

THE MAGAZINE OF RECREATIONAL COMPUTING

MAY 1984

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Apple and VIC

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600/800 XLs

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Bruce Lee™ combines state-of-the-art technology with the masterful moves of the martial arts. From devastatingly lethal kicks and staccato thrusts to the unrestrained fury of every reflex, the Bruce Lee game explodes with action.

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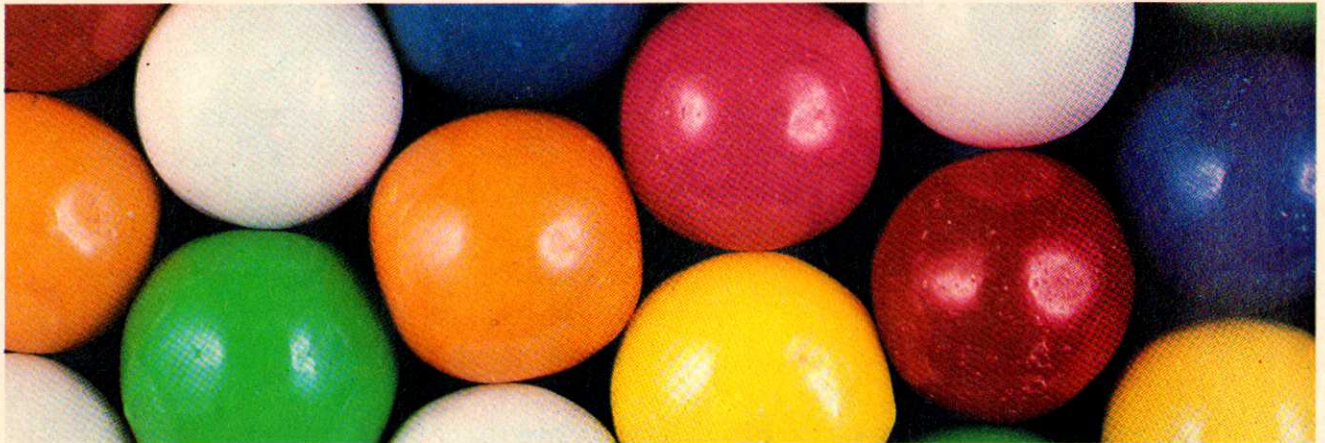


BRUCE LEE™

By
Datasoft®

THE MAGAZINE OF RECREATIONAL COMPUTING MAY VOL. 1 NO. 2

COMPUTER FUN



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Let's Get Physical/22

By Randi Hacker

The health craze and the computer craze meet in new action-packed software which lets you exercise in your home and gives new meaning to the word RUN.

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By Anthony Friedman

Public domain means free software but, more than that, it also provides fledgling authors and unheralded geniuses of game design (such as yourselves) with a showcase for their talent.

You Oughta Be In Pixels/32

By William Michael Brown

George Lucas, look out! With these new animation programs and a little imagination, who knows? You may produce the next Star Wars in your own living room.

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You don't have to be Sherlock Holmes to unravel the mystery of operating systems. It's not as complicated as you think. In fact, it's elementary, my dear Watson.

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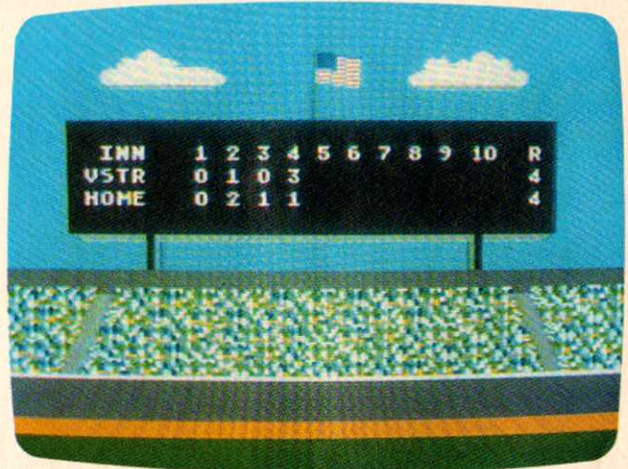
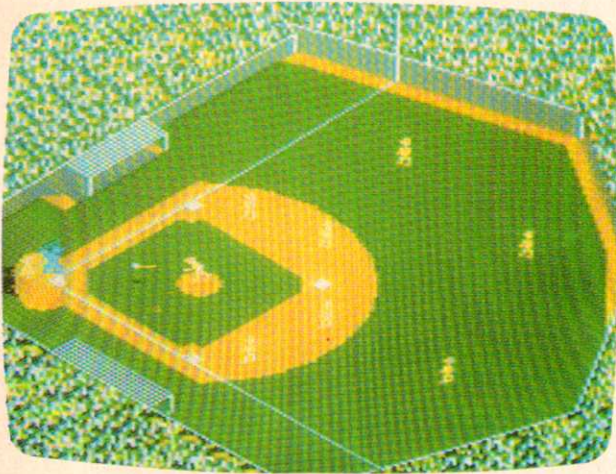
Broderbund's Bob Cook talks about his game, *Gumball*, and reveals secrets and hidden messages that you probably never knew were there.

Hands On: Atari Times Two/50

By Jules H. Gilder

The 600XL and 800XL: Atari's newest computers. They're sleeker than the old ones and they've got built-in BASIC, but are they really better?

“★ ★ ★ ★ ★
A MAJOR LEAGUE HIT!”



“I’ve played a number of baseball games on computers in arcades and on home arcade systems. It can safely be said that STAR LEAGUE BASEBALL is the most realistic simulation of a baseball game to hit a video screen.

“The animation is incredibly lifelike. The sound effects range from the *thunk* of the ball striking the catcher’s mitt and the crack of the bat hitting the ball, to the roar of the crowd and the stadium’s organ playing all of the standard “baseball tunes” one hears at a game.

“Playing the game is challenging as well as realistic. The batter has a choice of swinging or bunting, and once on base, can lead off and even try to steal.

“It is not the kind of game you are going to grow tired of playing, and it is certainly in the big leagues as far as quality is concerned. Whether you’re playing against the computer, the little-leaguer next door or Pete Rose, STAR LEAGUE BASEBALL will provide endless hours of fun and challenge. 5 stars for value.”

*Reprinted Courtesy of
 SOFTWARE SUPERMARKET - March '84
 Reviewed by Michael Banks*



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EDITORIAL

Several years ago an awful song called "In the Year 2525" rose to the top of the charts. Zager and Evans, who never made it quite as big as Slim Whitman, sang of a time when "your arms and legs have nothing to do—some machine's doin' that for you." Well, all we can say is, "Ha!"

Using computers is only as sedentary as you want to make it. Now there are computer aerobics, programs to help you with your jogging regimen, and even an outrageous contraption that lets you play *River Raid* and exercise at the same time. Can the Walkman computer be far behind? You'll find all the latest in computer fitnessware in this month's issue.

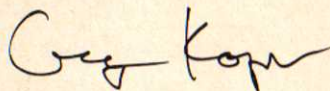
Spring is Oscar time as well, so we thought we should speak in terms of endearment about computer animation you can do on your home machine. There are lots of new programs out, many of them designed specifically for children, which allow you to create your own best short subjects for electronic media. For the Mr. deMille in all of us there's *Movie Maker*, and you can read about it in our thorough workout this month.

If the only thing preventing you from buying *ComputerFun* this instant is that you've forgotten where you put your wallet, we'll give you special permission to turn to *Slipped Disks* for the lowdown on the *Einstein Memory Trainer*. This program is invaluable for everyone except French Foreign Legionnaires who've gone to the Sahara "to forget." All this and more in *ComputerFun*, the magazine that tells you why 1984 will not be like 2525.

Speaking of 1984 not being like 2525, Apple's ad campaign telling us that 1984 won't be like "1984" has received as much attention as the product the campaign was designed for, the Macintosh. The commercial everyone is talking about, of course, is the one that appeared during the Super Bowl, with the young woman athlete who hurled the sledge hammer through the Orwellian telescreen.

While the computer itself has its fans and detractors, so does the commercial. The *New York Times* quoted an MIT professor of computer science as saying, "The notion that a personal computer will set you free is appalling. The ad seems to say the remedy to too much technology is more technology. It's like sell someone a pistol to defend himself in the event of nuclear war."

As far as we're concerned, the notion that technology is enslaving us is pretty appalling, especially from a professor of computer science. Perhaps it's time for the professor to take a sabbatical—to Club Med, say. We would gladly sell him a surfboard in the event of a tidal wave.



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WELCOME TO APSHAI. YOU'RE JUST IN TIME FOR LUNCH.



ridge version of the Computer Game of the Year,* Temple of Apshai.™

Gateway has eight levels. And over 400 dark, nasty chambers to explore. And because it's joystick controlled, you'll have to move faster than ever.

But first you'll have to consider your strategy.

Boy, have you taken a wrong turn. One moment you're gathering treasure and the next you're being eyed like a side of beef.

You're in the Gateway to Apshai.™ The new cart-

tridge version of the Computer Game of the Year,* Temple of Apshai.™

Is it treasure you're after? Or glory? You'll live longer if you're greedy, but slaying monsters racks up a higher score.

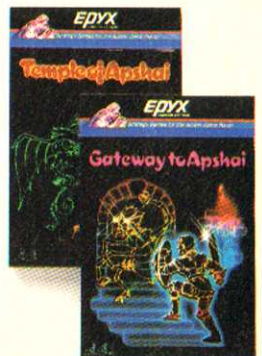
The Apshai series is the standard by which all other adventure games are judged. And novices will not survive. They'll be eaten.

One player; Temple of Apshai, disk/cassette; Gateway to Apshai, cartridge, joystick control.



EPYX
COMPUTER SOFTWARE

STRATEGY GAMES FOR THE ACTION-GAME PLAYER.



LETTERS

Not Enough

I love your mag; I even have a subscription to it! In your January issue Michael Blanchet only reviewed Krull and Baseball. Why?! He's one-third of the reason I like to read your magazine. And thanks to John Entwistle of Jackson, NJ for his tip for Decathlon. It really helped my score.

Jake Garcia
Juneau, AK

You'll be glad to know, Jake, that even though we've changed our look, we haven't changed our editors. Michael will continue to review games for us, as well as writing his new column, Cartridge Slot. And, just out of curiosity, who, or what, are the other two-thirds?

Starcrossed

I need help! I just bought my first text adventure, Starcross by Infocom for the C-64. I am stuck at the Red Dock's door with the metal sculpture by the door. Unfortunately this part comes so early in the game that I haven't been able to enjoy it very much yet. Help!

Andy Green
Osage City, KS

We know how you feel, Andy and so does Infocom. If you call their Hints number at 1-800-262-6868 or write to them at P.O. Box 855, Garden City, New York 11530 and request a "Starcross" hints book they'll be happy to help you get past that door. They have hints and books for all the Infocom games.

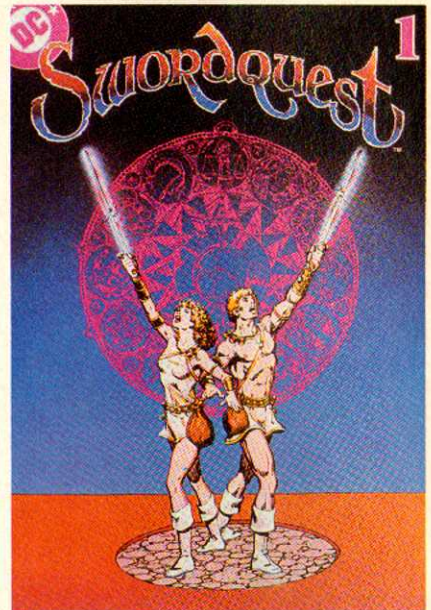
Hot CoCo

I just got a TRS-80 Color Computer for Christmas. I was wondering if you could print an article about this computer along with a program I could use. I'd really appreciate it!

Brent Moore
Crete, NB

Also: Matt Baker, Atlanta, GA and Rodney Mullineaux, Gig Harbor, WA

You're in luck, Brent. We reviewed the CoCo in our December, 1983 issue. And as for programs, there's "Warrior" in the March First Screening, and "Danger Down Deep", in our very first issue of Electronic Fun in November 1982. If you need any of these back issues, please send \$3.00 per issue ordered to Back Issues, Electronic Fun, 350 E. 81st St., New York, NY 10028.



Earthworld Turns

In your February 1984 issue, Mary Ann Carrado suggested a few tips for Earthworld, the first part of the Swordquest series from Atari. To add to this: the Talisman of Passage lets you bypass the firefalls and go right into the chamber of Leo. Also, if you carry the Cloak of Invisibility, you can bypass both the spears and the horns and go directly into the chambers where they are found. As for the real clues she mentioned, I have them all and am willing to pass them on. Just drop me a line and I will provide you with all; there will be a small charge to cover printing and mailing. And if you're interested, I attended the Fireworld playoff in San Francisco this January.

Robert Ruiz, Jr.
Fresno, CA

For interested "Earthworld" fans, Robert's address is 164 N. Blackstone, #1453, Fresno, CA 93701. You can also call him (NOT collect, please) at (209) 453-0784.

Continued on page 72

Write to us! We can't promise we'll print all the letters we receive but we want to hear from you. Send your letters to: ComputerFun, 350 East 81st St., New York, New York 10028.



PUZZLEPANIC.[™] KEN USTON THINKS HE CAN DRIVE YOU CRAZY.



So you think there's no puzzle too tough for you and no video game you can't beat. Welcome to PuzzlePanic—The computer game that's sure to have you crying "uncle." Designed by Ken Uston, blackjack and arcade game player extraordinaire, PuzzlePanic takes you through 49 increasingly difficult screens based on seven different games of action, logic,

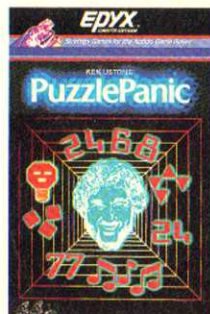
strategy and challenge. Compared to PuzzlePanic, Rubik's Cube[®] is child's play. So put on your thinking hat, grab your joystick, get ready for the contest of your life, and let Ken Uston drive you crazy.

One player; joystick controlled.



EPYX[™]
COMPUTER SOFTWARE

Strategy Games for the Action-Game Player

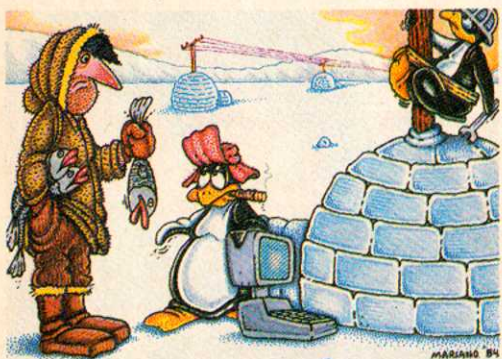


GLITCHES

By Randi Hacker

Don't call me, I'll igloo

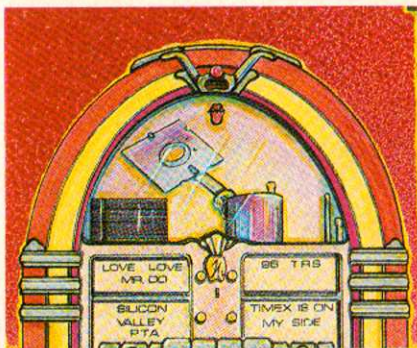
I bet you thought there was nothing to do in Alaska except either watch moose, rub noses or work on the pipeline. Well, you're wrong. You can also perfect your shivering technique. But, what's more, you can hook up to AlaskaNet if you've got a computer. (Never mind where you're going to plug it in in a house made of ice. That is the subject of a whole nother story and not something that I wish to get into here.) AlaskaNet is the first public packet-switched network in Alaska. The two-million-dollar database is going to provide the people up there with service such as electronic mail, Telex, travel reservations and electronic banking. There are currently 17 mini-



computer nodes with access points to the network in Anchorage, Fairbanks, Juneau and Prudhoe Bay. How do you hook up to this data base? With an (oog) Eskimodem, of course.

Number 6502 with a bullet

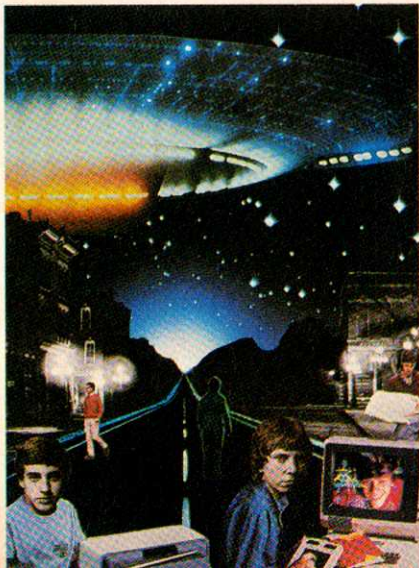
Computers have been the stars of films (cf. 2001: A Space Odyssey, Star Wars and, even, WarGames) but until now, none has been a major recording star. Make room for the first of that genre. Robb Murray, a Chicago-based composer has released what he claims is



the first commercial recording of original music performed entirely by a microcomputer. The record, called "Classical Mosquito," has eight compositions which, we hear, sound like baroque music being played on a full-voiced reed organ (not to be confused with full-voiced music played on a broken reed organ). Up until now, records came in three speeds: 45 RPM, 78 RPM and 33 RPM. If this sort of thing keeps up, we may see selections in 78, 45 and 33 CPM.

Take me to your database

Have you ever seen a computer hacker and an alien together in the same room? Are they, perhaps, one and the same thing? *The National Enquirer* seems to think so. According to the paper, there are certain characteristics which will allow you to spot an alien like that. And these habits are remarkably similar to those of programmers. They own unusually large amounts of expensive high-tech equipment (such as computers); they have at least one object in their homes which is highly regarded



and protected and could be a device used for communications and their sleep or work patterns are abnormal. Also, aliens show anxiety, stress or discomfort when using mass transportation. We have to take exception to this last one. We don't think that showing stress, anxiety and discomfort when riding a NYC subway is evidence of extraterrestrialism. We think it's evidence of common sense.

The ultimate driving game



Everyone knows that Serutan spelled backwards is Natures and Skizziks spelled backwards is Skizziks but how many of you know what Irata spelled backwards is? Those of you who guessed Atari can pat yourselves on the back (or, if that's too hard, pat yourself on the thigh). But who can guess what Irata makes? No. They do not make segdirtrac. They make an adapter which lets you plug your Atari VCS into the cigarette lighter of your car. Then what, you might ask and a good question it would be, too. First of all, there's no TV in the car so no matter which cartridge you plug in the graphics would be terrible. And second of all, if you could bring a TV into the car, where would you plug it? Clearly your only recourse is to bring the car into the living room so that you can plug the TV into the wall outlet and then play the game of your choice in the car.

ZAXXON FOR THE C-64!



Quasimodo

Quasimodo knows who stole the crown jewels. He even knows where they are, but the soldiers just won't leave him alone! This multi-screen arcade adventure is a great combination of skill and strategy.

Commodore 64 disk & cassette



ZAXXON

At last, your favorite arcade game comes home to the C-64! Amazing 3-D graphics, a diagonally scrolling screen and incredible sound effects guarantee hours of space excitement. And if you practice hard, you might be able to meet the deadly ZAXXON himself.

Commodore 64 disk & cassette



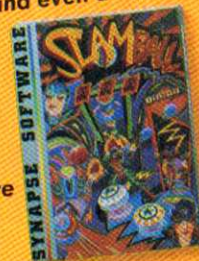
ZAXXON, a trademark of SEGA Enterprises, Inc.



Slamball

Maybe you've played pinball before, but not like this! Up and down scrolling over 4 full screens, plus complete ball control and even a "tilt" feature in the best computer pinball game yet.

Commodore 64 disk & cassette



More C-64 Titles:

Blue Max, Fort Apocalypse, Shamus and Shamus Case II, Necromancer, Pharaoh's Curse, Zeppelin, Drelbs, Sentinel.

All Synapse entertainment titles are available at software dealers everywhere, or direct from Synapse for \$34.95 (\$39.95 for ZAXXON) plus \$2 handling. Send check, money order or VISA/MasterCard number.

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Write for a FREE Synapse catalog. Synapse games are also available for the Atari, Apple and IBM computers.

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 Computer _____ C

CARTRIDGE SLOT

By Michael Blanchet

It loses in the translation

Blame it on aggressive advertising or the inexplicable fondness we have for name products, but we have become too trusting. We buy names, not games. Parker Brothers, Coleco, and Atari are all in agreement on this one point—a name sells. Just look at all the scrambling that takes place whenever a property is up for grabs.

If it were up to me, there would be far fewer arcade translations and more original designs. Too many arcade games lose their vitals when they are whittled down into a game cartridge. Some of these translations should never have left the design lab or better yet, the minds of the blue suits that probably dreamed them up in the first palce.

One, two, many Froggers

Of the three previously mentioned companies, Parker is most concerned with quality. "A Frogger for every system, a Q*Bert in every console", decreed someone and by golly, the designers have delivered. Despite my reservations (I hate Frogger) there

should be more translations like Frogger—simple looking games that can be reproduced authentically in all formats. There's no sense in biting off more than you can chew, technically speaking.

Two years ago, Atari thought nothing of showering us with sloppy translations. Lately, they seem to be scrutinizing their lineup a bit more carefully and responsibly. We won't, for example, see Robotron for the VCS, Intellivision, or Colecovision. If they do hold back on these versions, I'd say that they were acting in the best interest of their customers. That game is just too complex for these systems. Atari will offer both Stargate and Crystal Castles for the VCS. Surprisingly, Stargate turned out well while Crystal Castles, according to someone at Atari, suffers from "heavy flickering."

Even if you can overlook the fact that a game is a graphic eyesore you still must contend with a problem that's been plaguing arcade translations from the beginning—the unresponsive and uniformly inadequate controller supplied with most game consoles. Playing Centipede or Crystal Castles without a trackball is like making a pina colada without a blender. The end result just



isn't the same.

Coleco has made an attempt to compensate for games that are (in my book) lacking by offering specialized controllers such as the Super Action Controller, the Roller Controller, and the Turbo Driving Module. Each of these devices do what they claim to do, but they are under-utilized.

Where's the game?

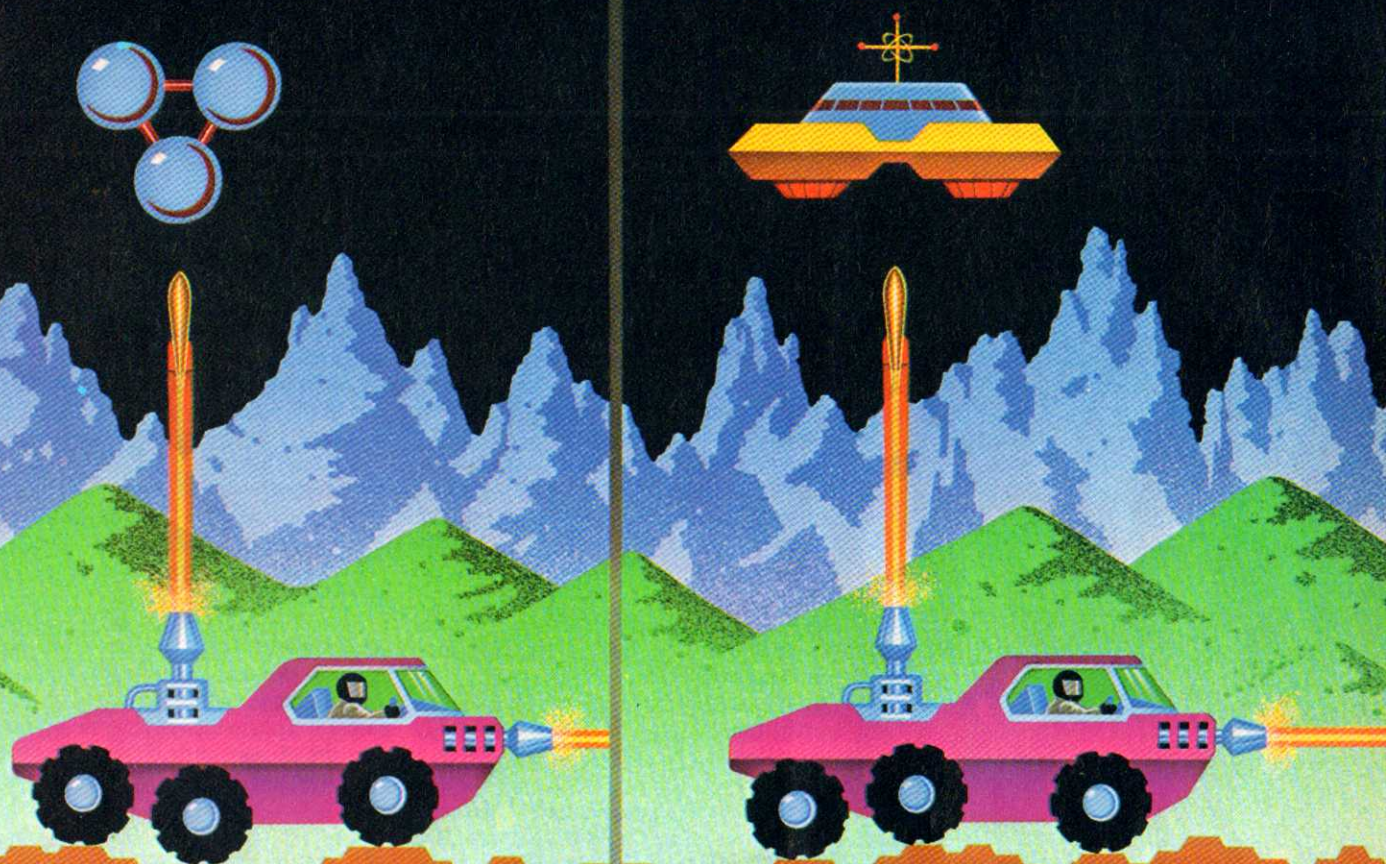
There just isn't enough software available to justify the purchase of, say, the Super Action Controller. To be fair, the S.A. Controller is a marked improvement over the sloppy, short-shafted joystick that comes with the Colecovision console. It isn't an improvement so vast as to warrant the asking price of \$70.

At first glance, the S.A. Controller looks impressive—a futuristic fencer's rapier (minus the blade) sprouting all manner of buttons and keys. There is also a speed roller (a watered-down, two-directional trackball). But currently, Coleco offers only three games that make use of the controller. Of the three only one—Super Action Baseball—manages to incorporate the speed roller into game play. Of the remaining two, Front Line would have been better had it been designed for use with a paddle.

If you find life unbearable without the Roller Controller, you could buy it and then sit and wait patiently for the release of more cartridges. Anyone who bought the Turbo driving module knows what I'm talking about. Those people, no doubt, are still waiting for the long promised second cartridge that would have made use of that very popular accelerator pedal/steering wheel set up. □



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Which player is really firing up his score?

Think quick. The new home version of Moon Patrol looks so much like the arcade, it could fool the man in the moon. So don't find yourself in a crater. Like the player on the right. He'll get only 100 points for using his Moon Buggy to shoot down a Moon Strafer. While the player on the left will get twice as many points for shooting down a Crater Maker. A victory as great as the lunar landing.

Your score can wax even higher. You'll get 80 points every time your Moon Buggy jumps over a rock. But you'll get 100 points when you blow up a rock.

Only Atari makes Moon Patrol for the ATARI® 2600™ Game, Sears Video Arcade® systems, and a version exclusively for the ATARI® 5200™ SuperSystem.

So get on your lunar module and scan your local moonscape for Moon Patrol.

Here comes Moon Patrol from Atari.



 A Warner Communications Company

INPUT/OUTPUT



Q Last year I read in your magazine of forthcoming games for the Vectrex unit including an add-on computer. Can you tell me if the computer is out, still on the drawing board or filed in the circular file?

*Victor Fritz
Indianapolis, IN
Also: Stephen Bigmore
Vancouver, Canada.*

A Not only is the computer add-on not coming out but as of January 1984, Milton Bradley, the company who makes Vectrex, has discontinued all production of the system.

Q I own a Franklin Ace 1200. Is it compatible with all Apple programs? I live in an area where it is difficult to get programs. Can you recommend some mail order companies?

*Rod Rishel, Jr.
Clearfield, PA*

A The Franklin Ace 1200 can run just about every Apple program ever made. In fact, it is so compatible with the Apple that Franklin was recently taken to court for copyright infringement of the Apple operating system and Apple won. It's not our policy to recommend specific distributors or mail order houses, but look through the magazines and find one that advertises regularly. You'll find that

most are reliable and quick to deal with your orders.

Q I just got a book called "Zap! Pow! Boom!: Arcade Games for the VIC-20." On page 1, line 50 there is a symbol that I don't understand; it looks like this: † It isn't explained in the book or the manual.

*Marty Charlesworth
Campbell, CA*

A Our Technical Editor, Robert Alonso, says that if you hold down the Commodore key (the leftmost lower key with the Commodore symbol on it) and then press the "Q" key, you'll get the symbol you want.

Q Could you tell me where I could get a book translating Apple BASIC into IBM BASIC? Also, could you please print more information on the IBM PC, PCjr and Peanut?

*Jim Zaitz
Alberta, Canada*

A We don't know of any book that tells you how to translate from Apple to IBM BASIC. However, Applesoft BASIC is a subset of (and very similar to) the Microsoft BASIC used in the IBM PC and PCjr. Jules Gilder will be reviewing the PCjr in the June issue, and we'll be reviewing software for the IBMs too.

Q I am desperately in need of your help! I have been searching all over town for IBM software, which I have seen ads for in your magazine and in others. The ads say that Atari is making

games for the IBM PC and other computers. Can you tell me if there is a place in my city that sells Atari games for IBM?

*Shiraz Buhari
Stockton, CA*

A Atari has two customer service hot lines which should be able to give you the information you want and more. The toll free numbers are (800) 672-1404 and (800) 538-8543.

Q I own a Colecovision video game system and am considering buying an Adam home computer. I would like to know if Coleco manufactures a monitor for the Adam and, if so, where it is available.

*Bobby Gorzen
Niles, IL*

A Up to this date, Coleco is not manufacturing an Adam monitor. Coleco, however, did make provisions for connecting the Adam to any standard monitor. If you examine the back of the processing unit you'll see a monitor output and an auxiliary video output. Either one of these can be used to attach a monitor to the Adam. You can purchase a monitor for as low as \$250, but the prices for the many different kinds of monitors can go up as high as \$700. The advantage that a monitor provides over a television set is that the graphics appear much clearer and that virtually no wobble occurs from TV interference. Another advantage is that the family TV won't have to be tied up when you are using the computer.



Q Can I run programs written on disk for the Commodore 64 on my VIC-20? I thought I'd be able to since they use the same kind of disk drive and have almost the same BASIC built in.

Ryan Mannion
Hammond, IN

A Unfortunately, most Commodore 64 software will not run on the VIC-20. The reason for this is that each machine has a different screen size and different sections of memory allocated for the screen and music capabilities. Another problem is that C-64 programs usually take up about ten times more memory than the unexpanded VIC-20 has to offer. It is true, however, that the BASIC used in both machines is identical and that both machines can use the same type of disk drive.

Q I own a VIC-20 and I distribute software for all kinds of computers and game systems. I'd like to know whether I'd have to change my home telephone number if I buy a modem to let people order through their computers. Would

users of other systems be able to order through my computer?

Jamey Davis
Rocky Mount, NC

A You don't need to change your phone number in order to have a modem connected to the line, but you might want to just to keep your social calls from interfering with your business. Since you have a VIC-20, you could consider buying the new auto-answer/auto-dial from Commodore. When you communicate by modem from one computer to another it's not necessary that both computers be the same brand; for telecommunications almost all computers use a standard called ASCII. This allows any computer to understand messages sent by any other.

Q A couple of nights ago my math professor assigned some problems that required that I find the solution to the squares and cubes of about fifty numbers. Since I own an Atari computer, I decided that such routine calculations could be easily done on the computer and so I tried it. Much to my surprise I discovered that my computer was giving me incorrect answers. I tried squaring 3 and instead of getting 9, the computer gave me 8.99999988. I tried different numbers raised to different powers and there was an error each time. Why is it that my ten dollar calculator gives me the correct answer and the Atari won't.

Elva Portilla
Newark, NJ

A The reason you are experiencing these problems is that Atari BASIC does not round off numbers correctly after performing an exponentiation problem. This means that your answer will always be off by a fractional part. Atari suggests that you set up your own rounding routine when working with exponents. Here's how to do that: Set the result that your Atari gives you equal to N and in another program line add .5 to N. This will achieve two ends: First, it will give you the integer value of the total



and, second, it will eliminate this annoying problem. See example program below:

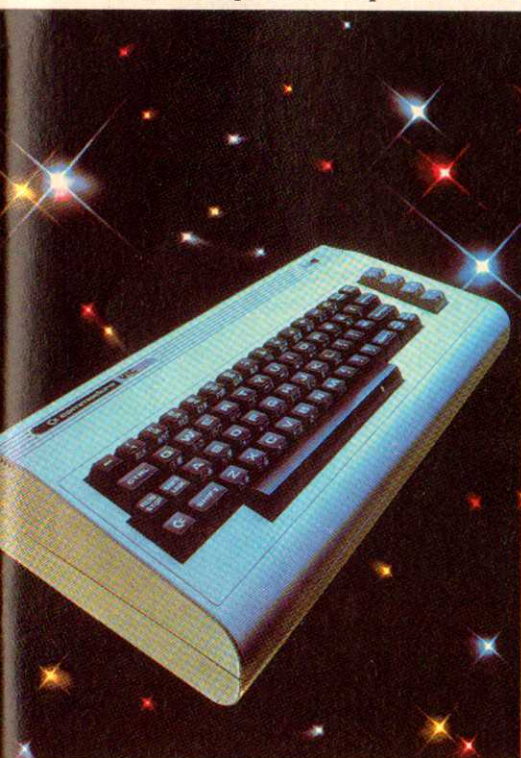
```
10 N = 3 ^ 3
20 N = INT (N + .5)
30 PRINT N
```

Q I own a Commodore 64 home computer and I'm thinking of purchasing a printer. I want to know if I can use the Atari 1027 letter quality printer with my computer. If so, do any changes need to be made?

Kevin Frazier
Canton, OH

A The Atari 1027 printer won't work with the Commodore 64. Usually when computer manufacturers market a printer, it's built to work with that company's computer only. It's possible that some third party hardware manufacturer will make an interface that will allow you to use the 1027 with the Commodore but we know of none at this time. We recommend that you use a printer manufactured specifically for your computer so that you can be sure that it's totally compatible.

Do you have any questions at all about computers? Do you have a problem that needs solving? We have a staff of experts just waiting to answer you. Send your questions to: Input, ComputerFun, 350 East 81st St., New York, NY 10028.



NEW PRODUCTS

Suncom, Inc. Animation Station

The world is crawling with graphics programs and tablets lately. You can hardly turn around without running into one. This is just as well because it allows those of us who have trouble telling a POKE from a syntax error at least to doodle on our computers—not to mention producing animated short



subjects and priceless works of art. One of the newest additions to this field is *Animation Station* from Suncom. *Animation Station* is a touch-sensitive graphics tablet and computer cursor controller. Versions will be produced for the Commodore 64, Apple, Atari and Coleco Adam. Right now, *Animation Station* comes with a graphics utility program, tentatively called "Doodler." Suncom also has a wide range of software under development. This will include educational programs which teach math and computer graphics. Also under development are a word processing program, an animation

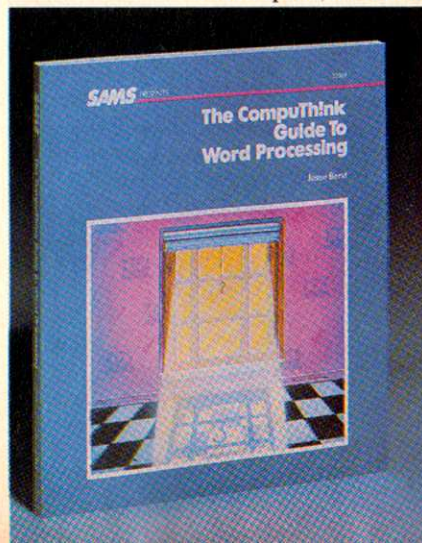
program and "Floor Planner", which will allow you to rearrange all your furniture while seated comfortably at your computer console. But when you stand up, the room will still be the same. Remarkable. That's what I call real high technology.

650 Anthony Tr.
Northbrook, IL 60062

Howard W. Sams The CompuTh!nk Guide to Word Processing

If you're in the market for a word processing system, it might seem as if there are more word processors out there than there are words to be processed. Howard W. Sams & Co. have recently published a book that cuts through the clutter for you: *The CompuTh!nk Guide to Word Processing* by Jesse Berst. This handbook covers the needs of all kinds of word processor users from independent freelance writers to large businesses. *The CompuTh!nk Guide* outlines the advantages and disadvantages of various systems, as well as giving case histories and checklists. In addition, the strengths and weaknesses of some of the more popular software packages are reviewed. Mr. Berst includes advice on printers and disk drives and discusses the pros and cons of renting (vs. buying) your equipment. *The CompuTh!nk Guide* is one of a series of books on micro-computer-related subjects, by the same author, being published by Sams.

4300 W. 62nd Street
Indianapolis, IN 46268



Discwasher Clean Runner

Whatever you might think Clean Runner means, you're probably wrong. It has nothing at all to do with either joggers or showers. In fact, it's the new interactive disk drive cleaner from Discwasher. Almost every computer owner has had the frustrating experience of trying unsuccessfully to run a program only to find that the problem is dirty disk drive heads. A dirty disk drive is a headache forever, causing processing errors, lost data or expensive damage to the heads themselves. Clean Runner is a combination program/cleaner which has been designed to take the user step by step through the cleaning process. Clean Runner is a dry (non-chemical) system which uses a lint-free cleaning surface bonded to a polyester diskette. Discwasher says that regular use will reduce computer downtime and maintenance, as well as extending the life of your disk drive. It works on both single-sided and double-sided drives and is good for twenty cleaning operations. Best of all, the whole operation takes less than 30 seconds.

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PASS/FAIL

By Dr. Jack Goldberg

If u cn rd ths, go ghoti

I have a friend who completes the Sunday New York Times crossword puzzle in half an hour... in ink. She rarely needs a vertical clue. I used to stifle my envy by consoling myself with the thought that although she knew an "obi" is a Japanese sash and an "oda" is a harem room, she probably believed "enervate" means replenish with energy. She didn't. She has a world-class vocabulary. I was told by her adoring mother that she scored in the thousands on her verbal SAT. I think 800 is max, but I was in no mood to quibble.

Brave new word

Did she play word games like an olympic champion because she had a massive vocabulary or did she develop her unholy vocabulary from playing Scrabble and solving endless crossword puzzles? This version of the proverbial question, which came first the chicken or the egg (or neither), is actually related to a serious educational issue. To what extent do skills derived from playing games carry over to other areas of knowledge? Do chess players develop a

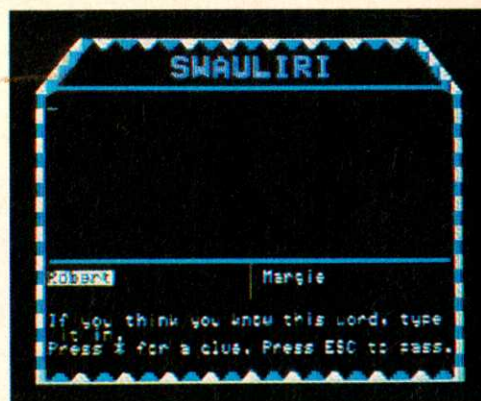
sense of spatial relationships that make geometry easier to learn? Do poker players develop a number sense that helps in learning algebra? Do Scrabble players improve their College Entrance Examination scores? When you become an accomplished game player you have certainly learned how to play the game; what else you may have learned is anybody's guess.

It is not to the point to hold some variation of the Chicken Soup Theory of Life: "Play! Enjoy! It can't hurt." Or, the equally specious, "You can't overdose on Hangman." The real issue is that your time might be better spent reading. However, we can ignore these troublesome thoughts by ignoring them. Let us not ask whether reading is a more productive activity in a high-school media center than playing *Ghost*, but whether *Ghost* beats throwing spitballs. (A media center, by the way, is what we used to call a library—with a film projector.) Now that we have conveniently side-stepped the problem, we need only consider this: If we are going to play games, what should we play?

Intentional Education Inc., (Reston Publishing Co., a Prentice-Hall Company) has a candidate, *WordWorx*. This computer game, actually two games, comes with a Players Guide and a double-sided floppy disk. My version is for the Apple II Plus with 48K.

On the main side of the disk is the spelling game, *Myspellery*. The flip side carries a sentence-making game that's not bad, but it's not going to crack the top 40 hits of '84. *Myspellery* is good enough to carry *WordWorx* without the help of the second side. *Myspellery* is a two-person game whose object is to uncover and spell correctly a word hidden behind a phonetically justifiable, but outrageously implausible spelling. "Fish" spelled "ghoti" is a classic example; "gh" as in rough, "o" as in women and "ti" as in action. Each correctly spelled word can be worth as many as 100 points and a score of 600 is tops.

The players take turns in guessing the

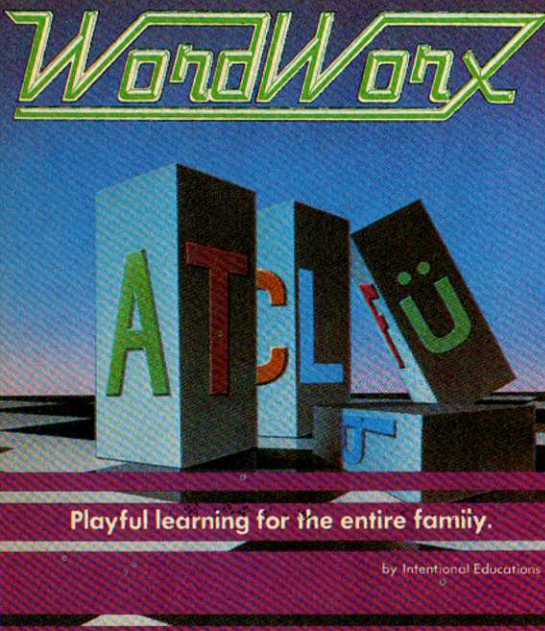


word. You lose your turn if you correctly spell an incorrect guess or incorrectly spell the right word. You can ask *Myspellery* for hints. But for each hint you suffer two indignities: you lose your turn and the value of the word is reduced by 10 points. At the end of the game the top score is printed along with the scores of the participants. This is a welcome borrowing from the common practice of video games to list the top players and their scores.

Third word alternative

There is a simple and an advanced vocabulary list programmed into *Myspellery*—and, this very exciting third alternative: *Myspellery* provides the option of creating your own file of phonetically disguised words. The construction of a private file allows you to choose your words for vocabulary enrichment rather than simply for obscurity of spelling. A home-room teacher (are there still home-room teachers or are they now called attendance engineers?) could divide her class into teams and have them compete against each other. What an excellent motivation for reviewing the definition of a new set of words each week. A parent could select a list of words and challenge his daughter to score over 500 points and win an extra hour of *Love Boat*. The program handles the construction of this file easily and intelligently.

Myspellery is an exciting, stimulating entry into the world of educational software. The program is well designed, if rather prosaic, has no fatal deficiencies and is worth a purchase. I do have one nagging, heretical thought: You know, the game could be played with just pencil and paper... □



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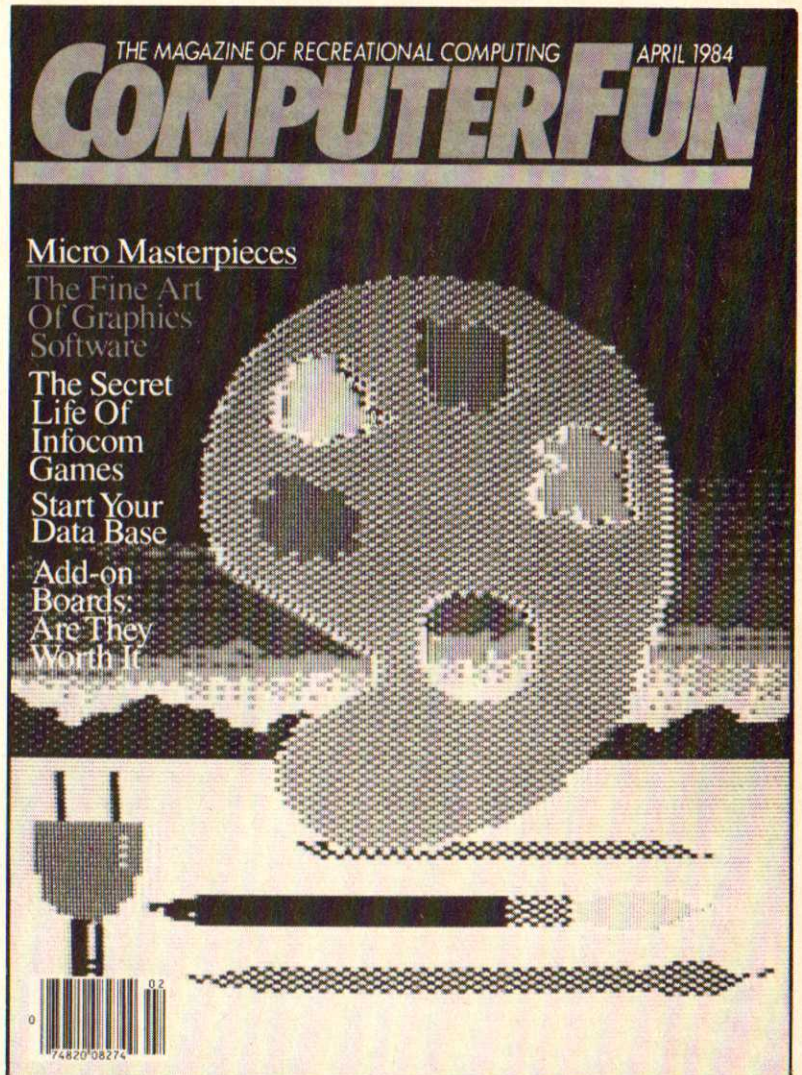
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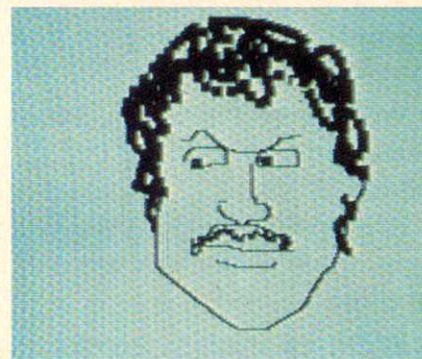
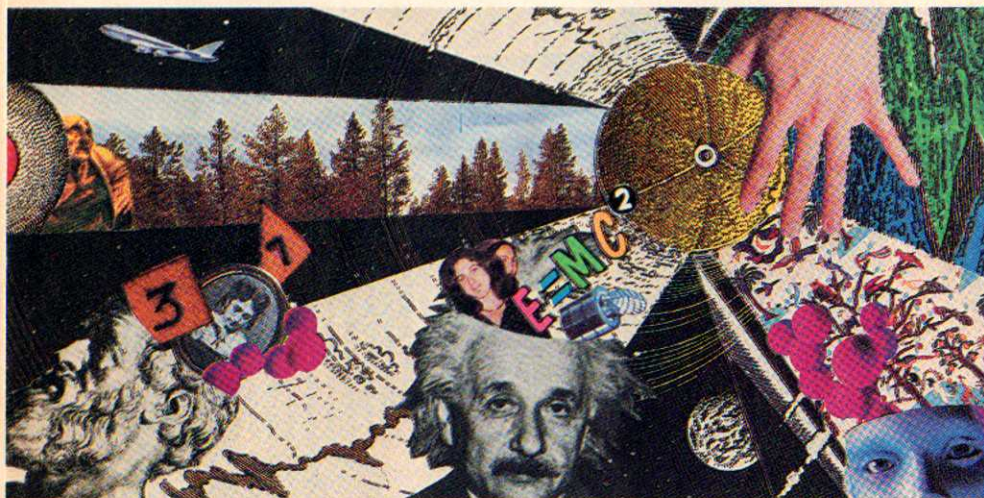
SLIPPED DISKS

By Marc Berman

Yes, I remember it well

the words, mallot, bus, roach. You are expected to make mnemonic associations of the numbers with letters. 3 is an M standing on its hind legs. If you look in the crook of a 5, there's an L. 1

The method for remembering names and faces is probably the easiest. Let's say you meet a guy named George who wears glasses. "George" sounds like "porridge." So think of porridge all over



As far as I know, Einstein's memory was not his best feature. His noodle was A-number one, that's for sure. And he had great hair. But his memory—well, that's a beanbag of a different color. Rumor has it that he was constantly misplacing his tricycle and twice lost his wallet.

Nevertheless, *The Einstein Memory Trainer for the Apple* (from the Einstein Corp., \$89.95) bears his name. The *Einstein Memory Trainer* purports to expand the powers of the user's memory. But you don't have to remember any complicated commands to run it—that part's easy. The program prompts you every step of the way and the command keys are always y/n, return or space bar.

I know the face...

What you do have to remember are names, dates, numbers, faces and places. And it gives you systems for doing so. Unfortunately, sometimes the system is harder to remember than the thing itself.

For instance, to remember the number 3519046, you would remember

looks like a T with its head in the ground. 9's are obviously tumbling lower-case B's. Zero starts with Z which sometimes sounds like S. 4 is an amputated, backwards R. And 6 looks like an overzealous J in reverse, which sometimes sounds like CH. Nothing could be easier, right?

So much for numbers. Let's say you are conducting a tour of a new shopping mall. To remember the concepts you want to talk about, you associate them with visual representations, and then associate those visuals with something you will actually see at the mall. Simple, huh? (You also want to do all this associating in the order you'll be seeing things.)

For example, you want to talk about "growth." So think of a sprout. Now picture a sprout growing out of your wristwatch (because you'll start the tour promptly at 9). You want to talk about "profit." So think of Kahlil Gibran (remember *The Prophet*?) in the doorway of JC Penney's. You want to stress "the future," so think of Leroy Jetson flying around the atrium. Get the picture?

George's glasses. Now when you meet this guy again, you'll picture his glasses covered with porridge, and remember, "George!"—unless you burst out laughing.

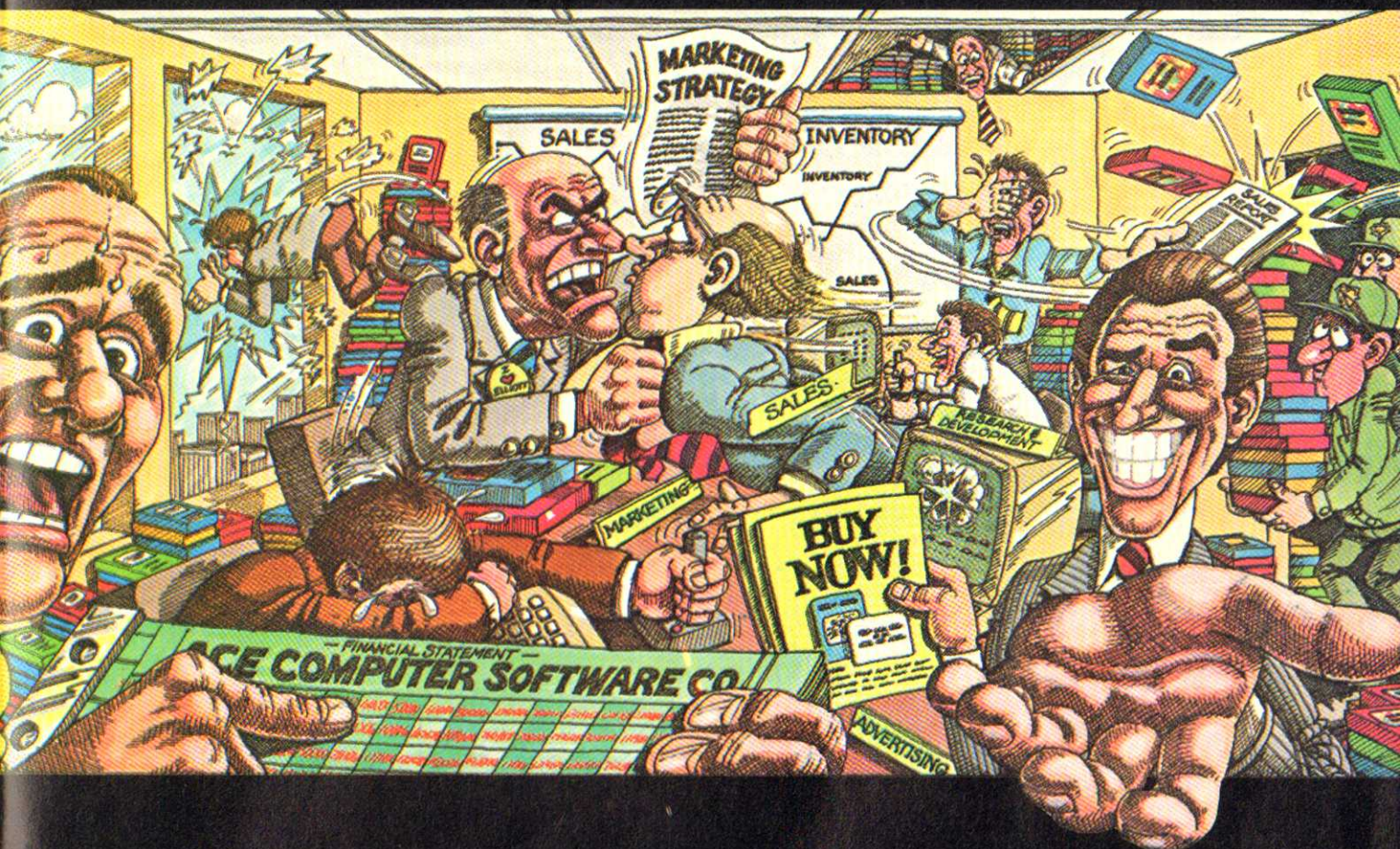
Some of the lessons let you make up your own numbers or dates, but the face/name lessons use the same names again and again. It's easy to remember that "Frank" and "wiener" always go together. But Einstein throws you a curve because each time you practice, it mixes up the faces. So if you remembered Frank as having wieners sticking out of his pointy ears, the next time you practice, the guy with pointy ears might be Bob.

Row out of eel

If it all sounds like much ado about zilch, I'd have to agree. Though, four out of five (that's row out of eel) of the brains behind this program have PhD's, anybody with a smidgen of common sense could have figured out a system as effective as this—and probably less abstruse. (For the record, none of these eggheads is named Einstein—if Albert were alive, he could sue.)

Operating the program is simple enough—even for somebody who's never used an Apple before. (The company's motto is "The genius of simplicity"—it's 50 percent accurate.)□

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C R E A T I V E S O F T W A R E

PROMPTS

THE MAGAZINE OF RECREATIONAL COMPUTING **COMPUTERFUN**

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Dear Reader,
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If you've been writing your own programs, chances
are you've discovered all sorts of clever ways to save
time and memory. Maybe you'd like to share some of them
with your fellow ComputerFun readers. That's what the
"Prompts" page is all about.

Books on computer programming will generally tell
you the "accepted" way of getting your computer to do
what you want it to do. That doesn't mean, though, that
there isn't a better way, and maybe you've found one.
Maybe you've invented a terrific subroutine for recording
high scores. Or maybe you've figured out the perfect
way to get the sound of a rotten tomato hitting a vat
full of oatmeal. Whatever the momentous discovery you've
made, we'd like to hear from you.

Just send us your program--it need only be a few
lines long--and if it's really clever and original we'll
print it in ComputerFun. Send us an explanation along
with it--just a short letter is sufficient. Be sure to
include your name and address with your submission. Also
tell us which computer system your Prompt is for, and if
you know how to get the same effect on some other system,
so much the better.

We look forward to hearing from you. Happy programming!

George Kopp
Editor

ComputerFun
Editorial

Save New York!



It was as peaceful a day as New York ever gets, when suddenly the sky went dark and a monstrous droning noise filled the air. Hordes of grotesque aliens were swooping down from all sides, biting into the Big Apple as if they hadn't eaten for days. They were laying eggs, too. Horrible slimy things that got down into the subway tunnels and began clawing their way up. If anyone was going to save the city, it would have to be me. I leapt into my rocket and began blasting away. I thought I stood a fighting chance, but fuel's running low... another wave of invaders on the horizon... signing off...

SAVE NEW YORK.™ For the Commodore 64.

C R E A T I V E S O F T W A R E

Let's Get Physical

GOTO health. With these new training programs, you don't need to join a gymnasium.

By Randi Hacker

In prehistoric times, no one worried too much about being in shape. In the first place, there were no mirrors so spending hours in front of one lamenting the fact that your lats were inadequately developed was not something people in caves did. In the second place, there was no time. Somehow it seemed silly to worry about well-defined triceps when sabre-toothed tigers and other oversized carnivores were waiting outside with salt, pepper and parsley garni and a napkin tied around their necks.

Similarly, long ago running was not so much a matter of recreation as procreation: If you didn't run, you were likely to be caught by something bigger than yourself and devoured and, if you died, there was a good chance that you wouldn't have any children.

It was only later, after people figured out how to build pulleys, chains and seats, that the first Nautilus machines were put together and the focus was switched from staying alive to staying in shape.

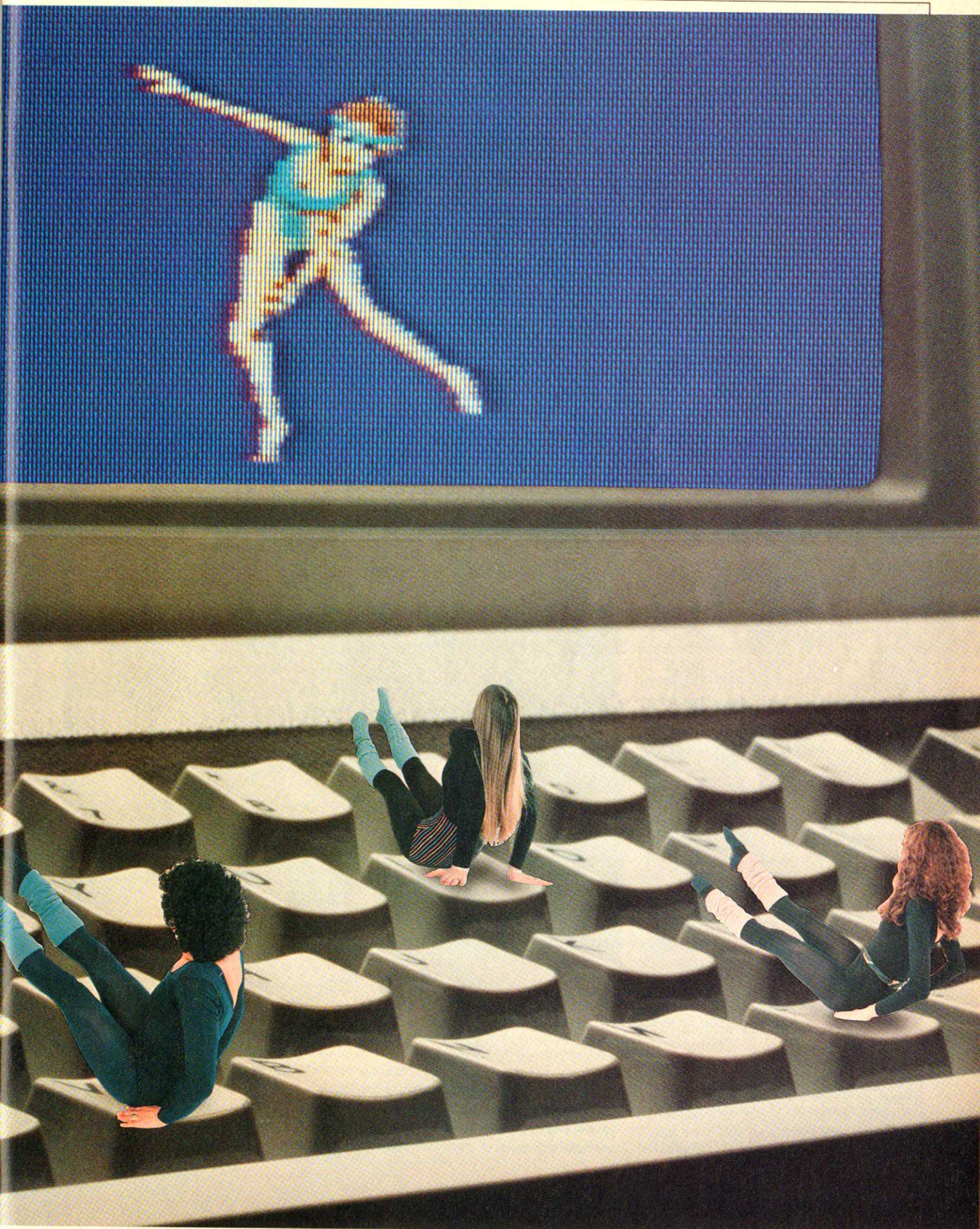
Now, of course, with survival well under control, people can devote much of their time to exercising the

old muscle fibers and lately the physical fitness craze has really taken off. Take jogging, for example. The first New York Marathon in 1970 had 127 entrants (126 men and one unofficially entered woman) as compared to last year (1983) in which 15,193 runners started the race. This is greater than the total population of Seward, Nebraska.

Besides fitness, the other great favorite activity of today is electronics so it was only natural that the two of them should get together. Electronics offers aspiring Mr. and Ms. Universes several options to choose from in their pursuit of a body that doesn't quit. Those who are adamant about not lifting a finger but still want killer looks can take advantage of this route: You connect yourself to electrodes which administer mild shocks to your muscles causing them to twitch. Fifteen minutes of the extracorporeal twitching is the equivalent of hours of strenuous exercising and, according to the claims of the salons that offer this, you can look like Arnold Schwarzenegger without even having to shower afterwards.

But for those of you who are more traditional but not strict purists, there's another electronic means of





stretching the elastic to fire, but the kick-your-leg routine is hard and my thigh muscles complained after a couple of miles of flying up the river of no return in *River Raid*.

If aerobics is not the fitness avenue for you and you're a fanatic jogger, there are two programs that might interest you in this category. One is a mere novelty while the other is every neurotic runner's dream of the perfect training program.

Foot Craz (Exus, 1933 O'Toole Ave., San Jose, CA 95131) doesn't even require a computer. All you need do is locate and blow the dust off your old VCS unit. The *Foot Craz* package includes a rubber mat and two cartridges: *Jogger* and *Reflex*. The mat hooks up to the joystick ports.

Both programs are operated by hopping up and down on the mat which has several colored spots on it. This causes it to resemble *Twister* (and if you're not old enough to remember *Twister*, I don't want to hear about it). Each dot—there are five: green, yellow, red, orange and blue—performs a specific function.

Once you've put the *Jogger* cart into the slot you'll be presented with a screen on which are two running tracks. On each is a reddish blob representing your opponent. On one of the tracks is a yellowish blob with a face. This represents you. You've got to have a pretty strong ego to maintain any self respect with a portrait like that. To start the game, you step on the green dot (green for go). Then you run in place like crazy on the orange and blue dots. This moves your man around the track. Your time is displayed at the top of the screen. Each track is approximately 35 yards around. This means you've got to go around about 30 times to run a mile. You'll get tired of this exercise long before that, though.

First of all, the pad is terrible to run on because it's so soft. You might as well run in oatmeal. Secondly,



And bend two, three...

The Suncom exercycle program (above) allows you to hook up a stationary bicycle to your VCS and TV set. Thus, instead of watching *Guiding Light* while you ride from home to Timbuctoo, you can actually ride down computer-generated streets and lanes. Something else that's computer-generated is the instructor in Spinnaker's *Aerobics* program (opposite page). She can bend her knees in ways that even a contortionist would envy.

If you exerted a little more energy playing Reflex you could be confused with someone taking a nap.

every once in a while your face will stop running for no apparent reason despite the fact that you're pumping your legs up and down like nobody's business. A quick check of the equipment will reveal that in your fervor to run faster than Eamonn Coghlin, you've moved right off the orange and blue dots. This means you've got to always be looking down to check your foot placement. While you're doing this, the little reddish blob on the track could catch up with you and if he tags you, you're out. This is not only a fitness device, this is a game, too. By the way, you can pass him but only when he's green.

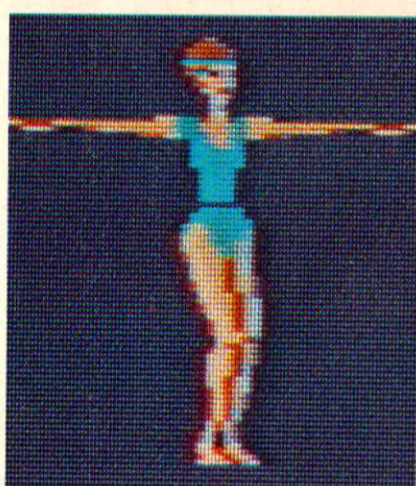
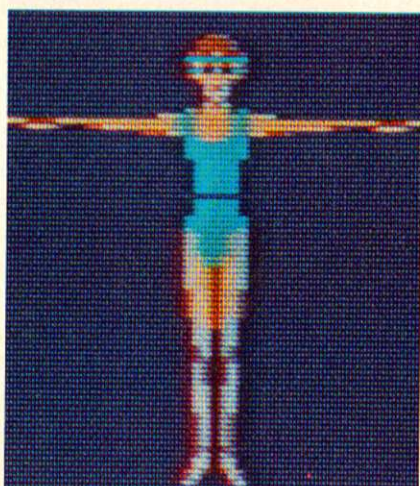
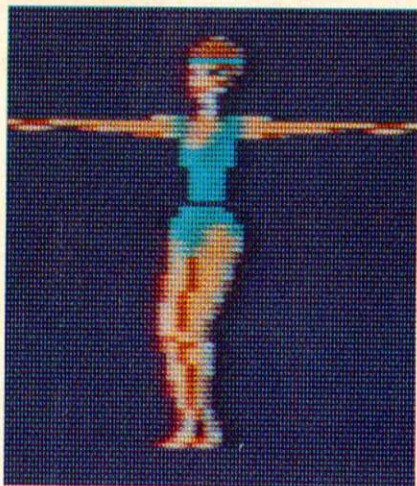
What, you may be asking yourself, is the need for two tracks? One is the fast track, the other the slow track. At any time during your run you can switch yourself from one to the other track. The yellow dot transfers you to the fast track, the red to the slow. So now, not only do you have to be sure

against progressing too fast too quickly. This is alarmist, totally unnecessary and provocative as *Reflex* is about as strenuous as sleeping. In fact, if you exerted just a little more energy while playing this game, you could be confused with someone taking a nap.

A two-by-two color grid is shown on the screen. Each square within the grid corresponds to one of the colored dots on the pad. In addition, there's a red square in the middle which corresponds with the red dot. A bug will appear in one of the squares. If you're quick and alone (you feel a little foolish doing it with people you respect watching) and you step on the square, a footprint will appear symbolizing the fact that you've successfully squashed the bug. Fun, huh? Once again you've got to be looking up and down like a Kewpie doll in order to be sure you're on the right dot and, although they claim the

Much of the problem with exercise programs on computer is that no one has as yet found the right way to blend the two smoothly. In this way they're a lot like educational programs. We know there's a place for computers in education and vice versa but we don't know where just yet. So far, most educational programs use the computer in a gratuitous way. Everything on the program could just as easily be done without a computer. Similarly, most of the exercise programs we reviewed could just as easily—and often more enjoyably—be done without a computer.

This is why the Jim Fixx program (Meca, 285 Riverside Ave., Westport, CT 06880) succeeds where others fail. He has looked at running and looked at the computer's capabilities and put the two together to make a program that is a new whole. He doesn't try to create a running environment on the



you're on orange and blue, you've also got to be able to recognize yellow and red. This makes running in place more complex than repairing a jet plane.

The second game, called *Reflex*, is designed to really give you a workout. In fact, Exus warns you against straining yourself and cautions you

game accelerates to a frenzied pace, I found it about as frenzied as watching golf. To add to the frenzy occasionally a butterfly appears. Never step on butterflies.

I may be being a little too harsh. This is actually not too bad a game for children. But as exercise I'd rather run after real bugs.

screen nor does he try to animate a coach. Instead, the program is simply text but it incorporates every single thing even the most neurotic runner could hope for. And runners are an obsessive bunch. No matter what it is you're obsessed with when it comes to running, it's in this program.

getting in shape. Yes, friends, computers can help you achieve those 19-inch biceps you've been drooling over since high school. A whole slew of new physical fitness-oriented software has suddenly appeared on the market and those of you who thought you had an excuse not to exercise by claiming that you were "into computers" and implying that that was much more important than building rippling muscles, are out of luck.

The new software packages exploit every—or almost every—fad currently popular in fitness. There's an aerobics program, a couple of programs for joggers and one that works like the famous Bullworker II, operating on the premise that resistance is just as effective as lifting 300-pound barbells without the fear of dropping one on your toe.

Many people swear by aerobics these days. For those of you who can't afford to either join a gym or buy the *Jane Fonda Workout* tape because the purchase of a new computer set you back for the rest of your life, there's *Aerobics* (Spinnaker, 215 First Street, Cambridge, MA 02142). This little program incorporates 18 aerobic routines designed to firm up all those problem areas such as thighs, buttocks and arms. You can choose any one of three levels: Beginner, Intermediate or Advanced. Each routine starts out with a thorough and very long series of warm-up exercises all done to a computer generated, semi-disco sound track.

Your instructor is a small computer-animated woman in a leotard and a sweat band. Being very up to the minute, she also sports a skimpy but fashionable little belt which is tied around her 2-inch waist (Scarlett O'Hara, eat your heart out). She leads you through your routine, doesn't pant and doesn't sweat. This in itself is discouraging. There you are, needing a shower, ruining one leotard after another and she's as fresh and dry as ever.

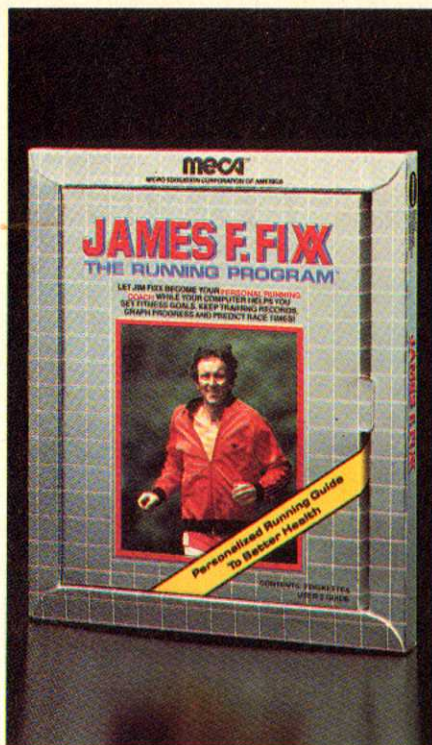
Personal Best

The Jim Fixx running program (right) includes everything a runner wants no matter how neurotic. Foot Craze, on the other hand, includes a rubber mat.

As if this were not annoying enough, the warm-up routines seem interminable. Theoretically, you can bypass the warm-ups. The program says "Press button to skip warm-up" but it never specifies which button to push and I've put pressure on all the keys and still haven't found the one which bypasses the warm-up.

The routines themselves have very cunning titles. Perhaps I'm just tired or cynical but I don't find these cunning titles any inducement whatsoever to work out with a bunch of animated pixels. Take, for example, Bye Bye Buttocks or Out of Arm's Way or even Lay Lady Legs. At best they want make me want to shake my head in wonder which, when you come right down to it, is not a bad exercise in itself.

If you are serious about doing aerobics and don't mind working out alone in your living room, the Spinnaker program is very complete and allows you to progress gradually at your own speed. The accompanying manual provides a detailed explanation of each exercise which, of course, makes me question why you need the computer at all. Maybe you need the music but, believe me, the music is annoying. Spinnaker indirectly acknowledges this by saying that if you don't like the music you can change it. How? By turning the volume down and turning on your



The Video Fitness System resembles one of those devices Joan Crawford used to prevent sagging of the chin.

stereo. Once again we might pose the question, why do you need the computer?

Of all the paraphernalia that was sent to me to review, the one that got the most laughs was the *Video Fitness System* (Garden & Green Co., 3533 East Avenue, Berwyn, IL 60402). The device resembles a combination of one of those elastic bands Joan Crawford used to tie her face up in at night to prevent sagging of the chin and an oxygen mask found on airplanes. It consists of two nylon straps which slip over your feet, a rub-

berized cord, and a handle under which is a joystick.

What you're supposed to do is sit-ups, leg kicks and deep knee bends while wearing this ensemble. You're supposed to perform these exercises in conjunction with a video game of your choice. See, each time you jerk the elastic, you fire. This is why VFS recommends using a shoot-'em-up game instead of, say, *Pac-man*. According to the company, you should make sure the game you choose as your fitness aid uses the fire function often enough to give you a real

workout. You will not be prosecuted if you play with *Pac-Man* but, according to the company, unless you use a shoot-'em-up game, you will "need to force yourself to exercise." Personally, I need to force myself to play *Pac-Man* but that is the subject of a whole other article.

Actually, the VFS is a lot of fun. It isn't a real workout no matter what game you use. The sit-ups and squats are too slow to enable you to fire as often as you might like and it's tough to get the hang of controlling the character with the joystick while

Continued on page 83



Free for All

There's no such thing as a free lunch, but so what? You can get lots of software for free—or almost.

A lot of things pretend to be free but they're not. You know the ploy. You've heard it a million times: "This small Caribbean island and its entire population can be yours absolutely free, at no cost to you or your loved ones, no money down and no money to pay if..." Or "If you order now, we'll send you absolutely free this set of Ginsu knives, the city of Tokyo and a year's supply of Sumo wrestlers..." The operative word here is "if." Advertisements such as these might lead you to believe that nothing is free. This is, in fact, a false conclusion to jump to. Cool your cynicism, gang. There's always public domain software.

Vive la difference

What makes public domain software different from all the rest of the software packages out there—from games to home management to utility programs—is that it doesn't cost anything. This is because public domain software is software which has no copyright or which the original author has declared can be freely copied and distributed with no restrictions. There are hundreds—some speculate more—of programs in the public domain. They are available through user's groups or they can be found on computer bulletin boards accessed via modem.

No matter what your passion, you're likely to find some piece of

software that will appeal to it in the public domain. While the majority of programs fall into the entertainment category, there are business, scientific and educational programs as well.

Public domain software is available through many outlets. The most extensive collections are generally found through user's groups and, of course, there are user's groups for virtually every microcomputer on the market today. Typically, a user group will maintain a library of public domain software and have a librarian who is in charge of the maintenance and distribution of these programs. The programs themselves are free; however, there is a small fee for materials and copying.

If you don't want to join a user's group but already subscribe to, say, The Source, CompuServe or any other modem-accessed data base, or bulletin board, chances are you'll find quite a collection of games and other programs listed on the menu. On The Source, for instance, you'll find The Source Apple Users Group (SAUG) and Apple City. On CompuServe, there's the Micronet Apple Users Group (MAUG). Many of these databases have a provision for the up- and down-loading of software. And, after the initial subscribers fee, these games, and so forth, cost nothing to copy and play.

Some computer stores also keep a library of public domain software which they have purchased from one

or more user's groups in their area. Sometimes this type of software will be offered free with the purchase of a new computer system.

Discount disks

In addition to these traditional outlets, a number of companies are also springing up which handle user-written programs that fall into the public domain. While programs that are available through these companies are not free, they are substantially less expensive than normal. One such company is called Public Domain Software and is based in West Milton, Ohio.

Public Domain supports three hardware lines: Commodore, Apple and Radio Shack and the owners estimate that they must have about 70 to 75 programs for the VIC-20 alone. These are sold on tape or disk for as little as \$10. The programs range in subject matter from games to educational to utility and, altogether, some 1,500 programs are available.

The most important thing to recognize about public domain software is that once you've "purchased" it, you're free to do with it what you will. So if you want to copy it a million times and then distribute it free to all your friends or drop it from a small crop dusting airplane somewhere over rural Kansas, you can. Duplication without representation or repercussions is what it all boils down to.

Any aspiring designer out there



© R. Crawford et

If you want to copy it a million times and drop it from a crop dusting airplane somewhere over rural Kansas, you can.

who is counting on big bucks, houses in Malibu and red Porsches will not necessarily be thrilled with this channel. At first glance, it does look as if it is a silly way to spend those valuable programming hours. But there are definite advantages to both using and writing software for the public domain.

Your advantage

Practice: Let's say you're perfecting your technique and you've written several programs which may not be up to the standards that you know you can achieve and which may not be games that the major companies would be interested in but they're so good you feel you'd be selfish not to share them with the world. You can get a modicum of public acclaim by sending them out through public domain channels and each step of the way you can improve your programming skill and technique.

Education: People who aren't serious programmers but simply like to dabble and pick up different skills and subroutines can do so using public domain software. Many of the programs are full of good programming examples. Looking at what's been done, modifying the programs you've copied and sticking in your own routines are all good ways to learn better programming techniques. In fact, some public domain programs contain "footnotes" and comments which explain the techniques the author has used.

Self-Esteem: Many programmers out there are convinced they can out-program even the best there is. Releasing a game through public domain avenues is a way to let a certain—albeit smallish—population know that you've got talent and you're not just talking—or typing—through your hat. There's a strong vanity element here also—something akin to a good closet chess player who believes he or she could beat Bobby Fischer or Anatoly Karpov if only given the chance.

Self-promotion and Discovery: Putting your games in the public domain certainly increases your chances of having them seen by "the right people." It's sort of like sitting on a stool at Schwab's every day. Eventually, some producer might discover you. This is similar to how the record industry works. Example: Several years back a local Seattle rock'n'roll group called Heart couldn't attract the interest of any major label. They formed their own label and sold several million copies of their first album. This brought them to the attention of CBS Records who snapped them up and made them into super stars.

Ecological soundness: Waste not want not. Many programs may be tidy, appealing little numbers which have a lot of merit in their own right but simply aren't right for the mass market. Public domain provides a means for this type of program to see the light of day. Thus many very large and complete professional packages can be found in the public domain.

Unlimited limited appeal: Some very excellent programs, specifically scientific ones, may be applicable only to a very small audience. Thus it wouldn't pay for a large software publishing house to produce them. Sticking them in the public domain guarantees that others in this elite and exclusive group will be able to benefit from your knowledge.

Where to get it

Here's a partial list of places from which public domain software may be acquired.

Apple Computer Club: PO Box 948, 217 Jackson Rd., Lowell, MA 01853, (617) 459-7181.

Boston Computer Society: Three Center Plaza, Boston, MA 02108, (617) 353-9312.

CompuServe: 5000 Arlington Centre Blvd., Columbus, OH 43220, (800) 848-8199.

New York Amateur Computer Club: 148 W. 24th St., 8th floor, New York, New York 10011, (212) 206-7170.

Novation: 20409 Prairie St., Chatsworth, CA 92311, (Modem) 818-881-6880.

Original Apple Corps.: 2801-B Ocean Park Blvd., Santa Monica, CA 90405, (213) 450-8880.

Public Domain Software: 5025 S. Rangeline Rd., W. Milton, OH 45383, (513) 698-5638 or (513) 339-1725.

Software Tools Group (Australia): May be reached through the New York Amateur Computer Club.

Toronto PET User's Group, Inc.: 1912A Avenue Rd., Ste. 1, Toronto, Canada M5M 4A1, (416) 782-8900.

While there are many computer bulletin boards which offer several public domain software programs, perhaps the most useful are Public Access Message Systems (PAMS) and remote CP/M's (RCP/M's). Typically as many as 100 different computer systems may be on-line around the United States and Canada.

All you've got to do is call up. Then you can browse through the catalog, pick out what you want and pull it down. Some of the better programs may be protected with a password but a minimal subscription fee will buy you the key.

The bright stuff

There are thousands of programs out there—games, 20 or 30 different language courses, utilities, database managers, home accounting programs and word processing programs. Even the entire Yale Catalog of Bright Stars is in the public domain—the location of 9,000 stars in the universe, and all their numeric variables (a total of seven disks) is in the public domain.

And that's not all. Once you access one of these computer bulletin boards, you'll probably find a directory of another 400 or 500 phone numbers any of which could be the source of countless other programs that you can get your hot little hands on. □

SOFTWARE ARTISTS?

TO MAKE THE FIRST BASKETBALL PROGRAM that feels like the real thing, it helps to start with two guys who know what the real thing feels like.

Enter Larry Bird and Julius Erving. Bird — the hustler, the strong man, deadly from outside. Erving — The Doctor, maybe the most explosive player in the history of the game.

We talked to them, photographed them in action, studied their moves and their stats and their styles. Then we set out to create on computer disc an event which may never happen in real life. We put the two of them together on a dream court of light, for an electronic afternoon of one-on-one.

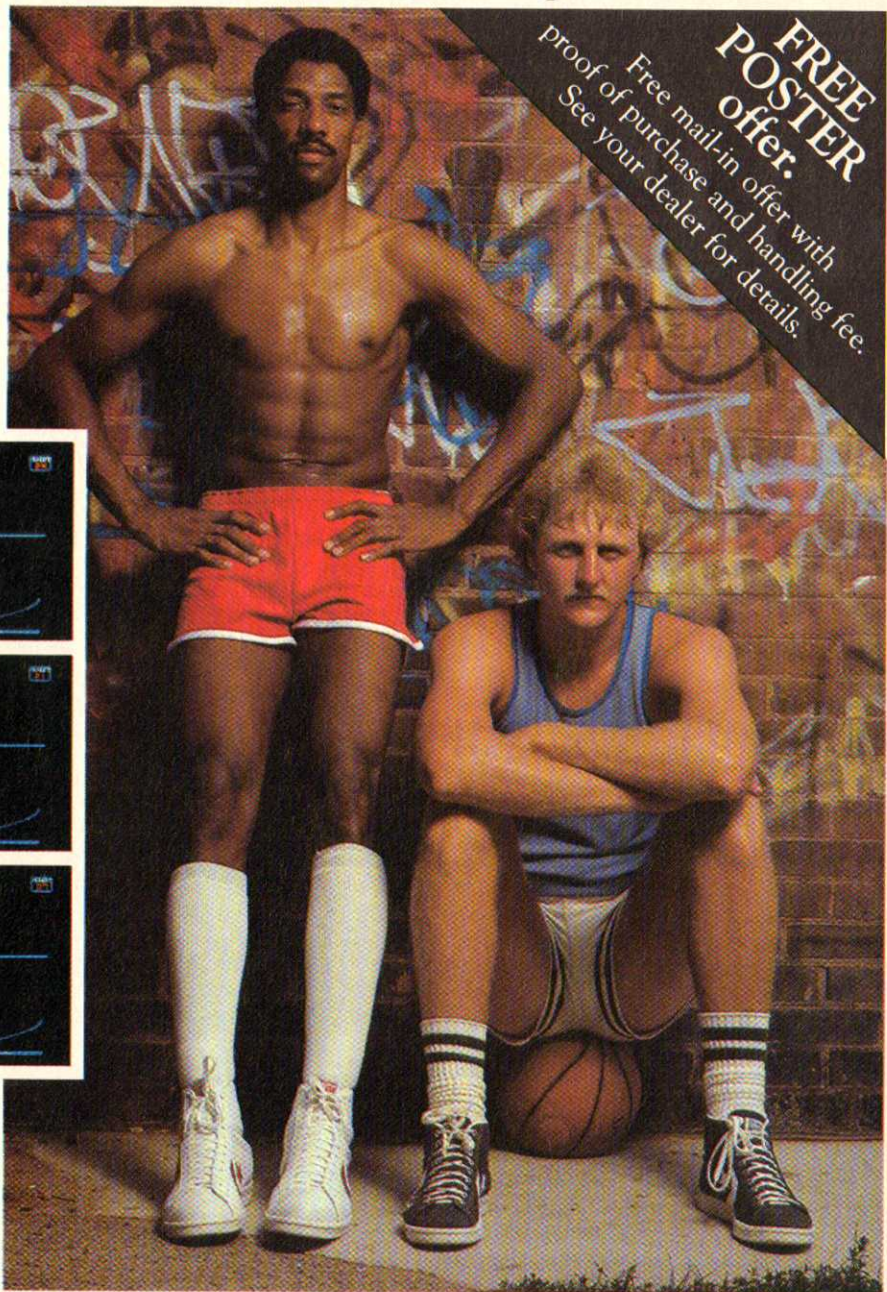
It wasn't easy. When they talked, we listened. When they criticized, we made big changes. When they gave suggestions, we took them.

And it shows. This thing is absolutely uncanny. You actually take on all the skills and characteristics of Bird or The Doctor — their own particular moves, shooting abilities, even strength and speed.

You'll meet with fatigue factors, hot and cold streaks, turn-around jump shots, and 360-degree slam dunks. But there's some whimsy in here, too — a funny referee, a shattering backboard, even instant replay.

It's called *Julius Erving and Larry Bird Go One-on-One*.™ You're Bird. Or you're The Doctor. And that's the last decision you'll have plenty of time to make.

How we got this year's hottest sports game out of two rather inexperienced designers.



Julius Erving and Larry Bird Go One-on-One is now available on diskette for Apple II, II+, and IIe computers. Apple is a registered trademark of Apple Computer. To find out more about Electronic Arts and its products, write us at 2755 Campus Drive, San Mateo, CA 94403 or call (415) 571-7171. For a free catalog, send a stamped, self-addressed #10 envelope. Also available for the Commodore 64. Coming soon on IBM and Atari home computers.


ELECTRONIC ARTS™

You Oughta Be in Pixels

Lights! Computer! Action! Short subjects are just a keystroke away with animation software.

By William Michael Brown

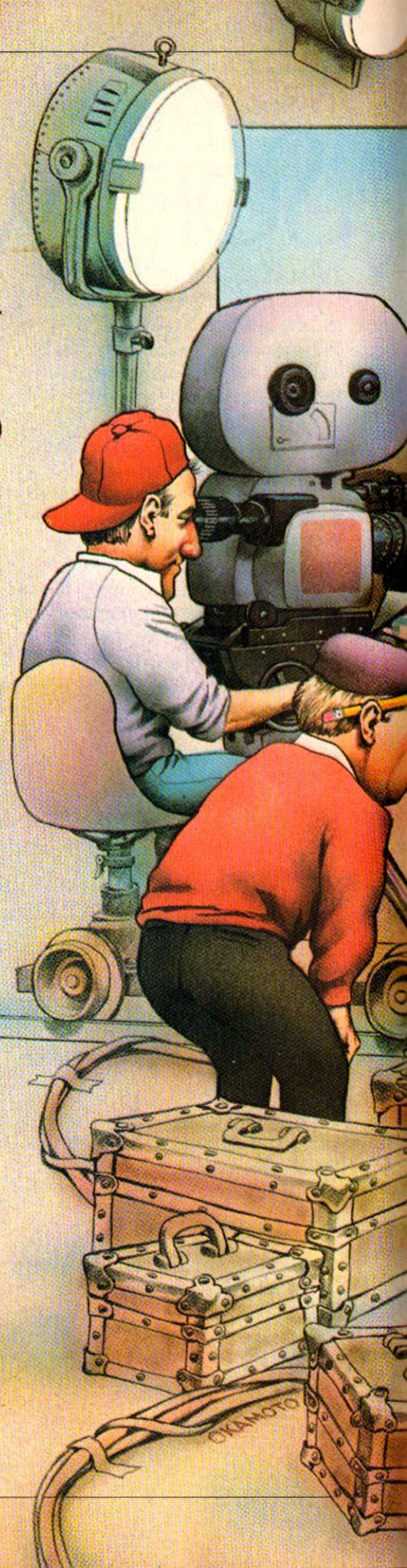
On the walls of certain caves near the town of Altamira, in southern Spain, there are hundreds of beautiful paintings done by a race of men and women who died out more than 200,000 years ago. Most of these paintings were in a nearly perfect state of preservation at the time of their modern discovery, and they depict the world of prehistoric man as he himself must have seen it: birds, trees, all sorts of wildlife in all kinds of situations—even groups of men, on the hunt for fresh meat. They're done with primitive materials and techniques; some are very crude, some seem to have no subject we can understand, and others are just plain meaningless scribbles and graffiti. But the clear ones—the ones the ancient artists lavished their greatest care and skill on—are wonderfully detailed and colorful. They really do, as the saying goes, speak volumes.

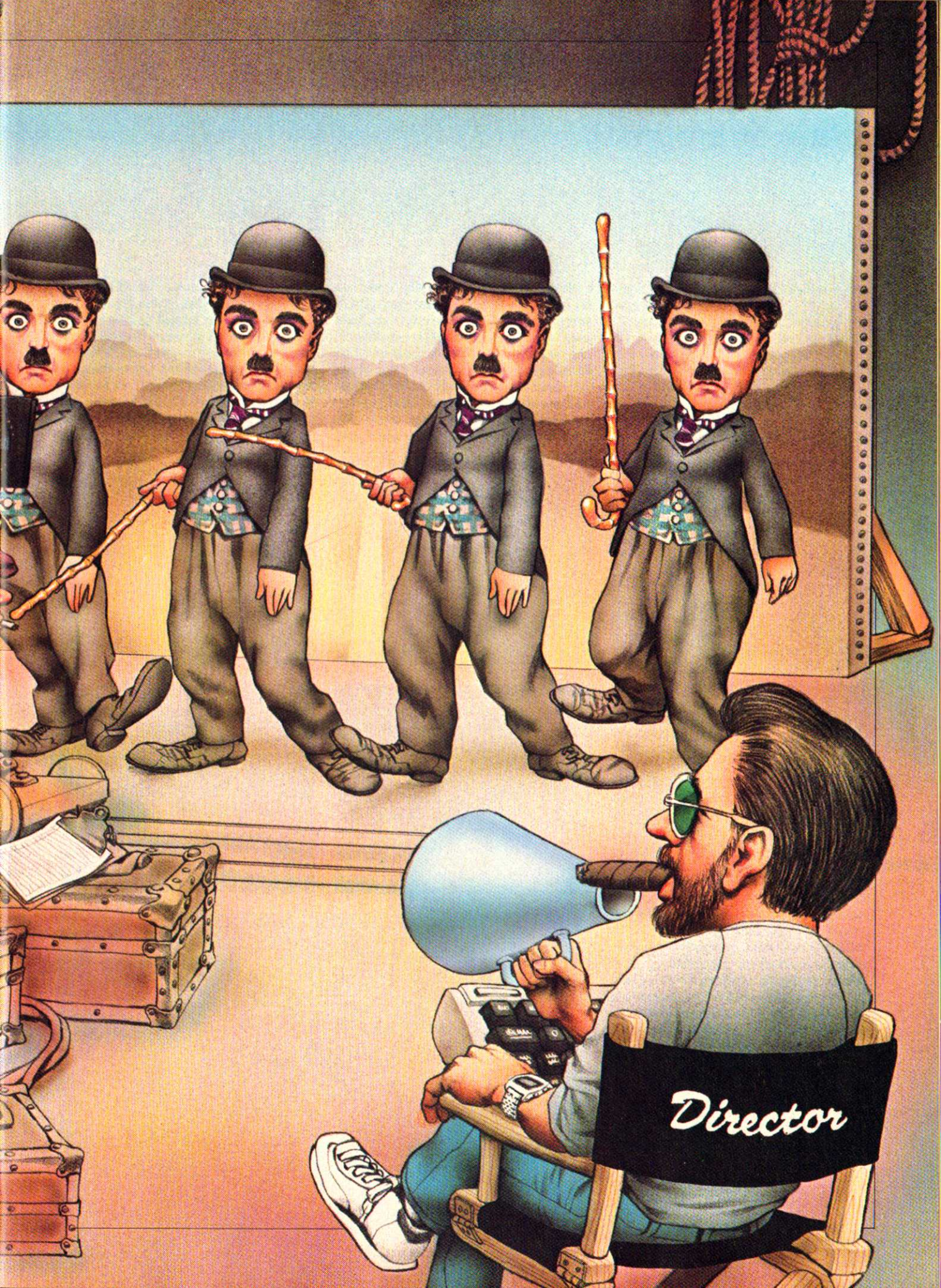
Prehistoric man apparently wasn't satisfied just to make paintings though. I'm told that at least one of the Altamira caves contains dozens of pictures of nothing but running bison, each very similar to the next except for the placement of its feet or head. That seems pretty mysterious—unless you get the bright idea that they may all be pictures of one single animal, drawn in the various positions it would have assumed while running. Now I've never seen this done, but I'll take a wild guess that if you assembled copies of all those

pictures into the proper order, bound them into a book, and then quickly flipped the pages one by one past your eyes, you'd find yourself watching the oldest animated short-subject in the history of "filmmaking": *Running Bison*, circa 200,000 B.C., director unknown.

It's a long way from bison running on the cave walls of Altamira to, say, Pitfall Harry jumping around on the video screen attached to your Atari home computer, but the spirit's the same: it's not enough to make pretty pictures—we want to make 'em move, too. Up to now, there have been plenty of pieces of software that offer us the chance to draw much better pictures than primitive man could have ever done with his bits of charcoal, "palette" of vegetable pigments, and bent-twig or bone "brushes." But as for doing your own computer-based animations, unless you were something of a programmer—and for anything as complex as *Pitfall Harry*, a lot of programmer—you might as well have been back at Altamira, scribbling on the wall by the light of a bear-oil lamp.

Enter the frustrated home-computer animator's savior, and what appears to be the next big thing in graphics software—"cartoon" or "home movie" animation programs. Specifically, three new (and one slightly older) products: The Dovetail Group's *Movie Musical Madness*, due out this summer, *Ranch*, an educational animation program from Spinnaker, *Micro Habitats* from Reader's Digest and the granddaddy of





article but this in no way detracts from its charm. *Ranch* gives you three screens: one blank to draw on, one filled with grizzled (and other sorts of) characters from the Old West and one filled with geometric shapes from which you can construct barns, log cabins, fences and other Zane Grey stuff.

Using the joystick, you place the cursor over the shape you want and

press the fire button. The number of times you press the button determines how many of that object you can bring back to the blank screen with you. After you've done that, you return to the blank screen and a push of the fire button will place that object wherever you want it to be. After you've drawn a rustic old scene with cowboys around campfires, roosters on fences, bison grazing

Ready for my closeup...

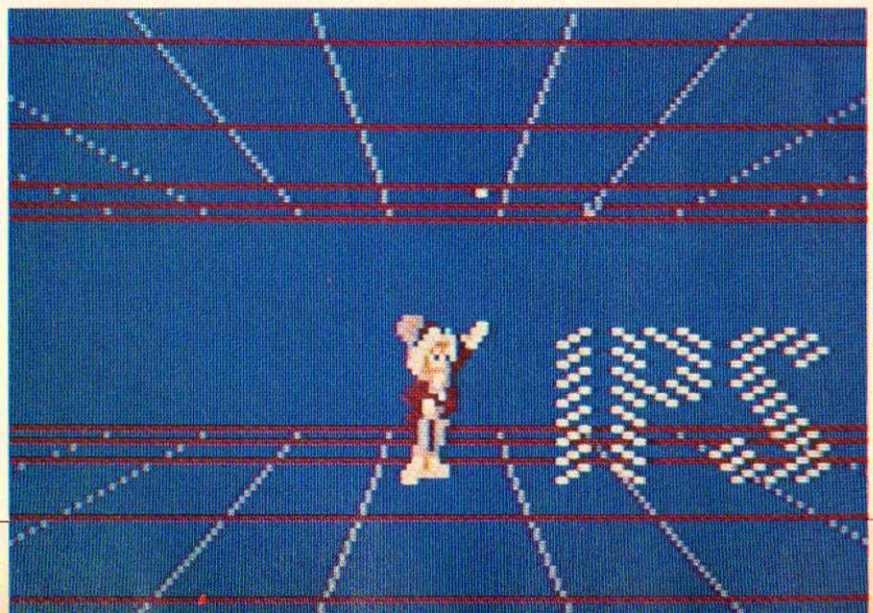
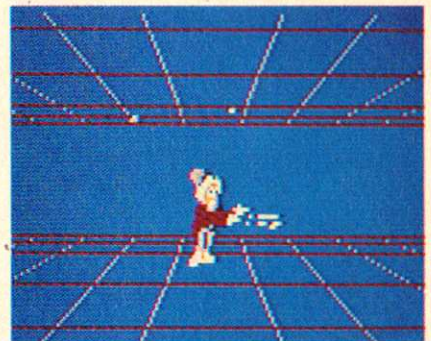
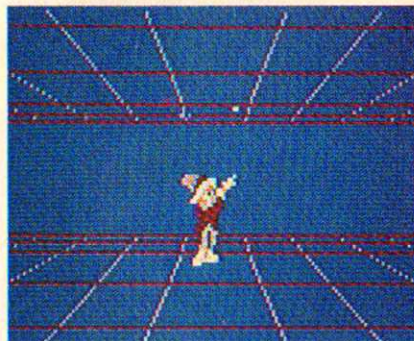
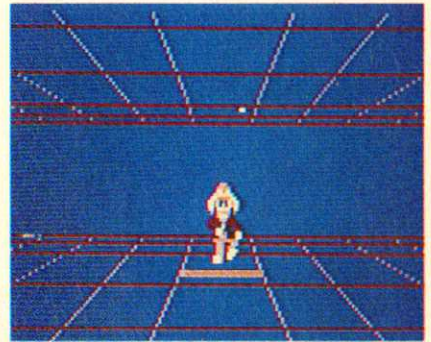
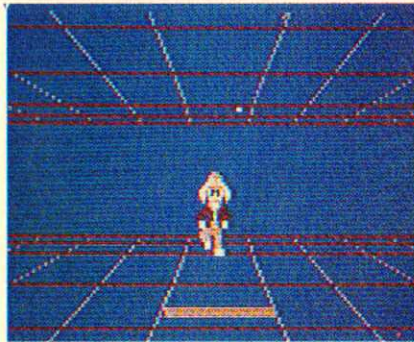
MovieMaker allows you to use all sorts of special effects such as zoom in, closeups and 3-D. Below right, one of the demo cartoons on the disk.

them all, *Moviemaker*, by Interactive Picture Systems published by Reston, released last year and already in use by software professionals in the creation of animated games and other products.

Lest you think you're being introduced to three different flavors of the same ice cream, you're not. While all three are solutions to the problem of letting you make home movies on your computer with no programming knowledge, each uses a very different approach to achieving that end.

Movie Musical Madness, for instance, takes a sort of "Footlight Parade" musical-review tack, offering you a built-in, unvarying stage and cast of three stock characters who can run around, dance, jump and perform other actions on it via very simple joystick and keyboard commands. You also get a big collection of stock props and "mood-music" themes, all designed to fit a broad range of imaginable storylines. While you can't really introduce much variation of your own into any of these stock elements, the process of selecting them, setting them up in combination, rehearsing your characters' actions, and then recording the whole, is a breeze.

Ranch is available on cartridge for the Commodore 64. It's really the simplest of all animation programs discussed in this



MovieMaker offers you nothing less than a complete animation studio and more or less complete control over its use.

peacefully in the background and a locomotive, you can do two more things. Actually three.

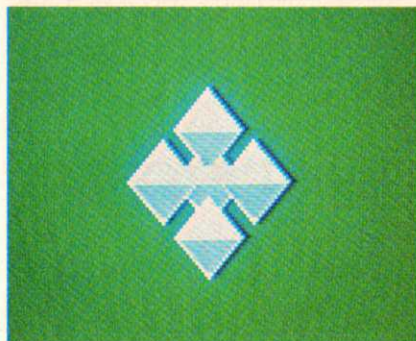
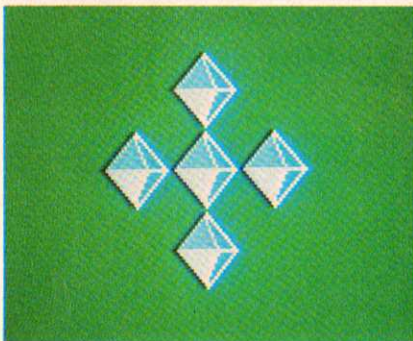
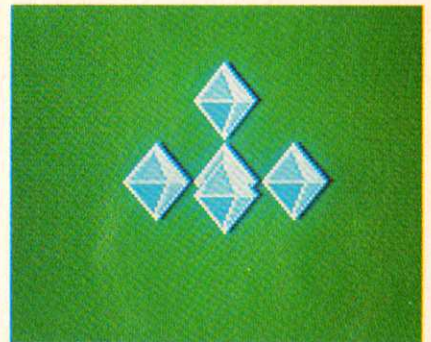
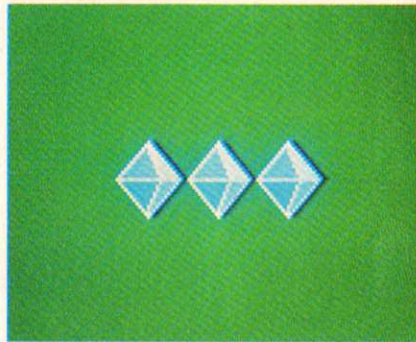
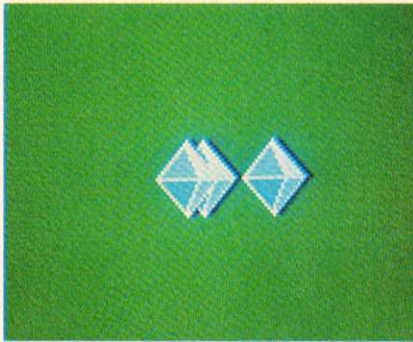
First, you can make the whole screen move. For example, cowboys bounce up and down on their bowlegs, roosters peck at the ground and bison raise and lower their heads. Second, you can make any one object travel. Thus while all this dancing is going on, the 11:07 out of

the deep blue sea or outer space. Each one is populated with its own peculiar denizens. For example, let's say you choose the Darkest Africa landscape. This consists of a lake, some trees and open veldt. You can place any number of fierce (or funny) creatures such as dancing savages in huge leering masks, alligators, apes or, birds. Then you can animate the scene. The tribesman dance

again until you tire of it and give him something new to do.

MovieMaker offers you nothing less than a complete animation studio—an art department, animation stand, camera and film, Movieola-style editing table, and projector, all rolled into one—and more or less complete control over every aspect of its use.

I'll concentrate on *MovieMaker*, since



Laredo can come barreling through, cross the screen, exit left and re-enter from the right. The third dimension is music. You've got three tunes from which to choose: one loping song, one a little faster and one variation of *Clementine*. In all, *Ranch* is a very charming and creative program which will appeal to more than just the younger members of the computer using family.

Micro Habitat is another educational animation program along the lines of *Ranch*. Instead of having the Old West as your backdrop, however, you can choose from one of three scenarios: the jungle,

frenetically, the alligator opens and closes his mouth and the frog jumps up in pursuit of the hapless dragonfly.

One feature that really sets this program apart from *Ranch* is the fact that there is one creature in each scene whose movements you can actually choreograph. Let's take as an example (yes, again) the jungle sequence. There's a tropical bird of some sort who will fly right across the screen from one side to the other. But instead of doing it, in a boring straight line, you can direct him to go up, down, backwards and forwards. He'll repeat that pattern over and over

it's the most complex, flexible and, to me, most fascinating of the three. Having spent just under a month with it I've managed to finish most of a one-minute abstract "film" using ideas I've picked up through a lifelong addiction to everything from Bugs Bunny cartoons to

Geometric conversions

First you choose your shapes, then you put them in sequence, then you run them and, voila!, you've got yourself a home movie. Above, the author shows how diamonds reproduce themselves.



the quirky creations of modern independent animators.

Getting the most out of *MovieMaker* can seem like a real challenge at first. For inveterate game players like me, who usually open the package, boot the disk, and just start right in after only the most cursory glance at the manual, *MovieMaker* can be downright confusing and frustrating. The manual alone runs a full 87 pages. An extra "Help" card summarizes *MovieMaker's* 30-odd

keyboard commands under seven different headings that explain each command's use in varying stages of creating animations. The program itself has a main menu with four sections—COMPOSE, RECORD, SMOOTH and PLAY—only one of which can be loaded into RAM at any one time, and two of which sport extensive main and subsidiary menus, as well as associated SHAPE and BACKGROUND drawing pages which are fully explained in the manual. Woe betide the unwary user who doesn't have at least one blank disk lying around with which to back up his work. *MovieMaker* is set up to put everything you do into personal files; without blank disks to save those files, it's practically useless.

But don't be put off by the program's seeming complexity. *MovieMaker* does have a lot of parts, but each of them considered alone is very simple, and once you get the hang of them, they all

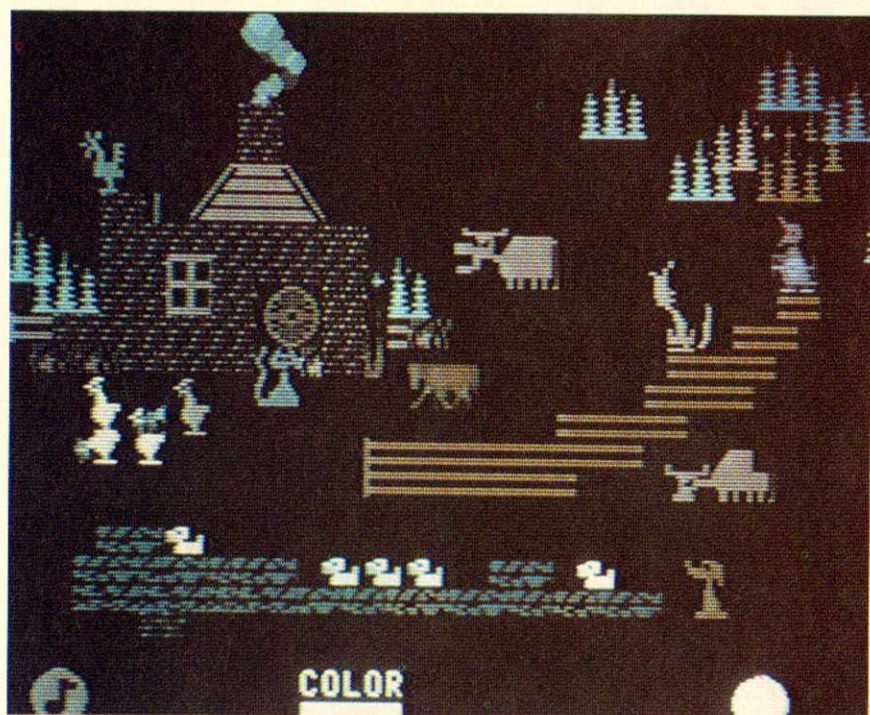
work together in a very logical and extremely flexible way. Most of the month I've spent with it was taken up by tinkering with a movie I'd created in the first few days—not learning how to tinker with it. Any artist—or non-artist—who's had some experience with a non-animating graphics program should be able to master all the COMPOSE functions in a couple of hours or less. Anyone who's ever held a movie camera of any kind and seen a roll of exposed film should understand RECORD in the same amount of time. SMOOTH is an almost totally automatic operation that demands only the ability to load it and turn it on, and PLAY ought to be instantly familiar to any user of a home movie projector.

All it really takes to get the most out of *MovieMaker* is a relaxed attitude. *MovieMaker* has been designed to be played with, explored and experimented on. It's very hard to make a mistake of

Run Silent, Run Movies

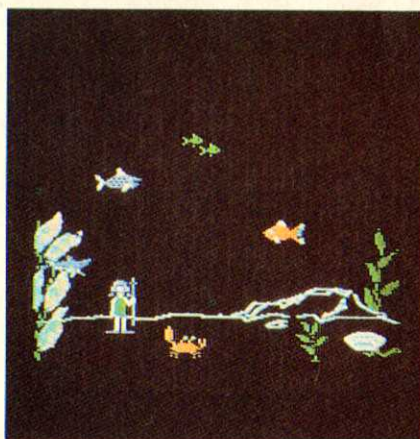
MovieMaker gives you several options: You can either create your own characters or choose from a stable of "stock" players. Above, a demo of what you can do if you want Charlie Chaplin to star.

All it really takes to get the most out of MovieMaker is a relaxed attitude. It has been designed to be experimented on.



One from Column A

Top left, the Old West as portrayed in Ranch. Below, far left, a Micro Habitat menu and below left, denizens of the deep at home.



teams of other artists start breaking up these actions into finer parts. They'll often create hundreds of drawings, each showing the actor's head, legs or other features in different positions—each shape a stage on the way to completion of a movement from point A to point B. Still other artists will do this same thing for the backgrounds, co-ordinating their work with the actor artists, whose work is done on clear plastic sheets that can be layered over the background drawings. Once they've got the backgrounds and actors right, the two sets of drawings are assembled into "cels"—frozen slices of time that, when they're put together in the proper order and shown in rapid succession, will create the illusion of natural movement.

To make that rapid projection possible, each cel has to be transferred to movie film a frame at a time, often with a different cel for each film frame. Once that laborious process is completed, film editors can take the film and project it, criticize it, snip out unnecessary frames that slow down the action, insert new or substitute action sequences (which often means heading back to the drawing board, and the creation of hundreds more cel drawings), and generally get the film as

Continued on page 86

any permanent kind anywhere within the program; those you do make will usually turn out to be either very easy to correct, or the kind of "happy accidents" that give you more ideas. Bear in mind that *MovieMaker* does take a little more time to learn than the average computer game, and that your first tries are naturally not going to be masterpieces. But have patience. Experiment with *MovieMaker*'s features and you'll soon get a feel for its overall structure.

That structure mimics very closely the standard process of "cel" animation—the same process used to create most of

the animated cartoons you've ever seen. Like any other movie, it starts with a script that specifies, at each step in the plot, the setting, the actor or actors who'll appear in that setting, and how they'll move and interact with each other while they're "on stage." Teams of artists will then go to work drawing a library of basic shape-portraits of the actors and backgrounds, specifying their colors and shadings, expressions and other details at each important turning point in the action.

Using these basic portraits as reference points for the beginning and end of separate actions within the film,

Dis, Dat

Your operating system isn't as mysterious as you think it is. Really.

By Suzan Prince

This thing called an operating system—what DOS it all mean, anyway? For reasons unknown to modern-day computerists, much mystery and hushed-up secrecy has surrounded the term for the longest time, and if truth be known, we suspect it's only because a few smug industry pioneers wanted to glamorize an otherwise utterly ordinary, yet vital function of the home and personal computer.

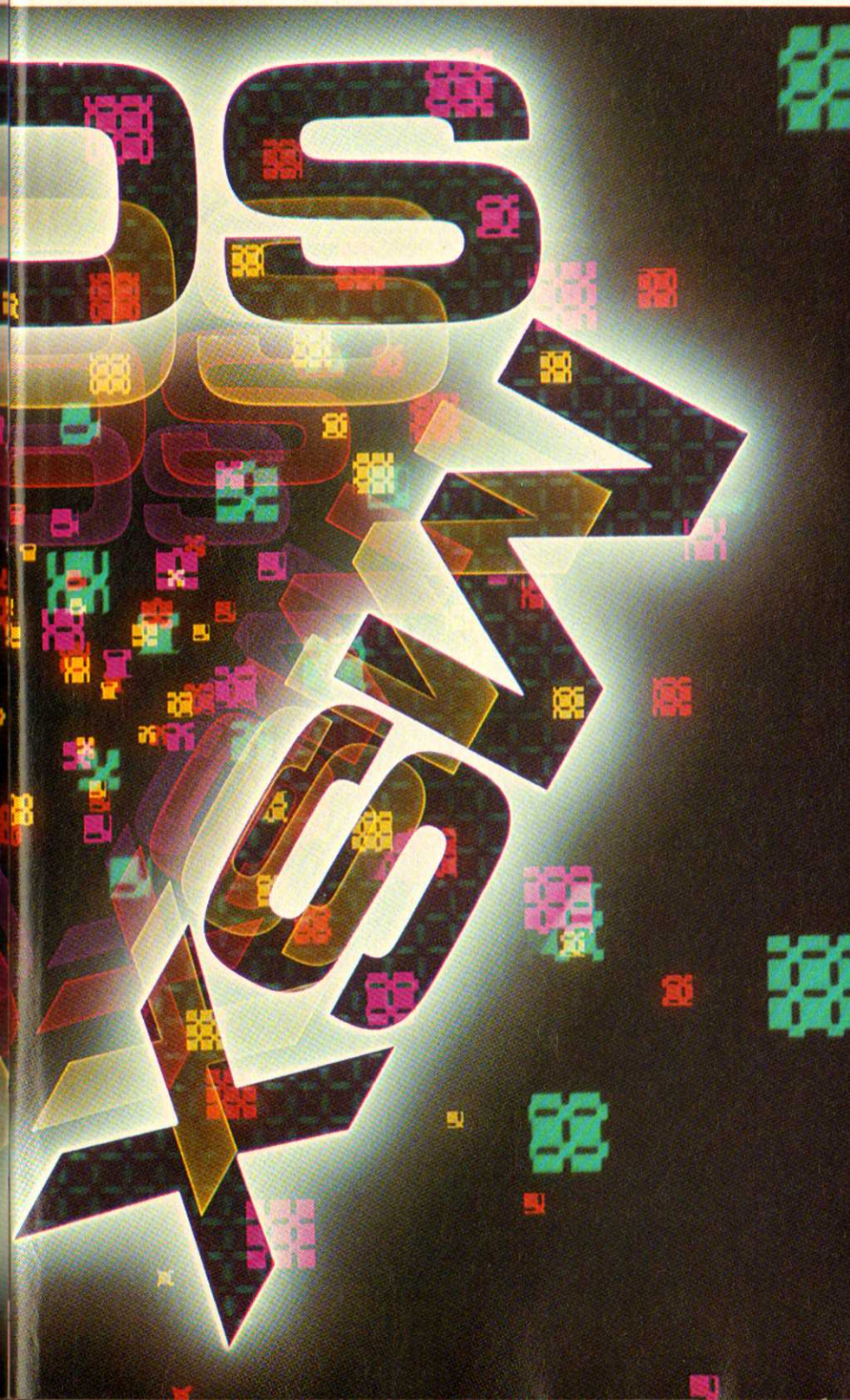
These smarties would have you believe that the OS was born of some sort of weird witchcraft that, when proper wands are waved, possesses your console and drives its circuits to commit evil deeds. Come now. Let's stop such silliness once and for all and bring the operating system out of the closet (or more appropriately, out of its ROM), into broad daylight for every user to ogle and admire.

The technology is quite deserving of admiration, in fact. An operating system—an amazing crafting of programmers' code—is as basic and necessary to the health and general well-being of computers as oxygen is to mammals. Just as people are born with a genetic "stamp" containing unique, personal traits and human characteristics handed down through the generations, a computer installed with an individual operating system gives a particular machine its own distinct "personality". Among the personality traits an OS bestows on a piece of hardware is the computer's ability to get along—or not get along—with its

Peter Simon



& DOS



owner. For example, why is it so simple for users to perform certain functions with just a few keystrokes on some machines, while mastering the same exact functions on others requires memorization of elaborate codes and commands? It all boils down to the power yielded by the operating system. That's what determines a computer's fundamental "user-friendliness."

Other characteristics imposed by the OS include the degree to which the computer communicates with devices of the outside world, such as printers, modems, and graphics plotters, and how fast and accurately the computer executes instructions and commands of the various application programs (*Wordstar*, for instance) that run under a particular operating system. The OS also interacts with programming languages, such as BASIC, C, and Pascal, enabling users to create new applications.

But the OS-as-computer-personality is a rather broad definition. To more fully understand your operating system and see why it's the most important (yet most widely ignored) part of the computer, let's stroll through the computer's innards for a while and delve a little deeper.

Like a well-tuned automobile, a functioning computer system depends on the interlocking workings of several components that help you do what you bought the system for—play games, learn Spanish, cook the company's books, whatever. Of the five basic components that make a computer run, the microprocessor, or central processing unit (CPU), functions as the "brains" of the whole operation. Through the CPU passes every iota of instruction or code that the user wishes to process or manipulate.

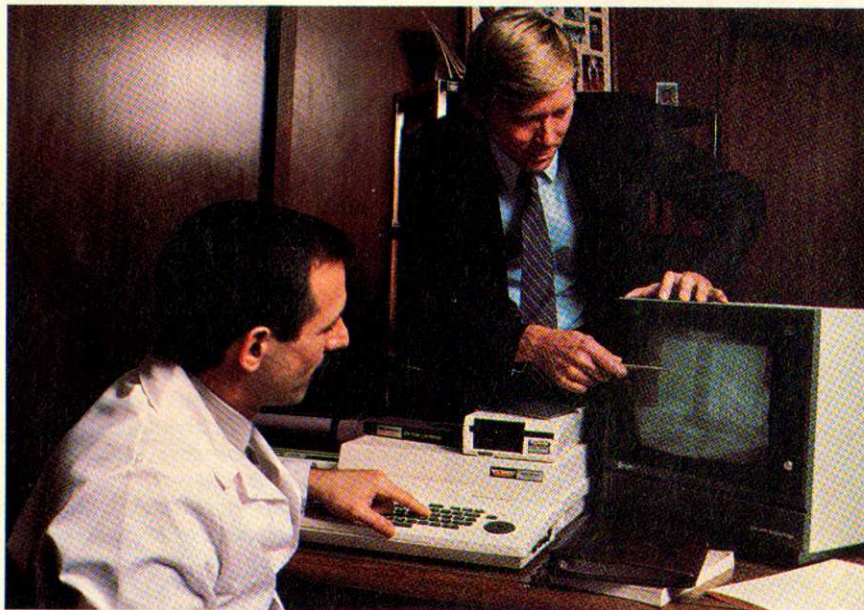
Next, since you've got to have a way to get those instructions to the CPU, there's input—such devices as keyboards, mice, touchscreens and joysticks, all of which send external information into the console. Then, no

Beware of imitations

Although the Eagle (top, right) claims to be IBM compatible, not all IBM programs will run on it. The Adam claims some Apple compatibility. Below, Spectravideo's MSX machine. Will this be the standard?

tell the hunk of silicon exactly what to do and when to do it.

Software is what the operating system is all about. Mystery unravelled: the OS is simply another program (actually a group of programs) that the computer needs to accomplish work. But, what a doozy of a program! Unlike application software (e.g., a game or a spreadsheet), which is entirely dependent upon the operating system to produce an end-result, operating software, which goes under such common brand names as PC-DOS, CP/M, and

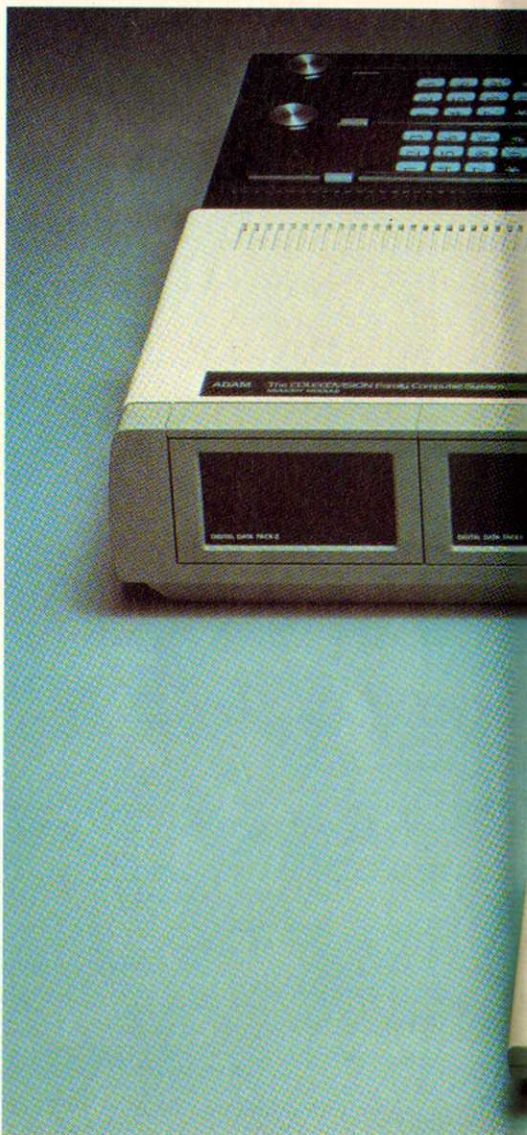
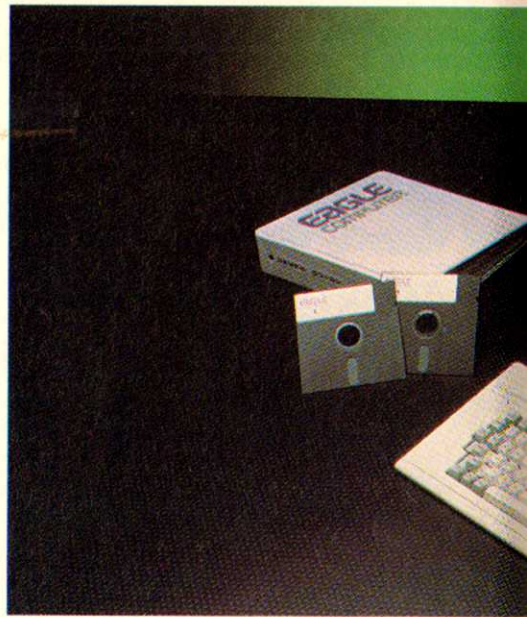


sooner have you finished putting information in the unit than you want some way of getting it back in usable shape. Output—in the form of printers, screen displays, and telephone modems, for example—lets the computer do that for you. Also, while the power is turned on the machine needs a place to store whatever it is you're working on—that's random-access memory (RAM).

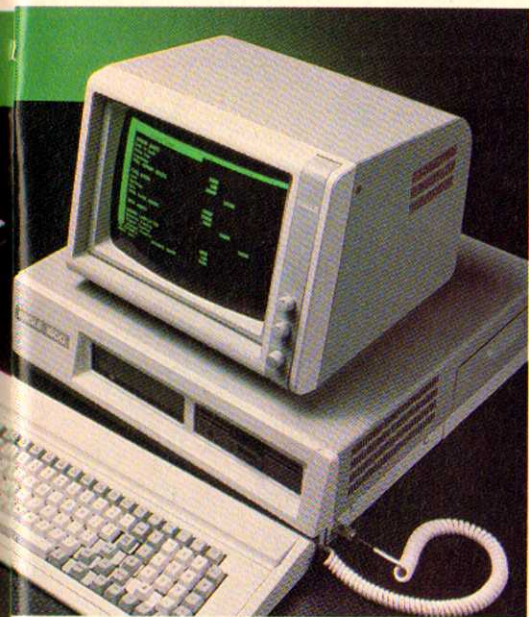
Besides the CPU, input, output, and memory, the fifth, final and most valuable remaining piece in the computer puzzle is, if you haven't already guessed, software—the instructions that

Apple DOS, regulates everything, from all the basic components named above to what application program instructions go where, how they'll get there, and what they'll do once they arrive.

To make a clearcut analogy, the operating software/computer relationship is like a good day at Grand Central Station. A central watch tower (the CPU, in our story) sits above dozens of busy tracks (electronic circuits that are the pathways along which data travels inside the computer). Taking instructions from the chief traffic



To make a clearcut analogy, the operating software/computer relationship is like a good day at Grand Central Station.



controller (the operating system), the watch tower directs each train into and out of the tunnels, telling them which tracks to use, what time to leave and return, etc. Without such orderly and explicit instructions, chaos reigns, and commuters (not to mention computer users) are bound to be late for dinner.

So the operating system, or operating software (the two terms are interchangeable; also common is "system software") is the traffic cop that keeps everything flowing smoothly into and out of the console memory and peripherals.

What else does it do for a living? At other times the OS takes off his police hat and dons an apron. Then he becomes a housekeeper, and a compulsive one at that.

Key in the DIR or CATalog command using your own operating system, and you'll quickly see how conveniently the program manages the computer's ability to copy files from one disk to another, as well as sort, name, rename or erase them. Other functions standard in most operating systems' housekeeping inventory are the ability to format a new



So-called IBM PC-compatibles that claim nearly identical IBM operation are another nightmare altogether.

disk, determine how much storage space is left on a designated disk, and the ability to set the system's time and date for file updating purposes.

No matter the computer brand, its operating system is both built into ROM (read-only memory), and resides on a diskette (sometimes called the master, or system disk), which must be inserted each time you turn the computer on. The ROM-based operating software is called a monitor, because after the computer is powered on, it makes sure that the unit does a little wake-up routine, known as "booting up": it tells the unit to turn on the disk drive, to look for something to read on the screen, to see if there's anything in memory to process, etc. So essential to the machine is the monitor permanently stored in ROM that it even has to inform the computer that it is indeed a computer, and not, say, a stand-up comic—each and every time the unit is turned on.

The portion of the operating software that lives on a diskette is called, quite appropriately, the disk operating system (DOS). DOS generally contains all the user-accessible routines for tidying up the files and editing program listings that are deemed practical, but not as crucial to the computer's everyday

functioning as the more basic ROM instructions. Most DOS routines are standard; for example, the RUN command, or the instructions for formatting a new disk are available on just about every disk operating system.

In the best of all possible worlds, all programs would run on all computers'

operating systems. Alack and alas, computer marketing execs have put the screws to us under the guise of free enterprise. For example, CP/M, (short for Control Program for Microprocessors), which is one of the oldest and most widely implemented micro OS developed by Digital Research Corp.,



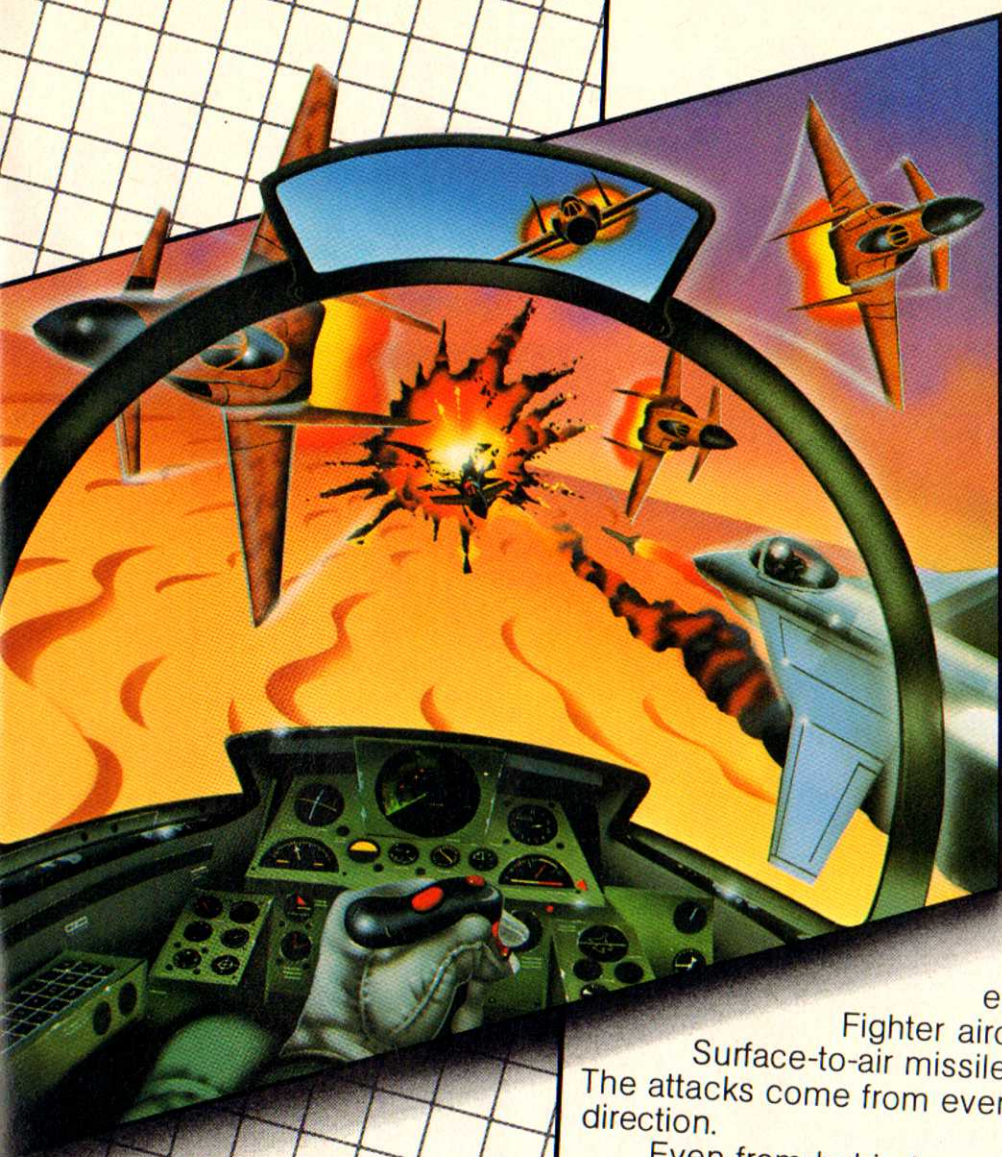
controls many popular business programs. But different versions of CP/M run on different computers and are incompatible with one another.

Similarly, CP/M-based programs, unless substantially modified with special add-on circuit cards (not always available for all models), won't work with computers designed to take advantage of MS-DOS, a rival system

Continued on page 85

All operating systems go
Both the Apple and the IBM have operating systems adapted from MicroSoft DOS.

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Behind the

Broderbund's Robert Cook proves he can chew gum and program great games at the same time. ■■■

Interview by Phil Wiswell

Robert Cook may be only 19 years old, but he has been programming computers for seven years. And though Gumball is, in fact, his first professional game, it reflects a designer who knows what is fun to play with. Gumball, currently available for Apple and Atari from Broderbund, is more than a game of hand/eye coordination because it requires so much mental dexterity and so little "wrist-twitching." In a way, one could compare playing Gumball to juggling. It is also funny, bringing to mind an old episode of *I Love Lucy* in which Lucy and Ethel work as wrappers on a candy company's conveyor belt and things go from bad to worse.

Cook was the first in-house programmer for Broderbund, though that lasted no longer than a month, at which time he began working, freelance, on Gumball from his home in Huntington Beach just south of Los Angeles. For one semester, Cook attended the University of California at Berkeley, then began a leave of absence. His current plans are to go back to either UCLA or USC and eventually get into film school. Why is Robert Cook putting off his education and the beginning of a career in film to write computer game programs? Read on.

CF: When and where did the idea for Gumball originate?

RC: It started a long time ago when I was staying at Doug Carlston's house

one summer and we were trying to come up with a game idea. [Doug Carlston is president of Broderbund Software.] Doug had the idea that people like machines, so he drew up this thing where you would actually control something going into a coin changer. We decided that was a little obscure, but we had pretty much come up with the idea for Gumball right there—the chutes and the gates.

CF: I understand you've hidden some stuff in the program.

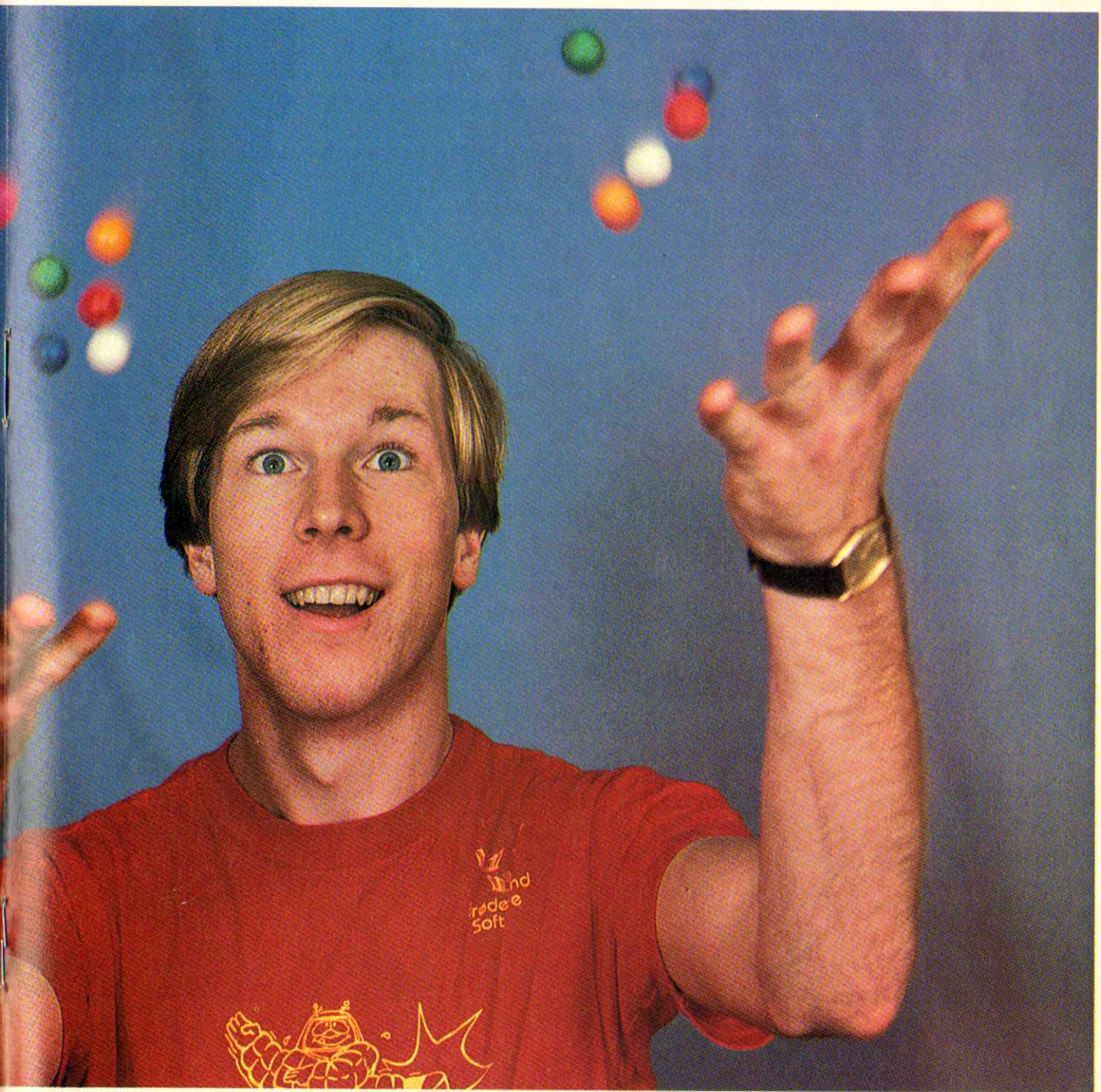
RC: Yes. First there is a hidden credits screen. If you type in CONTROL-U-C-B (University of California at Berkeley), it will give credit to anybody who had anything to do with the development of the game. Also hidden in the game is the start of a puzzle that nobody knows about. If you press the top joystick button (assuming you have a TG joystick), or if you activate the crosshairs and run them down to the lower left corner of the screen, then press the other button, a clue that tells you what to do next appears on the screen. That's all I'll say, but I'm curious to see if anyone can solve the puzzle.

CF: What playing tips can you give us for Gumball?

RC: Some people always move the containers at the bottom of the screen, and channel the balls through the leftmost two. I just leave all the containers sitting as they are and then scan the screen with peripheral vision to make sure all the balls go into the proper containers. Generally that works for me. At least, it's gotten



e Gumball



me to retirement, which comes after the fifth screen.

CF: Does the game continue after that?

RC: No. You retire. Few people have seen the reward you get for reaching retirement, but all who have, have liked it. It's a picture my father took in the Atlantic right after World War II. It's

a sunset with destroyers in the background. I took out the destroyers and drew the sunset over the water into the computer with really bright colors and the water twinkling.

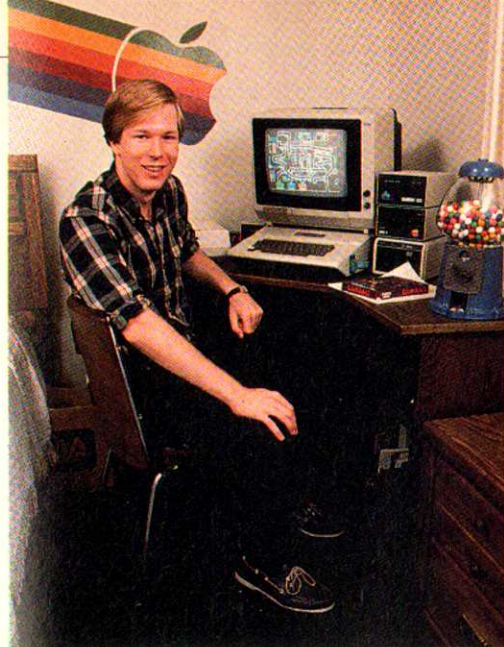
CF: Did you do all the programming for Gumball once the concept was formulated?

RC: Everything. Including the title screen and cartoons.

CF: How did you learn to program?

RC: My dad spurred me onto that. He got me one of those Radio Shack 101 electronics project kits when I was about 12. I worked with that and developed a big interest in elec-





tronics. I subscribed to magazines like *Popular Electronics*.

My first computer was an ALF-2, and machine language was my first language. The ALF-2 had one-quarter K of memory, and you had a hexadecimal keyboard. You couldn't really use addressing to get to where you wanted to put in your op-codes. You had to sort of key it in straight through the 256 bytes. It was crazy.

CF: What computer did you get next?

RC: I had a friend in Long Beach, not far from here, and he and his father had an Apple II. At that time, the only things I'd seen of the Apple were advertisements showing low-resolution graphics that made my eyes bug out. So I toyed around with this machine, and about a year later he moved up to Eugene, Oregon, where Broderbund was headquartered at the time, and I bought his Apple when he moved. I just started working with it. The next summer, I went to visit my friend in Eugene, and I met Doug Carlston, president of Broderbund Software. That was the summer of 1981. My friend and I began a program, an adventure game called *Survivor*, but we drifted a thousand miles apart and it never got finished. I came up with a title screen for Broderbund out of the blue just because I wanted to toy with graphics—because up until then I had done nothing with graphics. I sent that off to Doug, and he was im-

I came up with a title screen out of the blue. I sent that off to Broderbund and they put it in Arcade Machine.

pressed enough to put it into *The Arcade Machine*. Then Doug invited me up to work during the summer and I became their first in-house programmer, though I'm out of there now. I did the *Seafox* title screen and was about to do another, but started working on *Gumball*. At the same time I was going to high school, so the development ran through about October of 1983.

CF: So you got into game design through an interest in computer graphics.

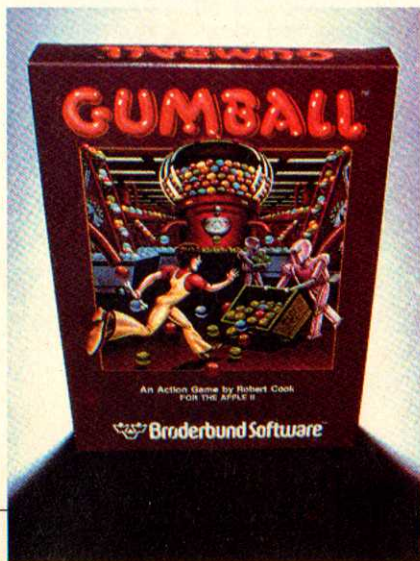
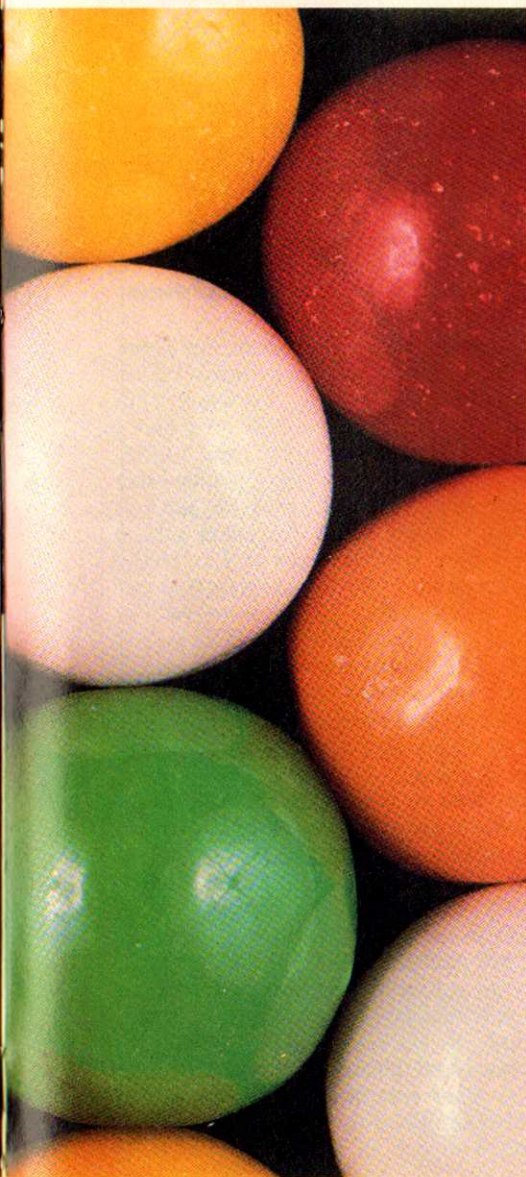
RC: Yes. That was pretty much it.

CF: What kinds of requirements do you think are necessary for designing games on the computer?

RC: Do you mean for the programmer or for the games?

CF: let's talk about the programmer first.

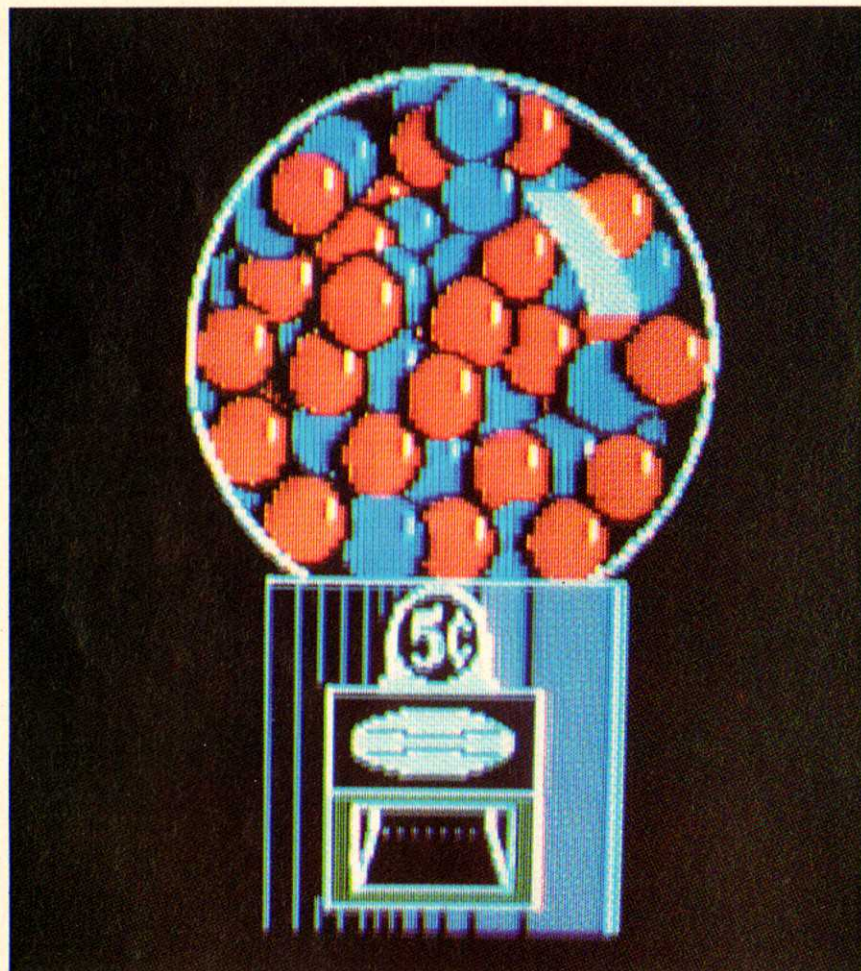
RC: Obviously, he has to have a working knowledge of the computer he is working with. He doesn't have to be a great programmer, because his code is not really under anybody's scrutiny. He doesn't have to write efficient code like a business programmer. All he has to worry about is the net audio/visual result. The programmer of games has to be able to program in a fast, efficient manner. A lot of programmers are using structured programming. That's what I use, what I was brought up on. I program structured in assembly language. I know BASIC. I barely know PASCAL and I barely



Chew Or False?

Robert Cook's Gumball is like a Rube Goldberg invention put inside a computer. The idea is to sort the gumballs by color as they roll off a series of chutes. If you slip up, the boss comes out, shakes his fist, and dumps all the gumballs you've sorted so far. A workingman's game.

A game designer doesn't have to be a great programmer because his code is not under anybody's scrutiny.



know a couple of other obscure languages.

CF: What, in your opinion, makes you a good game designer?

RC: Some people say, and it's probably true, that I have a graphic eye and can draw things, though outside of the computer I'm not that good at drawing. But on the computer I'm good at putting together patterns and colors and other things into drawings that people like.

CF: What are the elements of a good computer game design in your mind?

RC: First and foremost, it has to be entertaining. It has to be fun to play.

The best example of that might be *Lode Runner*. The graphics are not exceptional, but the gameplay is really, really nice and that is probably the primary criterion. The second criterion, still awfully important, would be the graphic appeal, the intricacies, the colors. Down the line, there would be smaller things, like humor. There is also another thing that games will start doing. The way Electronic Arts ads read, they are saying that programs are becoming works of art. It seems like that is becoming increasingly true. There are two forms of art in

programs: One is the literary type art like that of Infocom's games, like *Zork*. And there is a type of art form in computer games going towards film. *Gumball* is like that. As the games get more complex, and with higher resolution, they'll get even more like film. Broderbund's production is already a lot like film.

They assign a program producer, so to speak, somebody who actually helps you develop the game by working on it with you, and acts as a liaison between you and the people higher up at Broderbund. Two guys work there full time to help with graphics and game ideas. One of them, Gene Portwood, used to be an animator with Disney Studios.

CF: What has your working environment been like?

RC: When I was finishing up *Gumball*, I was in a college dorm, which was hectic to say the least. I'm working on a game right now and I pretty much work from home. I work anywhere from eight- to twelve-hour days. I work six hours if I'm not too interested in what I'm doing at the moment; twelve hours if I'm really interested. Right now I'm staying out of college for a semester or two so that I can finish my next game.

CF: Will Broderbund publish it?

RC: They should, although that's still kind of up in the air. It's only partially developed, so I really can't say more at this time.

CF: How do you playtest a computer game concept? Do you have to have something up on the screen?

RC: Yes. You have a basic idea of what will be fun and what won't be. For a while, *Gumball* didn't really have enough to it. That was before I came up with the level routines, and the bombs on the upper levels. Before that, it wasn't particularly fun to play. I had the shell of a game.

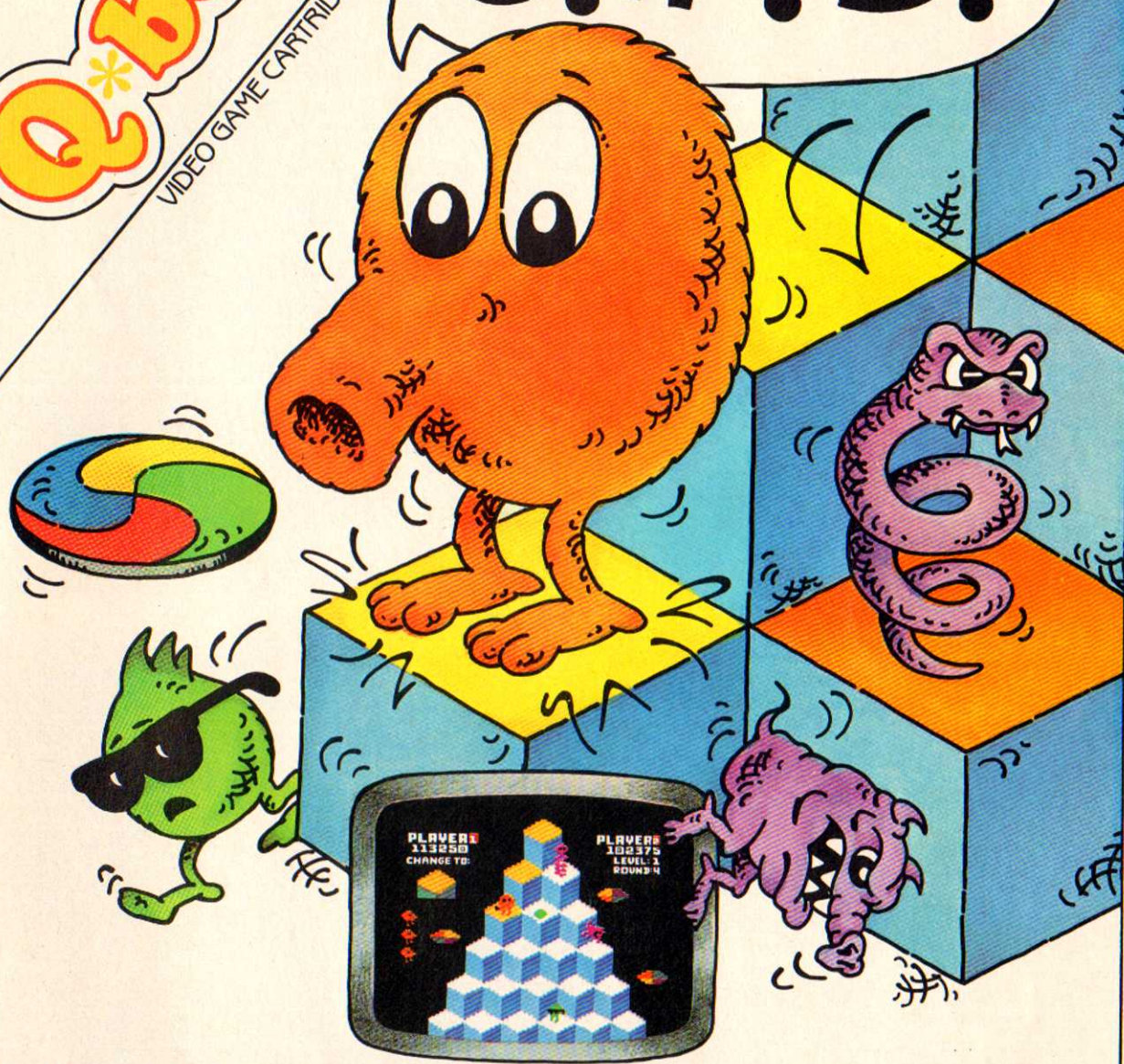
CF: What are the tools of your trade? What equipment do you own and use?

RC: I've got an ancient Apple II, a

Continued on page 72

Qbert
VIDEO GAME CARTRIDGE

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Atari Times Two

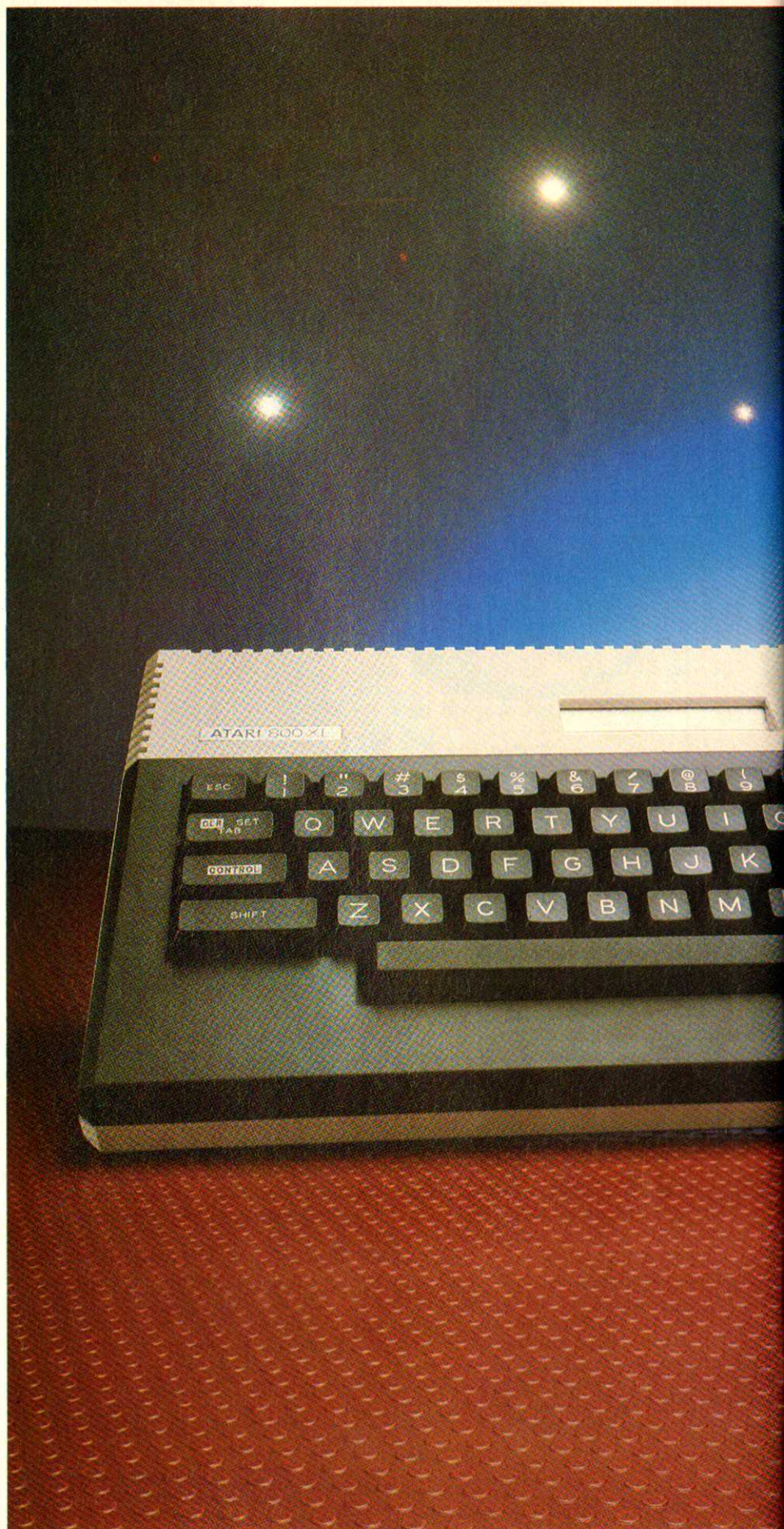
*Say goodbye to
Atari 400/800
and hello to the
600XL and the
800XL.* ████████

By Jules Gilder

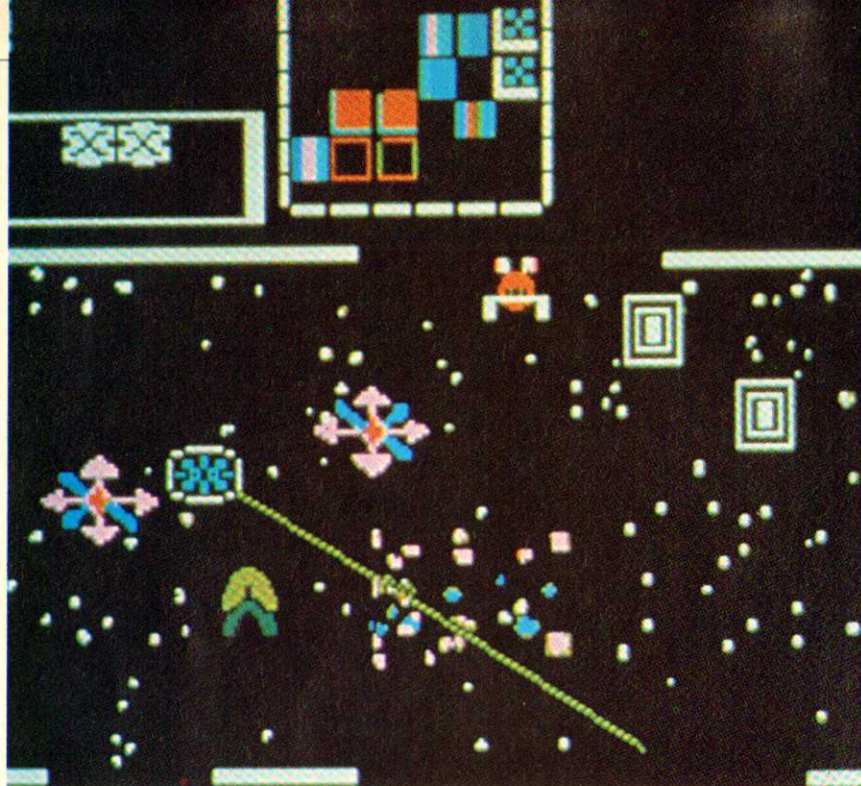
It used to be that an under-\$1,000 home computer meant an Atari. The venerable Atari 800 was a consistently reliable machine supported by an enormous amount of software. Its little brother, the 400, while an excellent game machine, was hampered by its "MacDonald's keyboard"—the same sort of pressure-sensitive pad they use to ring up your Big Mac and fries. Faced with competition from Commodore, Texas Instruments and Timex/Sinclair, though, Atari found itself too high-priced.

Atari's response to all this activity was to introduce the 1200XL, a 64K machine that turned out to be one of the company's biggest disappointments. It got an almost universally negative reception from the press (this reviewer included) and was discontinued only months after it was introduced. Meanwhile the Atari 800 was getting harder and harder to find, until it was finally revealed that Atari had discontinued both it and the 400.

With all the Atari-compatible software out there it was imperative for







Design of the times

Below, Atari's own graphics tablet and stylus with which you can create drawings. Above, Space Dungeon.

Atari to bring out a new computer. Instead they brought out two new computers, the 600XL and the 800XL, which, though on the outside they resemble 1200XL, on the inside offer many improvements over that earlier model, and over the 400 and 800 as well.

To begin with, unlike all previous Atari computers, the latest ones have Atari BASIC built in. When you take the computer out of the box and plug it in, it's ready to use. You don't have to worry about buying a separate BASIC cartridge and keeping track of it, as was necessary with the Atari 400, 800 and 1200XL computers.

The second big difference between these new computers and their predecessors is price. Whereas the 1200XL sold for close to \$1,000, the 800XL—which is more powerful machine because it has BASIC built-in—is selling for only \$270, while the 600XL is selling for about \$150.

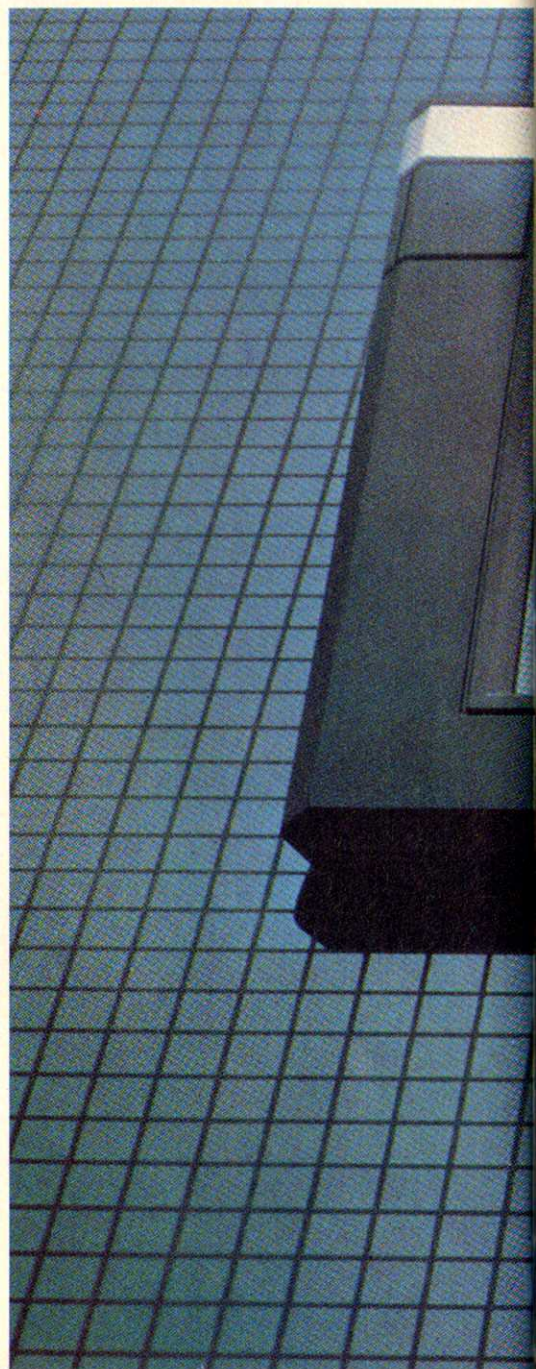
Aside from the availability of a built-in programming language, the 800XL and 600XL have most of the advantages and disadvantages of the 1200XL. As in the case of the 1200XL, Atari is emphasizing the fact that the 800XL has 64K of RAM. And as with the 1200XL, this can be misleading to the consumer. For the most part, the extra 16K of RAM is not available for use. Underscoring this is the fact that a built-in memory testing program only tests 48K of RAM, ignoring this extra 16K. The maximum amount of RAM BASIC will recognize is 48K, and once BASIC allocates what it needs to

work, about 37.5K of RAM will be available for use—the same amount of memory available on the older 48K Atari 800.

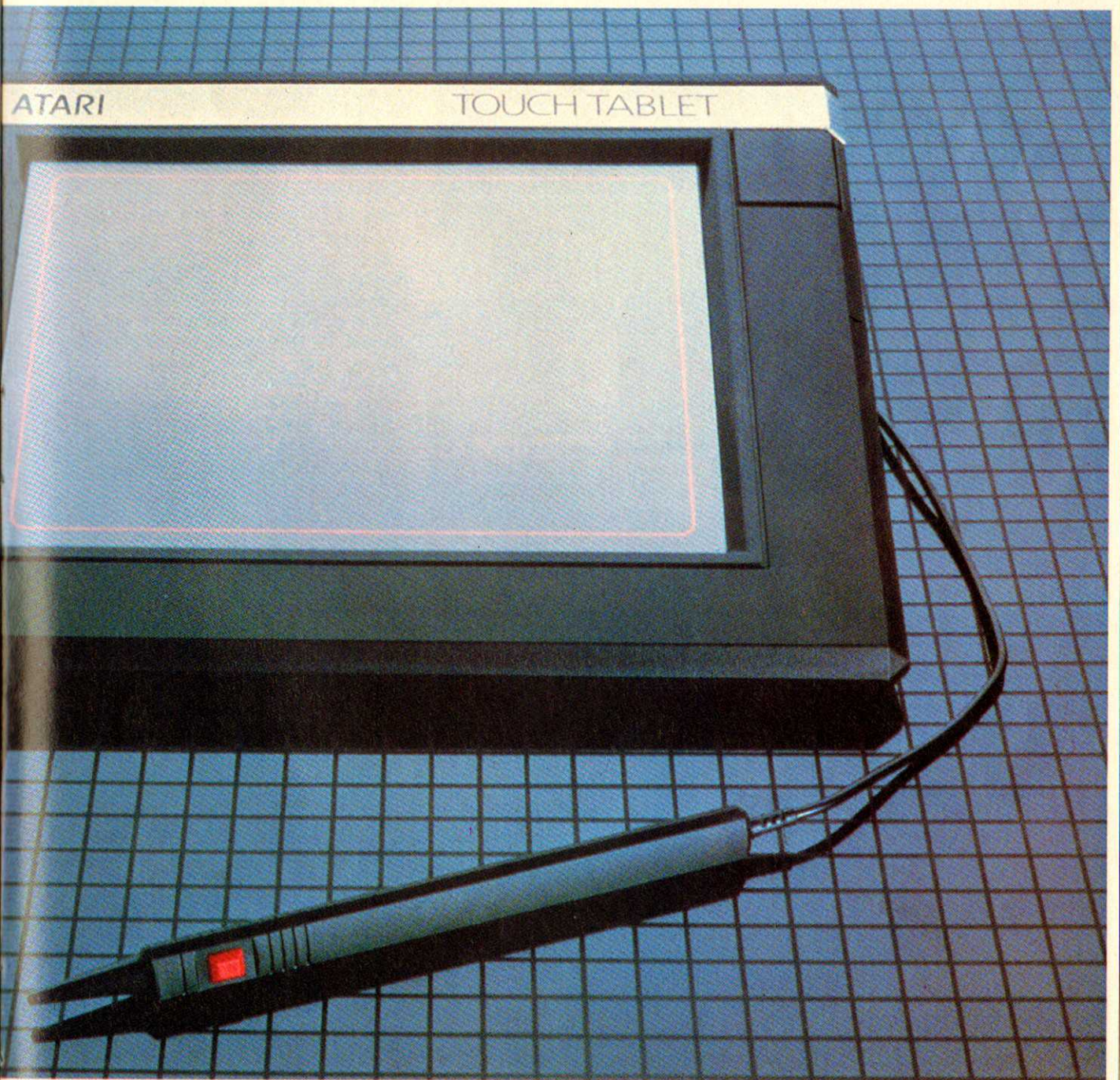
The 800XL version of BASIC is very similar to the 8K version of BASIC used on the older machines, but all the known bugs seem to have been corrected. For example, dimensioning a string larger than memory now produces an error message—it didn't on earlier versions.

This version of BASIC carries over all of the features of the previous version including the automatic syntax checking when a line is entered. This makes it impossible to enter an incorrect line inadvertently. It also includes a set of abbreviations to speed the entry of programs. In addition to the standard abbreviation of a ? for the word PRINT, Atari BASIC has quite a few other abbreviations such as F for FOR, N for NEXT, SE for SETCOLOR, DR for DRAWTO, etc.

To get an idea of just what these computers offer, let's take a quick look at the technical specifications. As mentioned earlier, the 600XL comes with 16K of RAM. This can be expanded to 64K with an optional expansion memory module. The 800XL already comes with 64K. The only other difference between the two computers is that the 800XL provides connectors for either a TV display or a video monitor; the 600XL does not. Aside from these two items, the computers have identical technical specifications. Both contain 24K of ROM which contains the



When you take the computer out of the box and plug it in, it's ready. You don't need to worry about a BASIC cartridge.



Atari should be given extra points for including such high quality keyboards on such low-cost computers.

New Models

Below, the redesigned Atari disk and cassette drives.



operating system and Atari BASIC. The microprocessor used is the 6502C and it operates at 1.79 MHz.

Both computers have 11 graphics modes and can display 256 different colors, with 128 of them capable of being displayed at one time. The maximum graphics resolution is 320 by 192 elements. There are five text modes and the maximum text that can be displayed is 24 rows of 40 characters. There are four different sound channels (or voices) and each spans a 3.5 octave range.

The keyboard on these computers is excellent and Atari should be given extra points for including such high quality keyboards on such low-cost computers. The feel of the keyboard is very good and is quite suitable for touch typing. Altogether there are 62 keys on the computer, 57 of them are typewriter keys, one is a HELP key and the other four are special function keys. Also included is a CAPS key which toggles the keyboard between upper and lower case. By using the CONTROL key, 29 predefined graphic symbols are accessible from the keyboard. The control key also activates the cursor movement keys. As with all previous Atari computers, these latest ones also contain a slot for plug-in cartridges.

Like the 1200XL, both new computers

have a built-in diagnostic capability. By holding down the OPTION function key while turning the computer on, or by typing the word BYE from BASIC, it is possible to call up the SELF TEST menu and run any or all of the three test routines provided. Included in these routines is one that tests memory, both ROM and RAM. The test is automatic and indicates a bad component by turning the appropriate box on the

screen display red. If all of the boxes are green, then all of the memory checked is okay. Remember, however, that this program does not check the last 16K of memory.

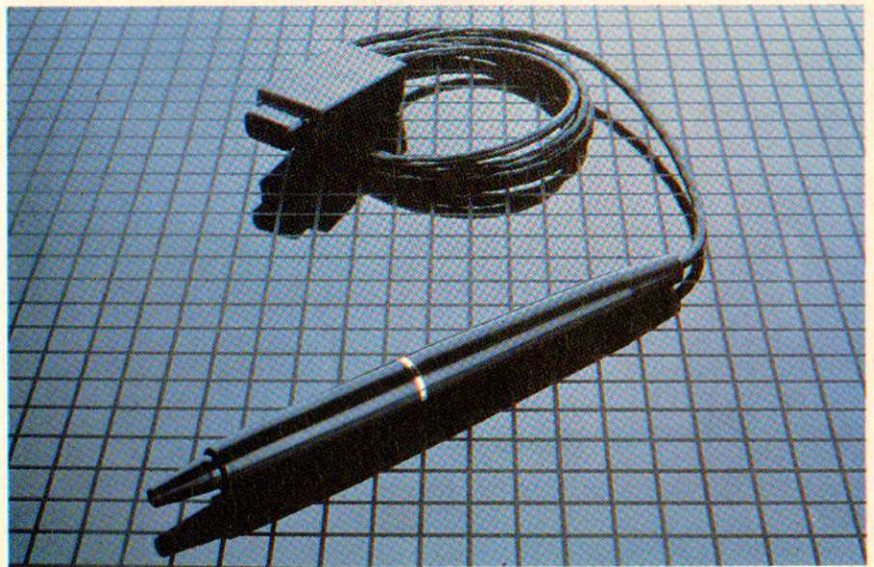
The second test that is built in to both the 600XL and the 800XL is the AUDIO-VISUAL test. This test checks out the four programmable sound voices of the computer as well as its color graphics capabilities. It does this by generating a series of six notes for each voice and displaying them on a musical staff.

The final test checks for a properly functioning keyboard. Here the computer draws a facsimile of the keyboard on the screen and whenever a key is pressed, its counterpart on the screen flashes. From this test it is easy to see that Atari is using the old 1200XL ROMs in both machines and didn't even bother to draw the keyboard the way it appears on the new computers. The display

Continued on page 82

Let there be light pens

Below, the Atari light pen which lets you draw right on the screen.



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HITS AND MISSILES



Legacy of Llylgamyn ■■■■

Sir Tech/Ap

The Wizardry series has inspired many similar contests from a number of different software houses, but Sir Tech's Wizardry still stands as the definitive role playing/fantasy adventure game for the Apple computer. *Legacy of Llylgamyn*, the third chapter in this series, carries on the Wizardry tradition in fine style and is nothing short of fabulous.

As in *Proving Grounds of the Mad Overlord* and *Knight of Diamonds* (The first two chapters), the object of *Legacy* is to create a group of characters (up to twenty) and send them off in search of bounty. Up to six characters can travel together at any time. It is possible, then, for six people to play *Legacy* at once, but I found the game far more enjoyable when played alone or with one partner.

To play *Legacy of Llylgamyn* you'll need a master disc from either *Proving Grounds of the Mad Overlord* or *Knight of Diamonds*. Step one in preparation of this game is the transfer and initiation of

characters from one of the first two chapters to the *Legacy* scenario. Thus, the adventurers you'll use are, in effect, direct descendants of the adventurers you created in either of the first two scenarios. The characters' race, lineage, and outlook (either good, evil, or neutral) remain unchanged. However, armor counts, experience points and class level return to their original starting positions. When choosing adventurers for the quest, be sure to have an ample supply of both good and evil characters.

One major change of note is the new graphics system. In *Proving Grounds of the Mad Overlord*, the maze occupied only a small portion of the upper left-hand corner of the screen. The adventurer's statistics and the option menu covered the rest of the display. In *Legacy*, the player can enlarge the maze and temporarily omit the statistics by hitting the "O" key. In this mode the maze will fill the screen. During an encounter you can recall the statistics for review by again depressing the "O" key. During prolonged session with the game, this proved to be a blessing simply because I wasn't staring at the same screen hour after hour. —Michael Blanchet

Infidel ■■■■

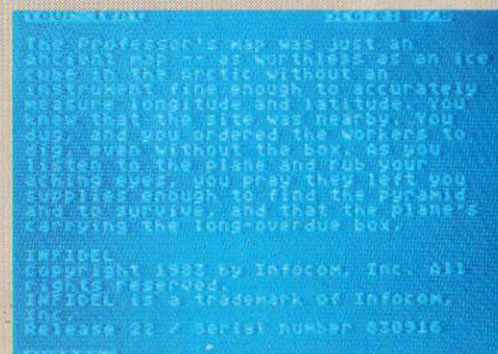
Infocom/At, Ap, C64, IBM

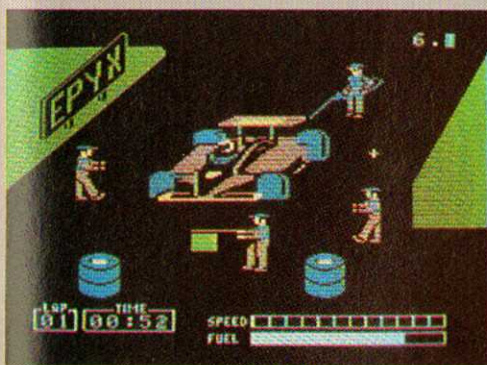
All your Arabs have left you. They've poisoned your kumiss. There's no water in the canteen. The navigation box you've been waiting for still hasn't arrived and it isn't even noon yet. What a way to start the day. But you can end it on a note of triumph provided you locate the lost pyramid and collect all the treasures. This, noble archaeologist, is your task.

Actually, you're not a very noble archaeologist at all. You're really a lowdown nogoodnik. So lowdown, in fact, that you even asked your native workers to dig on a high holy day. This is why they left you. Still, you can succeed without them. All you've got to do is take a Berlitz course in hieroglyphics, don't make any false moves, watch where you walk and respect the dead. I can say no more.

What you shouldn't do, is go out into the desert without your navigation box or you will meet a camel out walking his fish on a leash. As lonely as you are, you're still not that desperately in need of company.

Infidel maintains the fine tradition that Infocom has established. Mike Berlyn's Egyptian scenario is witty, filled with peril and adventure, secret doors and winding passageways. The ending is a little bit of an anticlimax, but this is more than made up for by the fact that you don't get the least bit thirsty or hungry once inside the pyramid. Considering that all you have to eat is beef jerky, this is a blessing. —Randi Hacker





Pitstop ■■■

Epyx/Ai

Pitstop, as its name would indicate to all but the dimmest of minds, stands out from all other racing games because of its inclusion of pitstops in the course of the race. Collisions during the competition do not destroy the racing machine, they only bruise the life out of the tires and cost time. As the tires weaken they turn from dark to light blue to pinkish and the driver must decide to risk fate and take another lap before the tires can explode, or make a pitstop.

In the pits a cursor is used to designate and maneuver the four-man crew through their chores of tire changing and refueling. After a bit of practice these guys can be made to really shake it through the timed stop and the ritual becomes as important to the game as the actual racing skills on the track.

Each of the six exotic race courses is diagrammed on the side of the screen in all their hairpin, twisting glory with wicked turns that could give Jackie Stewart the cold sweats. But fantasy is a fragile thing and the reality of *Pitstop* is something less than harrowing, as the driver finds when he braces himself for an outrageous switchback only to find it as tame as a suburban boulevard. Disappointingly, the six "unforgiving" tracks merely blend into a pureed sameness.

Graphically, the cars are done in fine style but the trackside scenery consists

of green flatlands and an occasional bush or sign. Mysteriously, a driver will find that a tire in need of change will be on the opposite side of his car when he pulls into the pits. As for gameplay, *Pitstop* is at its best in the more difficult settings where things are a little more hectic and the side-to-side motion of the cars add challenge.

—Craig Holyoak

Private Eye ■■■■

Activision/VCS

Computer detective games, like bad detective novels, are a dime a dozen. But leave it to Activision to think of something so original, so unusual and so much fun that it may very well give new life to a fading type of game.

In *Private Eye* you play the part of Detective-Inspector Touché on the trail of that dastardly arch-villain Pierre LaFiend. LaFiend has committed some heinous crime, that somehow involved a gun, a sack of money, a rare stamp, a museum treasure, a diamond necklace and a pair of shoes. You must recapture each piece of evidence from the hands of his gang of thugs, who are hiding out in the outskirts of Paris. Each piece of

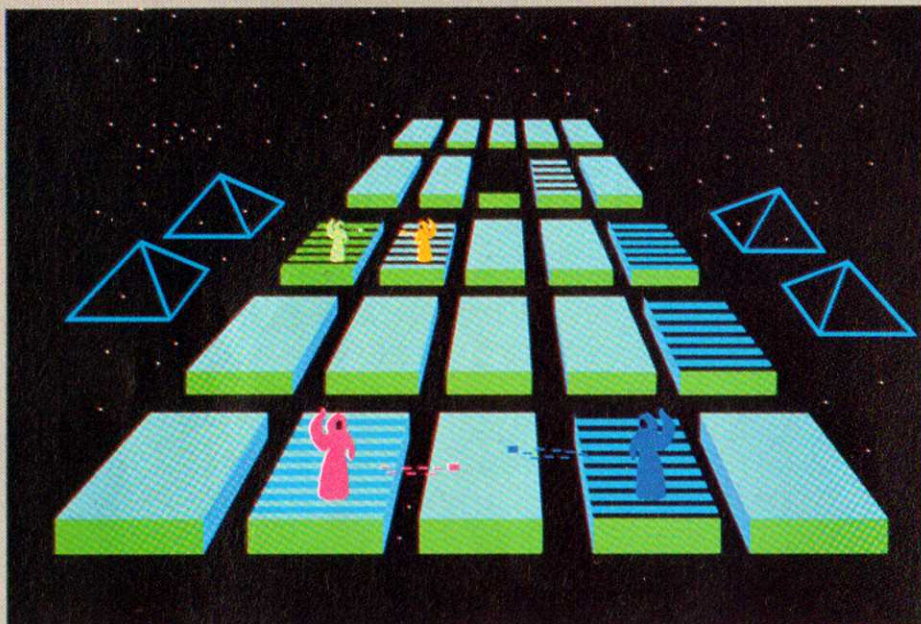
evidence must then be returned to its place of origin, then LaFiend must be apprehended and thrown in jail.

You search for the evidence throughout a large city, consisting of decorously furnished facades, narrow alleyways and the woods at the edge of town. LaFiend's cohorts seem to have nothing better to do with their time than bob up and down in the buildings' windows, so all you must do to nab one is leap out of your car and pluck him from the air.

However, not all of the thugs have a piece of evidence, and you can carry only one item at a time, in any case. To further impede your quest are birds who knock you from the sky, mice who scamper beneath your wheels, flowerpots and bricks dropped from the windows of the buildings and the steadily decreasing timer. The game is over when time runs out.

The graphics are magnificent achievement for a VCS game; your car is unmistakably a car, the birds look fully avian, and best of all, Detective Touché has character. With his hands stuck firmly in the pockets of an oversized trenchcoat, a felt-brimmed hat pulled





down over his eyes and a nose that would satisfy Q*bert, the detective is everything you could ask for, and more.

The animation is spectacular. The sounds are good, the gameplay masterful, and the graphics excellent. Vive la Private Eye! —Charles Ardai

Silicon Warrior ■■■ Epyx/At

We're a little tired of twitch games trying to bill themselves as strategy-oriented. *Silicon Warrior's* strategy component (one-third, according to Epyx's on-the-box rating system) is pretty laughable at best, since electronic tic-tac-toe—even SW's five-square, 3-D layout variation—is unlikely to get anybody's brain churning. Lest you miss a worthwhile item, though, ignore the box and plunk down your money on this one as an action game only. What you'll find is a great reflex contest and a solid piece of design: good colors, wonderful sounds, good animation (the C-64 version ought to be even better) and a really well-conceived array of variations, including true simultaneous multiple-player capability.

The SW rulebook scenario, which concerns some sort of battle in Silicon Valley in 2084, is meaningless. The basic bit is to move your cowl-draped warrior

around the game's five-by-five playfield grid, coloring in each rectangle as he goes, until five of them in a line are all one color. Movement takes only the simplest four-direction joystick skills, but pretty nice timing since the warrior doesn't just blink over to the new square—he teleports, going through a dematerialize-rematerialize cycle that puts him out of your control for a good second or two after you tap the joystick. Try to move onto a square where another player's warrior is materializing, and you're not only blocked, but have to rematerialize before you can try moving again.

Above the basic blocking game are six levels that let you add in various combinations of the three other play options: black holes (a sort of semi-random dumping feature), laser fire (which lets you send opponents to temporary detention pens if you hit them often enough) and shields (to protect yourself against their laser fire). There are also three speeds, and some nicely smart-but-not-too-smart computer-player controls. If you get tired, try setting all four players to computer control fast and just sit back and enjoy while the neon colors blaze and the "move-completed" signal tones ring out in chords and runs like futuristic elevator music. —William Michael Brown

Mario Brothers ■■■ Atari/5200

At long last, Mario of Donkey Kong fame has gotten out of the construction business. All that stress is bad for the heart, you know. To earn a living he has joined up with his brother Luigi (the guy who helped Mario raise Donkey Kong's cage in *Donkey Kong Jr.* Remember him?) and formed a plumbing company.

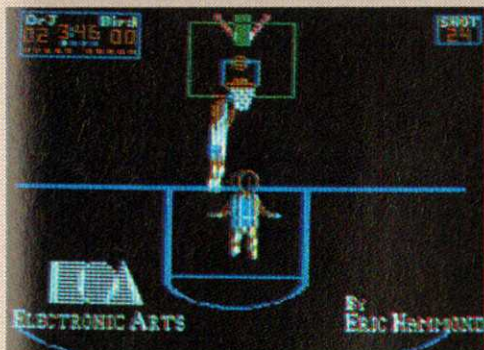
Plumbing. A serene and calm occupation, right? Wrong. You see, Mario's first job may well be his last. He, and Luigi, must clear out a set of pipes that open into a series of landings which form the game screen. However, these pipes are clogged not by dirt, but by Shellcreepers (turtles), Sidesteppers (crabs), Fighterflies (giant houseflies) and Slipices (mobile icebergs).

The way that you go about getting rid of these pests (whose respective touches are deadly) is unique. You must stand on the level beneath the creature, and jump up. This, if done correctly, will knock the creature on its back. You must then jump up to the creature and kick it off into the water below.

The first level is simple, as it consists solely of the slow Shellcreepers. However, from there on in, you must contend with the other beasts, who all have their own tricks. For instance, the Sidesteppers must be hit twice to be knocked over. If you don't get to an overturned pest in time, it will right itself, and return to plaguing you.

Mario Brothers' graphics and sound are almost as good as those of the ar-





cade original. The gameplay however, is bad. The "slippery floors" features of the game combined with a joystick that lacks self-centering will end up sending the player flying all over the screen, at least until you get used to the game. Aside from the controls, *Mario Brothers* is a good translation of a reasonably good arcade game. —Charles Ardal

One On One ■■■■ Electronic Arts/Ap

One On One may not rival the thrill of schoolyard pick-up B-ball, but it does succeed where other sports games have failed. It's a successful union of playing and thinking, a fast hand/eye contest modeled after the styles and tendencies of two of the game's greatest players—Larry Bird and Julius Erving.

In each of the game's four levels (park and rec, varsity, college and pro) players can don either Erving's or Bird's uniform. The game is best when played one on one—that is, two human opponents, one controlling Bird, the other Erving. When played alone, *One On One* is frustrating since the computer-controlled player moves with ungodly speed and grace.

The optimum set-up for *One On One* is an Apple that can support a pair of joysticks. If your computer is only outfitted with one, it must be traded with the other player each time the ball changes hands on screen.

One On One might have been just another twitch game, had it not been for the painstaking research that went into its development. Designer Eric Ham-

mond spent hundreds of hours watching, interviewing, studying, and photographing the two players depicted here. What he has captured of each is their most basic capabilities—their shooting percentages from various spots on the floor (guarded and unguarded) and their pet shots (Bird's hook is missing). Dr. J. is programmed to be a step quicker when moving to the basket, while Bird, being bigger and stronger, is a better rebounder and more intimidating on defense. Other factors considered by the program include fatigue (monitored for each player by a bar graph) and the ever-changing opinion of the referee.

For the roundball fanatic, *One On One* recreates a dream scenario—two of the game's best going head to head—but it will never approach the thrill of the real game. Heck, for the asking price you could go out and get a new pair of Converse high tops. —Michael Blanchet

Star Fire/Fire One ■■ Epyx/C64

Two wrongs don't make a right. A simple enough concept to grasp, and one

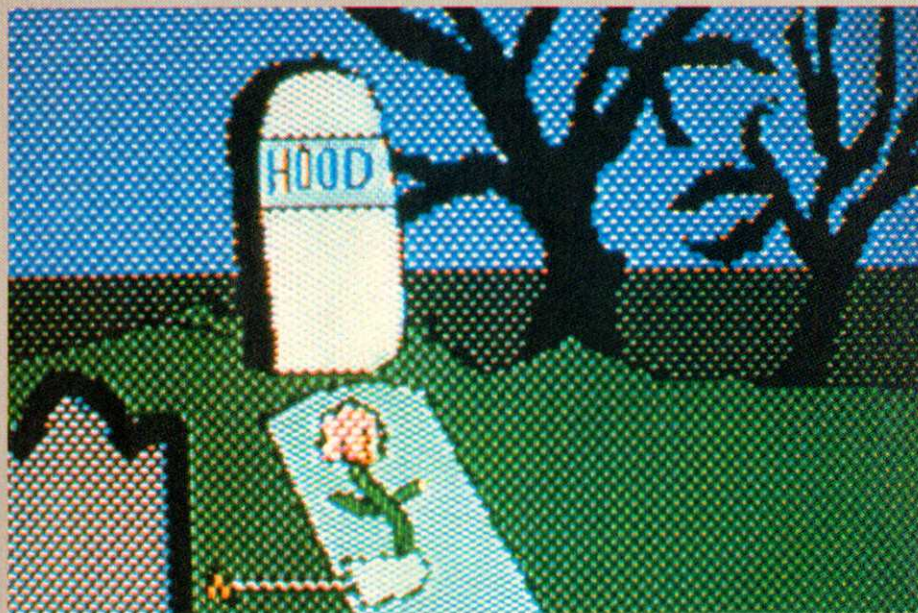
you should always remember, especially in a field like designing computer games. Epyx had what they must have thought was a marvelous idea—bring back two old, forgotten games, and sell them together in one package. What they didn't take into account was why these games were forgotten: because they were generally dull, bad games. And bringing them back for a second chance didn't make them any better.

Star Fire puts you in control of a spaceship on a search-and-destroy mission. There are two types of enemy ships that you come across in your travels, both of which must be destroyed and both of which shoot at your ship. The latter makes absolutely no difference, since your ship can't be destroyed; the game is over when your fuel runs out. You can get bonus fuel for destroying many enemies, but this mission is more search than destroy—there are very few ships in a very vast cosmos. *Star Fire* is entirely miserable.

Fire One is simply an underwater version of *Star Fire* and is certainly no better. You fire torpedoes in a very unusual and irritating way at a bevy of defenseless "enemy" ships and one very powerful submarine. You must try to destroy the sub before it destroys you



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and then do it all over again until time runs out. Whoever has destroyed his opponent the most times at this point wins. Somehow you always seem to end up losing. *Fire One* also has a "submerged" phase, which is identical to the regular game, except that now you can't see where you are going or what you are doing.

—Charles Ardoi

Death in the Caribbean ■■■■ MicroFun/Ap

The graphic adventure is a dying diversion, what with the phenomenal success of Infocom's interlogic prose approach to computer adventuring. Still, those who like their contests complemented with graphics will find this one to be one of the best currently available.

Death is a treasure hunt set (where else?) in the Caribbean—specifically a "lush, lost island." *Death* is not taking a holiday, though. There are countless ways to die. While there are puzzles to solve and clues to be pieced together, your main objective is the preservation of life and limb.

Your quest begins in the usual confusing fashion—a path that branches off

in all directions. The program recognizes two-word commands—one verb and one noun.

There are no tourist attractions, much less a Club Med. Hotspots include an old church that's perpetually locked, a house, voodoo cave, a swamp, the obligatory quicksand bogs and bottomless pits, one trail marker and a monument. Each locale is plotted on a map that's packaged along with the disc.

While the plotline and pitfalls are stock Saturday serial cinema stuff, *Death* is not without some distinctions. The game is well supported by the enclosed map, which saves you the time and trouble of scrawling out your own. If nothing else, referring to it will keep you from moving in circles. Also the pace of play is brisk, due largely to short lag time between command and change of scene. In a blink one scene transforms into the next.

—Michael Blanchet

Night Strike ■■■■ T G Software/At

Night Strike gives those of you who dream of being heroes a chance to act out your fantasies. It immediately elevates you to commander status and puts you in charge of defending a helpless city from a night invasion of

killer planes. The city is under bomb attack and only you can save it with the help of a very reliable tank.

If you love the old tank-versus-plane motif of video games then this game will enthrall you. Detailed graphics are used throughout the game and the animation of the tank onto the center of the screen is incredibly well done. You can see the movement of the caterpillar treads underneath the tank and also hear it.

The tank can only be moved horizontally and the cannon on it aimed at different angles to shoot the attacking planes. The play mechanics become complicated by the fact that you can shoot bullets, missiles and flares plus move the cannon and tank—all with the joystick. Awkward patterns must be memorized to accomplish just about any action. However, once you've mastered them, you should never again have trouble shooting the slowly fading flares or missiles.

The sound effects are not unique or new, yet they do sound like what they're supposed to and therefore enhance the game action. For example, when the planes are attacking you hear many consecutive explosions, as if a city were really being bombed. Another sound effect that really adds to the action is the whiz of the missiles that the tank shoots. The bullet volleys are also accompanied by appropriate sounds.

Everything considered, *Night Strike* succeeds in revamping and improving a traditional game theme.

—Robert Alonso





Taz ■■ Atari/VCS

Games like this one serve no purpose aside from providing fuel for the arguments of video games' many detractors. From the start, *Taz* is boring. It's also pointless, stupid, and represents a quantum leap backward for VCS software.

As *Taz* (short for Tasmanian Devil), your job is to pig out on every edible item that floats across the eight on-screen tables. The menu reads like a boardwalk burger joint's or the contents of any greasy spoon dumpster—hamburgers, root beer, ice cream cones, fudgsicles, apple cores, turnips (turnips?), tomatoes and sundaes. Force down fifty of one item and you are automatically served up fifty of the next.

The game's only redeeming quality—the attract mode—barely qualifies as such. Splashed across the screen is a frighteningly realistic rendering of Taz, an out-of-proportion cross between a Hanna-Barbera cartoon character and a werewolf. From here the visuals shift to the playfield—a simple array of eight horizontal paths (called "tables") capped top and bottom by a magenta border. The authentic looking food items do give *Taz* some charm. At best, though, it is short lived.

In all departments, *Taz* is lacking. It's not cute, it's not fun, it offers little or no incentive to the player to push on, and

like so many other VCS games it is nothing more than repetition. I give it three months before it joins E.T. on the closeout shelf.
—Michael Blanchet

H.E.R.O. ■■■ Activision/VCS

Extra, Extra! Read all about it! The Nefarious Villain is on the rampage once again; he just kidnapped the Brilliant Scientist, and is holding him for ransom! There is only one person who can save him now... Look, up in the sky! It's a bird! It's a plane! No, it's the H.E.R.O.!

Lately, what with all the hype over "cute" games, and games built around such modern achievements as the space shuttle, one area of American culture has remained more or less untouched—the superhero. One of the reasons for this is that it is very difficult to reproduce the flavor of the comics on the television screen. If anyone should endeavor to undertake this project, it should be Activision. Unfortunately, what they came up with is less than heroic.

You play the superhero who has been sent to find the captured scientist. He is

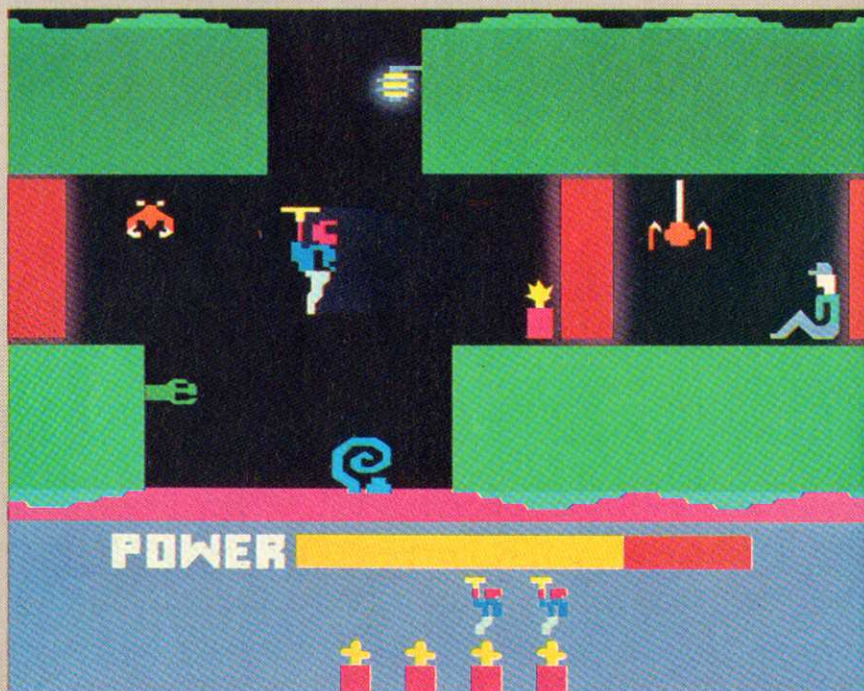
hidden in a series of caverns, populated by birds, spiders and snakes. These meanies are the hazards you must face in your mission. Sounds simple? It is.

Your powers are the ability to fly (actually, hover), to shoot laser beams from your eyes (to kill creatures), and to drop sticks of dynamite (to blow up walls and to allow further passage). The "killer" animals are hardly a threat, or even a challenge. The way you usually end up dying is by a) running out of energy or b) not being able to move away when a stick of dynamite explodes.

Seeing as you can't increase the former or do anything about the latter, this is destined to become rather meaningless. If you're lucky you survive; if you're not, you don't.

Even the graphics aren't up to Activision standards. The hero is nicely animated, but the creatures look like they just came out of *Video Olympics*. The biggest disappointment is that H.E.R.O. doesn't capture any of that pulp magazine feeling.

There is nothing to set this game apart from others; there is no character or feeling. Somehow, H.E.R.O. never quite gets off the ground. —Charles Ardai



Bump And Jump ■■■■

M Network/VCS

Many things about driving make it prime material for videogames. A pleasant drive through the placid countryside, however, is not one of them. So, in order to spice things up a bit, *Bump and Jump* incorporates another popular obsession—violence—into the gameplay. Not only must you steer successfully through the countryside without going off the road yourself, you must also ram your red sports car into the other vehicles on the road, in the hopes of forcing them off the road. They can ram into you, too, which is one of the major hazards that you must avoid.

The game's other major hazard is water. Periodically, the roadway ends and a stretch of water begins. If you fall in, you lose one of your five cars. Occasionally, you can drive around the water on a narrow pathway, but usually you must jump over it. Jumping is accomplished by pushing the fire button on the joystick when you have attained a speed of over 100 m.p.h.; the length of your leap is determined by how far over

100 m.p.h. you are going at the time. If you land on top of another car after a jump you get 300 points.

Discounting the limited moral value of such violent pursuits, *Bump and Jump* is highly enjoyable game. The graphics of the roadways and water is purely functional, but the roadway denizens are drawn very well. Your adversaries are quite diverse and each is distinctly recognizable.

Big points are difficult to come by, and reaching the free car score of 40,000 seems nearly impossible. In addition, the difficulty will increase according to how fast you are going.

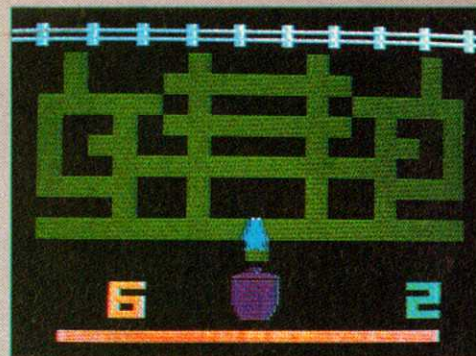
Bump and Jump is one of the best driving games ever made for the VCS; it ranks up there with *Enduro* and *Night Driver*. It may have never quite caught on in the arcades, but, in my opinion, it will be a hit at home.

—Charles Ardai

Cookie Monster Munch ■■■■

Atari/VCS

Like all of the games written by the Children's Television Workshop's computer division, *Cookie Monster*



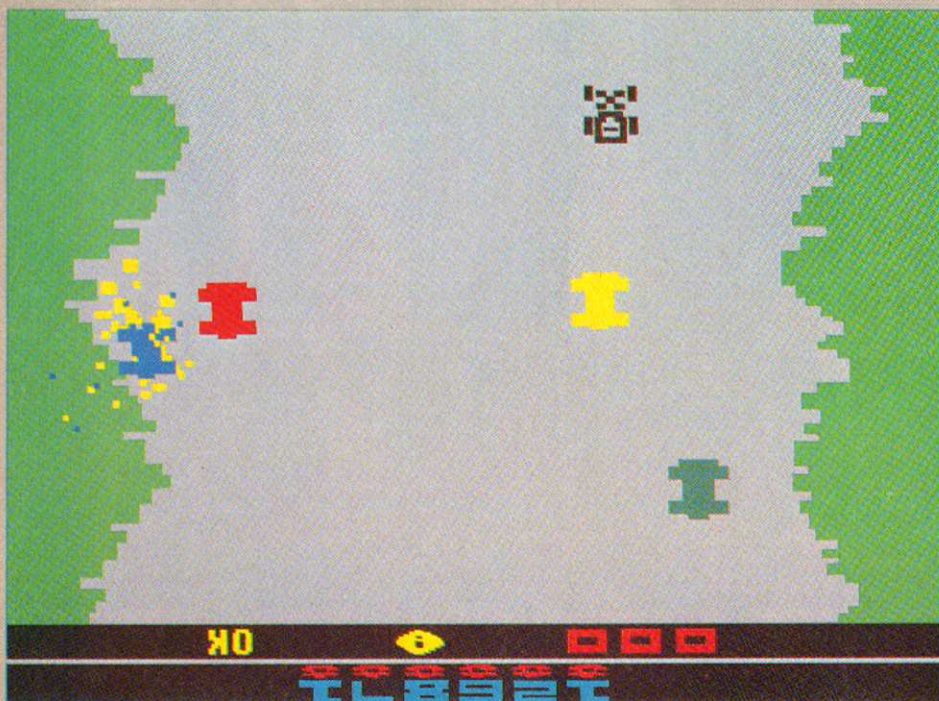
Munch is gentle, non-violent and designed to encourage constructive learning on several levels. This objective is achieved through 10 different one- or two-player progressive skill games, which teach very young people (ages three to seven) basic counting from one to nine, directional concepts (up, down, left, right), and hand-eye coordination (maze tracing).

It's a tall order, trying to satisfy a rather wide age range while attempting to teach and entertain at the same time. But *Cookie Monster* shines. Games one through six place a set number of cookies—one, four or seven—in a randomly formed maze (each flip of the reset button draws a slightly different board to the tune of pleasant musical scales). Using CTW's special push-button hand controller, the player easily manipulates the artistically perfect blue *Monster* around each maze, picking up cookies and dropping them into the jar at the bottom of the screen for a point apiece. Games three through six add a time limit to the task.

Levels seven through 10 introduce older children to the *Cookie Kid*, who moves around the maze capturing nine cookies—the maximum—while the *Monster* chases him in a thrills-and-spills junior *Pac-Man* rendition. Time limits are also imposed, and by game nine, the time line is quite short. Level 10 is the hardest, as players must memorize a maze before it disappears.

So many games today call themselves "educational," but so few really fill the bill for the money. *Cookie Monster Munch* is thoughtfully designed to reinforce pre-reading and writing skills and succeeds gracefully in its objectives. But much more important, it makes you smile.

—Susan Prince

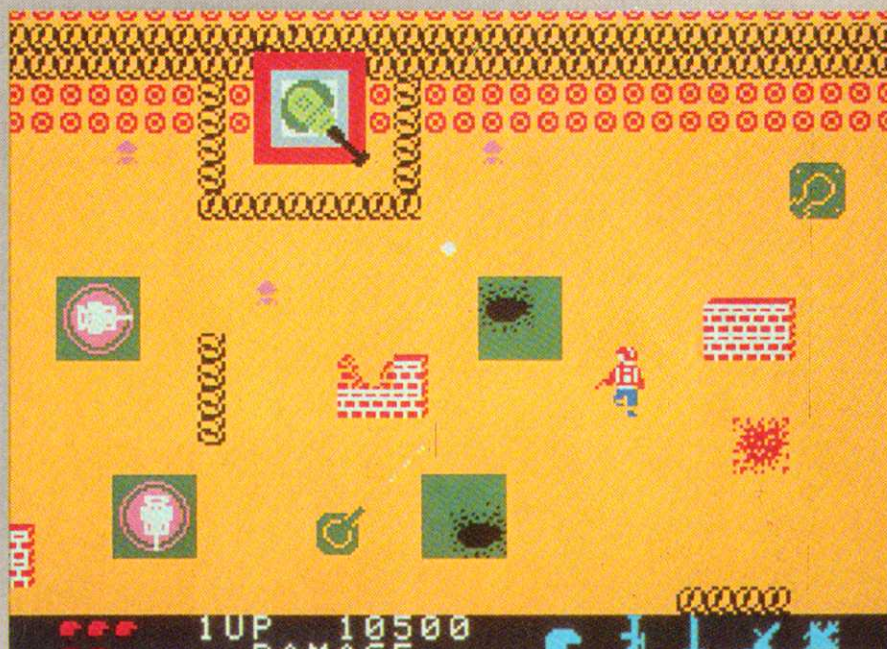


Lady Tut Progame/Ap II

I have nothing against maze games, but *Lady Tut*'s packaging tries to call the game anything and everything except what it actually is. Consider this little bit of wit that appears on the back of the game's package: "Unless goats have learned to fly and dogs to read, then pigs such as yourselves have not learned to think." Very poetic, but what's it got to do with the game? The instruction booklet takes four whole pages to tell you the legend surrounding King Tut's mom, Meritre Tutankhamen, and the next two to paint an urgent scenario about how Mossad, Interpol, and the CIA are all in a dither about Lady Tut's awakening. Finally, where you'd expect the directions to begin, the book abruptly ends.

However, if you're looking for a maze game that isn't cute, *Lady Tut* will fit the bill nicely. Ultimately, you hope to confront Lady Tut herself deep inside the pyramid. To reach her, though, you must first survive a series of mazes, each of which is teeming with snakes, spiders, and the like. For some odd reason "conventional weapons (won't work) within the magnetic maze of Lady Tut's sarcophagus", so this is basically a cover-your-behind type contest. If any strategy is needed aside from the obvious "run from the bad guys", it involves the judicious use of the many swinging trapdoors you'll find in each maze.

Some similarity with *Tutankham* may seem obvious at this point, but it ain't so. You won't find keys to locked doors until about the third maze, and until then your



only real job is to collect all the treasures you see in each maze. Once you've done that, the first maze winks off and you're standing at the entrance of another.

When you finally reach the third screen, you find not only keys and doors, but something more important: a defense. The combinations seem to be slightly different each time, but if you pick up the right key and the right treasure(s) and put the key in the right lock, you're rewarded with a gunlike object you can use to dust some of the ever-present monster managerie.

Without directions, I'm still not dead certain that *Lady Tut* is joystick compatible. Movement can be controlled by keys which are user selectable, and I found that more than acceptable most of the time.

Graphically, this game is a real gem. In some ways it reminds me of *Datamost's Aztec*, even though the perspective here is overhead whereas *Aztec* showed a side view. The animation is good, as is the detail of each and every game character.

Lady Tut has a lot going for it. It's very challenging and fun to play, for awhile anyway. I've had my fill of maze games, but some of you may not agree and will find this one at least as good as anything out there.

—Michael Blanchet

Front Line ■■ Coleco/CV, Ad

What was one of last year's surprise coin-op hits has been reduced to an inconsistent and frustrating test of even the stalwart gamer's temper. Ideally, a game should strike an even balance between challenge and reward. *Front Line* offers little of either.

Cast as an infantry man, your mission is to invade, on foot, a long, narrow, tree-covered strip of enemy soil. During this phase of the game, the battleground scrolls northward with each step you take. With all the ruthlessness of a pack of cub scouts on a camping trip, the enemy forces will confront you. They are easily ousted with either gunfire or grenades.

A large field lies at road's end and it is here that you'll face enemy tanks, both large and small. To boost your chances of survival, it's best to board one of the friendly blue tanks parked around the brush. If all goes well you'll ride northward through the brush and a rocky desert to your final destination—the enemy fortress. To win the battle you must score a direct hit on this emplacement with one of your grenades.

On paper this may sound challenging, even exciting, but for numerous reasons, *Front Line* falls flat on its face. Most



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glaring among the game's deficiencies is the sloppy manner in which it was programmed. For example, the effective range of a hand grenade is poorly defined. On numerous occasions I lobbed a charge right down an oncoming soldier's throat but upon detonation, it caused no harm. Other times, however, a poorly thrown grenade would devastate an entire platoon even though it landed a considerable distance from its intended target.

Graphically, *Front Line* has the look of a Punch and Judy puppet Show. The explosions sound like baby burps and ricocheting bullets give off a noise not unlike that of an exotic tropical bird pinning for a meal. Furthermore, screen space was poorly utilized. A large black strip occupies the upper third of the playfield which, contrary to Coleco's claim, is not "ever changing". A unique blend of repetition and sloppy programming combine to make *Front Line* one game to avoid.

—Michael Blanchet

The Tail of Beta Lyrae ■■■

Datamost/At

A tired game with an even wearier story behind it, *The Tail of Beta Lyrae* is yet another reworking of the classic *Defender* motif of ships vs. ships in aerial combat. *Beta Lyrae* also employs play elements first seen in *Scramble*, its successor *Super Cobra*, and the thematically related *Apocalypse*. The result is a game that strives to be different but in the end, fails to do so.

The instruction booklet is all of two



pages, but still contains more hot air than a politician. Of the one page containing text, three-fourths of the space is devoted to the storyline, the remainder to instructions. The facing page sports renderings of all "known" alien installations, complete with point values.

With all the loquacity of an army recruiter, the booklet explains the situation which, of course, is dire and growing more so with every passing moment. You, a Galactic Wing Commander assigned to the Beta quadrant, are part of a force committed to the destruction of the alien war machine that now occupies the mining colonies on Beta Lyrae. The colonists are being slaughtered on sight. All will be lost if you fail in your mission. The opposition boasts the usual machines of destruction: ground-based lasers, missiles, and what have you. If this game does enjoy one distinction, it would be the odd point values assigned to some of the targets. Vessels, for instance, score "697 to 700" points when hit, while a destroyed alien miner earns the player 111 points. Judging from this power generators are twice as important since they're worth 222 points.

The Tail of Beta Lyrae isn't bad as far as shoot-'em-ups go; you've got a ship, a conflict, ammo, and enemies. What it lacks is originality.

—Michael Blanchet

Attack of the Mutant Camels ■■■ *HES/V20*

Attack of the Mutant Camels. That name must rank pretty far up in the list of all-time most unusual names, right next to *Revenge of the Beefsteak Tomatoes*. But, *Tomatoes* was a bomb, regardless of its attention grabbing moniker. An omen? Perhaps.

When you first see *Camels*, it may look a bit familiar. The screen is covered by a bright red grid, just like another HES game—*Gridrunner*. You guessed it; *Camels* is the sequel. It's now a hundred years since the grid wars, and you (since you have "gridrunning experience") have been chosen for the new mission. Your job is to clear the grid of the awful droids, an ugly blue centipede-sort of thing, and the mutant camels, all the while avoiding actual physical contact with anything, including your own laser fire.

Along the bottom and left edges of the screen, are two cannons which shoot at you with uncanny precision throughout the game. You must avoid these, but they aren't your biggest worry. Worming its way down the screen towards your ship is a large blue creature; you can shoot out its component pieces until it is all gone, and then a new one appears at the

top of the screen. Sounds like *Centipede*? It is. A whole lot like *Centipede*, in a whole lot of ways. On the other hand, it's different in lots of ways too.

First of all, there's no mushroom forest, just the deadly maze created by flying camels, droids, and "centipede" pieces. You can travel anywhere on the screen, and can do so at unbelievable speeds. On the bad side, there is the grid. It serves no purpose except to remind us of *Gridrunner*, and actually impairs the player's ability to see what is going on. Also, the instructions are very sketchy, so you'll have to play many games before you finally get the hang of the game.

Nevertheless, *Camels* is a very enjoyable game. The graphics are notably better than those of most VIC games, and the action is fast. What it lacks in originality, it makes up in fun. The title is misleading—the camels are minor characters at best.

—Charles Ardai

Moon Shuttle ■■

Datasoft/Atari
400/800/1200XL

This game has no moon and not much shuttling and I'm not sure why Datasoft released it at all. A nostalgic trip through the ancient times of invader games with a laterally moving blaster, *Moon Shuttle* has done very little to

improve upon the concepts of such games as *Demon Attack* or *Megamania*.

Each round of the contest begins with a cruise through an asteroid belt and this is the only portion of the game where the spaceship at the player's command has vertical motion. The idea is to shoot your way through large and small space rocks and reach the top of the screen. With each successive board, the rows of asteroids become a little more difficult to clear.

Alternating with the asteroid scenes are four invader boards starring Bomb Launchers (they are like mutant roller skates), the dreaded Expandos (hybrid bicycle pumps/hypodermic syringes), Man-O-Wars (just like in the oceans back on earth) and last, and maybe least, the ever-popular Blob Men (refugee sunny day symbols from the *Farmer's Almanac*). Each of these guys drift on-screen in random patterns and except for the Expandos, you generally will see no more than two oversized targets at a time. Some of the cast enjoy lobbing laser shots at your vessel while others are content to merely sink toward you with all the enthusiasm of underpaid hired hands. In a final stroke of genius, the Blob Men actually split in two when struck! That's the kind of creative thinking that makes *Moon Shuttle* the game it is.

Each invader sequence is timed and



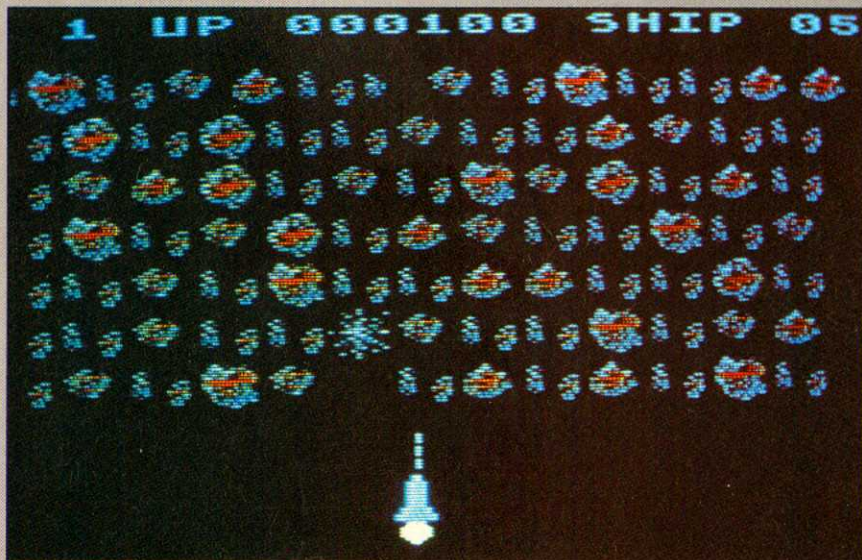
the player does not have to shoot all the aliens to clear a board before going on to the next one. You can dodge side to side not firing a shot (except in the asteroid screen) and play this game for longer than you might care to.

—Craig Holyoak

Death Trap ■■ Avalon Hill/VCS

Death Trap is an outer space shooting game in which you destroy a number of power generators. Why you must destroy them and what they are generating power for is not specified, and while it wouldn't have done anything for the gameplay, I always like to know just what I am shooting at. The screen is graphically sparse, the lower third devoted entirely to your score and space in which to move your saucer-shaped spaceship. The top of the screen holds some meaningless, dull background, and a gauge showing how much of the generators have been destroyed. Separating the area in which you maneuver from the two generators (black pipes with swirling white lines), are three glowing horizontal lines. If you come into contact with the lowest of the three, you are vaporized, ending the game prematurely, regardless of the number of ships you have left (you start with six). An identical glowing line sits at the bottom of the screen, and the two together make moving around the screen impossibly frustrating. For me, anyway, because every time I've played, I've lost because I flew too close to a wall.

Your ship moves quickly enough, but your shots don't and since you can only have one on the screen at a time, most of the game is spent waiting for your last shot to reach the top of the screen. Add to this white energy blobs that home in



HITS AND MISSILES

on your ship and the fact that the walls are slowly moving closer together, and you'll see why this game was called *Death Trap*.

The worst thing about this game is that there is no feeling of accomplishment. Your score is always increasing, and since you get points for just sitting around, you can get up to six free ships for doing nothing. The consequence of this is that I could get over 40,000 points just for avoiding energy blobs, but my most grueling effort to win netted me a paltry 13,600. In addition, after destroying both generators which took at least a half-hour of eye-searing gaming, one would expect a fanfare, a chance to rest or even a little tune to show that you achieved something. Instead, you are rewarded with another generator which pops up in the middle of the screen. According to the packaging, at one point you get a "winner's medal." I've seen it and it *still* isn't worth playing this game.

—Charles Arda

***Stargate* ■■■■** **Atari/VCS**

If a sequel is an admission that you have been reduced to imitating yourself, has Atari, by releasing *Stargate* for the VCS, played out all their cards? Are they finished? Washed up? Not in this

reviewer's opinion.

This translation is unusual in that it actually looks and plays like the coin-op it's named after. This is not a cash-in product—this is *Stargate*. Of course, some concessions are to be expected, but a good bit of what made the coin-op has found its way into this cartridge.

Despite my reservations about games like this—blast 'em till you die—*Stargate* should come as a breath of fresh laser smoke to the jaded legions of VCS owners. While the game doesn't break any new ground thematically, it does require above average dexterity and a considerable amount of strategy and planning—two elements absent from most VCS games.

As the pilot of the ship "Defender" your job is to protect the ten ground-based humanoids from alien attack. In addition to the standard equipment blaster, you can use invisio and smart bombs against your attackers. When invisio is activated, your ship, though invisible, can still fire and destroy, on contact, any alien it encounters. Smart bombs would do better to be called non-selective; when detonated, they destroy everything on the screen.

Had all these functions been controlled by a single joystick, *Stargate* might have been as easy and as fun as threading a needle while wearing a



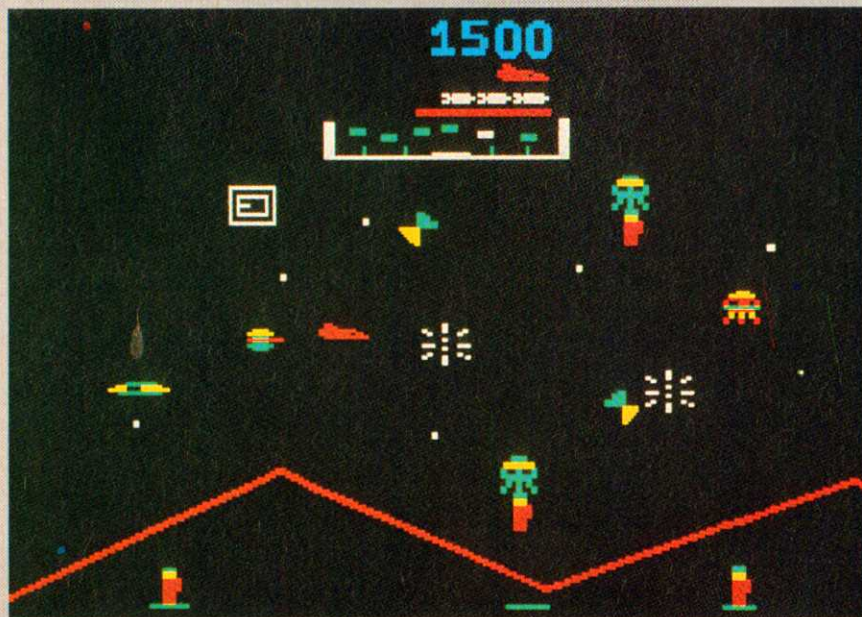
catcher's mitt. Thoughtfully, these duties are divided between two controllers; the left joystick controls flight and firing while the right one activates invisio, smart bombs, and hyperspace. By toggling the right difficulty switch on the VCS console, you can choose to forfeit control of these special functions. That is, they will be automatically and sequentially activated until all are used up. In the reverse mode, you must follow this procedure: move the joystick until the cursor is aligned with the desired function. Once it has been selected, a tap of the fire button will activate it.

Visually, *Stargate* is plain; the explosions and effects that made the coin-op version a feast are absent here. But even without these embellishments, the game succeeds.

—Michael Blanchet

***Defender* ■■** **Atarisoft/At II**

Just as in the coin-op original, in this version of *Defender* you must protect a colony of humanoids from waves of aliens which are looking for new real estate. Equipped with three smart bombs, which eliminate all of the aliens on any one screen, and unlimited firepower, your ship ("The Discovery") can accomplish this mission. On wave one, landers appear. They fire at The Discovery while picking up humanoids along the way. When the landers bring men to the top of the monitor, the two will merge to become a mutant. The mutant will try to home in on your ship unless you destroy it first. If all of the humanoids are either destroyed or turned into mutants, the planet will explode and you will be required to take on scores of the latter. A new planet



appears with ten more humanoids every fifth board. If you take too long to wipe out a wave, baiters—which are faster than you—will materialize and also try to home in on your ship. Once all of the aliens are wiped out on a wave, you will be awarded points for each surviving humanoid on the planet.

On wave two (and each subsequent wave), three new aliens appear. Bombers leave X-shaped mines on a screen which cannot be shot away. Swarmers look like tiny flying saucers which track your ship down like bloodhounds, and also have firepower which makes them formidable enemies. Pods are the most dangerous because, when shot, they explode into several swarmers. For every 10,000 points you accumulate, you are awarded a free ship and smart bomb.

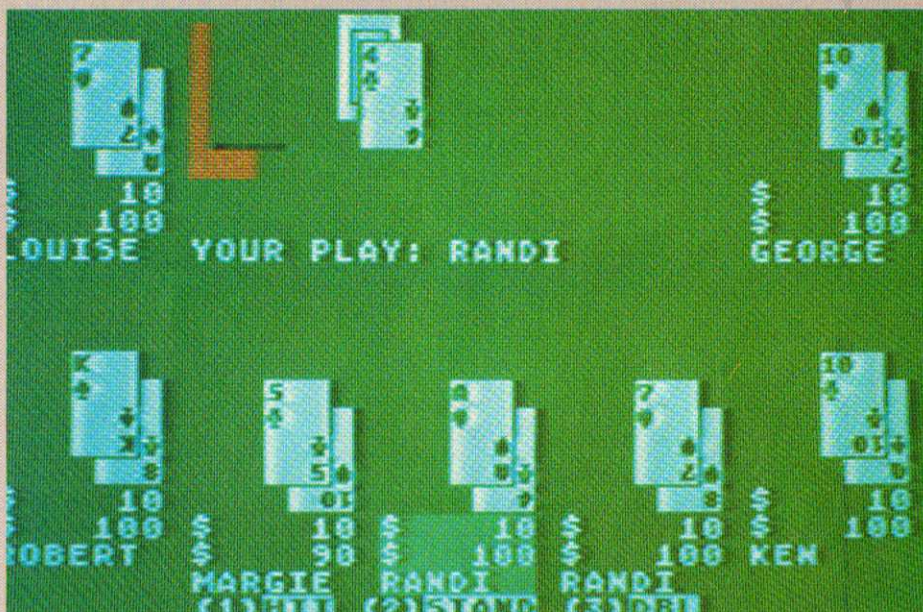
Defender looks like a game that was made by a designer that didn't really care what the final product looked like. The graphics are nothing less than poor and the gameplay leaves much to be desired. If Atari is going to compete in the Apple software market, it is going to have to make better quality material than this.

—Mike Sheinbaum

FAX ■■■

Epyx/At

Fax, which was a reasonably if not overwhelmingly popular arcade game, seems to have lost something in the translation to the home computer



version. *Fax* is a question and answer game in which you try to distinguish yourself intellectually over a human opponent or against the clock. In either case the score you receive is determined by how quickly you manage to do this. It is about as much fun as—and rather similar to—a multiple-choice sociology exam.

The questions are arranged in four categories: entertainment, history, sports and grab bag—all self-explanatory except perhaps the last. Grab bag includes humor/trivia, according to the package. You can always tell the humor questions: you're only given one answer so you won't miss the point. (And what if it's the wrong answer?) Some of the questions appear on more than one level, making the distinction between expert and genius just a little blurred. Go for the genius level right away—it won't overtax you. But don't trust their spelling of George Eliot, whatever you do.

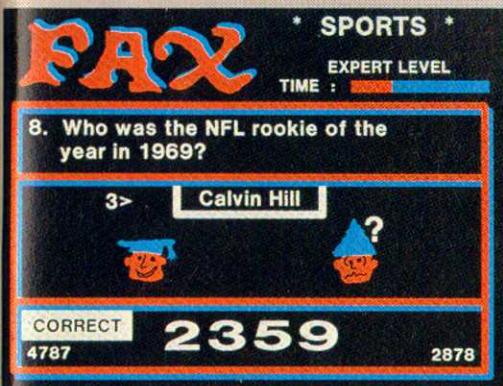
After every question an annoying little face in either a tottering mortarboard (for a correct answer) or a dunce cap (for an incorrect one) sidles across the screen. Epyx calls this a learning game and some of the answers are certainly informative. For example, the great hole in your knowledge as pertains to just how large the largest normal human baby was at birth will be filled. The best use for *Fax* is as practice for a cutthroat game of *Trivial Pursuit*.

—Louise Kohl

Ken Uston's Professional Blackjack ■■■■ Screenplay/At

Blackjack is the only casino game in which it's possible to achieve an advantage over the house. The only way to do this, though, is to count cards—that is, keep track of how many high cards and low cards remain in the deck. Former professional blackjack player Ken Uston wrote a book detailing his million dollar card-counting system, and now there's a computer program that in essence goes along with the book. The documentation is so good, however, that you don't need the book to understand Uston's system completely.

In actual casino play different locales use different rules and different numbers of decks in the never-ending effort to foil the counters. All this is reproduced in the *Screenplay* program. You are given the option to play at Las Vegas or Atlantic City. You are even given the choice of hotel you want to play at—The Las Vegas Hilton's game is different from the one at the Sands, for example. The computer will also keep track of the count if you want it to, just so you can check your own accuracy. The program also supplies a drill—if you want to be an accomplished counter you have to be able to count down a deck in



HITS AND MISSILES

about 25 seconds.

Best of all, this is painless gambling, but if you enjoy the real thing, Ken Uston's *Professional Blackjack* is a great way to hone your skills before hitting the casinos.

—George Kopp

Gumball ■■■■ *Broderbund/Ap, At*

It's not the policy of ComputerFun to review business software, but faced with something as valuable as *Gumball* we had to make an exception. To call *Gumball* a game is misleading. It's a decision-making laboratory, a microcosmic simulation of real-life mini-crises, calling for global strategic thinking and a clear grasp of megatrends in the absolute.

Gumball puts you in the role of a sorter in a gumball factory. You must make sure that green gumballs end up in the green bin and blue gumballs end up in the blue bin. You have a quota of gumballs and a time limit. The gumballs roll down from the top of the screen and pass through a dizzying assortment of

chutes and conveyors. You control a series of trip-gates which regulate the gumball directional flow, and you can also move the bins to align with various gumball spigots.

You are not penalized for letting the occasional gumball fall through the cracks, but don't let a green gumball fall into the blue bin, or vice versa. If you do, the boss comes out, shakes his fist, and in a wild rage dumps your entire bin of gumballs onto the floor. *Gumball* is a highly imaginative game and a difficult and challenging one at that. To meet your quota on the higher levels before the time runs out you've got to increase your production speed to levels which the Amalgamated Brotherhood of Gumball Sorters have deemed dangerous, frivolous and wanton. No time and a half, either.

—George Kopp

Lazer Zone ■■■■ *HES/V20*

VIC-20 owners have been disappointed time and again by games that move at a snail's pace, so it's good news

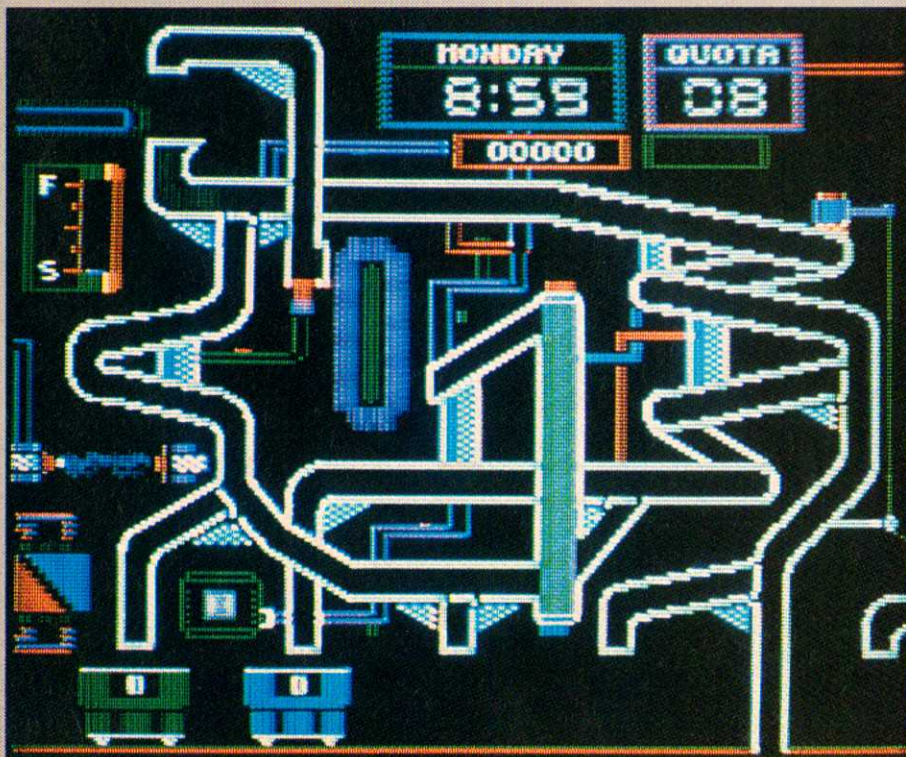


that there are some new VIC games which move in the style to which we have become accustomed. *Lazer Zone* is one of those games, and even though it has its drawbacks HES should still be commended for its effort.

The object is rather simple—a number of evil aliens are invading your space fortress and you must shoot them out of the sky. How you must shoot them out of the sky is unusual. You control two laser cannons, one which moves horizontally along the bottom of the screen, and one which moves vertically on the far right side of the screen. If you move the joystick up or down, the cannon on the right changes position. If you push the stick right or left, it is the bottom cannon that moves. Thus, you must orient your shooting on two planes, which, while very complicated, gives a new slant to an otherwise rather ordinary game.

My gripe with *Lazer Zone* is not with the gameplay, or even the graphics (it takes a lot of poetic license to call two bloated white triangles laser cannons) but with the aliens. Regardless of speed, we are used to being faced with squadrons of Galaxians and the multi-faceted danger of *Defender*, so two aliens at a time on a sparse screen may not be terribly alluring. Even in later rounds, the action gets only infinitesimally faster, and after a while, the biggest challenge becomes seeing how many rounds you will play out, before ending the game out of sheer boredom.

—Charles Arba



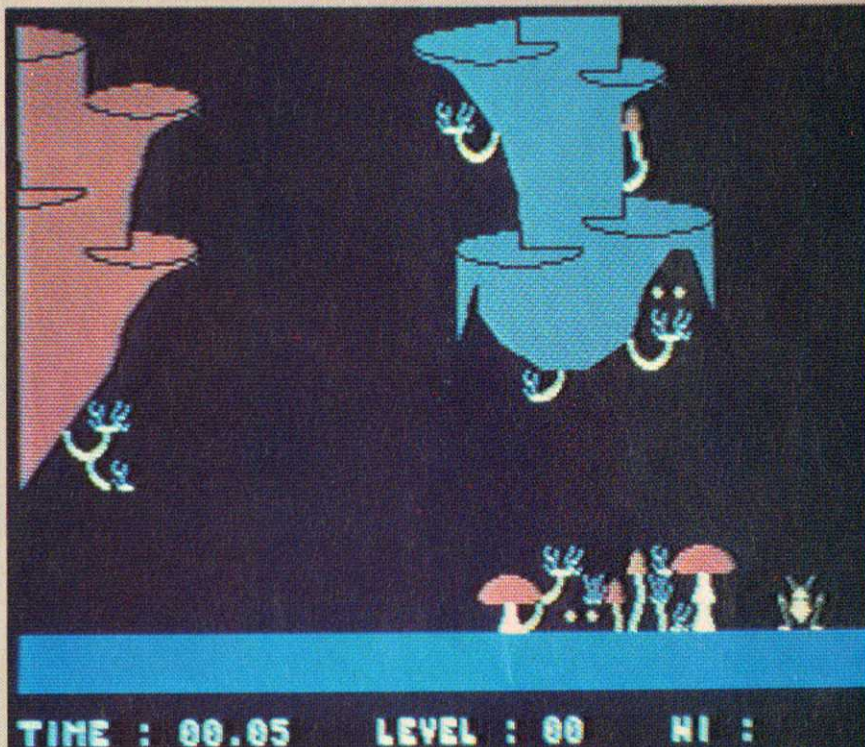
Tournament Golf ■■

Avalon Hill/Ap

Any sport can seem enormously silly to someone who doesn't play it, but for some reason golf seems even sillier to even more people than most. But even from its beginnings on the cold, damp tide plains of Scotland golfers have made one aspect of the sport paramount, and it's taken other athletes over 200 years to catch up in their own fields. That aspect is technology.

Nowadays a sport as simple as running depends on specially designed shoes, computer analysis and enough theories of nutrition to launch the careers of crackpots yet unborn. The game of golf, however, was designed to be a preserve of any number of specialists, which is probably why it's the Official Wednesday Afternoon Pastime of the American Medical Association. Various grips, balls, clubs (both shafts and heads), gloves and polo shirt emblems all play a subtle role in the ultimate outcome of the game. The vocabulary (par, birdie, niblick, putt) is arcane enough to satisfy the most uncommunicative neuroendocrinologist.

While *Tournament Golf* does its best to recapture the technical subtleties of golf, even the computer is no match for the laws of physics, the ultimate judge, jury and executioner of the real game. You can choose your club, tinker with

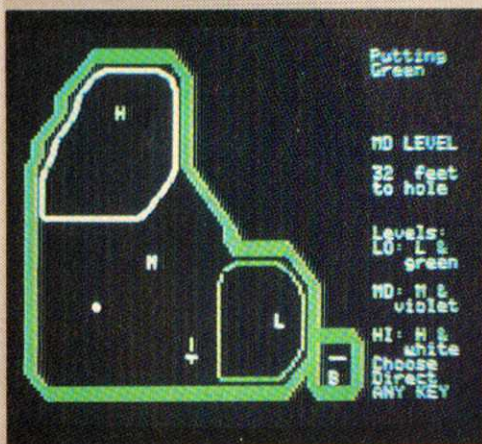


your backstroke, adjust your wrists and elbows, plant your feet, scratch your nose and do all the other things the pros do on the links, but when it comes right down to it, you press a button and the computerized ball ends up somewhere on the computerized fairway. In fact, the less you tinker, the more consistent your game. The program is also difficult to operate and the instructions are far from clear. *Tournament Golf* displays most of the faults of some of the more complicated Avalon Hill board games—too many rules, too slow play and an ocean of detail that ends up drowning the player. —George Kopp

outcroppings of rock. The landscape scrolls all over the place, and provides really your only motivation to improve your skill. The better you get, the more you see.

Unfortunately, the game is as mindless as the graphics are great. The object is to move a flea from the bottom of this forest primeval to the top. The flea takes amazing leaps through space, sometimes landing on a piece of local fauna and sometimes missing and falling back to the bottom. Its enemies include a Venus fly-trap and a pterodactyl. The plant is stationary and easy to avoid, but the flying reptile comes and goes at random and will get you just about every time.

The non-start action is guaranteed to keep you well back in your seat, and whatever tension existed at the start of the game is disassembled piece by piece until that final earthshattering yawn. Still, the graphics go a long way to make up for the rest of the game, and we will be interested to see what Quicksilva's artists come up with next. —George Kopp



Bugaboo ■■

Quicksilva/C64

In an otherwise lackluster game, Quicksilva, a firm from England, has managed the best graphics we've seen yet for the Commodore 64 or any other computer. They've created a world straight out of Dr. Seuss, with tufts of plant life suspended from outrageous

HOTWARE

By George Kopp

AtariLab Science Series Atari/At

guides the young Newton through a series of experiments which demonstrates the laws of thermodynamics and temperature-related phenomena. All this is done through the AtariLab in-

valuable questions, not only about the nature of the physical world around us—the prime purpose of the series—but also about the computer itself.

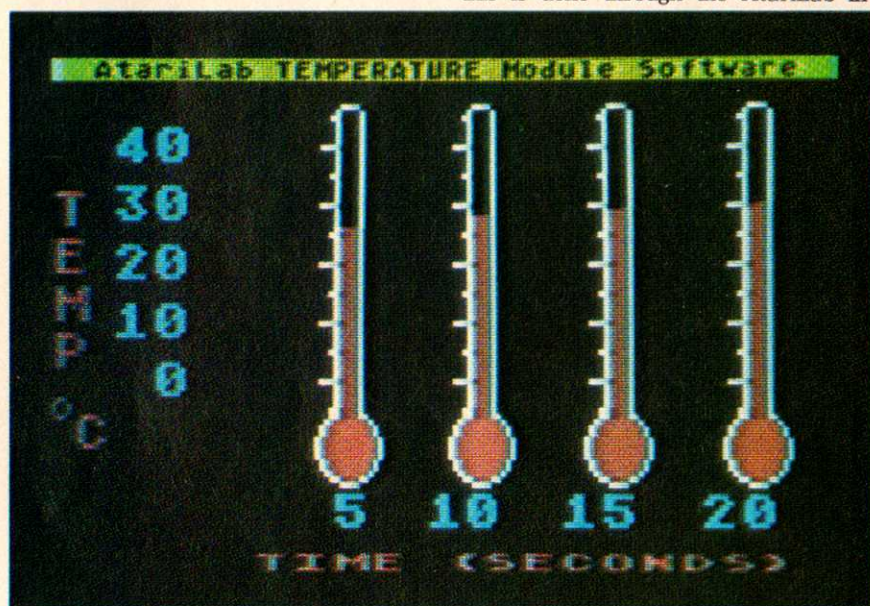
The experiments suggested in the starter set manual are all simple and use items found around the house—ice cubes, salt, vinegar and baking soda. In addition, there are suggested experiments for monitoring weather changes, conducted by placing the temperature module out the window. The phenomena addressed are such everyday occurrences as a fogged up bathroom mirror, condensation on the outside of a cold drink or the appearance of morning mist.

Kitchen chemistry

The manual is clear and includes a section explaining how to program the computer so the user can design his own experiments, using either BASIC or LOGO. This greatly increases the versatility and value of the entire series.

There are drawbacks, however, not the least of which being that the subject matter of the starter set is not among the most fascinating aspects of science. For a young scientist, few things are more amazing than to precipitate crystals out of a couple of clear liquids, only one of the many magical feats that could be accomplished with an old Gilbert chemistry set. While it may be more important in the long run to understand why a bathroom mirror fogs up, I must confess that the question so little interested me that I doggedly resisted learning the answer until somewhere in my late twenties.

The other trouble is that so much emphasis is placed on the proper method of recording scientific data, while explanations of the principles involved, though present, are given short shrift. Too much attention to the drudgery of scientific research at an early age might do more to discourage further interest in the field. Still, the AtariLab series is an innovative approach, and one of the best ideas in educational computing we've seen. □



Although the fact that he or she can recite the entire TV schedule for a month, or identify the make and model of every car on the road may be meaningful to a young person, these talents tend to leave adults cold. This helps explain why science has always held a fascination for kids—they can learn all the dinosaurs or all the trees of the mid-Atlantic states as easily as the singing commercials, and instead of getting a "shaddup" they get called "gifted". In fact, this is probably why kids have taken to computers with such a vengeance. They can show up their elders without getting smacked.

Running a temperature

The AtariLab Science Series is unlike other educational programs we've seen in that it actually turns the computer into a scientific measuring device. In the Starter Set, which we reviewed, the computer becomes an electronic thermometer and the instruction booklet

interface device which plugs into a joystick port. Whichever relevant module comes with the set, is then plugged into the interface. In the case of the starter set it's the temperature module ("thermometer" to the layman). Other kits in the series will deal with light, heart rate, and more.

Although I have some quibbles with the way the some of the material is presented in the first installment, the basic concept is exciting, largely due to its simplicity. The same circuitry which recognizes input from a joystick or paddle controller is perfectly suited to recognize input from other sorts of devices as well, in this case scientific instruments.

We are told in the documentation (prepared by Dickinson College) that the light sensor, for example, in conjunction with the computer, will be able to measure bursts of light that the human eye is unable even to perceive. This extension of the computer raises

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LETTERS

Continued from page 6

I Beg to Differ

In the February 1984 issue Michael Blanchet made a couple of incorrect statements about Coleco's *Sub Roc*. He says that there is no way to avoid torpedoes, but all you have to do is pull up into the air and they won't hit you. I've done it many times. Also he didn't notice that the mystery prizes change. I think Mr. Gilder was a little picky in reviewing the Adam because I think that overall the Adam is better than the Apple, which he says he has. He complained that the cassettes don't work on a standard recorder; how could they when the tape drive is almost as fast as a disk drive and one pack holds 500K? It would take a standard tape hours to load in an Adam Super game, but with the tape drive it takes about three minutes. He also said that there will be no extra data packs available until later in 1984, but who needs more than one when it holds 250 pages of text? Only a business would need more memory and, as you know, the Adam is not targeted for business use.

Jim Watkins
Foxborough, MA

Get Back

I am a new subscriber and I often see references to articles and reviews in back issues. How can I order back issues from you?

Heath Mitchell
Chesterfield, VA

You can order back issues by sending your name, address and a list of the issues you want to Back Issues, CF, 350 East 81st St., New York, NY 10028. Each copy is \$3.00. You can get back issues of ComputerFun or Electronic Fun.

Suggestion Box

I have a suggestion for your Hits & Missiles section: Now that several software companies make their products in multiple formats, I think it would be a real convenience to your readers if you did a sort of combination review. For example, if you were reviewing *Q*Bert*, you could show pictures of the game screens for each system it's made for. Then you could write two paragraph reviews for each one. This way readers would be able to see and read about all versions of a game and compare them.

Munir Shaikh
Palos Verdes, CA

Thanks for the input, Munir. Unfortunately, we don't always receive all versions of a game at the same time which makes doing several formats in

one review difficult. However, we have adapted your suggestion. Instead of simply listing the format we have reviewed, we have also begun to list every system that particular piece of software is available for.

Trader VIC

I own a VIC-20 and I've seen letters from people requesting information about this machine. I would like to write to these people and possibly trade games with them. My address is 1014 Grey Fawn Drive, Omaha, NB 68154. Thank you for helping out.

Tom Ohlinger
Omaha, NB

Big Blue Games

Your magazine is just superb and has kept me informed since the first issue, when it was *Electronic Fun*. I find the coverage complete and the news early. However, I would like to see more coverage on the games for the IBM PC. I know that most of the games are also available for Apple of Atari, but let's see coverage of the IBM.

Luan Nguyen
Annandale, VA

Grateful Reader

I'm writing to say thank you for printing my Readers' Tip. I was nearly ecstatic when I opened up your magazine and saw my name. I was thrilled that you chose my tip out of the many you must receive.

Michael Bowling
Lumberton, MS

You're welcome, Mike. That's what we're here for. And let me take this space to throw in a little plug for Prompts, the new department that's going to be replacing Readers' Tips in future issues. Prompts was designed to give all you unsung programming geniuses out there a chance to show off your knowledge. Send us any imaginative memory saving routines, creative programming hints and so forth and we'll print them.

More 64

In your February issue, you asked readers which computers we'd like to see included on a regular basis. My suggestion is the Commodore 64. I have only seen one First Screening program for the C-64, and a lot of people have them. So let's see more on the C-64 in future issues!

Mike Wolf
St. Louis, MO

We try to vary the programs in First Screening to cover as many computer systems as possible, depending on the programs that we receive from readers. However, *Hacker's Helper* always includes the Commodore 64 and the VIC.

GAMEMAKER

Continued from page 48

color monitor, a green screen and a Ramdisk, which I think is the most helpful thing in the world because it runs 50 times faster than a disk drive. And I have an FX-80 printer with a printer buffer. Everything is pretty much streamlined for getting my programs written.

CF: Some people worry about obsolescence of home computers, but you're making good money with a six-year-old Apple.

RC: Well, it's difficult to make an Apple obsolete because it has all those ports on the back that let you add anything you want.

CF: When you playtest a game do you have to have something up on the screen and working?

RC: Yes. You have a basic idea of what will be fun and what won't be. For a while *Gumball* didn't really have enough to it. That was before I came up with the level routines and the bombs on the upper levels. Before that, it wasn't particularly fun to play.

CF: What's going to happen when the standard machines have 128K or more? Will the programmer's job become impossible?

RC: Yes. It seems as though the computer games will no longer be done by individuals. You may have an individual programmer who can coordinate the whole thing with a bunch of "underling" programmers, whose role is something like that of the producer or director of a film.

CF: So the days of the overnight "garage" success story, like yours, are coming to an end?

RCL: They are closing rapidly. That is why I am staying out of college. If you make a name for yourself right now, you may become one of the producer/director types. It seems that not only will computers have more memory soon, but they'll get faster and have much higher resolution graphics, approaching the density of film. But before that happens, there will be videodisc interfaces.

CF: Does that excite you?

RC: Yes and no. It doesn't excite me too much because the games now don't feature much interaction. In *Dragon's Lair*, for example, you interact maybe every few seconds; whereas on a standard video game, you're interacting several times per second. Or you have that ability to interact several times per second.

CF: But that will change.

RC: Yes, eventually, the computer itself will generate the images and bypass the videodisc altogether. □

HACKER'S HELPER

By Robert Alonso

The bombs bursting in air...

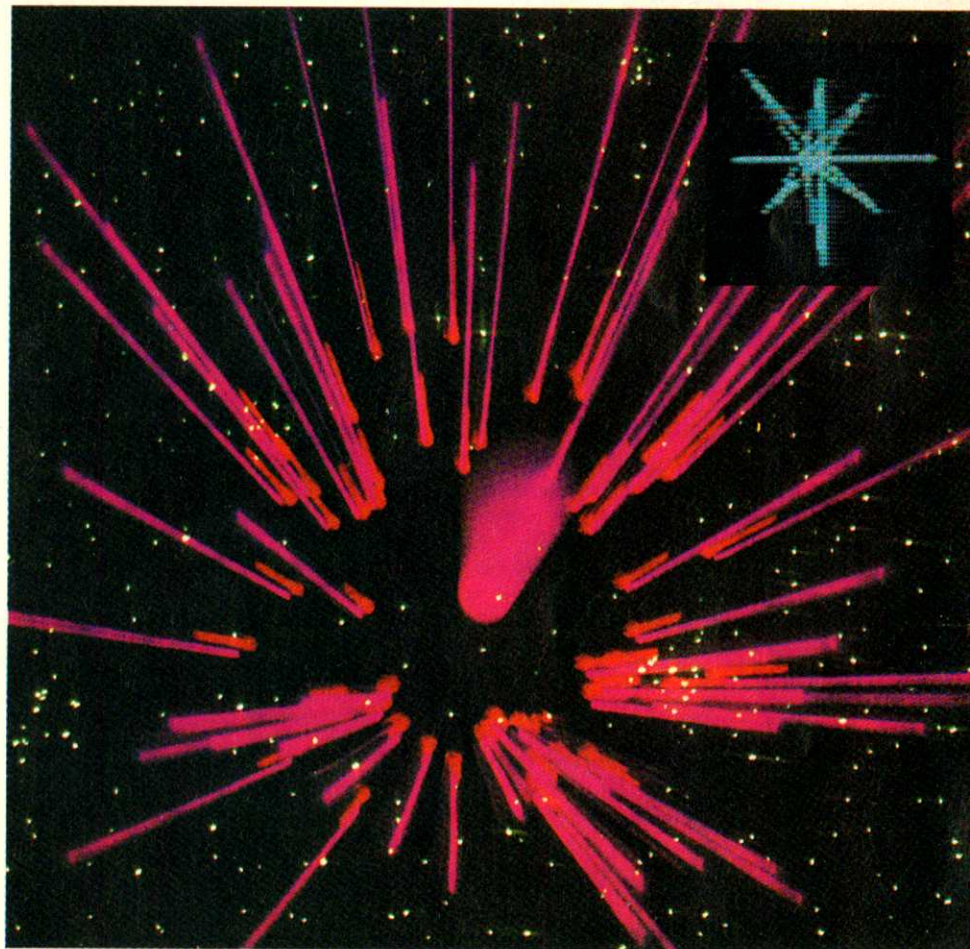
This month Hacker's Helper explodes with more computer fun than ever before. Instead of just covering the Commodore and Atari home computers, I'll be including programs for the six most popular home computers. Apple, Adam and PCjr owners can now look forward to monthly routines that will squeeze an ever-increasing amount of fun from these machines.

The routine I've included this month is an explosion routine that sizzles the pixels on your monitor. Each of the versions will design an explosion in the center of your TV or monitor screen. By changing a variable, though, you will be able to place the explosion anywhere on the screen. For example, if you have a menacing invader that you have just destroyed in the right edge of the screen you can have the explosion graphic appear where the invading alien is.

Row and continuous

The variable I have used for the placement of the explosion graphics changes from system to system because some systems have a row-column graphic screen while others, like the Commodores, have a continuous screen. A row-column screen is one which is divided into X and Y values that usually begin on the upper left hand corner with the values (0,0). The Commodore machines have the continuous screen which begins at a certain memory location and ends at another location.

For example, on the Commodore 64, the screen begins at memory location 1024 and ends at memory location 2023. If you wanted to place a character in the twelfth row and tenth column you would POKE that character into memory location 1474. The reason for this is that you add one to 1024 for each character to the right and you add 40 for each line down that you want to place the character. The formula for this would



then be $1024 + ((\text{ROW}-1) * 40) + \text{COLUMN}$. To make things very simple, all you will have to do is change the value of the variable L in the Commodore programs. Assign the screen location where you would want the explosion to appear to the variable L and the routine takes care of the rest. On the other versions, you will only have to change the X and Y values.

The Apple and Adam explosion routines are remarkably similar. I have entered the high resolution mode in each of these by using the command HGR and modified the value of X and Y so that the explosion appears in the center of each machine's screen. The center of the screen is different on the Adam because it has a smaller screen than the Apple. The difference in size makes it impossible to type in an unmodified Apple

program and expect it to work.

The PCjr version draws the explosion graphic by plotting lines from a vertex defined by X and Y. The command that I use for this is the LINE command. This command is one of the new commands that have been added to Microsoft BASIC. It, along with PSET, makes BASIC a much more powerful programming language. PSET allows you to turn on any point on the PCjr's screen. To do the same on the C-64 would require many POKES and at least one formula to compute the location of the pixel you wanted to turn on.

Next month, I'll show you how to do a firing routine for your computer. Last month's explosion sound routine with this month's graphics and next month's firing routine should be very useful to all the shoot-'em-up game designers.

HACKER'S HELPER

ATARI

```
10 REM BY ROBERT ALON
50 -ATARI
20 GRAPHICS 7+16:POKE
752,1
30 X=80:Y=48
40 FOR Z=1TO8
50 READ A,B:PLOT X,Y
60 DRAWTO X+A,Y+B
65 PLOT X-4,Y
70 DRAWTO X+A,Y+B
80 NEXT Z
85 GOTO 85
90 DATA 12,0,-14,0,0,
-15,0,12
99 DATA 7,7,-7,-7,-7,
7,7,-7
```

PCjr

```
10 REM BY ROBERT ALON
50 -PCjr
20 SCREEN 1:KEY
OFF:CLS:X=160:Y=100
30 FOR L=1 TO 8:READ
A,B
40 LINE (X,Y)-(X+A,Y+
B)
50 LINE (X-4,Y)-(X+A,
Y+B):NEXT L
900 DATA 0,15,10,12,1
2,-10,0,-20
905 DATA 25,0,-13,-10
,-20,0,-17,17
```

ADAM

```
10 REM BY ROBERT ALON
50 -ADAM
20 HGR: x = 125: y =
90
30 FOR z = 1 TO 8
40 READ a, b
45 HCOLOR = 2
50 H PLOT x, y TO x+a,
```

```
y+b
55 HCOLOR = 7
60 H PLOT x-4, y TO x+
a, y+b
70 NEXT z
80 DATA 12,0,-14,0,0
,-15,0,12
90 DATA 7,7,-7,-7,-7
,7,7,-7
```

APPLE

```
10 REM BY ROBERT ALON
50 -APPLE
20 HGR: X = 140: Y =
80
30 FOR Z = 1 TO 8
40 READ A, B
45 HCOLOR = 2
50 H PLOT X, Y TO X+A,
Y+B
55 HCOLOR = 7
60 H PLOT X-4, Y TO X+
A, Y+B
70 NEXT Z
80 DATA 12,0,-14,0,0
,-15,0,12
90 DATA 7,7,-7,-7,-7
,7,7,-7
```

VIC-20

```
10 REM BY ROBERT ALON
50 -VIC-20
15 L=7890:CC=30720:PO
KE36869,255:POKE36879
,8:PRINT CHR$(147):IF
PEEK(7168)=0THEN30
20 FORX=7168TO7639:PO
KEX,PEEK(X+25600):NEX
T
25 FORX=7168TO7248:PO
KEX,0:NEXT
30 POKEL-23,1:POKEL-2
3+CC,2:POKEL-22,2:POK
EL-22+CC,2:POKEL-21,3
```

```
:POKEL-21+CC,2
40 POKEL-1,4:POKEL-1+
CC,2:POKEL,5:POKEL+CC
,2:POKEL+1,6:POKEL+1+
CC,2
50 POKEL+21,7:POKEL+2
1+CC,2:POKEL+22,8:POK
EL+22+CC,2:POKEL+23,9
:POKEL+23+CC,2
60 FORX1=1TO74:READ
A,B:A=A+7168:POKEA,B:
NEXTX1:RESTORE
70 FORX=7168TO7248:PO
KEX,0:NEXT
880 DATA44,16,43,24,4
5,52,44,56,42,52,46,8
2,44,124,41,82,47,145
,44,255,40,145,56,1
885 DATA64,16,72,128,
15,1,36,1,52,128,23,1
6,31,128,57,2,65,16,3
6,3,52,192,73,64
890 DATA14,2,22,16,30
,64,36,7,52,224,58,4)
66,16,74,32,13,4,36,1
5,21,16,29,32
895 DATA59,8,67,16,36
,31,52,248,75,16,12,8
,20,16,28,16,36,63,52
,252,60,16,68,16
900 DATA76,8,11,16,36
,127,52,252,19,16,27,
8,61,32,36,255,52,255
,69,16,77,4,10,32
905 DATA18,16,26,4,62
,64,70,16,78,2,9,64,1
7,16,25,2,63,128,71,1
6,79,1,8,128,16,16,24
,1
```

C-64

```
10 REM BY ROBERT ALON
50 -C-64
```

Continued on page 84

FIRST SCREENING

Looper For the VIC-20

You control your plane with the joystick. Press forward to dive, pull back to climb and press fire to shoot. There is

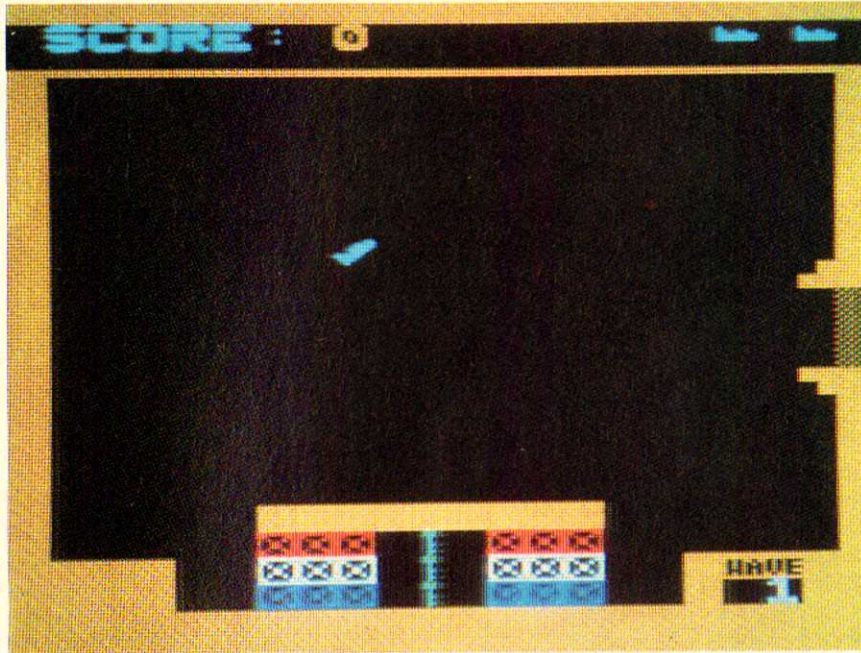
also a pause feature activated by pressing F1. Pressing F3 starts the game again. The high score will be displayed at the end of each game. To restart, press any key.

Special care must be taken when typing in the second program especially on line number 9 and 97. These two lines must be typed in using their BASIC abbreviations. All other lines must also be typed exactly as they appear in the program.

Looper blooper

My advice is for you to type in the first program, check for errors then SAVE and VERIFY it. If everything is satisfactory, type NEW and then enter the second part under the name of "LOOPER PART 2." After you SAVE and VERIFY that, then go back and LOAD and RUN the first program.

It will require some practice to be able to manipulate the plane skillfully. Although the game may seem tough at first, once you get the hang of it, you can attain very high scores. My highest yet is 1,041,600!



Looper was written by David Thacker of Alberta, Canada. It works on an unexpanded VIC-20 and can be typed in using either a cassette or disk. No modifications are necessary. David tells us that there are actually two programs: the first one loads the custom character set into memory, displays the game instructions and automatically loads the second program—the game itself—into memory.

The object of *Looper* is to fly your fighter plane down to the building, shoot out the colored walls, pick up three keys and then fly through the gate. In order to shoot out the walls, you must constantly loop your airplane so that it comes in at the proper angle to the building. Points are awarded for shooting out walls and picking up keys. You will receive 5,000 bonus points times the wave number you're on for flying into the gate.



LOOPER

```
1 PRINT"XXXXXXXXXXXXXXXXXXXXLOOPER"
2 PRINT"XXXXXXXXBY DAVID THACKER"
5 POKE52,28:POKE56,28:CLR
10 READX:IFX<0THEN300
15 FORI=XTOX+7:READJ:POKEI,J:NEXT
20 GOTO10
25 DATA7176,0,0,128,204,255,255,0,0
30 DATA7184,0,3,15,30,28,248,112,32
35 DATA7192,12,12,28,28,12,12,28,60
40 DATA7200,96,112,56,60,30,7,6,4
45 DATA7208,0,0,255,255,51,1,0,0
50 DATA7216,4,14,31,56,120,240,192,0
55 DATA7224,60,56,48,48,56,56,48,48
60 DATA7232,32,96,224,120,60,28,14,6
65 DATA7240,0,0,0,24,24,0,0,0
70 DATA7248,60,126,126,126,126,36,24,24
75 DATA7256,255,255,255,255,15,15,15,15
80 DATA7264,255,255,255,255,255,255,255,255
85 DATA7272,15,15,15,15,255,255,255,255
90 DATA7280,0,0,0,0,0,0,255,255
95 DATA7288,255,195,165,153,153,165,195,255
100 DATA7296,170,85,170,85,170,85,170,85
105 DATA7312,56,56,16,16,24,16,24,16
110 DATA7424,0,0,0,0,0,0,0,0
115 DATA7320,124,254,0,252,126,6,254,124
116 DATA7328,124,254,0,192,192,192,254,124
117 DATA7336,124,254,6,198,198,198,254,124
118 DATA7344,252,254,6,254,252,216,204,198
119 DATA7352,254,254,0,248,248,192,254,254
120 DATA7360,198,198,6,254,254,198,198,198
121 DATA7368,126,126,24,24,24,24,126,126
122 DATA7376,124,254,0,222,222,198,254,124
123 DATA7552,124,254,206,214,214,230,254,124
124 DATA7560,56,120,24,24,24,24,126,126
125 DATA7568,124,254,14,28,56,112,254,254
126 DATA7576,124,254,6,28,28,6,254,124
127 DATA7584,60,124,204,204,254,254,12,12
128 DATA7592,254,254,192,252,254,6,254,252
129 DATA7600,60,124,192,252,254,198,254,124
130 DATA7608,254,254,12,24,48,48,120,120
131 DATA7616,124,254,198,124,124,198,254,124
132 DATA7624,124,254,198,254,126,14,252,120
133 DATA7384,255,255,173,170,168,138,170,255
134 DATA7392,255,255,168,171,168,171,216,255
135 DATA7400,198,198,6,198,238,124,56,16
198 DATA-1
199 END
200 A$="LOOPER PART 2"
210 PRINT"XXXXXXXXLOADA$,A$":POKE631,13:POKE632,82:POKE633,85:POKE634,78:POKE635,13
220 POKE198,5
240 END
300 POKE36879,27
305 GOTO 1000
310 PRINT"XXXXXXXXINSTRUCTIONS"
312 PRINT:PRINT"THE OBJECT OF THE GAME IS TO GET ALL THREE OF"
314 PRINT"THE KEYS & FLY THROUGH THE GATE."
315 PRINT
316 PRINT"TO DO THIS, YOU MUST SHOOT THE WALLS OUT OF THE BUILDING, THEN FLY"
318 PRINT"THROUGH AND PICK UP THE KEYS. AFTER YOU HAVE GOT ALL THREE OF"
320 PRINT"THE KEYS, THEN JUST FLY INTO THE GATE AT THE RIGHT."
321 PRINT"TO PAUSE GAME PRESS F1 TO CONTINUE PRESS F3"
324 PRINT"PRESS SPACE"
325 GETA$
```

```

326 IFA$<>CHR$(32)THEN325
330 PRINT"*****POINTS**"
332 PRINT"*****BRICK: 100 POINTS"
334 PRINT"*****KEY: 1000 POINTS"
336 PRINT"*****FLYING THROUGH THE GATE IS WORTH:"
338 PRINT"*****5000 POINTS * WAVE!"
340 PRINT"*****CONTROLS**"
342 PRINT"*****USE JOYSTICK. PUSH:"
344 PRINT"*****DOWN: TO CLIMB"
346 PRINT"*****UP: TO DIVE"
348 PRINT"*****FIRE: TO SHOOT"
349 PRINT"*****READY? (Y/N)"
350 GETB$: IFB$="" THEN350
352 IFB$="Y" THEN400
354 IFB$="N" THEN310
356 IFB$<>"N" ORB$<>"Y" THEN350
400 PRINT"*****LOADING... PLEASE WAIT"
410 GOTO200
1000 PRINT"*****ARE YOU USING A DISK DRIVE (Y/N)"
1005 GETD$: IFD$="" THEN1005
1010 IFD$="Y" THENA=8:GOTO310
1020 IFD$="N" THENA=1:GOTO310
1030 IFD$<>"Y" ORD$<>"N" THEN1000

```

READY.

Looper is a two part program. Type in the first part, save it on tape then type in and save the second part. The first program loads the second.

```

0 POKE36869,255:POKE36879,15
1 HS=0
2 A$="A A A":SC=0:K=4:V=1:WW=10
3 PRINTCHR$(8):POKE808,114
6 PRINT"*****                               L"
7 PRINT"*****"SPC(20)"LL"SPC(20)"LL"SPC(20)"LL"SPC(20)"LL"SPC(20)"LL"SPC(20)"L"
8 PRINT"*****"SPC(19)"MLL"SPC(20)"PL"SPC(20)"PL"SPC(20)"PL"SPC(19)"KLL"SPC(20)"L"
9 PRINT"*****"SPC(20)"LL"SPC(20)"LL"SPC(20)"LL"          LLLLLLLL          LL          ***** IR# 0
00M          L
11 PRINT"*****"LLLL          ***** IR# 000          MLLLLLLLLL          ***** IR# 000          MLL"V"*****"
12 KY=0
14 FORP=0TO21:POKE8164+P,12:POKE38884+P,7:NEXT
16 D=7747:Z=1:E=30720:J=37151:POKEJ+3,255:POKEJ+3,127:F=32:AA=230:Y=1:N=206:I=D
18 POKE36878,15
22 X=PEEK(J):JS=-((XAND8)=.) :JN=-((XAND4)=.) :FB=-((XAND32)=.)
23 IFFBANDS=0THENS=S+1:GOSUB74
24 IFS<>0THENGOSUB77
25 IFJSANDZ=1THENY=-21:Z=2:N=205:GOTO41
26 IFJSANDZ=2THENY=-22:Z=3:N=204:GOTO41
27 IFJSANDZ=3THENY=-23:Z=4:N=205:GOTO41
28 IFJSANDZ=4THENY=-1:Z=5:N=206:GOTO41
29 IFJSANDZ=5THENY=21:Z=6:N=207:GOTO41
30 IFJSANDZ=6THENY=22:Z=7:N=208:GOTO41
31 IFJSANDZ=7THENY=23:Z=8:N=207:GOTO41
32 IFJSANDZ=8THENY=1:Z=1:N=206:GOTO41
33 IFJNANDZ=1THENY=23:Z=8:N=207:GOTO41
34 IFJNANDZ=8THENY=22:Z=7:N=208:GOTO41
35 IFJNANDZ=7THENY=21:Z=6:N=207:GOTO41
36 IFJNANDZ=6THENY=-1:Z=5:N=206:GOTO41
37 IFJNANDZ=5THENY=-23:Z=4:N=205:GOTO41
38 IFJNANDZ=4THENY=-22:Z=3:N=204:GOTO41
39 IFJNANDZ=3THENY=-21:Z=2:N=205:GOTO41
40 IFJNANDZ=2THENY=1:Z=1:N=206:GOTO41
41 IFD+Y<7724THENY=22:Z=7:N=208:POKE36876,215:FORT=1T015:NEXT:POKE36876,0
42 IFPEEK(D+Y)=18THENGOTO92
43 IFPEEK(D+Y)=16ANDKY<>3THENY=0:GOTO50
44 IFPEEK(D+Y)=16ANDKY=3THENY=0:GOTO96
45 IFPEEK(D+Y)<>32THENY=0:GOTO50
46 POKED,F:POKED+E,3:D=D+Y:POKEI,Z:POKED+E,3:POKE36874,N
48 PRINT"*****STUVWZ:*****"SC:PRINT"*****"A$
49 GOTO67

```

LOOPER

```
50 POKE36874,0:POKE36875,0:POKE36876,0:POKED,F:POKED+E,0:S=0
51 I=D:POKEI,F:POKEI+E,0
52 POKE36877,200:FORL=15T00STEP-1:POKE36878,L
53 FORM=1T015:NEXTM:NEXTL:POKE36877,0:POKE36878,0
54 K=K-1
55 IFK=3THENAS$="  A A"
56 IFK=2THENAS$="    A"
57 IFK=1THENAS$="      "
58 IFK<1THEN60
59 FORT=1T0900:NEXT:GOTO16
60 PRINT"████████████████████  █#GAME OVER█    "
61 FORT=1T02000:NEXT
62 IFSC>HSTHENHS=SC
63 PRINT"██████████████████████XYZX STUVW█:██"HS
64 GETA$:IFA$=""THEN64
66 PRINT"█                               " :GOTO2
67 GETZ$
68 IFZ$<>CHR$(133)THEN22
69 POKE36878,0
70 FR=PEEK(197)
71 IFFR<>47THEN70
72 POKE36878,15:GOTO22
74 B=Y:I=D+B:IFPEEK(I)=15THEN84
75 IFPEEK(I)<>32THENS=0:B=0:RETURN
76 IFS=1THENI=D+B:POKEI,9:S=2:RETURN
77 POKEI,32:IFS=WWTHENS=0:POKE36876,0:AA=230:RETURN
78 I=I+B:S=S+1:AA=AA-1
79 IFPEEK(I)=27THENS=0:B=0:AA=230:POKEI,27:POKEI+E,7:POKE36876,0:RETURN
80 IFPEEK(I)=11THENS=0:B=0:AA=230:POKEI,11:POKEI+E,7:POKE36876,0:RETURN
81 IFPEEK(I)=12THENS=0:B=0:AA=230:POKEI,12:POKEI+E,7:POKE36876,0:RETURN
82 IFPEEK(I)=13THENS=0:B=0:AA=230:POKEI,13:POKEI+E,7:POKE36876,0:RETURN
83 IFPEEK(I)=14THENS=0:B=0:AA=230:POKEI,14:POKEI+E,7:POKE36876,0:RETURN
84 IFPEEK(I)=15THENS=0:AA=230:POKEI,F:POKEI+E,7:GOSUB90:POKE36876,0:RETURN
85 IFPEEK(I)=10THENS=0:AA=230:POKEI,F:POKEI+E,7:GOSUB90:POKE36876,0:RETURN
86 IFPEEK(I)=16THENS=0:B=0:AA=230:POKEI,16:POKEI+E,7:POKE36876,0:RETURN
87 IFPEEK(I)=18THENS=0:B=0:AA=230:POKEI,18:POKEI+E,5:POKE36876,0:RETURN
88 IFPEEK(I)=28THENS=0:B=0:AA=230:POKEI,28:POKEI+E,7:POKE36876,0:RETURN
89 POKEI,9:POKEI+E,1:POKE36876,AA:RETURN
90 SC=SC+100
91 POKE36876,180:FORM=1T015:NEXTM:POKE36876,0:RETURN
92 SC=SC+1000:KY=KY+1
94 POKE36876,210:FORM=1T015:NEXTM:POKE36876,0:GOTO46
95 POKE36874,0:POKE36875,0:POKED,F:POKED+E,0:S=0
96 SC=SC+(5000*V):POKE36874,0:POKE36875,0:FORL=1T03
97 POKE36879,63:POKE36876,220:FORT=1T0150:NEXT:POKE36879,15:POKE36876,180:FORT=1
T0150:NEXT
98 NEXTL:POKE36876,0:V=V+1:WW=WW-1:IFWW<4THENWW=4
99 GOTO6
```

READY.

If you would like to see one of your original programs printed in ComputerFun here's what you must do: Send us a diskette or cassette copy of your game, a color snapshot of yourself, a one page description of the game including strategy tips and any other pertinent information and about a paragraph of biographical data. Whenever possible, we'd like to receive a printout of the game also. Please be sure to tell us which system it's for. Send all of this along with your name, address and phone number to First Screening, ComputerFun, 350 E. 81st Street, New York, NY 10028.

FIRST SCREENING

Concentration

For the Atari 400 & 800

the end of any round is entirely dependent upon your skill.

You're probably all sitting back and

doing and where you're going. Let your eyes stray from the screen for one moment or let your mind wander to the homework assignment you should be doing even for a second, and you will fail to clear the screen. You must not miss any diamonds. All 100 must be eaten in order to win. If you fail, you'll have to press START and begin all over again.

As far as level 2 goes, well, I recommend it only for relatives of Albert Einstein. It's nearly impossible to clear the screen successfully. On both levels, your asterisk begins in the lower right hand corner.

There aren't really any good strategies for *Concentration* because there isn't a pattern. I recommend that you eat the diamonds that are outside the grid first and enter the grid only after you've finished them. Your first error may be your last. □

If you would like to see one of your original programs printed in *ComputerFun* here's what you must do: Send us a diskette or cassette copy of your game, a color snapshot of yourself, a one page description of the game including strategy tips and any other pertinent information and about a paragraph of biographical data. Whenever possible, we'd like to receive a printout of the game also. Please be sure to tell us which system it's for. Send all of this along with your name, address and phone number to First Screening, *ComputerFun*, 350 E. 81st Street, New York, NY 10028.

Concentration was written by 14-year-old Luis Liu Perez of Panama who has always wanted to see one of his games printed in our magazine. Luis taught himself to program on an Atari 800 and says that *Concentration* is the first game he's written that is "really good." He prefers games that are short but fun and asks you all not to be surprised when you see how short the program for *Concentration* is.

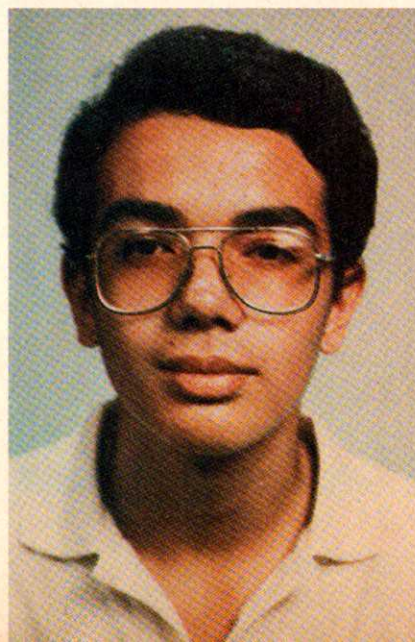
Concentration is a game of strategy which can be played either on the Atari 400 or Atari 800 computer. It only requires one joystick which means that it is essentially a one-player game. If, however, you want to play it against another person, you can, simply by taking turns using the joystick.

The object of *Concentration* is to clear the screen of the diamond shapes. You do this by eating them with your guy represented here by an asterisk. There are one hundred diamonds at the start of each new screen. How many there are at

thinking that this game is going to be a snap. This is where you're wrong. There's one hitch—and a very diabolical one it is, too. You cannot retrace your path. There's no going back. This means that if you don't plan ahead carefully, you may find that you've eaten yourself into a corner. If you should find that you've planned poorly and are, in fact, in a situation from which there appears to be no exits whatsoever, a situation in which you cannot move in any direction, you must press the START key and the game will begin again. Pressing START will also have another result: It will show you your last score, your high score and the number of screens you've succeeded in clearing (if any).

Easy doesn't do it

There are two difficulty levels called, not surprisingly, Level 1 and Level 2. Although I refer to Level 1 as the easy level, it isn't easy by any means. You must always keep an eye on what you're

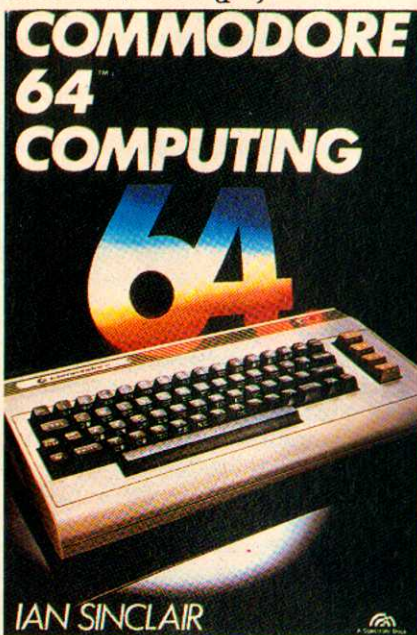


CONCENTRATION

```
1 OPEN #1,4,0,"K":GRAPHICS 2:SETCOLOR 2,0,0:POKE 752,1:? "DIFFICULTY LEVEL (1 0
R 2)?"
2 POSITION 3,5:? #6;"CONCENTRATION":POKE 708,15
3 GET #1,DI:IF DI=49 THEN DI=3:GOTO 7
4 DI=2
5 REM *** "CONCENTRATION" ***
6 REM *** PROGRAM FOR ATARI BY LUIS LIU PEREZ ***
7 SC=0:SCR=0:SCORE=0
8 X=37:Y=20
9 COL=INT(RND(0)*20)+1
10 GRAPHICS 0:SETCOLOR 2,COL,2:SETCOLOR 4,10,2:POKE 752,1
11 FOR A=0 TO 38:POSITION A,0:? "*" :NEXT A
12 FOR A=0 TO 22:POSITION 0,A:? "*" :POSITION 38,A:? "*" :NEXT A
13 FOR A=0 TO 38:POSITION A,22:? "*" :NEXT A
20 FOR A=4 TO 32 STEP 2
30 FOR B=4 TO 20 STEP DI
40 POSITION A,B:? " " :REM THE SPACE IN THE PRINT STATEMENT MUST BE IN INVERSE VI
DEO
50 NEXT B:NEXT A
60 FOR A=1 TO 100
70 AA=INT(RND(4)*36)+1:BB=INT(RND(4)*20)+1
80 LOCATE AA,BB,C:IF C=160 OR C=96 OR C=42 THEN 70
90 POSITION AA,BB:? "." :REM PRESS CTRL KEY WHILE TYPING THE PERIOD
100 NEXT A
110 POSITION X,Y:? "*"
120 ST=STICK(0)
130 IF ST=14 THEN Y=Y-1:LOCATE X,Y,Z:IF Z=160 OR Z=42 THEN Y=Y+1
140 LOCATE X,Y,Z:IF Z=96 THEN 1000
150 IF ST=13 THEN Y=Y+1:LOCATE X,Y,Z:IF Z=160 OR Z=42 THEN Y=Y-1
160 LOCATE X,Y,Z:IF Z=96 THEN 1000
170 IF ST=11 THEN X=X-1:LOCATE X,Y,Z:IF Z=160 OR Z=42 THEN X=X+1
180 LOCATE X,Y,Z:IF Z=96 THEN 1000
190 IF ST=7 THEN X=X+1:LOCATE X,Y,Z:IF Z=160 OR Z=42 THEN X=X-1
200 LOCATE X,Y,Z:IF Z=96 THEN 1000
210 IF PEEK(53279)=6 THEN 2000
220 GOTO 110
230 REM *** SUBROUTINES ***
240 REM *** DIAMOND EATEN ***
1000 FOR Z=1 TO 50:SOUND 0,Z,10,15:NEXT Z:SOUND 0,0,0,0
1010 SC=SC+1:IF SC=SCORE+100 THEN SCR=SCR+1:LET SCORE=SCORE+100:GOTO 3000
1020 GOTO 110
1030 REM *** START KEY PRESSED ***
2000 GRAPHICS 0:SETCOLOR 4,10,2:SETCOLOR 2,10,2:POKE 752,1
2010 POSITION 15,12:? "SCORE:";SC:IF SC>HSC THEN HSC=SC
2020 POSITION 15,14:? "HIGH SCORE:";HSC
2030 POSITION 15,16:? "SCREENS CLEARED:";SCR
2050 GOTO 3
2060 REM *** SCREEN CLEARED ***
3000 FOR Z=1 TO 50:SOUND 0,Z,10,15:FOR DE=1 TO 10:NEXT DE:NEXT Z
3010 SOUND 0,0,0,0
3020 GOTO 8
```

Commodore 64 Computing

Prentice Hall/by Ian
Sinclair/\$12.95 (pb)



Commodore 64 Computing tries, ineffectively, to cover all of the bases of Commodore 64 programming, from hooking up the machine to the most advanced sound generation. This is a heavy undertaking for any book, but it is especially difficult to cover all the important topics when your book is only 129 pages long.

Don't hook now

The first chapter, concerning hooking the computer up to a television, is fourteen pages of confusing and unclear instructions. The same information is covered in succinct, easy to understand language in only four pages in the User's Guide that comes with the system.

The first half of the book consists of unnecessarily complicated explanations of the simplest functions in BASIC. While this material is vital for the beginner, it can be found in much

clearer language on pages twenty-one through fifty in the User's Guide. To Mr. Sinclair's credit, some of the sample programs are very good. If the explanations were easier to understand, they might even have been helpful.

The second half of the book concerns more advanced commands, as well as such things as sprite graphics and the powerful sound generator. These are subjects that aren't covered in enough detail in the User's Guide, and are justly deserving of clarification. However, Mr. Sinclair doesn't clarify anything whatsoever; he simply embellishes the rather skimpy information of the instruction manuals. One of the best aspects of the 64, its sound capabilities, is covered in half of a chapter entitled "Function Keys and the Sound Generator." The use of function keys is the only part of the Commodore 64 that is covered in adequate detail. However, this leaves very little room for the section about sound. Due to this, the "Sound Generator" part of this chapter (and of the book) is less than useless.

The worst thing about *Commodore 64 Computing* is that often, information is blatantly wrong. This does a great disservice to beginners—the group that the book must be targeted at. As they are in no position to be able to tell what is incorrect from what is correct the book can give them mistaken ideas about areas of programming. —Charles Arday

Sprite Graphics for the Commodore 64

Prentice Hall-Micro Test/by
Sally G. Larsen/\$15.95 (pb)

On the other hand, *Sprite Graphics for the Commodore 64* is as good as *Commodore 64 Computing* is bad; it's a book that every Commodore 64 owner should get. The book is not overlarge (183 pages), but it covers one subject and it covers it well. That subject is, of course, sprite graphics.

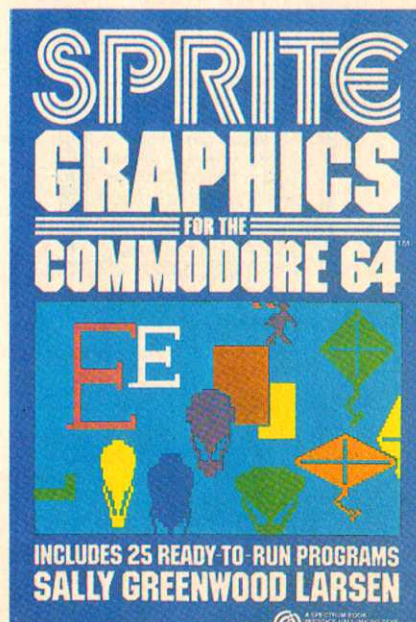
The ability to use sprite graphics is one of the factors that puts the 64 ahead

of much of its competition. A sprite is a small character made up of tiny "pixels"—dots of color. These pixels are so tiny that a sprite's shape can be very detailed and complex. Sprites, used even with a simple background, can lend an air of professionalism to any program.

Sprite on!

Ms. Larsen obviously knows a great deal about sprites and their functioning, but that doesn't stop her from writing the book in simple, clear layman's terms. The book covers every aspect of the use of sprites, from actually drawing them and encoding them into a form that the computer can understand, to animating them and using them in games.

Not only is the book useful for learning about sprites for the first time, but it has handy charts for reference in the future, and a number of sample sprites including a rabbit you'd swear came straight from a cartoon. The text also includes sample programs for showing off and utilizing your sprites, and a section of full color photos of the sample sprites. And for those who have forgotten their high-school math, the book even has a chapter that rehashes all the mathematical skills that you need to create and use sprites. —C.A.



ATARI TIMES TWO

Continued from page 54

shows the function keys appearing across the top of the keyboard, the way they do in the 1200XL. In addition, programmable functions—not available on either the 600XL or 800XL—are also shown. Atari mentions the new placement of the keys and says that the user should ignore the programmable function keys in the pamphlet that accompanies the computer. It would have been less confusing though, if they had redone the keyboard test display for

these computers.

Unlike the Atari 800, the 600XL and 800XL have only two joystick connectors instead of four. This means that people who have been using the extra joystick connectors to attach peripherals such as the Epson printer to the computer can no longer do this. On the bright side, however, is a more useful expansion bus connector that more than makes up for the missing joystick connectors. With this bus connector it will be possible to add on an external box with several slots into which additional peripherals can be added to increase the power of the basic system. This could include extended memory, additional

microprocessors to make the system compatible with other computers or additional interface devices such as extra parallel or serial ports.

Even without this expansion slot, the computers have some degree of expandability which is provided by the non-standard, built-in serial interface that can be used to connect to a disk drive or printer.

One of the biggest problems encountered with the 1200XL was its lack of compatibility with existing Atari 800 software. The situation is somewhat better with the 600XL and 800XL, but it still exists to some extent. The 1200XL experienced a lot of difficulty with third party cartridges (cartridges not manufactured by Atari) in that many of them did not work. In testing both computers we have found that this situation has improved considerably and cartridges that would not work with the 1200XL will work with these computers.

We do have one word of warning, however. While all cartridges worked well with the 600XL the Q*Bert cartridge from Parker Bros. worked intermittently with the 800XL. This is apparently due to a poor connection which would allow even the slightest movement or touching of the cartridge while it was plugged in to cause the program to crash. While this problem was probably specific to the particular machine and cartridge examined, be aware that it can occur. Cartridges from other manufacturers and from Atari itself did not exhibit this problem.

Some shall overcome

While Atari seems to have overcome most of the cartridge problems that existed in the 1200XL, the same cannot be said for tape and disk based software. To be fair, Atari has published specific guidelines for software developers that tells them what they should and should not do to insure future compatibility. For protection or other reasons, however, software publishers don't always follow these guidelines, hence the compatibility problems. So, while Atari is not really responsible for the incompatibilities, they get blamed for them and must try and solve the problem. And they have—by coming up with a translator tape and disk that will pre-boot the old Atari 400/800 operating system into the new computers. This overrides the new built-in operating system, and allows the new computers to be compatible with software written for the older system.

The translator program comes in two versions and both are available from user groups and some retailers. They are public domain and thus do not cost more than the price of a blank diskette. Each version will let you boot a limited number of programs, so it's best if you obtain both versions. □

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LETS GET PHYSICAL

Continued from page 27

For example, let's say you're currently running 30 miles per week and silly you, you want to increase to 40. You choose that option from the menu and the computer will ask you key questions after which it will calculate how many miles per week you should add to your mileage over how many weeks in order to get to 40 with the smallest chance of injury.

Jim Fixx is the author of many best selling books about running and when he was approached by Meca to do a computerized running program he decided to say yes. This decision was made not only because he was given an IBM PC to work on but also because, "there were things I could do on a computer program that could not be done in books." Here was an interactive way of giving his expertise to other runners. He and Jeff Galloway, an Olympic runner, put together many of the program sections such as the one which designs a training schedule for those runners who wish to improve their 10K time. There's also a section which will predict the time you will complete any distance.

"That time prediction section will work no matter what other distance you type in," says Fixx, "but naturally, the more times you can give the computer, the more accurate the prediction will be." Thus if you run a mile in 9 minutes, the computer can give you the approximate amount of time it would take you to finish a marathon but if you were able to give it three distances, it would be more accurate.

There's also a section that helps you with speed work. Say your fastest time in a 10K is 43 minutes and you're dying to run it in under 40. You call up this section, type in the answers to the questions you're asked, and Jim will come back with an intelligent eight-week training schedule. If, however, you try to take too many minutes off your fastest time, the program will tell you and suggest that you should first aim for something more realistic.

But perhaps the greatest inclusion for compulsive runners is the section that allows you to record how you felt on any given day during your running season and then save that information to disk. This means that the truly psychotic among us (I count myself in there) can boot up a saved disk and see that on February 9, 1983, I ran five miles and felt as if I were running with lead insoles. I don't know why we like to keep records like this but we do and it's such a comfort to know that we can. □



The classic Milton Bradley games you loved as a child are now computer games for the whole family!

Remember how much fun you had as a kid playing Go to the Head of the Class and Game of the States? They were so much fun you didn't realize you were learning at the same time!

Now, Milton Bradley is proud to announce that these ever-popular educational games have been formatted for use with Apple II, IIe home computers.

GO TO THE HEAD OF THE CLASS

This highly competitive general knowledge game is designed for ages 8 and up. Players advance from desk to desk by giving correct answers to over 300 questions on vocabulary, geography, math and history. Three levels of play are available — junior, senior, or graduate — so the whole family can play at once!



GAME OF THE STATES

How much do you know about the 50 states? This game gives you five ways to find out: Name the State; Name the Capital City; Abbreviation Game; Name the Neighbors; and Major Cities.

Plus, Milton Bradley offers a variety of other exciting, challenging games, including Hey Taxi!, in which you become a Cabbie; Extra! Extra!, a reading skills game of news reporting; and Put Together, Take Away, that pits your child's knowledge of addition and subtraction against the clock.

For more information on these new fun-filled games, or on any of Milton Bradley's quality educational products, call Bev Oski at 1-800-628-8608.



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HACKER'S HELPER

Continued from page 74

```

15 L=1524:CC=54272:PO
KE53280,0:POKE53281,
0
20 PRINT CHR$(147):PO
KE53272,(PEEK(53272)A
ND240)OR12:IFPEEK(122
88)=0THEN60
25 POKE56334,PEEK(563
34)AND254:POKE1,PEEK(
1)AND251
30 FORX=12288TO12799:
POKEX,PEEK(X+40960):N
EXT
40 POKE1,PEEK(1)OR4:P
OKE56334,PEEK(56334)O
R1
50 FORX=12288TO12368:
POKEX,0:NEXT
55 REM ***MAIN ROUTIN
E***
60 POKEL-41,1:POKEL-4
1+CC,2:POKEL-40,2:POK
EL-40+CC,2:POKEL-39,3
:POKEL-39+CC,2
70 POKEL-1,4:POKEL-1+

```

```

CC,2:POKEL,5:POKEL+CC
,2:POKEL+1,6:POKEL+1+
CC,2
80 POKEL+39,7:POKEL+3
9+CC,2:POKEL+40,8:POK
EL+40+CC,2:POKEL+41,9
:POKEL+41+CC,2
90 FORX1=1TO74:READ A
,B:A=A+12288:POKEA,B:
NEXTX1:RESTORE
100 FORX=12288TO12368
:POKEX,0:NEXT
880 DATA44,16,43,24,4
5,52,44,56,42,52,46,8
2,44,124,41,82,47,145
,44
885 DATA255,40,145,56
,1,64,16,72,128,15,1,
36,1,52,128,23,16,31,
128,57,2,65,16
890 DATA36,3,52,192,7
3,64,14,2,22,16,30,64
,36,7,52,224,58,4,66,
16,74,32,13,4,36
895 DATA15,21,16,29,3
2,59,8,67,15,36,31,52
,248,75,16,12,8,20,15
,29,16,36,63,52
900 DATA252,60,16,68,

```

```

16,76,8,11,16,36,127,
52,252,19,16,27,8,61,
32
905 DATA36,255,52,255
,69,16,77,4,10,32,18,
16,26,4,62,64,70,16,7
8,2,9,64,17,16
910 DATA25,2,63,128,7
1,16,79,1,8,128,16,16
,24,1

```

You can test if you have correctly entered the data for the Commodore programs by typing in the following program on the screen and hitting return. Do not type a line number for the test and make sure that the explosion program is in the computer's memory. You should get an answer that matches the number printed below the line. If not, then you have made a mistake entering the data.

TEST PROGRAM

```

RESTORE:A=0:B=0:FORX=
1TO74:READA:B=B+A:NEX
T:PB
3791

```

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DIS, DAT & DOS

Continued from page 42

developed by Microsoft Corp., and adapted under the brand name PC-DOS for IBM's Personal Computer. The same goes for MS-DOS users, or for that matter, Apple DOS users who want to turn CP/M-based programs. Additionally, many computers boast proprietary OS that cannot be made to work with other units at all.

So-called IBM PC-compatibles that employ MS-DOS and claim nearly identical IBM operation are another nightmare altogether. Not only aren't these machines always completely, or even partially, compatible but in many cases the label "IBM-compatible" is very misleading. For example, this story was written using a word processing program specifically tailored to an Eagle PC, one of the few systems experts deem "closely compatible" to IBM's. But because Eagle's version of MS-DOS, like many other company's MS-DOS adaptations, was designed to take advantage of the Eagle's individual features, few IBM word processing programs run unmodified on the Eagle, and instead require considerable rewriting.

Setting new standards?

With the help of Microsoft, Japanese manufacturers including Sanyo and Sony, recently developed a prototype operating system called MSX that they propose will standardize all home computers. At the higher priced levels, AT&T's Unix system, a very flexible OS that has been used to teach programming in hundreds of colleges and universities, presents a standardization opportunity for business users. In a short-term, highly competitive marketplace, however, with each company out to build a better mousetrap, it is unlikely that either system will take hold and stop the proliferation of incompatible computers.

What's a user to do? Take heart. Since all operating systems provide basically the same important and useful functions, it's best to follow the classic computer shopper's advice: Decide what you want to do with your unit, and then go with the operating system that supports a number of desired applications or the specific application you plan to use most frequently.

Whatever system you happen to choose, the better you understand how the invisible hand of the OS gently, but firmly guides a computer through its tasks, the more keenly you'll sense its superb power, and mystery unshrouded at last, the better you'll be able to utilize that powerful strength and put it to work for you. □

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PIXELS

Continued from page 37

close as possible to the original script. Finally, a clean new print of the chopped-up editor's film is made by a photo laboratory, and it's showtime.

Compose yourself

That's the *MovieMaker* process—except that you don't have to employ platoons of artists working hundreds of hours to create thousands of cel drawings. Instead, you use COMPOSE to draw the actor shapes and backgrounds yourself—and you never need more than about five or six such shapes to create a believable movement. Instead of an elaborate camera animation stand, and teams of camera operators and optical technicians all working to get your drawings transferred to film, you've got RECORD to give you 300 frames (about one minute) of movie—and since RECORD doubles as a projector in "Playback" mode, you don't have to wait for your film to come back from the lab to see your "rushes". Your "film" can also be re-recorded instantly—at rates varying from one frame at a time to nine per second—so that RECORD is an instant film editor,

too. And when you've got something that flies, SMOOTH is your photo lab, turning out a clean movie for projection with PLAY.

It took me quite awhile to get to that simple understanding of the basic mechanics of *MovieMaker*. I started out with a pretty sketchy script, calling for no more than one "actor" who would come on screen, dance around and go through as many changes as possible in as short a time as I could manage, and then perhaps come into contact with one or two other actors who were exact duplicates of himself.

That script was dictated out of fear. I was convinced that I, the non-artist, would have plenty of trouble just coming up with one basic shape and a succession of others that would make the basic one move—no sense in making matters worse by trying for the total of six different characters *MovieMaker* will let you put on the screen at one time.

Bag of tricks

You needn't make the same mistake. There are plenty of tricks to drawing the *MovieMaker* way, and one of the best ways to learn them is to study the SHAPE files used in the demo animations recorded on the back side of the *MovieMaker* disk. These files aren't copy-protected; all you need do is go into

COMPOSE, load the files, and have a look at them. Once you've figured out some of the ways they show what they're intended to be, you can try reproducing them yourself from memory on a blank SHAPE page, or changing them to fit your own ideas. Either way, it's an instructive exercise, and ought to get you over any lingering doubts about your ability to handle complicated, naturalistic shapes.

The actual COMPOSE drawing mechanics are very simple: press "W" (for Window) to get a working space on the SHAPE page (you can change its size with the B (Border) command), press P (Pen) to throw a blinking pixel block into the middle of the window, and press the joystick button to turn pixels under this cursor on or off (they'll go on or off in any one of four colors, which you can select from a total of 128). Other commands can let you temporarily "zoom" in on your figure (handy for fine touch-ups), double its size in either horizontal or vertical dimensions, etc.

I finally settled on drawing a tetrahedron (two solid pyramids with their bases glued together) balanced on one point like a child's top, with one point facing the viewer and four of its eight facets showing. To get the 3-D effect of light shining from one direction onto this imaginary solid object, I chose shades of gray and white as my three shape colors (the fourth, a navy blue, would be my minimal background). Deciding on the light coming from the upper right side, I made the upper right facet white, the lower right facet (in partial shadow) light gray, and the two leftmost facets (in full shadow) dark gray. This turned out to be the most difficult drawing task I did—and it took less than five minutes to complete.

Next, I confronted the problem of the intermediate shapes. I wanted this tetrahedron/top to rotate from left to right, so I needed three more shapes: one showing the top's middle edge slowly rotating to the right, a second showing a sudden replacement of the first shape's four facets with two (a new face), and a third showing a new middle edge coming round from the left. The fourth would be the first shape again, completing the circuit.

Stamp it out

I figured on having to draw the same diamond-shaped top outline all over again three more times to get something to work on (just like a regular cel animator has to), until I remembered *MovieMaker*'s powerful built-in shape photocopier: the D (Duplicate) command which lets you stamp out carbon copies of your original shape anywhere you want, as many times as you want (this same command can let you use any shape as a sort of paintbrush—very useful for creating random painterly effect

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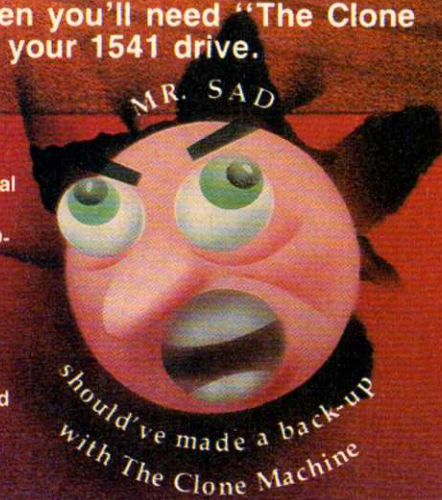


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in your backgrounds). Using the dupe command twice, and a few judicious touch-ups, I had my first and second intermediate shapes in less than three minutes. And when I realized that my third intermediate shape was really only a mirror-image of the first, I finally understood the use of COMPOSE's automatic M (for Mirror) command. All it took for that last shape was one more dupe, and a single keystroke.

Now to get the four shapes into the proper order, so when projected they'd appear to form a rotating top. Setting such sequences is simple: you just press S (Sequence), position a blinking window (it appears the moment you press S) around the first shape you want, and press the fire button. You then move through the rest of the shapes; the order you select them in will be the order they're projected in. You can preview the sequence almost instantly without leaving COMPOSE, too; two more key commands, and your animated actor sequence is cycling repeatedly on the background page.

Roll 'em

Now that I had my star top, it was off to RECORD to get him in pictures.

It's in RECORD that *MovieMaker's* real flexibility comes through most brightly. Along with all the other functions I mentioned earlier, RECORD also incorporates a G (GOTO) function that lets you instantly dial up any frame in your 300-frame movie, a REWIND command that lets you roll it backwards, and nearly every single function found in COMPOSE. RECORD is thus not only a camera and projector, but a full-fledged film-editing bench of remarkable power. And one more feature: you can simply set the recorder function to roll at a steady rate, and move your actor around with the joystick.

The next two weeks were spent almost exclusively in RECORD. I first used a normal four-frames-per-second recording speed and joystick control to produce 300 frames of a very agitated top bounding all over the screen—an initial sketch of the action I wanted. Then I went back to particular frames, and using single-frame record and joystick control, gradually readjusted the wild gyrations of my top until they were more regular and meaningful. I went back again to change the top's colors in certain frames, making it flash red or green at various times as though signalling us to either approach or retreat. I went to the SHAPE table and created a new top face showing a small hole. After redefining the sequence so this new face would show, it was back to RECORD and the Zoom sommand to record a sequence where the camera lens seems to dive through the hole in the top.

I'm still at it; flashing colors on and off, switching colors, adding those extra

mirror-image actors I once wanted (and performing the same operations on them), giving my actors expression and life, confronting them with new situations to bounce off of—making them move.

If this sounds more like fun than work, it is. Professionals have found lots of uses for *MovieMaker*; it's a powerful animation tool, so that's only natural. My advice is, if you're not a professional, don't bother trying to be—you don't have to be a member of a special priesthood to create great work. You just need the tools.

For trivia buffs

On a less computer-oriented note, here, some of you may be interested to know just who, in part, was responsible for creating *Movie Maker* and thus enabling you to create your own short subjects at home. One of the chief animators on this project is named Guy Nouri. Does the name sound familiar? If so, it should. Guy (pronounced "Ghee") is the brother of Michael Nouri who many of you will remember as the man who fell in love with the teenage welder, Jennifer Beals in the popular—and Grammy Award winning—movie *Flashdance*. Guy also worked on the animation for Spinnaker's new Aerobics program reviewed in this issue. □

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RANDOM ACCESS

By Qwerty

More juice for the apple

Apple's Macintosh passed its first peer review with flying colors. The place was New Orleans' Superdome, site of the first Softcon show, a new trade exhibit in an industry already overburdened with trade exhibits. For most of the attendees, Softcon provided the first opportunity for hands-on Mac-Writing, MacPainting and assorted other MacTivities.

While the Mac had been reviewed extensively in the press prior to the show, the reviews generally went on and on about whether or not the Mac was or wasn't a true 32-bit machine or a true 128K machine. None really described what makes the Mac so attractive. For those who have been doing everything on computer for years, the Mac may not be all that impressive. But for the majority of us, whose daily lives are a hybrid of computer and manual (pencil, paper, files, mess) work methods, Mac is magnificent.

For example, say you're busy processing some words and you sud-

denly remember you've got to pick up a bottle of vodka before you go home. In the twinkling of an eye you call up the notepad which sits right on top of your text display just as if you had a real desk. Write "vodka" or "urp" on the notepad and send it back to memory to be referred to later. You can also call up a very silly number puzzle to play with if you get bored. Never in a million years would the folks at IBM dream that one up.

Mac also allows you to send memos in a dozen different typefaces, including



Old English, making it the first computer that gives you the freedom to be eccentric. And that, as Apple told us in those stupendous commercials, is why 1984 will not be like "1984."

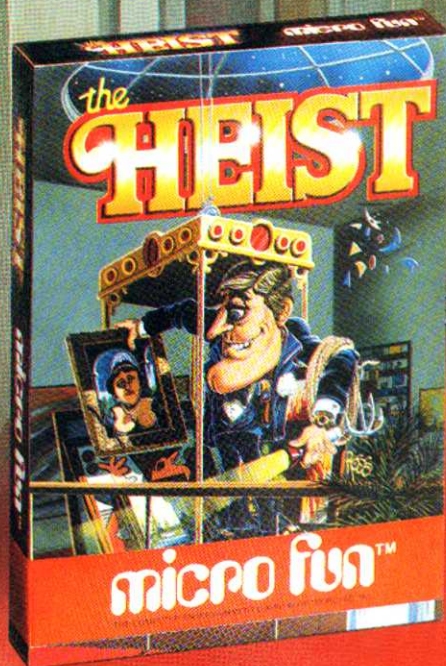
Do Bee a honey maximizer

Other than the Mac there was not a lot of excitement at Softcon, and many software execs who did not exhibit walked around the floor with huge grins—the satisfaction of having made the right decision. One company that did make a major announcement was CBS Software (producers of some excellent educational programs in the past), which introduced the first two in a series of educational programs called *Adventures In Science*. Number one is *Dinosaurs* and number two is *Bees* and our tax dollars went into some of the research behind them through National Science Foundation grants.

The dinosaur game is exactly like one of those endless role-playing epics in which you are a knight or an elf or a sanitation engineer and you start off with 50 gold pieces, 300 armed men and a wizard. In this one, though, you're a tyrannosaurus rex whose object is to survive. The game allows "predator-prey interaction," meaning you get supper if you're lucky.

The bee game is even more fun. "Maximize honey production while maximizing hive efficiency" is the watchword of the day. If the budding naturalist in your life is as enthralled with these diversions as I was, don't miss the upcoming "Life In A Coral Reef" or "Hummingbird Migration." □





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