and graphics capabilities. Next to Apple, the most games are available for this system. Atari computers handle arcade-type games well because a special chip makes a scrolling effect (the apparent movement of the background up, down, left, or right) and movement of many objects on screen very easy for programmers to achieve. Up to four joysticks ($10 each, compatible with the Atari home video system, or VCS) can be used for simultaneous multiplayer action.

Weaknesses Slow disk drive operation and limited expandability hinder its usefulness as a business machine.

COMMODORE 64

(64K; $200; not compatible with other Commodore computers)

Necessary extras Cassette recorder ($75). A disk drive ($400) may become useful as more software on disk becomes available.

Strengths The Commodore 64 currently has the most memory for the money. Its software library is growing fast, though it's still smaller than Apple's or Atari's. Its superb sound capabilities surpass those of any other system and its graphics can handle many moving objects

simultaneously in arcade-type games. Joysticks ($10) are Atari-compatible, so many styles are available.

Weaknesses Nearly all Commodore 64 games are translations; programmers are only now beginning to exploit the machine's peculiar strengths. It has no slots for "boards," so its business applications are limited.

IBM PC

(64K, expandable to 640K; $2,000, includes one disk drive). Essential extra hardware and software make the total cost around $3,000, so this computer is more for business than for home use.

Necessary extras Game board ($250) to allow the attachment of joysticks ($75 per pair, not compatible with other systems). Color board ($250) for hookup to a screen. RF modulator ($65).

Strengths This is an outstanding, highly reliable small-business computer with a great deal of software, game and otherwise. The screen display has much higher resolution than the other systems described here, making it the easiest to read text from.

Weaknesses Graphics capabilities are not ideally suited to arcade-type action games, so most good games for it are adventures with still graphics or all text. Game players may want to wait for the new IBM Peanut (see "New Computers," below).

OTHER SYSTEMS

Three low-priced computers have reasonably large selections of game software; many of these games are good, but few are outstanding (due to the machines' limited power). The **Commodore VIC-20**, at under $100, has few uses other than game play because of its limited memory; for the cost of a VIC-20 and three game cartridges (which are expensive), you could buy the far superior Commodore 64. The **TI-99/4A**, from Texas Instruments, is well known for its fine educational software, but to run many of its best programs you'll need a Peripheral Expansion Kit and extra memory, raising your initial investment from $100 to about $650 before you even buy a cassette player or any software. The **TRS-80 Color Computer**, or **Coco**, is sold at Radio Shacks, for under $300, but few of the best software companies write for it, and it has the drawback of a calculator-type keyboard.

NEW COMPUTERS

Two promised entries in the field are **Coleco's Adam** ($600–$700) and the **IBM Peanut** (expected to cost about $1,000). Both have been highly publicized as sophisticated systems at attractive prices. But both are untested, and neither was available for review.

The Adam is an 80K computer packaged with built-in word processing software, letter-quality printer, digital data-pack storage device that Coleco claims will work nearly as fast as a disk, and a slot for all ColecoVision video-game cartridges. If you already own a ColecoVision, you'll be able to turn it into an Adam with an expansion module, though it's not clear how soon.

The Peanut, rumor has it, will have 64K (expandable to 128K) and will accept whatever IBM PC software its memory permits.

PROGRAMMING THE ULTIMATE GAME

Although Choplifter is a gas and Wizardry can keep you involved for weeks, there's an even deeper, more richly satisfying computer game that's in a class by itself. Programming.

Once the exclusive domain of those silent molelike creatures who sit in front of flickering monitors all day moving only their fingers, programming has lately become the province of the general populace. The word is out: It's fun.

Programming is unlike a conventional game in that it lacks limitations, demands absolute precision in execution, and is relentlessly useful. But, like a puzzle, it challenges you to find the most efficient or most creative way to reach a well-defined goal, and, like a great computer game, it's incredibly addictive.

A computer program is nothing more than a series of instructions, entered into the computer through its keyboard, which the computer must follow precisely, step by step. You can write a program to shuffle an imaginary deck of cards, for example, that probably requires at least 20 separate instructions (a less efficient program might take as many as 50). These instructions must be entered with strict accuracy, right down to the commas. If you make the tiniest mistake the computer will indicate its confusion by displaying the dreaded slogan, ?SYNTAX ERROR.

But writing the instructions accurately is no guarantee that the program will run. You might have given the computer conflicting commands, or trapped it in a loop (so that it repeatedly executes a series of commands indefinitely), or told it to locate something in its memory that you forgot to *put* in its memory. So the next phase of the game is finding the "bugs" and getting rid of them without messing up the logical flow of the rest of the program. Sometimes you only make things worse, so you have to give up and start over.

To write instructions the computer can follow, you have to speak a language the computer understands. All the machines discussed in these pages understand BASIC—Beginner's All-Purpose Symbolic Instruction Code (for the Atari 400 and 800, however, a BASIC cartridge purchased separately must be inserted into the machine). After you've used BASIC for a while, you'll discover all sorts of tricks and shortcuts for writing programs in that language—the kinds of techniques experienced programmers take for granted. A shortcut to learning shortcuts is to buy a book that includes complete programs you can type into the computer, and study the techniques that work for other people.

Although BASIC programs are relatively easy to write, they take a fairly long time to run, because the computer must first convert BASIC commands into its own "machine language" of numbers. Much faster for a computer to understand is "assembly language," which deals with specific locations in the computer memory and directly corresponds to machine language. When given an instruction in assembly language, the computer doesn't have to go through the extra step of interpreting it. Assembly language is harder to learn than BASIC, and writing a program in assembly language requires many more steps. But since it does more and runs much faster, almost all commercial programs—games included—are written in it. It's like a Zen puzzle—if you learn it you'll be amazed that from such totally abstract commands can come such fantastic results as the Ultima adventure games or Pinball Construction Set.

The pleasure of seeing your program work can be compared with no other, not even that of placing the last piece in a particularly difficult jigsaw puzzle. When you've written a program, you haven't merely followed somebody else's plan but have built something of your own out of pure logic. You've also stayed up till four in the morning trying to figure out why your program kept crashing halfway through. But to any programmer, that's just part of the game. —Steven Levy

Contributors

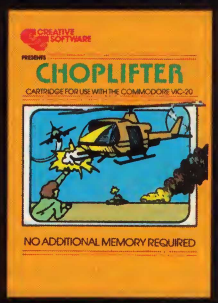
ROE R. ADAMS III is reviews editor of "Softalk Magazine." He has solved every adventure game ever written for the Apple and holds 21 records for best solving time.

STEVEN LEVY writes columns on home computers for "Rolling Stone" and "Popular Computing." His book "Hackers" will be published by Doubleday next year.

RUSSELL SIPE is publisher of "Computer Gaming World" magazine.

Other reviews in this section were written by GAMES staff and contributing editors Jamie Adams, Jacqueline Damian, Georgianna Dwight, R. Wayne Schmittberger, Mary Ellen Slate, and Curtis Slepian.

Award-Winning Hits for your Commodore



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For the Commodore VIC-20.

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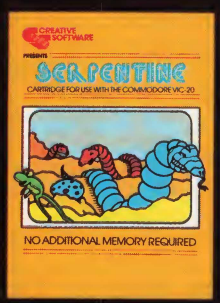

SERPENTINE*
For the Commodore VIC-20.

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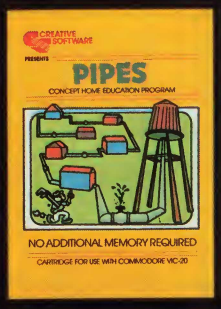

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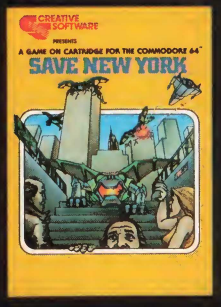

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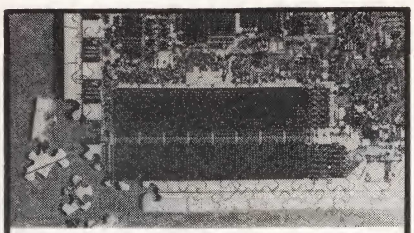

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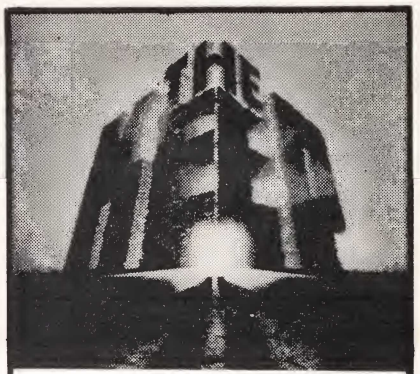

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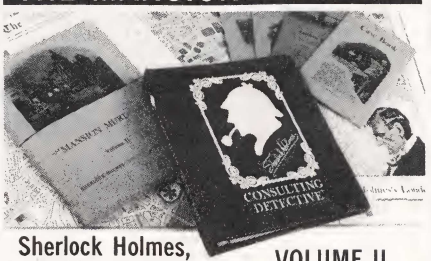

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