PREMIERE ISSUE

PRESENTING:
IBM PCJR
& COLECO ADAM

LOWDOWN ON
PIRACY & RAIDING

PUBLISHED BY SCHOLASTIC INC.

$1.95

FEBRUARY 1984
Display until March 13

HYBRIDS: THE NEWEST
SOFTWARE BREED

K POWER™

THE MAGAZINE FOR THE COMPUTER GENERATION

'WHIZ KIDS':
Networking goes prime time

HACKER HEAVEN:
PROGRAMS FOR
ADAM, APPLE, ATARI,
COMMODORE 64 AND
VIC-20, IBM, TI,
TIMEX, AND TRS-80

WOOF WARE:
A SPOOF
FOR CANINES

0 76956 14009 02

FREE SOFTWARE

Buy Two, Get 1 Free by mail at participating local retailers.

"Make note of that name, Electronic Arts. It may well set the standard for sophisticated entertainment software in the '80's."

—Creative Computing.

ELECTRONIC ARTS COMES TO THE COMMODORE.

C64, Ap, At

HARD HAT MACK™
by Michael Abbot and Matthew Alexander

"An outstanding, state-of-the-art game. Hard Hat Mack is the blue collar hero of this three screen climbing game and his tasks are far from simple."
—Arcade Express

"If you put Hard Hat Mack in the ring with all other games on the market, it would win most bouts in the opening seconds of the first round. It's that good."
—Softalk

ARCHON™
by Free Fall Associates

"No review could possibly do more than hint at the manifold excellence of Archon. It is truly a landmark in the development of computerized strategy games."
—Video

"...you're bound to fall for it. Imagine a chessgame in which you can cast spells."
—Creative Computing

"...the offices of A.N.A.L.O.G. echo with the searing roar of dragon-fire and shouted obscenities from angry players. Archon turns friend against friend and inspires grudges that can last for days. What better compliment can you give to a computer program."
—A.N.A.L.O.G.

C64, Ap, At

Ap, C64, At, signify availability for Apple II, II+, IIE, Commodore 64, or Atari home computers with disc drive. All screen shots represent Commodore 64. Apple is a registered trademark of Apple Computer, Inc. Commodore 64 is a registered trademark of Commodore Business Machines, Inc. Atari is a registered trademark of Atari, Inc., a Warner Communications Company.

M.U.L.E.™

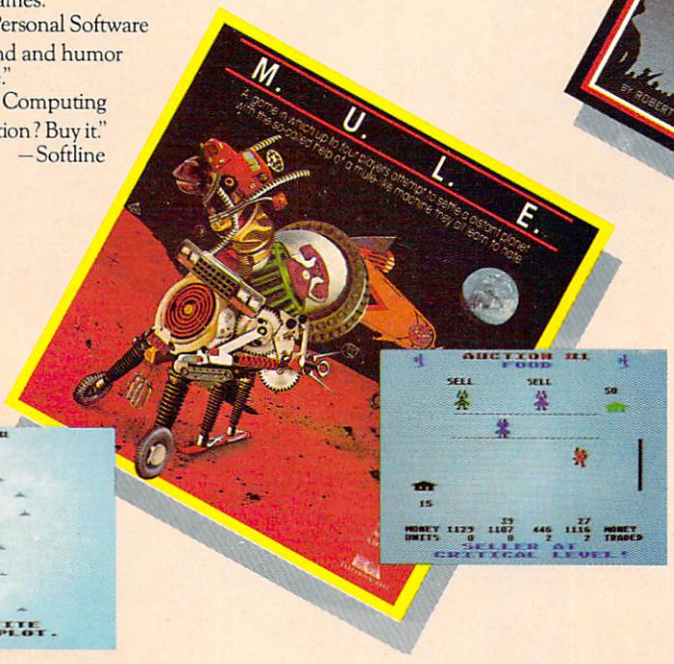
by Ozark Softscape

"A must-have."
—Electronic Fun

"May well become the Monopoly of computer games."
—Personal Software

"Graphics, sound and humor are superlative."
—Creative Computing

"Recommendation? Buy it."
—Softline



C64, At

MURDER ON THE ZINDERNEUF™

by Free Fall Associates

"Whodunit fans, drop your Agatha Christie and come running. This is your game! The graphics are among the most colorful and attractive I have seen in any game." —Antic

C64, At

PINBALL CONSTRUCTION SET™

by Bill Budge

"The best program ever written for an 8-bit machine."
—Steve Wozniak

"A fully integrated graphics-oriented design tool that lets you create your own video pinball games, required study for all serious software authors."
—A.N.A.L.O.G.

"A tour de force."
—Creative Computing

C64, Ap, At

ELECTRONIC ARTS

Home Software for the Commodore 64

Look for our other Commodore 64 titles like AXIS ASSASSIN,™ WORMS?!™ and THE TESSERACT STRATEGY™ at your favorite computer store, software center and at fine department stores throughout the country. For more information about these and other Electronic Arts products, write or call us at 2755 Campus Drive, San Mateo, CA 94403 — (415) 571-7171.

NOW YOUR COMPUTER FITS THE ORIGINAL ARCADE HITS.

Now the excitement of original arcade graphics and sound effects comes home to your computer.

Introducing ATARISOFT.™ A new source for computer software.

If you own a Commodore VIC 20 or 64, a Texas Instruments 99/4A, an IBM or an Apple II, you can play the original arcade hits.

DONKEY KONG by Nintendo CENTIPEDE,™ PAC-MAN, DEFENDER, ROBOTRON: 2084, STARGATE and DIG DUG. (On the TI 99/4A you can also play Protector II, Shamus, Picnic Paranoia and Super Storm.)

So, start playing the original hits on your computer. Only from ATARISOFT.

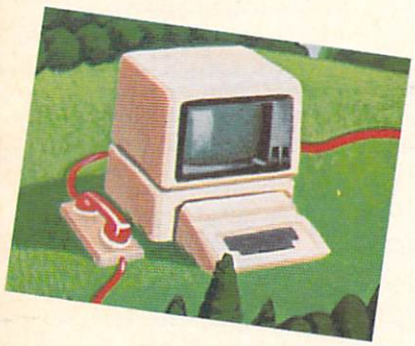
Some games also available on ColecoVision and Intellivision.

ATARISOFT™

Now your computer fits the arcade hits.

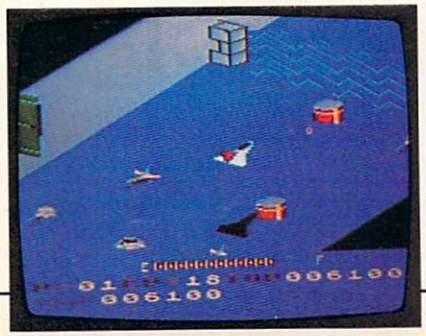
LIST
VOLUME 1 NUMBER 1 FEBRUARY 1984

FEATURES



PROGRAMMING

PRODUCTS



DEPARTMENTS

Advertiser's Index on page 71

Cover Photo: Ron Grover Cover Illustration: Paul Reott

EDITOR'S NOTE

K-POWER— For and by The Computer Generation

It's tough for me to leave my desk any weekday afternoon after 3:00, or anytime at all on Saturdays. If I'm away for 10 minutes, I come back to find one of the 10 or so kids who're "regulars" at the K-POWER offices sitting in my chair.

My word-processed copy will have disappeared (along with half my bag of pretzels). And there—scrolling across my computer screen—will be an intriguing program in the works, the latest computer game in progress, or a story suggestion.

What's an editor to do? Pay attention, of course. I wouldn't deserve to have this job if I didn't realize that any one of these teenaged computer users knows better than I do what readers want to find in the pages of K-POWER. I'm just grateful they never hesitate to tell me.

Fourteen-year-old Noel Derecki—and the other kids—told me they don't want to flip through page after page of a magazine looking for something just for them. Or just for their machine. (ADAM, Atari, Apple, Commodore 64 and VIC-20, IBM, TI, Timex, TRS-80—K-POWER's got programs in Hacker Heaven for them all!)

David Langendoen, 15, wants to see a lot about programming—and not just in BASIC. Sixteen-year-old Matt Davis asked K-POWER to fill him in on the latest computer graphics. Alex Shakar, 15, wants to hear more about the latest technology and how it will fit into HIS life. Peter Cockcroft and Justin Greene (both 16) run their own mail-order software business. They want software reviews.

All the K-POWER hackers told us they want the lowdown on other computer users like themselves who're stretching their capabilities to get the most power out of their computers. And all the things they want are part of what K-POWER offers.

Now I want to know what YOU want to read about in K-POWER. I wouldn't mind strolling back to my desk one day and finding a stack of letters from readers propped up against my computer screen—loaded with your computing experiences, story ideas, programs, and reviews.

Anne Krueger

K-POWER (ISSN 0741-5192) is published monthly by Scholastic Inc., 730 Broadway, NY, NY 10003. Subscriptions: in the U.S. and possessions, 12 issues for $15.97; outside the U.S. add $6 (surface mail) and $24 (air mail). Office of publication. Box 2700, Monroe, Ohio, 45050-2700. Application to Mail at Second Class Postage Rates is pending at Monroe, Ohio, 45050-9998 and additional offices. POSTMASTER: Send address changes and notice of undelivered copies to K-POWER, P.O. Box 2511, Boulder, Colorado 80322. Printed in U.S.A.

K POWER
730 Broadway, New York, NY 10003

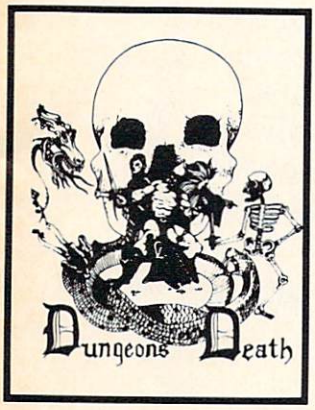
EDITORIAL
EDITOR-IN-CHIEF: Claudia Cohl
DESIGN DIRECTOR: Vincent Ceci
EDITOR: Anne Krueger
ART DIRECTOR: Peter Aguanno
MANAGING EDITOR: June Rogoznica
ASSOCIATE EDITOR: John Holmstrom
ASSISTANT EDITOR: Michael B. Tuomey
EDITORIAL ASSISTANT: Bernadette Grey
TECHNICAL DIRECTOR: Lance Paavola
TECHNICAL EDITOR: John Jainschigg
COMPUTER LABORATORY SUPERVISOR: Christopher Niles
REVIEWS EDITOR: John D. Wallace, Jr.
COPY AND RESEARCH CHIEF: Yamile Martin Kahn
COPY AND RESEARCH ASSISTANTS: Kathryn Bonn, Linda Williams
DESIGN ASSOCIATE: Anne Zuckerman
TECHNICAL ASSISTANTS: Donald Chin, Ken Coach, Peter Cockcroft, Matt Davis, Al Drayton, Gary Lee, Kwong Lee, Ruth Nebbia, Mark Prenty, Alexander Whitaker
ADMINISTRATIVE COORDINATOR: Karen Cohen
ADMINISTRATIVE ASSISTANTS: Taz Cook, Megan Van Peebles
CONTRIBUTING EDITOR: Pam Horowitz
TECHNICAL AND EDUCATION CONSULTANT: Walter Koetke

PUBLISHING
PUBLISHER: Shirrel Rhoades
ASSOCIATE PUBLISHER/ CIRCULATION AND MARKETING: Vince Dema
CIRCULATION MANAGER: Harold Shain
CIRCULATION STAFF: Lisa Cucinello, Deirdre McMurray, Mark Mitton
BUSINESS MANAGER: Steven Abromowitz
PRODUCTION MANAGER: David J. Lange
BUSINESS/PRODUCTION COORDINATOR: Virginia Ferrara

Advertising Sales Offices
ADVERTISING DIRECTOR: Harold L. Leddy (212) 505-3585
ASSOCIATE ADVERTISING DIRECTOR: Charlene D. LeGrand (212) 505-3586
MARKETING DIRECTOR: Michael H. Tchong (212) 505-3589
NORTHEAST MANAGER: Steve Rosenfield (212) 505-3587
MIDWEST/SOUTHWEST MANAGER: Bruce Gardner (212) 505-3580
WEST/SOUTHWEST REPRESENTATION: 385 Sherman Ave., Suite 1 Palo Alto, CA 94306
WESTERN MANAGER: Robert S. Pack (415) 327-6090
SOUTHWEST MANAGER: Marty Navarro (714) 851-1593 4000 MacArthur Blvd., Suite 3000 Newport Beach, CA 92660
TELEMARKETING MANAGER: Lisa Kunin (212) 505-3588

AARDVARK LTD.

NOW THE BEST COST LESS



DUNGEONS OF DEATH - A serious role playing game for up to 6 players. You get a choice of race and characters that grow from game to game. You also get a graphic maze and a 15 page manual.

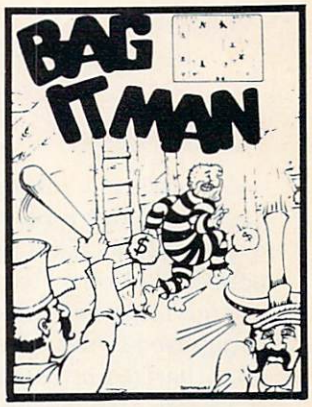
Available On: TRS80C 16K EXT., CMD64, VIC20 13K, IBMPC, TRS80C 32K, MC10 16K

TAPE $14.95 **DISK $19.95**

BAG-IT-MAN - The ultimate arcade game for TRS80C or MCD64. This one has three screens full of BAGS OF GOLD, CARTS & ELEVATORS TO RIDE IN, MINE SHAFTS, and TWO NASTY GUARDS. Great sound and color and continuous excitement.

Available On: TRS80C 32K, CMD64

TAPE $19.95 **DISK $24.95**



QUEST - A different kind of Graphic Adventure, it is played on a computer generated mape of Alesia. You'll have to build an army and feed them through combat, bargaining, exploration of ruins and temples, and outright banditry! Takes 2 - 5 hours to play and is different each time.

Available On: TRS80C 16K, CMD64, VIC20 13K, MC10 16K, TI99 (EXT. BASIC), IBMPC

TAPE $14.95 **DISK $19.95**

STARFIRE - If you enjoyed StarRaiders or StarWars, you will love Starfire. It is not a copy, but the best shoot-em-up, see them in the window space game on the CMD64 or TRS80C. The fantastic graphics will put you right in the control room as you hyperspace from quadrant to quadrant fighting the aliens and protecting your bases.

Available On: TRS80C 16K, CMD64

TAPE $19.95 **DISK $24.95**

WIZARDS TOWER - A fantasy game played on a map of forests and dungeons - with dragons and wizards to kill. Similar to QUEST and fun for adults, but a little simpler and playable for the younger set (8 - 60).

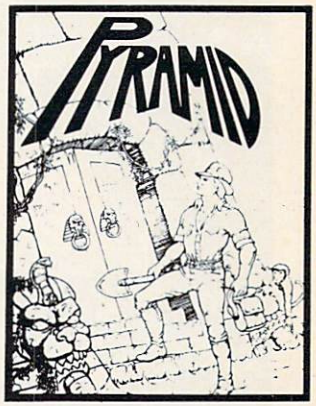
Available On: TRS80C 16K EXT., CMD64, VIC20 13K, TI99, IBMPC

TAPE $14.95 **DISK $19.95**

PYRAMID - ONE OF THE TOUGHEST ADVENTURES. Average time through the pyramid is 50 - 70 hours. Clues are everywhere and some ingenious problems make this popular around the world.

Available On: TRS80C 16K, CMD64, MC10 16K, TIMEX, IBM PC, TI99, VIC20 13K

TAPE $14.95 **DISK $19.95**



AARDVARK offers over 120 original high quality programs. Send one dollar for a current catalog and receive a $1.00 gift certificate good towards your next purchase.

Authors - **AARDVARK** pays top dollar for high quality programs. Send a copy today for a personal review and editorial help.

TO ORDER: Send amount indicated plus $2.00 shipping, per order. Include quantity desired and your preference of tape or disk. Be sure to indicate type of system and amount of memory. When using charge card to order by mail, be sure to include expiration date.

MasterCard CHARGE CARDS WELCOME VISA

1-313-669-3110

PHONE ORDERS ACCEPTED
8:00 a.m. to 8:00 p.m. E.S.T., MON-FRI

AARDVARK *Action Software*

2352 S. COMMERCE • WALLED LAKE, MI 48088 • (313) 669-3110

CMD64 / TRS80C / IBMPC / VIC20 / TI99

COMPUZINE
VOLUME 1 NUMBER 1

Edited by John Holmstrom

Backing Hacking (Not Attacking)

hack•er (hak ər), n, **1.** A person who enjoys learning the details of programming systems and how to stretch their capabilities, as opposed to most users, who prefer to learn only the minimum necessary. Identified by overwhelming amount of enthusiasm. **2.** Not a criminal.

A hacker is a hacker is a hacker . . . But a hacker isn't necessarily a criminal. We've noticed the word "hacker" is getting some bad press. It's being used to describe unauthorized intruders or computer system raiders or other "bad guys."

K-POWER would like to go on record with this definition: In our book, a *hacker* is a person who enjoys learning the details of programming systems and how to stretch their capabilities, as opposed to most *users*, who prefer to learn only the minimum necessary. Hackers usually can be identified by their overwhelming amount of enthusiasm. The word has no direct ties with illegal computing.

So, when some computing pros penetrate a bank's computer system with their modem and take or transfer money that's not theirs—they're raiders or criminals. Some computer crooks are hackers, but—c'mon—not all hackers are crooks.

We're getting tired of the bum rap innocent computer-clever kids are getting. We're proud to say some of our best friends are hackers. [*For the lighter side of this terminology dilemma, turn to* K-POWER*'s Name That Hacker Contest on page 72. You could win a T-shirt.*]

A Joystick a Day . . . Keeps Tattoos Away?

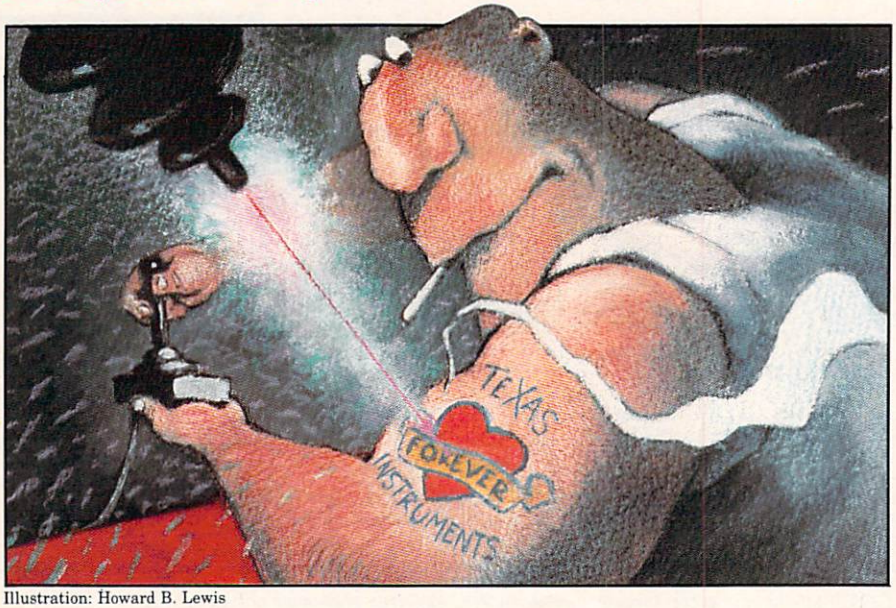


Illustration: Howard B. Lewis

Holy joysticks! That handy peripheral you've used to gobble power pellets and attack alien invaders has made its way out of the computer/video/arcade arena and into the doctor's office! Its use: helping docs remove tattoos, warts, and moles.

According to Ross S. Levy, M.D., assistant professor of medicine at Montefiore Medical Center (New York), joysticks are being used to guide lasers that cut or evaporate unwanted tissue. To remove an unwanted tattoo, for instance, the patient is given a local anesthetic, and the part of the body that displays the offending graphic is secured in a set position. The doctor then beams a laser "cursor" around the tattoo with a joystick controller.

The beam scans the area within the outline and burns off the skin, layer by layer, until just enough is removed to erase it. (Let's hope the doctor isn't a *Pac-Man* fanatic who gets carried away!) The laser beam seals blood vessels and nerve endings as it works.

The operation usually costs between $300 and $1,000 and also can remove skin cancers, acne scars, and certain types of birthmarks. Now, if anyone in your family is getting on you about the time you spend in front of the computer—joystick in hand—just tell them you're studying to be a doctor!

When you go in search of The Most Amazing Thing, don't expect to be home by dinner time.

Finding The Most Amazing Thing in the Whole Wide Galaxy isn't something you can do quickly.

In fact, you'll get so wrapped up in this computer game that you may have trouble coming back down to earth.

For starters, you get to fly, drive, bargain, eat, sleep, compose music, drill for oil, and speak 25 different languages.

Sound tough? Relax. You'll have the help of your old Uncle Smoke Bailey. He'll give you a B-liner (sort of a cross between a hot-air balloon and a dune buggy) to use on your journey. And he'll teach you about the Mire People and the strange languages they speak.

You'll visit the Metallican Auction, where you'll trade with tricky aliens. You'll shop for gadgets and gizmos to outfit the B-liner.

And you're off—in search of The Most Amazing Thing!

It will take time to find it.

But it'll be the best time you ever had.

IN SEARCH OF THE MOST AMAZING THING™ can be played on Apple,® IBM,® Atari,® and Commodore 64™ computers. To get started, see your local software retailer.

SPINNAKER™

We make learning fun.

Computer in the Sky

If the giant ball that drops every New Year's Eve pops into your head every time you think of Times Square, think again. Now there's a Times Square computer in the sky.

The computer is really a computerized lightboard owned by Spectacolor, which flashes commercial messages to the public. But for the past two years, artists have also been able to use the computer as a "drawing board."

Two weeks a month, a lucky artist can reach an incredibly broad audience for 35 seconds every 20 minutes. (Spectacolor and the Public Art Fund in New York City got together to create the project.)

The lightboard is 20- by 40-feet and has about 8,000 light bulbs arranged in a grid. The images on the lightboard are controlled by programs that run on a computer that's hooked up to one black-and-white monitor and one color monitor.

The color TV contains a grid of dots that corresponds to the grid of bulbs. Programmers who control the images create lines and patterns by using a joystick to move a cursor around the screen. The black-and-white monitor is used to write commands and communicate with the computer that runs the giant board.

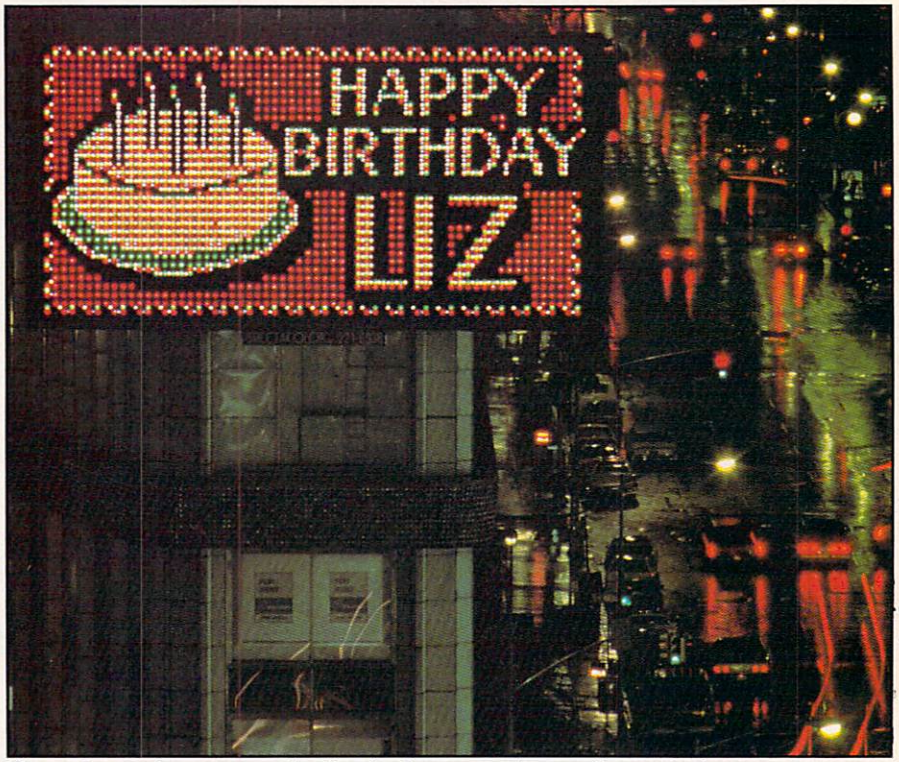


Photo: Spectacolor, Inc.

Times Square's computer in the sky has a captive audience during rush hour.

Images also can be created with a peripheral video camera that's hooked into the system, and a character generator that's used to write text. So the programmer also can create simple animated effects.

So, if you're ever in Times Square, look up at the computer in the sky and check what this month's artist has to say. As artist Michael Smith said, "It's nice to know that each night, during rush hour or gridlock, you have a captive audience."

—JANE KING

Doctor Disaster

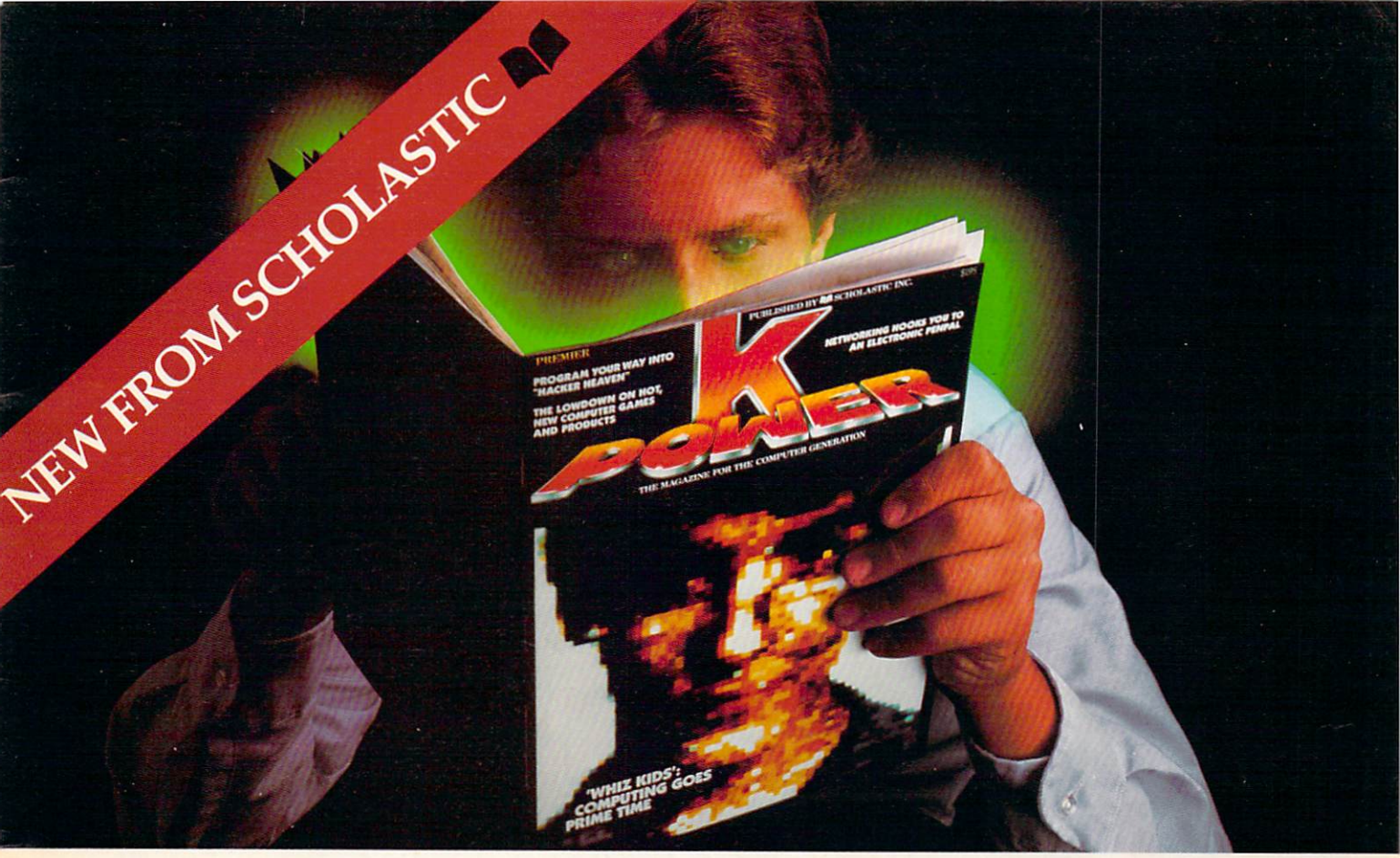
A steel-and-concrete suspension bridge sways and twists, then suddenly collapses. Glass flies and fenders rip as two cars smash into each other. A basketball player smashes a glass backboard into a million pieces as he slam-dunks a ball into the hoop.

These spectacular events are used by Dr. Dean Zollman, a.k.a. Doctor Disaster, to demonstrate the principles of physics to his students at Kansas State University. Zollman uses Apple II pluses to control Pioneer PR-7820 and Pioneer VP-1000 videodisk players. The player shows disks that Dr. D. compiles with physics experiments recorded on video, as well as real footage of disasters and accidents, acquired from various sources.

He also creates programs that command the disk player to show certain frames, or sequences, from the videodisks (there are some "smart" videodisk players that are programmable, but Dr. D. put his interactive system together by himself). His physics students can use the computer to recall, stop, and study the disaster, even to the point of taking measurements off the video screen. They can dissect the disaster and figure out what caused it to happen, while enjoying the effects of it.

Dr. Zollman currently is working on another videodisk, featuring sequences of athletes in action to explain the physics and mathematics of the human body.

—PAM HOROWITZ



At last...a computer magazine that talks your language.

Right now, you are talking a brand new language:

COMPUTER LANGUAGE

You're trying out new programs. Crossing new boundaries of communication. And experimenting with your computers' memory—the power of K.

And you're having fun doing it!

That's why K-POWER—the new computer magazine from Scholastic is so important to you.

Because it's packed with the same energy and excitement that computers are all about. With articles that ask you to take part in—and be part of—the future.

You'll learn about exciting new programs—and ways to write your own. About the problems other members of the computer generation are finding—and solving. About the brightest new stars in the computer field—and about some very surprising new technology.

And K-POWER gives you K-NET—an electronic network of other computing kids. Plus jokes, tips book and software reviews, interviews, games and contests. K-POWER is where computer-age kids like you turn to learn.

Get K-POWER at a special Charter price.

And right now, 12 issues of K-POWER—including the Premier Issue—are yours at the special Charter rate of only $13.97. That's 40% off the cover price! Plus, with your paid subscription, you'll receive the K-Power Collection FREE! It's our exclusive programming booklet with 10 one-of-a-kind computer games and puzzles. Just mail in the coupon or attached post-paid card to subscribe today!

SAVE 40%

☐ **YES,** please enter my 12-issue Charter Subscription to K-POWER at the special Charter Rate of $13.97 (a savings of 40% off the cover price!) And please send me the K-Power Collection FREE with my paid subscription.

I understand that I may cancel my subscription if not completely satisfied and receive a full refund for all unmailed copies.

☐ I want to save even more! Send me 24 issues for just $25.97. That's a full 45% off the cover price.

☐ Payment enclosed Send my FREE "K-Power Collection" right away.

☐ Please bill me later Send my "K-Power Collection" upon receipt of payment

Name_____ Age_____
(Please Print)

Address_____

City_____

State_____ Zip_____

Return to: K-POWER™ 5DAC0
P.O.Box 2725 Boulder, Colorado 80322

K-POWER is a trademark of Scholastic Inc.

K POWER™ **The magazine for the computer generation.**

SCROLLING IN DOUGH

Life in the software lane: Big bucks, limos, and clones

By Michael Sanders

EDITOR'S NOTE: *Michael Sanders got his start in the computer biz when a mysterious millionaire we'll call Monty hired his older brother, Steve, to create games for a new software manufacturer. Michael worked for the mysterious Monty, on and off, for seven months.*

To this day I'm astounded when I see the programs I worked on for sale all over the country. Even though I'm no longer employed by the company that bought the games, the work gave me an interesting look at life in the software business.

In early 1982, Monty hired my brother to help produce 400 programs in the coming months. Programmers were to be paid $500 a week and 12 percent of the gross profits from each program. I was hired to create a copy of an arcade game on my Atari 800.

After I finished that first program, I was invited to meet Monty at his unbelievably posh office in New York City (the kind that has a refrigerator and bar in one corner). He asked me to help with the filming of a promotional video for my game the next day. Although Monty gave me a $100 bill for carfare to the next day's shoot, that morning I found a limousine waiting for me. My new life as a game designer had begun!

Before long, things changed. Monty had us producing 10 programs a month, all in BASIC instead of assembly language, so more people could write them. The authors were to be paid a flat fee of $400 per program rather than royalties. These changes took the emphasis off quality and put it on quantity. At first I balked, but the lure of fast money was too tempting.

I started writing simple tennis and hockey programs. I also learned how to "clone"—that's how an author can turn one game into several by making slight changes in the graphics. On December 29, we were told to produce 150 programs by 11:59 on December 31, so Monty could write off our salaries on his 1982 taxes. Working feverishly for five hours, I produced a game and cloned it until I had nine more.

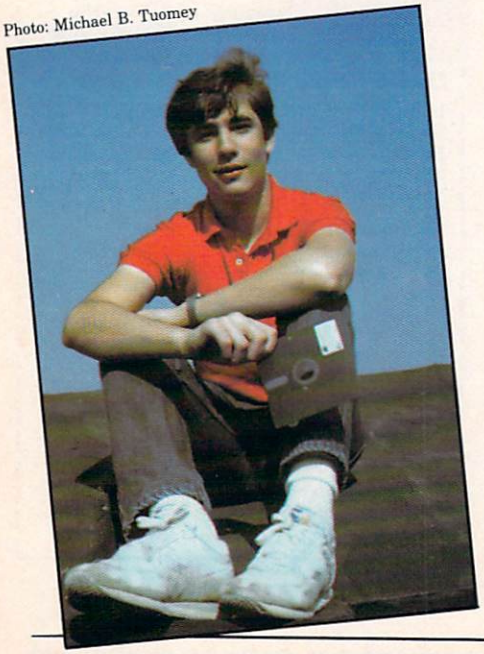
Cloning proved to be very profitable. I opened a bank account and deposited checks for thousands of dollars on a regular basis. I was living like a king, spending $100 a day on anything that caught my eye. I became money drunk, and bought everything in sight. Then, my clones came back to haunt me.

In early March, all the programmers were called in to revise their clones under the threat of lawsuits. We spent three frantic weeks writing new programs to replace them.

In mid-April, when Monty had all 400 programs, it ended. It was almost a relief to be out of the fast lane. But by then, I had amassed more than $15,000 writing computer games. I knew it couldn't last. My only regret is that I blew 80 percent of my earnings. If I had it to do over again, I would have squandered only half of it and saved the rest.

MICHAEL SANDERS *is 15 and lives in Great Neck, New York. He's back to everyday life now, but has other creative computing projects up his sleeve.*

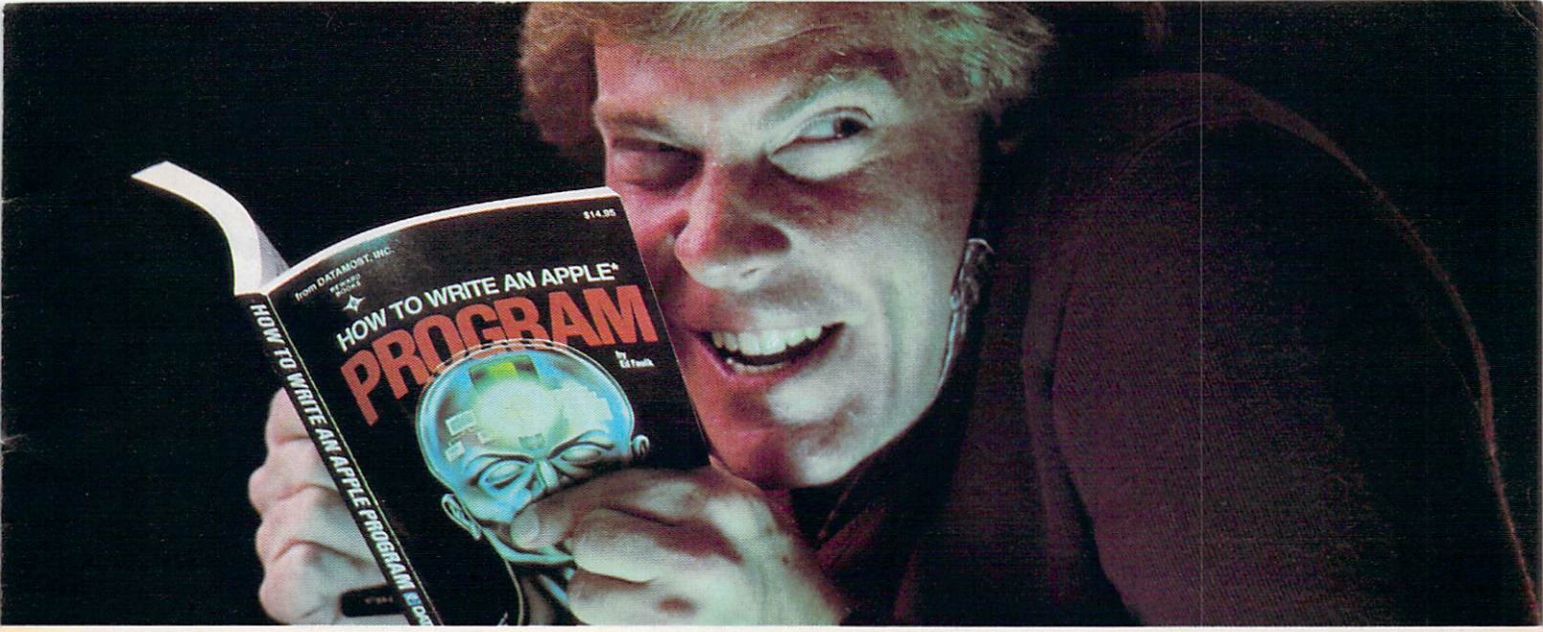
Photo: Michael B. Tuomey



Game designer Michael Sanders.

ARE YOU SCROLLING IN DOUGH?

K-POWER wants to hear about it. Send us your first-person account of how you've made or are making money with your computer skills. (You definitely don't have to be a millionaire to appear in Scrolling in Dough; we're interested in anything you're doing.) Stories should be no more than 300 words and double-spaced. We'll pay $50 for those we publish. Mail to: Scrolling in Dough, c/o K-POWER, 730 Broadway, New York, NY 10003.



Outsmart your computer.

Show your computer who's boss. Earn its respect. With a Datamost book.

No matter what age or ability level you're at, we have the right book that talks just to you. And your computer. Whether you own an Apple.* An Atari.* Or just about any brand.

All our books are incredibly easy to understand.

Which will make it incredibly easy to understand your computer.

What If You're Scared Of Books About Computers?

Don't be.

Our books are written in friendly, familiar American English. Highlighted with cartoons. And illustrations. So they're fun to read. As well as educational.

And there's over 30 books to choose from. Basic computer learning books to programming books to coloring books.

You won't be bombarded with complicated programming routines until you're ready for complicated programming routines. And no funny technical talk until you've reached the level where you don't think it's funny.

We'll tell you what you need to know. And then, when that's understood, you can take the next step toward outsmarting your computer.

Before You Spend Big Bucks On A Computer, Spend Little Bucks.

Once you've decided, kind of, almost, nearly, what type of computer you think you'd like to buy, buy a Datamost book.

It'll help you understand the Atari or the Commodore* or the Apple of your eye.

Before you spend a lot of money. Before you take your computer home.

You'll make a better purchase decision. Because you'll understand what you're doing. And what you and your computer can do together.

So there won't be any misunderstandings to ruin your new relationship.

How To Get The Most Out Of Your Computer.

Get the most out of our minds.

Datamost books for every computer. Everybody. Every level. Pretty smart, huh?

DATAMOST™ INC

The most out of our minds.™

Datamost, Inc., 8943 Fullbright Ave., Chatsworth, CA 91311, (213) 709-1202
*Atari is a trademark of Atari Computer.*Apple is a trademark of Apple Computer.
*Commodore 64 is a trademark of Commodore Business Machines, Inc.

Suggestion Box

Did you know that the producers of *The Exorcist, Psycho,* and *Texas Chainsaw Massacre* all used scary subliminal suggestions to make you quake in your seat? Now a company in East Lansing, Michigan, called Stimutech, has developed a way to use the same process to help you improve yourself.

They've come out with Expando-Vision, a new device that feeds subliminal messages to your subconscious while you watch TV. (Theater owners had been doing this sort of thing for years, until the government made them stop. They'd flash subliminal messages during movies to make you crave popcorn, soda pop, and candy.)

Expando-Vision is hooked to your personal computer and television set via an $89.95 interface. Programs ($39.95 each) are inserted into the computer. They flash positive messages, such as I CAN DO BETTER IN HISTORY, for one thirtieth of a second every two-and-one-half minutes. Or, I SEE MYSELF THIN, etc. This happens too fast for the human eye to detect. These suggestions are picked up by the "right brain," or the subconscious. The idea is that since you're relaxed and engrossed in "KnightRider" or whatever, you're more receptive to the subliminal ideas being presented.

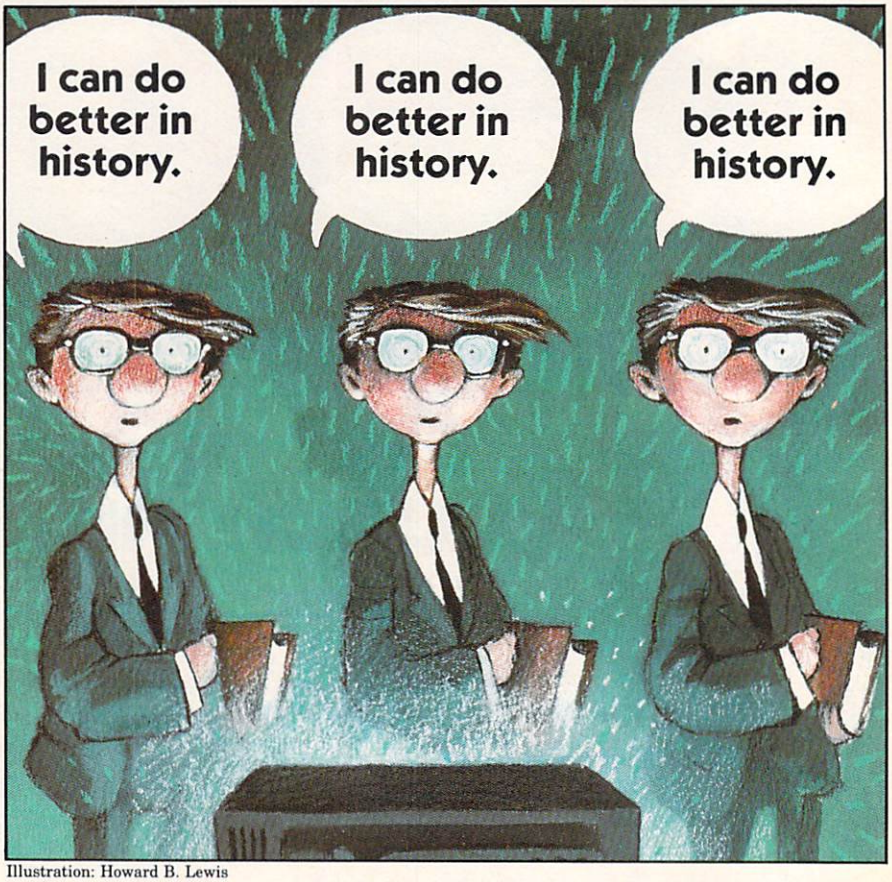


Illustration: Howard B. Lewis

Skeptics point out that these subliminal suggestions don't affect everybody, and that the effects of the messages soon wear off. For example, your history grades might improve for a few weeks, or they might not improve at all.

The people at Stimutech claim the messages will work on anyone who sincerely wants to improve him or herself and will take the time to watch the messages. They offer a money-back guarantee after 30 days if anyone thinks the subliminal suggestions aren't working.—P.H.


Photo: Fay Foto Service, Inc.

Joshua Goldman and his winning heart program.

A Lot of Heart

Fifteen-year-old Joshua Goldman is proof that a computer and creativity can go hand-in-hand. Wanting to learn more about the heart after his father suffered a heart attack, Joshua turned to his keyboard. Working with Roy Alexander, a designer of health exhibits, he created a program that teaches the functions of the heart and circulatory system. Multicolored graphics depict a heart and give the program visual appeal.

Joshua and Roy, both from Illinois, won the Grand Prize in the Heart Health Education Computer Software contest. They were awarded $1,500 for their innovative program, which will be available soon for purchase through the American Heart Association (33 Fourth Ave., Needham, MA 02194).—P.H.

Do you have what it takes

to survive the Devil's Dungeon? Or escape the uncharted jungle? Can you race in the Grand Prix? Or catch the daring jewel thief? How about trying the Rubik's Cube? Chills and challenges await you in Hayden's world of thrilling adventures, exciting chases, fast-paced action battles, and brain-teasing puzzles.

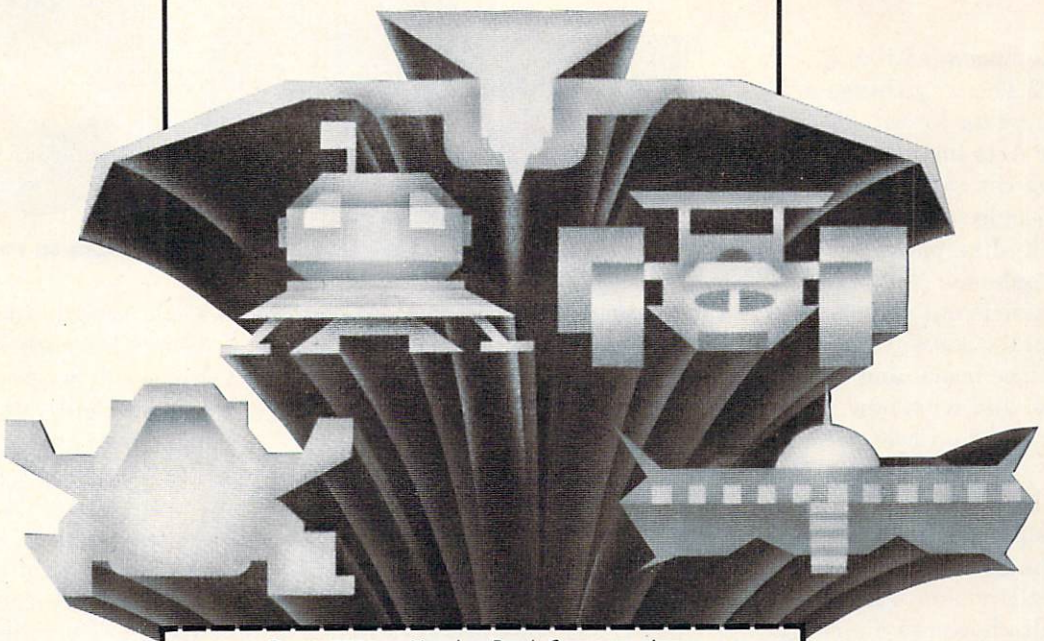
Become part of our exciting world today!

Stimulating Simulations (Engel) **Devil's Dungeon:** Mind-boggling treasures await you—if you can find your way through the lost caverns. Watch out for the bottomless pits and volcanic tremors—and the horrible monsters and demons. **Diamond Thief:** The museum . . . the priceless diamond . . . five suspects . . . clues . . . catch the thief . . . if you can. **Forest Fire:** A lightning bolt has ignited a huge forest fire. You have to save the surrounding forests and communities. Is there enough time? Contains nine other unique simulations such as piloting a space ship, managing a corporation, playing soccer, and more. **Versions Available: Microsoft™, #5170; Atari® #5197; VIC™ #5173. Apple™ #6317; Commodore 64™ #5201, TI-99/4A™ #6404. $7.50 each**

VIC™ Games (Hampshire) Contains 36 exciting game programs for the VIC-20. Arcade style and strategy games provide the thrills—driving skills are tested in the Grand Prix, nerve is tested in a field of landmines, cunning and daring is required to escape the jungle, patience is the key to solving Rubik's Cube. **#1060, $12.95**

Pascal Programs for Games and Graphics (Swan) Here are 22 more programs for video enjoyment—control space traffic at a busy moonport, compete in "light" bike races, and more. Also generates exciting displays of moving light, and the graphics editor allows you to custom-design character sets, save and change pictures up to full screen, and print a hard copy of the finished product on most printers. **#6271, $15.95**

Computer Bridge (Throop) A must for anyone interested in bridge programming. Shows how it can be implemented on a microcomputer. Bridge programs such as Bridge Challenger, Bridge 2.0, Goren Bridgemaster, and Bridge Tutor are evaluated for strengths and weaknesses. Sample hands illustrate bidding and playing options. **#6253, $9.95**



Mail to: Dept.. **KP24** • Hayden Book Company, Inc.
10 Mulholland Drive • Hasbrouck Heights, NJ 07604

Please send me the book(s) indicated below by code number. If I am not completely satisfied, I may return the book(s) undamaged within 10 days for a complete refund. **I am enclosing $2.00 to cover postage and handling.**

☐ **Enclosed is my check or money order. Bill my** ☐ **Visa** ☐ **MasterCard**

Name _____

Address _____

City _____ State _____ Zip _____

Visa/MasterCard # _____ Exp. _____

Signature _____

Residents of NJ and CA must add sales tax. Prices subject to change.

Hayden

Order by Phone
1-800-631-0856
operator KP24
In NJ call (201) 393-6315

Apple and TI are trademarks of Apple Computer, Inc. and Texas Instruments, respectively. Commodore 64 and VIC are trademarks of Commodore Business Machines, Inc. Atari is a registered trademark of Atari, Inc. Microsoft is a trademark of Microsoft Corp. None is affiliated with Hayden Book Company, Inc.

Compute-a-Suit

Those designer jeans everyone wears might be flashing different labels soon—like Atari, IBM, or Apple. Computers haven't replaced sewing machines yet, but they are getting into clothing design and tailoring. It might not be long before they take over the fashion field and designers merely push a few buttons to "compute-a-suit."

For example, Burton's (a clothing store in London) uses a computer to get the most mileage out of a bolt of cloth.

When a person is measured for a suit, the measurements are fed into a computer. They're then transferred to a heat-sensitive paper pattern, which is fused

Illustration: Howard B. Lewis

onto the fabric with a special machine. From there, it's easy to cut the material into the desired pieces to make the suit, pants, or designer jeans. So, once your measurements are a part of Burton's data base (and if you stay away from those pizzas, cookies, and hot fudge sundaes), you can almost always be assured of a perfect fit.

Before Burton's became "computer efficient," pattern layout was done by hand. It took longer, and there was a lot of wasted material. According to George Thomas, manager of Burton's, it used to take one person about 40 minutes to lay out a pattern for a suit. With the computer—presto!—it's done in minutes.

When the new system was installed, Burton's had their tailors compete with the computer to test its efficiency. As you might guess, the computer won. —P.H.

The Look of Software to Come

Infocom, Electronic Arts, and Simon and Schuster shake up the software market with pow! packaging.

Software packaged like a candy bar? The way things are going, you never know! Electronic Arts has been shaking up the software-packaging field with its record-album look-alike packages and "artist" emphasis. Now, Simon and Schuster is entering the fray with computer software packaged like books and sold in bookstores, and with new programs based on best-selling books.

To hit this new market, Simon and Schuster has created what's called their Electronic Publishing Division. The division also hopes to distribute their new products to toy stores, mass merchandising outlets, and consumer electronics stores. Some of its first in-house releases will be an adventure series based on Douglas Adams's popular book—*The Hitchhiker's Guide to the Galaxy*, a *Star Trek* game, and educational games featuring the Muppets.

Simon and Schuster packaging will resemble high-quality books, according to Alvin B. Reuben, executive VP for sales and administration. The idea is that the software will be kept on a shelf and used for years by all members of the family, he said.

Electronic Arts, on the other hand, has gone the glitz route with some of the most innovative packaging around. The company's software is housed in classy miniature LP record covers with great graphics and fun-to-read documentation. You've probably seen their software in book and record stores. The company would probably love it if gamers formed fan clubs for their games and game designers. They're touting their "electronic artists" (designers and programmers) like rock stars with publicity and cover credits.

Rich Melman, Electronic Arts' VP in charge of marketing, explained the company's record "focus": "Certain types of software are heavily bought by teenage boys. They're also the ones who spend money on record albums."

Interesting. Since everyone spends money on sweets, we're waiting to see computer software distributed from the candy machine, next to the Milk Duds.

programmer's

READ THIS...

* WHO TO SELL YOUR PROGRAMS TO
* THOUSANDS OF COMPANY NAMES AND ADDRESSES, WITH DETAILED LISTINGS SHOWING:
  (1) WHAT PROGRAMS PUBLISHERS ARE LOOKING FOR
  (2) HOW THEY WANT YOU TO SUBMIT YOUR PROGRAM
  (3) HOW MUCH THEY PAY — AND WHEN!
* 100 CATEGORIES — FROM "ACCOUNTS RECEIVABLE" TO "GAMES" TO "VIDEO CONTROL" PROGRAMS
* HOW TO WRITE CLEAR DOCUMENTATION
* DEBUGGING TECHNIQUES

Order Your Copy Today!

Enclose check or money order for $19.95 (No C.O.D.'s) to:

IPF Publications
146 Country Club Lane
Pomona, NY 10970
(914) 354-5585

Name .....

Address .....

City..... State..... Zip.....

Defense for Stupid Games

Your mom tells you to "stop playing those stupid games on your computer!" Your dad threatens to take away your interface card if he hears one more "blip" out of the computer. So what's a hacker to do?

Tell them about Dr. Robert Olton, manager of behavioral research at Atari. His findings indicate that all those stories about computer games' negative effects are washed up.

Dr. David Brocks, one of Olton's colleagues, made some detailed observations of video game players, comparing their behavior before and after visiting their local video arcade. Brocks discovered games were a way of releasing tension.

As far as kids getting hooked on games, Olton gives a big thumbs-down to that theory.

Olton also recommends programs like Electronic Arts' *Pinball Construction Set*. He says this type of game encourages creativity.

So, the next time your parents or relatives get down on you for spending too much time playing games, just show them Dr. Olton's research. It proves what you've probably known all along—computer games are good for you! —P.H.

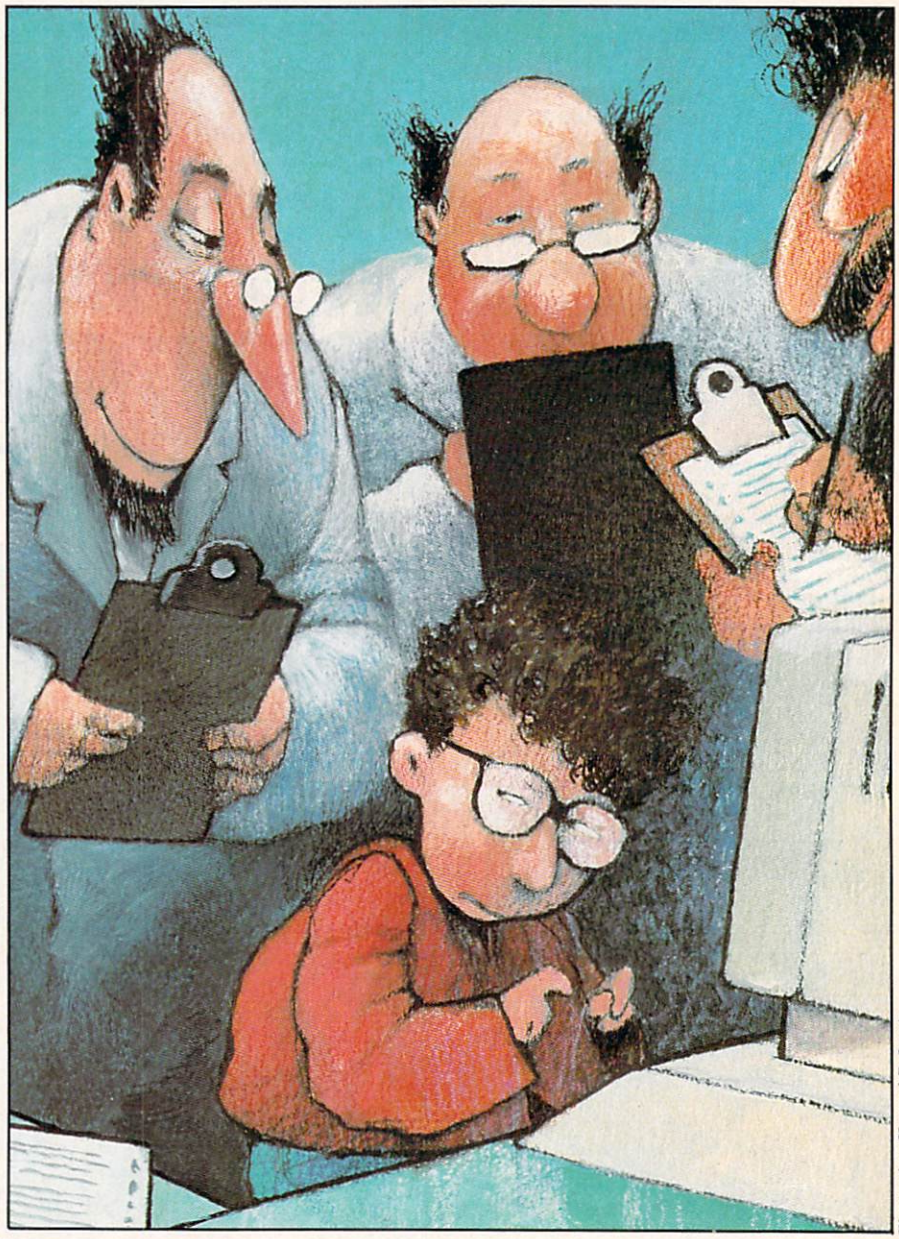


Illustration: Howard B. Lewis

First Aid for Computer Illiterates

Full of the "Fall Guy"? "A-Team" got you down? If you're bored with the same old prime-time TV fare, twirl your dial to this new PBS computer show.

It's called "Bits and Bytes" and it's a 12-part series. Novices can watch to pick up some elementary computer know-how.

More adventurous viewers may enroll in the series "Academy on Computers," which is sort of a correspondence course.

Although "Academy" registration closed in December, you still can catch "Bits and Bytes" on the tube when it premiers on January 22. —P.H.

COMPUZINE

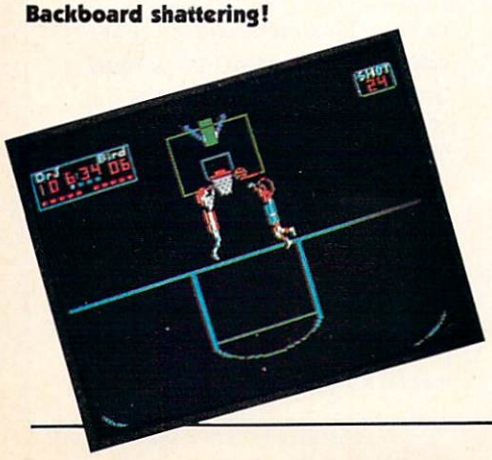
If you've got a hot computer/technology-related bit of information or a news scoop, let us know. K-POWER will pay $25 for each item we publish. Write to: Compuzine, c/o K-POWER, 730 Broadway, New York, NY 10003.

Silicon ALLEY

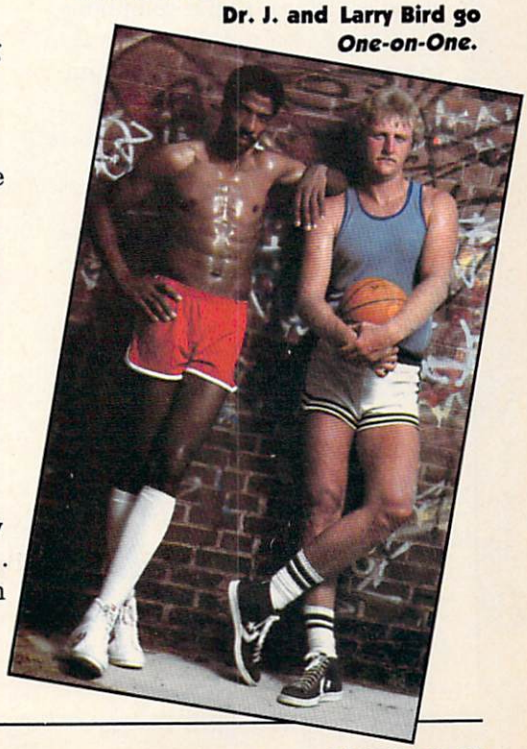
Ready for the hottest scoops from the Valley? Check out these clues to the latest computer news.

THERE IS ABSOLUTELY NO TRUTH TO THE RUMOR THAT BOY GEORGE IS GOING TO PROMOTE GAMES FOR ATARI!!! . . . That's right, we got the latest from Atari and they said they definitely are not considering Boy George for celebrity endorsements or promotional tie-ins to their products. So much for all that vicious gossip . . . HOW ABOUT A COMMODORE PET WITH 128K FOR ONLY 12 BUCKS??? . . . That's right! Datatronic, Commodore's Swedish vendor, is selling those PETs for 100 Swedish crowns ($12.50 in American dollars) to protest the Swedish government's regulations over sales of hardware and stuff like that. Don't try buying one because of the cheap price, though, 'cause they're charging mucho dinero for the software to make up for the super-low prices . . . SPEAKING OF STEALS . . . Fingermatrix, Inc., has developed a fingerprint-verification access system that the Chemical & Chase Manhattan Banks, as well as the Air Force, are already using. It won't be long before most computer systems have tough security protection that the average hacker will not be able to break. But computer crime specialists are saying that many of these security devices (like retinal-eye scanning, voice-pattern analysis, etc.) are too large of an investment for battling what they call the raider problem. Hey! If they could solve the security problems, what would CBS's "Whiz Kids" use for a storyline, huh? . . . SPEAKING OF UNAUTHORIZED INTRUSIONS . . . The writing team that started all the brouhaha, Larry Lasker and Walt Parkes (they wrote *WarGames*, remember?), are working on a new film that involves computer espionage. The idea for the movie came out of the research they did on *W.G.*, and, this time, the story will involve adults (it's about time they stopped blaming everything on us kids!). We've heard that they're going to call it *Sneakers*, believe it or not . . . BLAME IT ON THE STONES . . . Yes, those irascible rockers are at it again. This time, it's quiet Bill Wyman who's making all the noise! Bill, who plays bass for the boys, has been keeping a diary of everybody's favorite rock group for the last 21 years and is slowly but surely transcribing all the information into his Apple IIe! He should have their entire history completed in a few years. EVEN AS WE SPEAK . . . Imagic has worked out a deal with IBM to create games for the PC*jr* (see Rising Stars for more on *jr*). The popular *Demon Attack* will be the first game out and two more will be announced any minute! . . . ON A MORE PRACTICAL NOTE . . . We got a look at the new Ovation Technologies' line of business software, strictly state-of-the-art stuff that's the ultimate in spreadsheets, word processing, and data-base management. Yeah, it may not mean much to you now, but just wait till you gotta go out and get a job! . . . MOST EXCITING SPORTS GAME IN TOWN? . . . *Julius Erving and Larry Bird Go One-on-One*, a new game designed by Eric Hammond for Electronic Arts. The player assumes the personality and playing style of Dr. J or Mr. Bird in arcade-quality action. We can tell you that it features hot & cold shooting spells, fouls, instant replays, player fatigue, and (shades of Darryl "Sir Slam" Dawkins) BACKBOARD SHATTERING! We can't tell you if they added finger-rolls, sneaker endorsements, or bench-clearing brawls . . . WHOOPS! GOTTA GO . . .

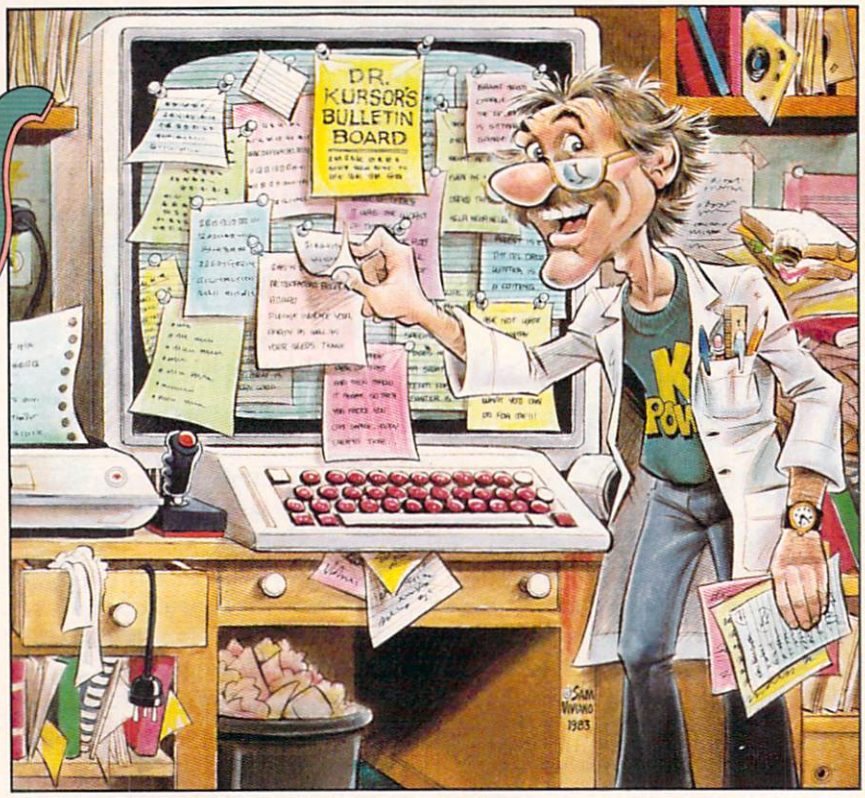
Backboard shattering!



Dr. J. and Larry Bird go *One-on-One*.



DOCTOR KURSOR'S KLINIC



Starting your own BBS

How can I start up a bulletin-board system?

DR. KURSOR: Running a bulletin-board system (BBS) can be a great way to meet other people who share your interests, to exchange information and software, and to learn a whole lot about programming, computer hardware, and data communications. As the SYSOP (system operator) of a BBS, you'll also be performing a public service: helping other people meet and exchange info.

Setting up a BBS is easier than most people think. The minimum requirements are a micro with 48 or 64K, a disk drive, an auto-answer modem, some software, and a telephone. Assuming you already have the computer, the extra equipment could be purchased for about $500—less if one considers used equipment.

There are many bulletin-board software packages available. Some of the best are actually in the public domain (that means FREE!), and are easy to get through bulletin boards and information services themselves. For example, AMIS, an Atari BBS program, is available through the ARCADE BBS ((313) 978-8087—SYSOP Jim Steinbrecher) or in the XA2 data base in SIG (Special Interest Group) Atari on CompuServe.

But if you're reasonably clever, the best way to set up a BBS is to write your own system. This can be done either in a high-level language (including BASIC) or in assembler. Writing a bulletin-board program can be a fairly big chore, but there's no better way to come up with a board that has all the features you want. At baseline, you'll need a subprogram to scan the phone line for a ring, answer, and drop the caller into the running main program.

After you start your system, expect to have to deal with increased maintenance and repair costs for equipment (especially disk drives). Just keeping a bulletin board up to par involves more than a small commitment of time and effort. It's not unusual for a BBS SYSOP to budget an hour or more per day for answering electronic mail, clearing out old information from the board, and updating records.

How does a touch tablet like the KoalaPad work?

DR. KURSOR: Beneath the drawing surface of a KoalaPad are a pair of plastic sheets, coated with a carbon substance that offers resistance to the flow of an electric current. These sheets face one another in such a way that pressure on the surface of the pad causes contact to be made between them.

Every thousandth of a second, a current is alternated to pass from side to side through one sheet, from top to bottom through the other. Contact between the sheets causes a short circuit whose position is read first horizontally, then vertically, by components in the pad. This information is then translated into a form that can be interpreted by the analog-to-digital converter in a particular computer. Essentially, the KoalaPad emulates the signal a computer would receive from a joystick or paddle.

Illustration: Sam Viviano

Tough competition.

The world may be short of oil. And short of jobs. But there's no shortage of entertainment. Arcades. Movies. Amusement parks. TV. Concerts. Records. You've got your choice. And every day, more of you are choosing HesWare™ computer games.

That's because only the best games earn the HesWare title. Tough, challenging, arcade quality action games like Gridrunner,™ Predator,™ Retro Ball,™ and Robot Panic.™

Mind-bending strategy and role playing adventures like Pharaoh's Curse™ and Oubliette.™

Zany new titles that have to be seen to be believed. Would you believe Attack of the Mutant Camels™??

You don't need an expensive computer to enjoy HesWare action, either. HesWare programs are available on cartridge, diskette or cassette for VIC 20,™ Commodore 64,™ Atari® and IBM® personal computers.

When you pick up a HesWare game, you know it's ready for the toughest test of all: beating out the tough competition for your attention.

HesWare games. Just one of the ways HesWare is expanding the computer experience. Look for them at your favorite software retailer.

Pleases the tough customer.

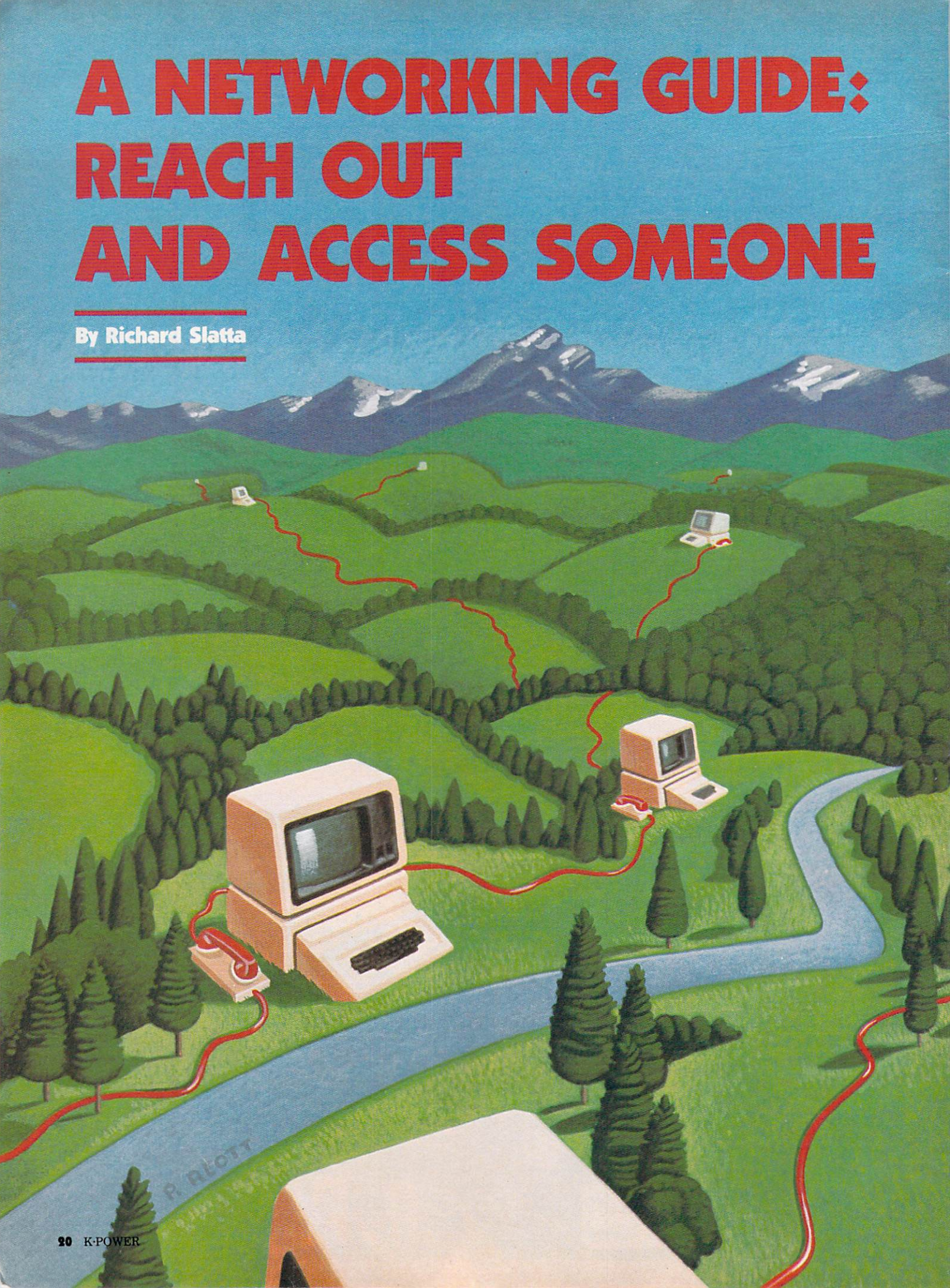
HesWare™

Human Engineered Software
150 North Hill Drive
Brisbane, CA 94005
800-227-6703
(in California
800 632-7979)
Dept. C20

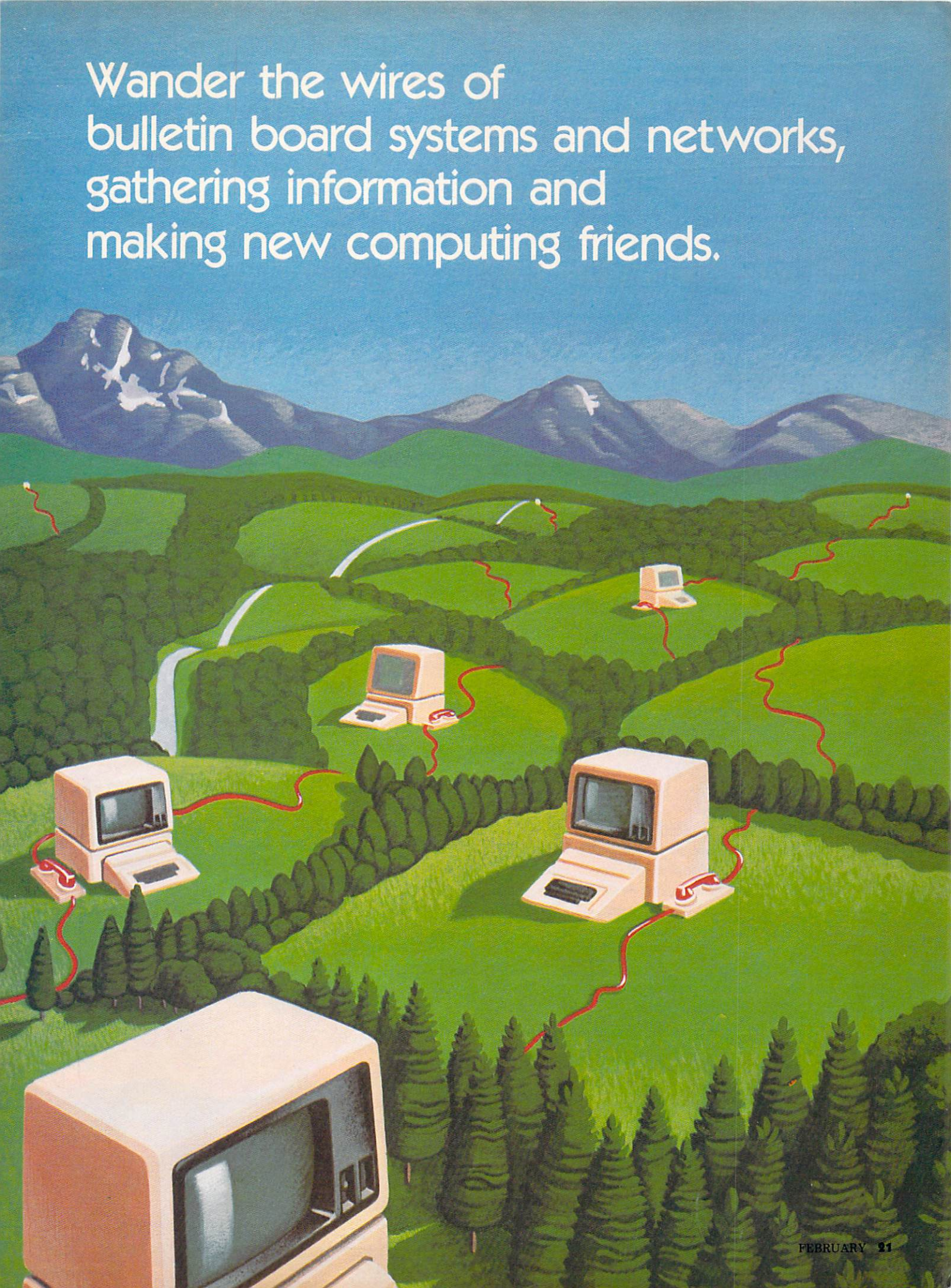
VIC 20 and Commodore 64 are trademarks of Commodore Electronics Ltd. Atari is a registered trademark of Atari, Inc. IBM PC is a registered trademark of International Business Machines. Pharaoh's Curse is a trademark of Synapse Software. Oubliette is a trademark of ISA Software.

A NETWORKING GUIDE: REACH OUT AND ACCESS SOMEONE

By Richard Slatta



Wander the wires of bulletin board systems and networks, gathering information and making new computing friends.



Animal, Kinky, and Wide Eyes. Three code names from the wacky world of networking. Midnight conversations, electronic pen pals, and wire for hire are the name of the networking game.

Animal is really an owner of an oil company, Kinky is a bulletin board SYSOP in San Francisco, and Wide Eyes is the technical editor of a computer magazine. Computer users like them take these "handles" while communicating on the "CB" channel of CompuServe or the "chat" line of The Source.

Half the glamour of networking is "wandering the wires" of electronic bulletin boards and networks and making new computer-user friends. But there's a lot to learn from telecomputing, too.

There are loads of networking services for hire that are good for student research. And whole services—like GameLine/Control Video Corp. and Game Master—are devoted entirely to game playing. Some services even let you "buy" products by computer, order airline tickets, do your banking, check out the stock market or the weather, send mail, and read the latest movie reviews.

None of this is cheap, however. Initiation fees for networking services (like BSR/After Dark, CompuServe, DELPHI, Dialog, Dow Jones News/Retrieval, PLATO, and The Source) range from $15 to $100, and hourly rates go from $5 to $300 an hour.

Shopping for the right equipment and the right service is going to take a little legwork. Plug this shopping list into your computer: SUBSCRIPTION, MODEM, SOFTWARE, CABLE, PHONE LINE. That's what you'll need. Don't pick a certain brand of modem just because your buddy has it. Remember that different networks have different technical requirements. Be sure to choose the networking service based on what you want to be able to do. Then ask the service's representatives for help in finding the right equipment.

K-POWER's Networking Guide will help, too, with a list of inexpensive modems and the lowdown on networking lingo. Plus, read about Steve Lucovsky who runs his own bulletin board system (BBS) from his sister's bedroom. And if you're really interested in reaching out and accessing someone, check out K-POWER's K-NET CONTEST (page 72). You could win a free K-NET hookup! □

RICHARD SLATTA *is a freelance writer in Raleigh, North Carolina, who often writes about computing.*

Illustration: Paul Reott

BULLETIN BOARD BEDROOM

While Steve Lucovsky's sister is away at college, nearly 270 people are using her bedroom. They're using it to communicate. Fifteen-year-old Steve has parked his TRS-80 Model III computer in her room to run his own electronic bulletin board.

A tenth grader from Cary, North Carolina, Steve started what he calls the Triangle Area Bulletin Board System (BBS) last July. Computer users from more than 32 states—and Puerto Rico—have hooked up to his board.

Although Steve is SYSOP of the Triangle Area Bulletin Board, the majority of its users are adults. Only 50 kids have hooked up to Steve's electronic bulletin board so far.

Users can send and receive mail, swap info, sell items, conduct rap sessions, or adventure into the private sector of the board. Sports fans can see the latest basketball and football scores and can make future predictions with their bulletin-board friends. Steve even has a computer dating service that, he says, "gives users a chance to leave a little message about themselves" and an X-rated channel he says is used by adults for "a lot of bragging."

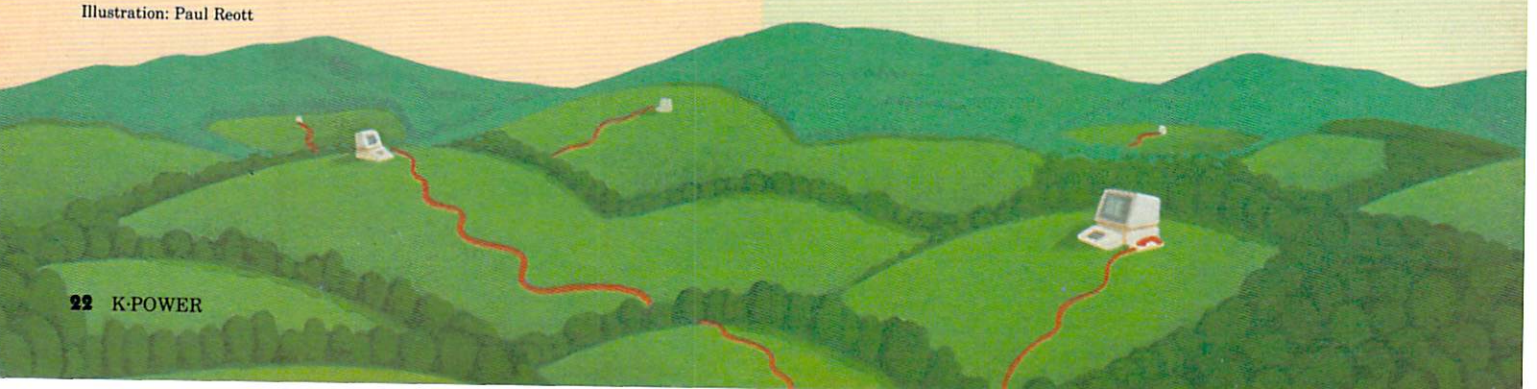
Software-piracy messages and game swapping are not allowed on Steve's BBS. "Mostly everybody on here tries to stop it," he said. In fact, he's so opposed to piracy that he helped pinpoint one offender.

Steve put together the bulletin board using his Radio Shack computer, printer, and a Hayes Smartmodem 300. Users help pay for the bulletin board with small donations.

Steve hopes to land a job as a SYSOP on a major telecommunications service one day, and has college plans to study computer sci.

The Triangle Area Bulletin Board System is open from 7 a.m. to 9 p.m. Monday thru Thursday; 7 a.m. to 10 p.m. Friday; 9 a.m. to 10 p.m. Saturday; and 9 a.m. to 9 p.m. Sunday. The number is (919) 467-9836.

—BERNADETTE GREY



NETWORKING LINGO

Last time you were HANDSHAKING, did your BULLETIN BOARD SYSOP tell you your DOWNLOADING PROTOCOL wasn't FULL-DUPLEX? If all this networking lingo is Greek to you, read on for the latest in terminology.

Asynchronous Communication: A method of sending data over lines, one character at a time, without synchronized timing between sending and receiving devices. A start bit and at least one stop bit indicate the beginning and end points of the data.

Auto-Answer: A modem feature that permits the unit to answer incoming calls automatically. Electronic bulletin boards need this kind of modem.

Auto-Dial: A feature a modem needs to store frequently called numbers in memory and automatically dial them.

Auto-Redial: A modem feature for redialing a number until contact is established.

Baud Rate: The speed at which data can be transmitted over phone lines. The number refers to the amount of communication-line changes per second. Three hundred baud—which permits about 250 words per minute—is the most common rate for modems. Twelve hundred baud—which permits the transmission of many more words—is also possible in more expensive modems.

Buffer: A device for temporary storage. For example, data coming in through a modem might be stored temporarily in a buffer.

Download: The ability to receive and save files transmitted to your computer from a remote source. The practice of sending files to a remote source for storage is called **Uploading**.

Electronic Bulletin Boards: Computer communication systems. You get their telephone numbers and log on. They allow users to leave and pick up messages, and to communicate with other computer users all across the country.

Full-Duplex: A way of communicating in which data sent by one terminal to another is immediately echoed back to the originating terminal. In **Half-Duplex** communication, transmission occurs in only one direction at a time. Whether communications is occuring in half- or full-duplex mode has less to do with the modem than with the terminal programs that are managing the exchange of information at either end of the line.

Handshaking: The ability of two systems to indicate they're ready to carry out functions. For example, A: READY? B: YES. A: TRANSMIT DATA.

Junk: Also known as garbage. You'll know this stuff when you see it. It's random, meaningless characters that appear on the screen when proper communication isn't established with a remote system.

Modem: Short for modulator/demodulator. Modems permit computers to communicate with other computers or remote systems. They translate the digital data of the computer into analog data necessary for phone lines. Then they translate it back again. An **Acoustic Modem** has rubber cups that fit over a phone handset to establish communications. **Direct-Connect Modems** plug directly into phone lines with a standard modular plug.

Off-Line: Services or equipment that aren't directly connected to an on-line central processor. It's often cheaper to have data printed out off-line and mailed, as opposed to paying high on-line rates to receive the info over a computer monitor.

On-Line: The term signifying that terminals and disks are connected to a computer. In telecomputing, it means being connected via modem to a telecomputing service. Charges usually are based on the amount of time spent connected on-line.

Protocol: A set of rules or conventions that permit two computers to communicate.

Public-Domain Software: Free programs available for downloading from remote systems.

Sig: A Special Interest Group whose members share information and communicate around a common theme or topic often via modem.

Sysop: Jargon for System Operator, the name for the person who monitors a bulletin board and keeps things running smoothly. Pronounced "sis-op."

Telecomputing: Connecting a home computer to remote systems.

Terminal Program: Also called "communications software," it signifies software that allows your computer to hook up with other computers. Sometimes terminal programs are provided by modem manufacturers; sometimes you have to buy separate ones.

THE LATEST IN LOW-COST MODEMS

K-POWER thinks hooking up to other computer users and services across the country shouldn't cost an arm and a leg. Here's a list of some of the modems we've seen that retail for less than $200.

Atari 1030
Direct-connect, originate and answer, full-duplex.
List price: $130. Telelink II software: $25.
ATARI, 1265 Borregas Ave., Sunnyvale, CA 94086; (408) 745-2000.

Bizcomp 1080
Direct-connect, originate only, full-duplex only.
List price: $139 for Commodore, Atari, and others.
BIZCOMP CORP., 532 Wedell Dr., Sunnyvale, CA 94089; (408) 745-1616.

Comdata 305E2-12
Direct-connect, originate only, half- and full-duplex, RS232 connection.
List price: $117.
COMDATA CORP., 7900 N. Nagle Ave., Morton Grove, IL 60053; (312) 470-9600.

C1600 VICModem
Direct-connect, originate and answer, half- and full-duplex, with software.
List price: $99, discounted to $59; 1650 automodem, $149, discounted to $95.
COMMODORE, 1200 Wilson Dr., West Chester, PA 19380; (215) 431-9100.

HesModem 1
Direct-connect, originate and answer, half- and full-duplex.
List price: $69.95.
HESWARE, 150 North Hill Dr., Brisbane, CA 94005; (415) 468- 4111.

LEX-11
Acoustic, originate and answer, half- and full-duplex, RS232 connection.
List price: $159.95.
LEXICON CORP., 154l NW 65th Ave., Ft. Lauderdale, FL 33313; (305) 792-4400.

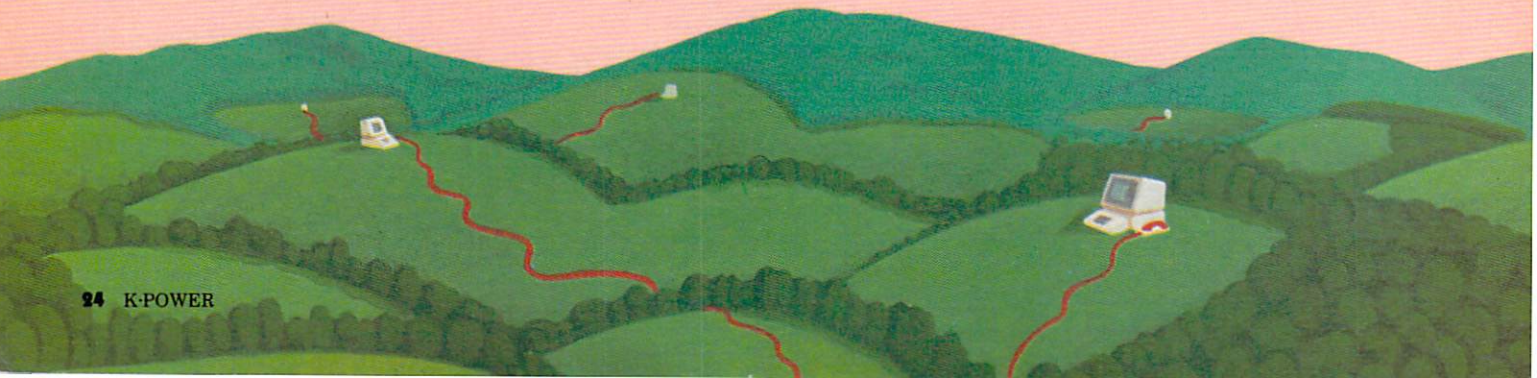
MFJ-1232
Acoustic, originate and answer, full-duplex only, optional software available.

Comdata 305E2-12

LEX-11

C1600 VICModem

MFJ-1232



List price: $129.95.
MFJ ENTERPRISES, INC., 921 Louisville Rd., Starkville, MS 39759; (800) 647-1800.

Networker Modem
Direct-connect, originate and answer.
List price: $129.
ZOOM TELEPHONICS, INC., 207 South St., Boston, MA 02111; (800) 631-3116.

Novation J-CAT
Direct-connect, auto answer/originate, full-duplex only, compact size.
List price: $149.
NOVATION CORP., 20409 Prairie St., Chatsworth, CA 91311; (800) 423-5419.

Radio Shack Direct-Connect Modem 1
Direct-connect, originate and answer, full-duplex only.
List price: $99.
RADIO SHACK, 1800 One Tandy Center, Ft. Worth, TX 76102; (817) 390-3300.

US Robotics Phone Link
Acoustic, originate and answer, half- and full-duplex, RS232 connection.
List price: $149.

US Robotics Micro Link 300
Direct-connect, originate and answer, full-duplex only.
List price: $239.
US ROBOTICS CORP., 1123 W. Washington, Chicago, IL 60607; (312) 733-0497.

Volksmodem
Direct-connect, originate and answer, full-duplex only.
List price: $69.
ANCHOR AUTOMATION, 6913 Valijean St., Van Nuys, CA 91406; (213) 997- 6493.

WEBCOR ZIP Modem, model 200
Direct-connect, originate and answer, full-duplex only.
List price: $99.95.
WEBCOR ELECTRONICS, INC., 28 South Terminal Dr., Plainview, NY 11803; (516) 349-0600.

PIRATES AND RAIDERS

THE COMPUTER-ABUSER SUBCULTURE

Raiders are "getting a kick" out of entering unauthorized systems and pirating software. But crime stoppers are finally catching up.

Interview by Pam Horowitz

WarGames was just a movie. But it brought the fantasies and realities of computer raiding to America's attention.

The reality is that a lot of computer users are performing some less-than-legal computing feats. And they're doing it "for the fun of it." Some raiders do it because they get a kick out of "beating the system." And some see computer access (to anybody's computer) as just another puzzle to solve.

Here's a rundown of what the newborn computing subculture is doing most:

Software piracy—hooking their computers to modems to copy software.

Phone phreaking—using telephone lines and modems illegally. This often involves the abuse of Telenet or Tymnet communications systems.

System hacking—using the computer and modem to tamper with bank balances or conduct transactions such as ordering concert or airline tickets without paying for them.

The computer users responsible for this networking abuse often don't think they're doing anything wrong. In fact, at press time, there was no actual federal law against unauthorized intrusion into computers (going into other computer files without permission).

But there are laws against wire fraud, interstate transport of stolen property, and the use of telephones to get computer services without paying for them. Recent headlines show the confusion and comment this kind of computer exploration is eliciting:

- Computer Capers: Trespassing in the Information Age—Pranks or Sabotage?
- FBI Raids Homes in Snooping by Computer
- The 414 Gang Strikes Again
- Thrills and Lax Security Cited in Computer Break-In

Why do computer users take the risk? K-POWER recently talked with some active members of the teenage computer-abuser subculture. The names of those interviewed have been changed. Although

Photo Collage: Marc Tauss

they've all tried their hands at all sorts of computer activities, pirating software remains one of the most popular pastimes.

What is the most serious form of computer abuse you've participated in?

PAULA: Using a modem, I tied into an attorney's computer. I read the messages and accidentally deleted them. Some of them seemed important. They related to patents, etc.

JIM: While searching for the CableVision computer, I added material to a data bank. I don't know who the bank belonged to. I've also been with kids who got free airline tickets, but I didn't participate. I was an observer.

KEITH: I called the cash manager of Citibank using a number I found on an electronic bulletin board. I could have broken in and transferred funds, but I didn't want to go that far. Any pirate can call into a pirate bulletin board and access many cracked programs. I've also found illegal MCI and Sprint codes, and cheating and cracking techniques. All you need is a telephone and a computer.

HANK: I've logged on to unattended computers after finding carelessly hidden passwords. (The way the *WarGames* star accessed the school's computer with a password found under a secretary's desk.) Or, I've sent electronic mail to someone's terminal and imbedded a hidden control code in the message. The codes let me within the system. For gaining access to remote systems, I'll use random-number-generating programs to try and discard phone numbers in different area codes.

MARK: I've hooked up two computers and two modems and had them exchange numbers until they found the right one. This way I get Sprint numbers for a lot of California software and hardware companies. They don't all have 800 numbers and it would cost me a bundle to call them up and pay for it myself. The Sprint number lets me call them for free.

Do you consider these kinds of computer hijinks to be criminal? For instance, how would you compare shoplifting to the sorts of things you're doing with your computer?

JIM: There's no physical substance to something like pirating software. I've paid for the disks I use to copy on, and I would never pay the store prices for games. I hardly ever use them. I only collect them. But if it's done for money, it's wrong.

MARK: It is crime. It's illegal and wrong. Anyone who doesn't admit it just doesn't want to admit it to himself. Sprint is losing money when I use their numbers illegally.

PAULA: If I shoplift, I'm taking something away from someone. If I pirate, I'm not really taking anything. There's no loss of sale, because I wouldn't have bought the software. I'd have done without it.

I think that hard-core piracy for destructive purposes is morally wrong. I don't think it's wrong if it's done for fun.

KEITH: With piracy, there's little risk of getting caught. It's fun because you learn so much about the computer by doing it. You don't even have to be gutsy!

STOP THE PIRATE: LOCK IT UP

Jeff Gold is battling against a favorite pastime of many of his own peers—piracy. And he's bringing in $2,000 a week doing it.

It all began two years ago, when Jeff wrote a program called *Rubik's Cube Unlocked.* The program was a big hit and earned him $20,000. After that success, he turned his attention to filling what he saw as a gap in the computer marketplace. He saw the need for a software-protection device and created a program called *Lock-It-Up.* Now 17-year-old Jeff is president of the $100,000-a-year company (named Double-Gold Software Inc.) when he's not busy at the University of California in Santa Cruz.

Lock-It-Up is a disk copy-protection and duplication system that prevents pirates from breaking into software systems.

The young entrepreneur says he's always been opposed to software piracy. His reason: "It's not legal. You're cheating the person who worked so hard to build the product."

He advises hackers to "come up with new creative uses with the computer. Do something profitable. Pirating isn't profitable." —P.H.

Why do you do it?

PAULA: I want to keep adding to my software collection. Piracy is a social event, a big game. It's like belonging to an elite club.

JIM: Piracy is condoned by everyone—even in school. Many software authors do it themselves. I never thought about it being wrong. At this point it's sort of a habit. It's definitely a learning experience. You have to be creative in your methods of cracking and you have to keep expanding on old knowledge. Our parents don't care. Sometimes they ask us to pirate certain programs for them. They don't condone using fake phone numbers on the modem or "hard core" piracy, though.

HANK: I subscribe to a self-imposed code of honor. When I enter other systems I don't erase files, write ridiculous or obscene messages, and I don't eliminate other people's work. It's not the publicity or the acclaim I want. Cracking systems is just for the fun of it.

KEITH: I like to play video games and piracy is the easiest way to acquire them. Cracking is fun—it's like working a puzzle. I would consider a kid a "geek" or a "goon" if he had a computer and didn't pirate. But peer pressure isn't a factor in piracy. We do it for personal satisfaction. Cracking software stimulates your imagination—it's a trial-and-error problem-solving process.

What other computer-related things could you be doing that would be challenging?

KEITH: I could try writing software to sell.

JIM: I could participate more in the "stories" told on electronic bulletin boards.

PAULA: I could spend more time developing original programs and fooling around with graphics. □

PAM HOROWITZ *is a contributing editor to* K-POWER. *She lives in Westport, Connecticut, where piracy as a pastime is big.*

A TALE OF BROOM-CLOSET COMPUTING

Lots of people can't resist letting their fingers do the walking on the keyboard—no matter where the keyboard is or whose computer it's attached to. CHALLENGE lights up in their eyes in flashing capital letters.

Kyle Cassidy, 17, is one of these people. Kyle sent K-POWER his true tale of computing hijinks. Now $150 poorer because of his actions, Kyle has advice for other curious computerists: Next time you get itchy fingers, don't scratch!

"My temptation to check out my school's new Corvus hard-disk system led me to a broom closet, better known as 'The Pit.' This is where the school's four Apple IIs are kept.

"CORVUS DISK SYSTEM PLEASE TYPE YOUR NAME. I typed KYLE. No good. Password protection. I tried names of teachers. Nothing. Hmmm, something easy. TEACHER. The screen cleared and four words appeared. YOU HAVE ENTERED CORVUS. I was in!

"I experimented and discovered I could only access volume one. I wanted the password to the other volumes. So I went home and ingeniously devised a program to cause people to believe there had been an error, and get them to reenter their password. When they did, the password would be pushed into my file. For this reason, I called the program *The Pusher*.

"The next day, I typed *The Pusher* into the school's computer and saved it. There was another student in the broom closet, but I paid no attention to him. Two periods later, I was down in the main office.

"Well, they knew their system was bugged and they knew it was me. The busy student was a rat! But also, their FORTRAN programming language had locked and was inaccessible to anyone. I was sent to see the principal.

"We talked for a long time about what I did. But he was more interested in why I did it for the challenge.

"We finally got down to the nitty-gritty—my punishment. Well, the school ended up paying a computing consultant a $65-an-hour fee to fix the system—and it came out of my pocket.

"Sure, I became an instant folk hero in the eyes of the other school hackers, but the damage I caused to myself and others was not worth the fame or the challenge. Breaking into someone else's computer system is a dangerous venture. And it also tarnishes the image of every single computer user."

KYLE CASSIDY *lives in Glassboro, New Jersey.*

THE CASE AGAINST COPYING, BREAKING & ENTERING

Not all computer users are abusers. According to a K-POWER mini-poll of hackers across the country, many are turning thumbs-down to software piracy and to poking around in unauthorized computer data files. Here's what a few said:

According to Stephanie Kaufman, a 17-year-old from Lowry Air Force Base in Denver, Colorado, what's really needed are stiffer penalties for raiders. She says, "Old laws are ambiguous and don't address our new technology directly. Raiders can be charged only with breaking and entering, and the details of that charge make it easy to slip through the loopholes. What we really need is a change of attitude. Invasion of data is considered a game—an exercise in persistence and intelligence. People even admire computer criminals."

Stephanie thinks people admire computer abusers because they're really afraid of the new technology and like to see that computers are fallible. She says, "A combination of tighter security, tough laws, and an educated attitude are necessary to insure our protection."

Fourteen-year-old Eric Fisch of St. Paul, Minnesota, thinks it's immature kids who're breaking into other people's data files and copying software. He told K-POWER, "To them, locked data files are like hidden treasure!"

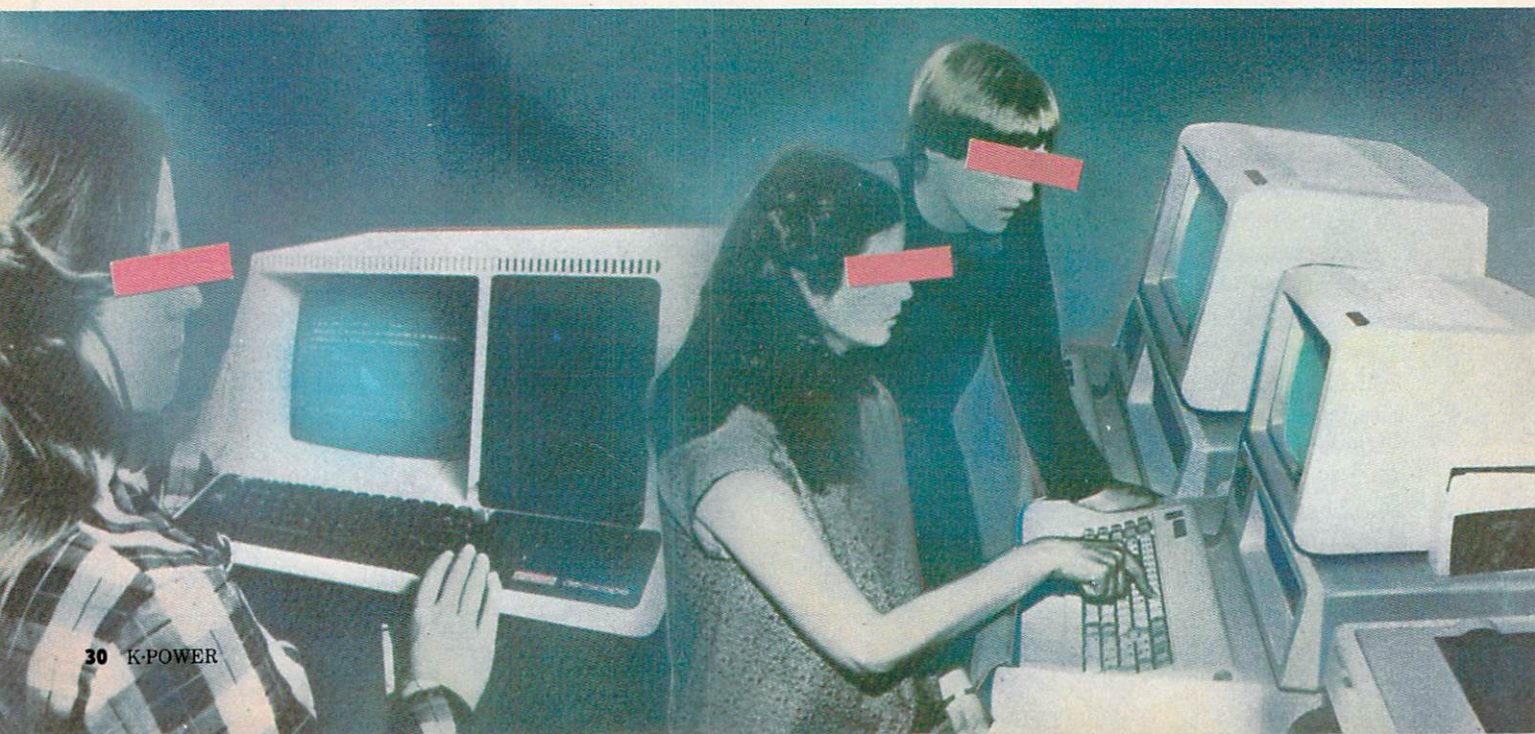
Tom Spindler, 14, of Park Ridge, Illinois, is another computer user who's against breaking into computer files and piracy. He tries to put himself in the place of the company or person being abused: "Let's suppose someone broke into your computer system, got your favorite program, saved it on their computer, erased your copy of it, and sold it. You'd lose a lot of money!"

"I don't like piracy," says 13-year-old Eric Saberhagen of Albuquerque, New Mexico. "When people pirate, the company doesn't get anything from it. If you want to play a game, you should buy it."

Tom Peterson, 14, of Vancouver, Washington, agrees: "When a company is selling a product and you pirate their software, you're stealing from them. Going into someone else's computer files is the same thing."

Peter Green, a tenth grader in Cupertino, California, says computer break-ins can cause embarrassment. "If someone breaks into a school's computer files and finds private information about a student, it could be embarrassing," he said. And dangerous, he added. He pointed out that if the 4-1-4s who broke into the New York Memorial Sloan-Kettering Cancer Center had complete access to all of the patients' files, those records could have been accidentally rearranged and patients could have suffered.

Vipa Dever, 15, of Troutville, Oregon, sums up the issue by saying, "People who break into private computer data files or pirate software ignore the fact that they're hurting other people. The weird thing about it all is that most of the time, these people end up hurting themselves."



Win a modem and connect with K-POWER's network!

Are you dying to reach out and access someone? Well, you've come to the right place.

For K-POWER's K-NET, we're looking to networking technology. We'll hook up computer users all across the country—to each other, to K-POWER magazine, and through monthly K-NET features . . . to YOU!

Networkers from seven spots around the U.S. already are on-line. Five more to go. Don't waste your big chance to write and tell us why you should be the next to connect! K-POWER will give you a modem and pick up the K-NET networking tab for a year.

From California to Connecticut, from New Mexico to Minnesota, and Miami to New York—plus points in between—the K-NET CompuServe connection will bring K-POWER readers the latest in computer-user news.

K-NET will address current computing problems and issues (like this month's question: Accessing unauthorized files—a threat to privacy, or just a good movie plot?). They'll talk electronically about—and to—the most popular software designers, review the hottest new computer software, and discuss the latest technology.

Interested? Let us know! Tell us about yourself, your age, where you live, the kind of computer you have, anything else you think is interesting, and why you want to be part of the K-NET connection.

Give us the lowdown on your computing experience and answer these questions:

Is computing a fad? How do you see it fitting into your life five years from now?

Send your entry to K-NET, c/o K-POWER, 730 Broadway, New York, NY 10003. March 25th is our deadline. After that, who knows, you may see your face here each month—as a K-NET regular!

K-NET best computer game picks

We asked the K-NET to list a couple of their favorite computer games. Let us know if you agree or disagree!

BLUE MAX
(Synapse)
Jill Bassett

CHIVALRY
(Xerox)
Daniel Horowitz

CHOPLIFTER
(Broderbund)
Scott Moskowitz, Eric Fisch

DROL
(Broderbund)
Steve and Daniel Horowitz

FROGGER
(Sierra On-Line)
Dara Cook, Scott Moskowitz

HARD HAT MACK
(Electronic Arts)
Eric Fisch

M.U.L.E.
(Electronic Arts)
Jill Bassett

PARSEC
(Texas Instruments)
Tom Peterson

POLE POSITION
(Atari)
Jill Bassett, Daniel Horowitz

REPTON
(Sirius)
Eric and Tom Saberhagen

SNACK ATTACK
(Funtastic)
Jodi Moskowitz

SNOOPER TROOPS
(Spinnaker)
Jodi Moscowitz

WIZARDRY
(Sir-tech)
Steve Horowitz, Eric and Tom Saberhagen

ZORK I
(Infocom)
Jill Bassett

ZORK III
(Infocom)
Eric and Tom Saberhagen

Accessing unauthorized files—a threat to privacy, or just a good movie plot?

Eric Fisch, 14
St. Paul, Minnesota

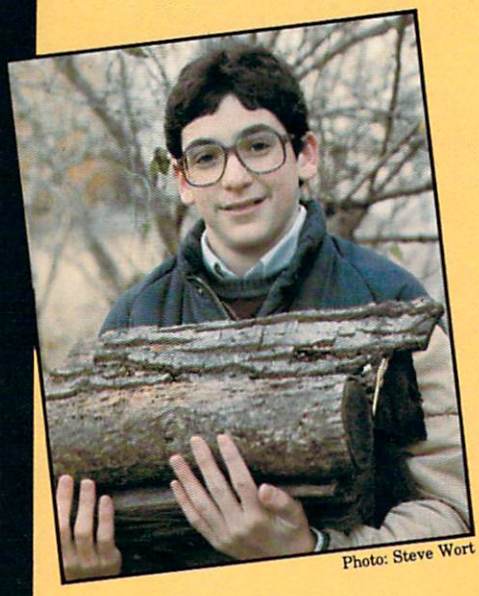


Photo: Steve Wort

"I believe unauthorized access to another's data files through the use of a computer and modem is a serious problem. The challenge of getting into data files became the name of the game. Kids started accessing files for kicks and then for spite, and laughed about it."

Eric has been computing with his Apple II plus for more than two years. He's written award-winning BASIC programs and now is ready to tackle machine language and Pascal.

Tom Peterson, 14
Vancouver, Washington

"Accessing other people's computers is more than a movie plot. Plots like that might give some kids bad ideas. I liked the movie and I like the 'Whiz Kids' show, but they might influence people in a bad way. I've heard a lot about people doing that kind of thing and I don't like it. I'd rather not get messed up in anything like that. Not many of my friends have modems yet, but I know they're like me—they don't want to get messed up with anything that might get them into trouble!"

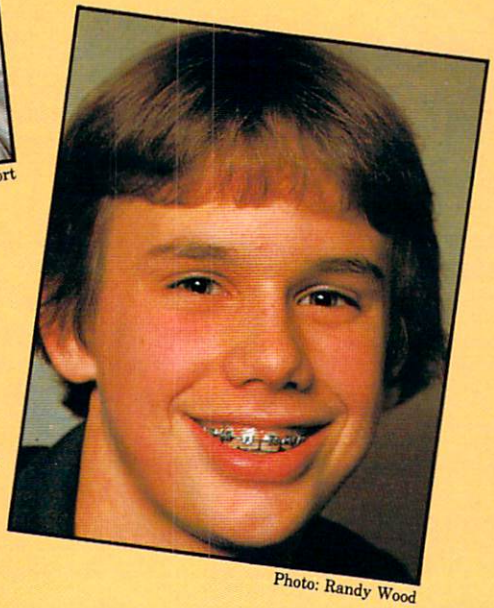


Photo: Randy Wood

Tom Peterson is the proud owner of a TI he bought in early 1983. He and his brother John, 16, have both taught themselves BASIC and spend a lot of time creating their own programs.

Jodi Moskowitz, 12
Scott Moskowitz, 9
Toledo, Ohio

"It's bad. It's other people's property and they don't have any right to go into it."—JODI

"It's exactly like any old robbery. I don't think it's right to do it. Because you might end up in jail."—SCOTT

Photo: Robert Flishel

Jodi and Scott are part of a real computing family. Their dad, Gary, runs a computer school and teaches programming, which both Jodi and Scott are learning. That means the Moskowitz duo has access to Commodore 64, VIC-20, Atari 400, and Apple computers!

Steve Horowitz, 16
Daniel Horowitz, 14
Westport, Connecticut

"It's a real challenge to find or figure out a password and get onto unauthorized systems—that's why people do it. It's curiosity. And it's fun to show your friends what you do. I think getting on and just looking is OK. If it's something unauthorized and people start messing with it, it's not OK."—STEVE

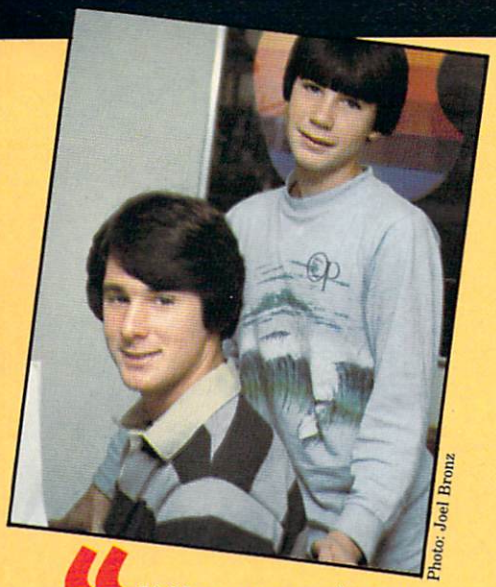


Photo: Joel Bronz

"If files are very important they shouldn't be on an unprotected computer system. People shouldn't be allowed to get into them. But I don't think it really hurts anybody if you get into a system and don't change anything around."—DANIEL

Steve and Daniel have an Apple II plus and an Atari 800. They both program.

Jill Bassett, 12

Miami, Florida

"I loved the movie *WarGames* . . . but the plot scared me. I personally feel that adults as well as teenagers view (breaking into computers) as a challenge—man versus computers. People don't mean to do harm; to them it's just like solving a puzzle. When they do, it gives them a feeling of power and accomplishment because they 'beat' the machines."

Photo: Jonathon Utz

Jill is an avid Atari 800 programmer and recently won $100 in a school programming contest.

Dara Cook, 9

Tuckahoe, New York

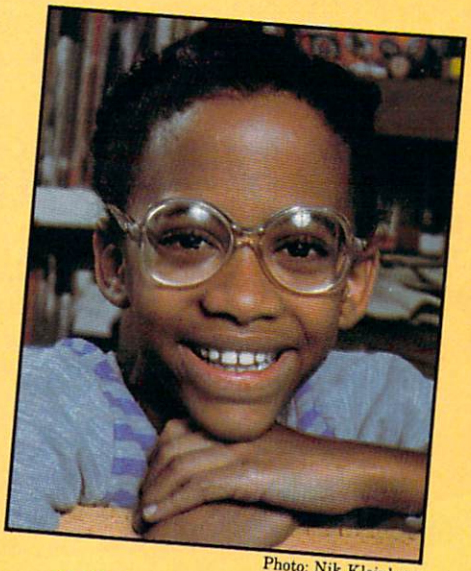


Photo: Nik Kleinberg

"I think it's bad. People broke into a computer at a hospital and they messed up records. If they messed up their treatment, they could get sicker. Maybe they should change the password every day, or make passwords really hard to spell—like supercalafragelistic . . ."

Dara admits to being addicted to computer games but says she wants to start writing her own programs. She has a TRS-80.

Eric Saberhagen, 13
Tom Saberhagen, 11

Albuquerque, New Mexico

"It's your business what you do on the computer. I'd really be mad if someone got into my computer. It's your property and it's your time and effort. It's just like stealing anything else."—ERIC

"*WarGames* was a little strange in the way the guy could just use his home computer to break into the government's huge computer. I don't think it's too likely. But if it's just a bunch of kids having some fun, it's not so bad. As long as they don't do anything, they're not hurting anything."—TOM

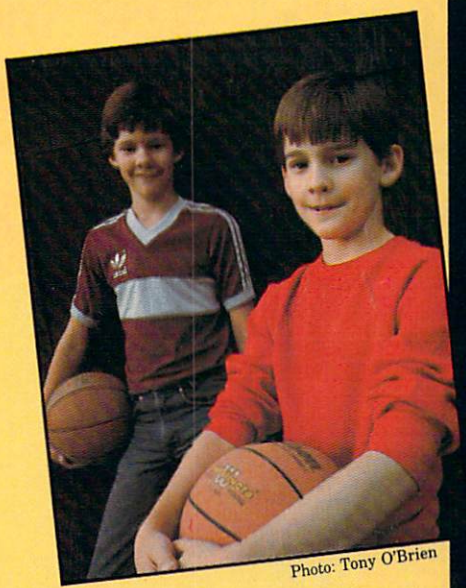


Photo: Tony O'Brien

Eric and Tom come from a three-computer home: IBM PC, Apple II plus, and Commodore 64. They've both put their game-playing skills to work for K-POWER*'s Rating Game reviews section.*
(See their review of Zork III *on page 58.)*

'WHIZ KIDS': Networking Goes Prime Time

TV's hit 'Whiz Kids' is doing for computers and networking what *E.T.* did for extraterrestrials. It's making them friendly!

By Debbie Michel

Have you heard? Computers are cool and networking isn't just for nerds. That's the message of "Whiz Kids"—the prime-time TV hit which shows that kids with computers are capable of almost anything.

The show's savvy stars have solved mysteries, caught criminals, and won friends and influenced people—all with the help of their computer, a hacker's dream of a micro called Ralf. These kids are smart, but without Ralf's networking know-how, they'd be dead-ended before the first commercial.

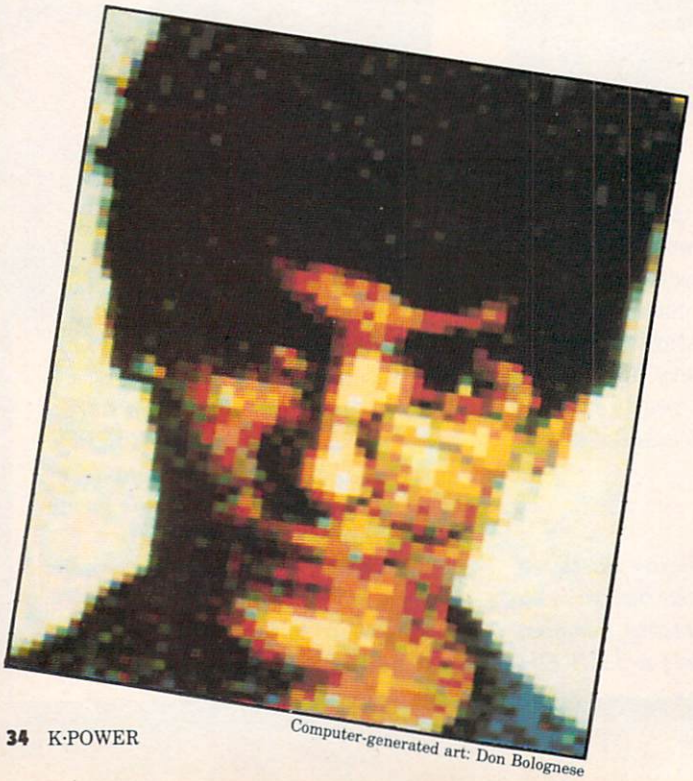
According to producer Phil DeGuere, " 'Whiz Kids' is totally based on the premise that kids can hook up their computers with others by phone. Networking is the key to it all."

Naughty networking?

The networking that the "Whiz Kids" are up to is the same kind of thing that's become the rage with computer users everywhere. For most of us, though, networking is limited to going on-line to leave notes for our friends, obtain sports scores, or play a new computer game.

The dark side of networking has been well publicized as a legal cat-and-mouse game between raiders and the authorities. In fact, when "Whiz Kids" first came out it was criticized for promoting the unauthorized use of computer networks.

Because of the negative publicity, DeGuere has since toned it down. But he's quick to point out that all TV detectives overstep the law now and then in order to stop crime. His intent is to squelch the nasty stereotype that computers are mechanical meanies.



Computer-generated art: Don Bolognese

The show does try to show networking in a positive light, even if hacker Richie Adler (played by Matt Laborteaux) does bend the rules a little. He's used Ralf to reprogram highway signs, raise the temperature in office buildings, and crack computer codes—all in order to foil criminals, of course!

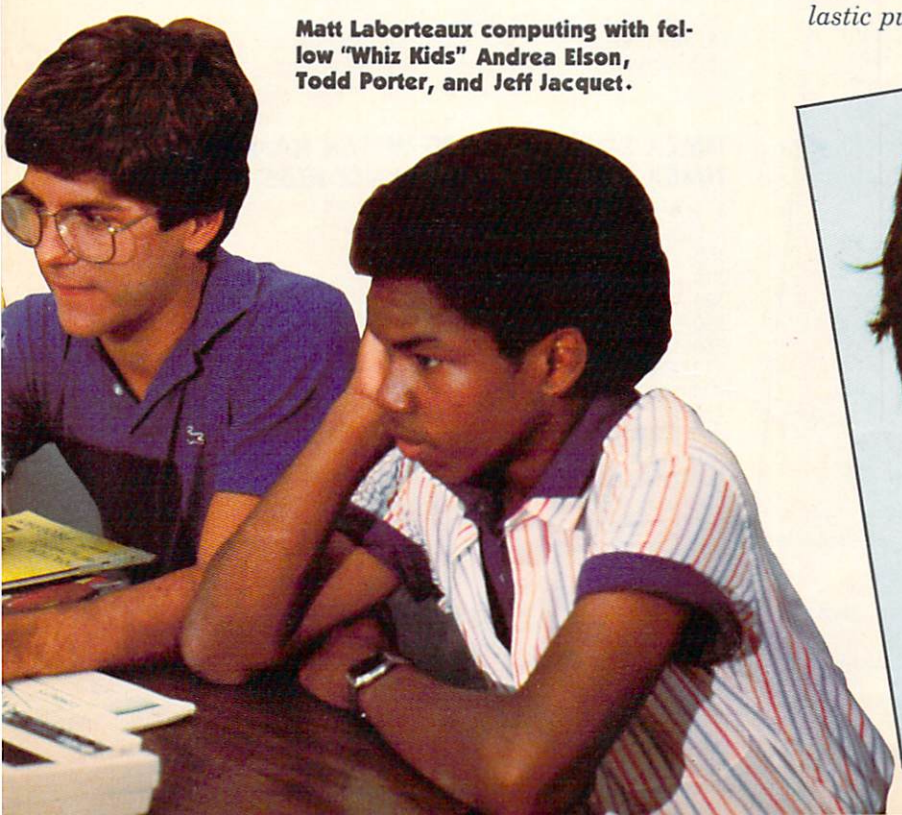
DeGuere says, in defense of much of what the "Whiz Kids" do, "Kids today are preoccupied with what they can do next with their computers. They're activists in the real sense of the word. They don't protest, they change."

No more nerds!

If "Whiz Kids" is doing anything for computing, it's showing that computer kids aren't nerds. Richie Adler may see more of Ralf than of his mother, but he's got plenty of buddies and is a good guy. "I'm not a computer nerd, I'm a hacker," is Richie's famous line, and Matt stands by it. "Richie's just a nice intelligent guy who just happens to be great with computers," Matt explains.

Matt's getting pretty handy with computers, too, even when he's away from the set. He's a member of Atari's National Advisory Board (Atari's advisors are all hooked up by modem, too), and has worked with older brother Patrick on the Youth Rescue Fund, a networking organization they created to provide nationwide counseling for troubled teenagers.

Matt's other claim to fame is his standing as a video game wizard (he won a celebrity *Pac-Man* contest in Hollywood last year and is a whiz at *Centipede*, too).



Matt Laborteaux computing with fellow "Whiz Kids" Andrea Elson, Todd Porter, and Jeff Jacquet.

Behind the scenes

Computers aren't limited to "star" status in front of the cameras. They play an important role behind the scenes, too. All of the show's scripts are typed in *WordStar* on the Discovery System, and formatted by a program called *Scriptor*. A data-base-management system is used to keep track of camera equipment and the shooting schedule.

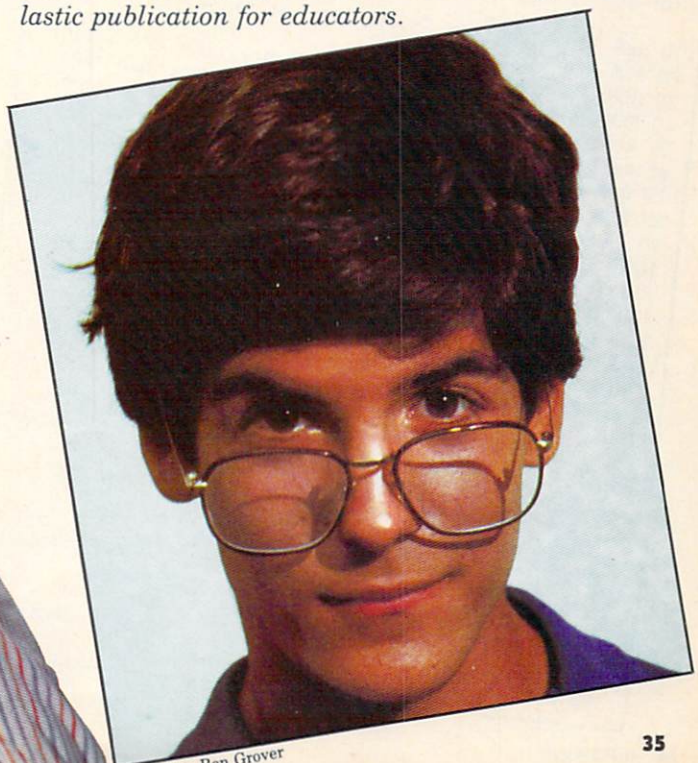
Computer programs also have been developed to let Matt "fake" his typing scenes. (If you'd like to run this program on your own computer—turn the page for a K-POWER exclusive!)

All in all, the computing that takes place on "Whiz Kids" leaves a lot of mouths hanging open. It may have crossed your mind that for a high school freshman, Richie Adler has a truckload of fancy equipment. Not even the most dedicated of hackers could set up the "facial recognition" graphics program that identifies Richie and his friends when they enter their computer "clubhouse." And few people we know could afford the $3,000 robotic arm that feeds Richie when he's too busy to pick up a fork.

The sophistication of the equipment on the "Whiz Kids" may be beyond most of us, but many of the networking capabilities are not. The show's producers are hoping "Whiz Kids" will show computers and computer capabilities in a positive light.

As on-set computer expert David Gunn puts it, "Once you feel comfortable with computers, they become demystified. That's what we're hoping to do with the show." ■

DEBBIE MICHEL *is a contributing editor to* K-POWER. *She's written about celebs for* Los Angeles *magazine and is a researcher for* Electronic Learning, *a Scholastic publication for educators.*



Photos: Ron Grover

HOW 'WHIZ KIDS' FAKES IT

Check out this program CBS uses to make Richie Adler look like a whiz kid typist!

Hacker Richie Adler looks like he's a whiz typist on the "Whiz Kids" show every Saturday night. The truth is—he isn't! CBS let us in on a little secret. Star Matt Laborteaux has enough to worry about with his lines and camera angles and all that show biz stuff. When he rapidly types all that interesting networking jargon into Ralf, he FAKES it! Here's the program the television show actually uses to make it look like Ralf is responding to what's being typed.

CBS ORIGINAL VERSION/*WHIZ KIDS*

```
The original "Whiz Kids" program was written for a
mainframe computer by CBS's computer expert David
Gunn. The REMs below are part of the original
program. You'll find a translation or modification
for your computer system on these pages.

10 REM  This program is courtesy of "Whiz Kids"
20 REM
30 REM  This program contains a subroutine which can
40 REM  either simulate the slow, even response that
50 REM  one might receive from over a modem, or the
60 REM  more sporadic response of someone typing at
70 REM  a keyboard.
80 REM
90 REM  There are several variables which must be
100 REM  defined before entering the subroutine:
110 REM
120 REM  NO.OF.LINES = Number of lines to be
130 REM  output during this subroutine.
140 REM
150 REM  SPEED = The speed of the output to simulate
160 REM  either a fast or slow modem.
170 REM
180 REM  PERSON.TYPING = Person typing is set to 1
190 REM  for a random time interval between characters
200 REM  output. Setting it to 0 creates a smooth,
210 REM  modem effect, whose rate is dictated by
220 REM  SPEED.
230 REM
240 REM  PROFICIENCY = If PERSON.TYPING was selected,
250 REM  then proficiency should be selected.
260 REM  PROFICIENCY permits one to alter the
270 REM  dexterity of the imaginary typist's digits.
280 REM
```

BASE VERSION/ COMMODORE 64 & TRS-80 MODEL 4/*WHIZ KIDS*

```
300 ROTTEN = 400
310 OK = 200
320 G00D = 75
350 FAST = 5
360 SLOW = 20
410 FOR CLEAN = 1 TO 24
420 PRINT
430 NEXT CLEAN
440 GOSUB 980
480 LINES = 3
490 SPEED = SLOW
500 TYPIST = 0
510 PROFICIENCY = ROTTEN
540 DATA "SYS-134  LOGON 06:38:10  HRD DSK B43-0010"
550 DATA ""
560 DATA "PLEASE ENTER ACCOUNT NAME: "
570 GOSUB 780 : GOSUB 980
590 TYPIST = 1
600 LINES = 1
610 DATA "KILROY"
620 GOSUB 780
630 PRINT
640 GOSUB 980 : GOSUB 980 : GOSUB 980
650 PRINT
660 TYPIST = 0
670 LINES = 4
680 SPEED = SLOW
690 DATA ""
700 DATA "Hello Richie."
710 DATA "This is Ralf."
720 DATA "Why didn't you phone earlier?"
730 GOSUB 780 : GOSUB 980 : GOSUB 980
740 PRINT : PRINT
760 END
780 FOR MAIN = 1 TO LINES
790 READ PHRASE$
800 PL = LEN(PHRASE$)
810 FOR CHARACTER = 1 TO PL
820 IF TYPIST = 1 THEN SPEED = RND(1) * CHARACTER * PR
OFICIENCY
830 FOR DELAY = 1 TO SPEED
840 NEXT DELAY
850 PRINT MID$(PHRASE$,CHARACTER,1);
860 NEXT CHARACTER
870 IF MAIN < LINES THEN PRINT
910 FOR DELAY = 1 TO 200
920 NEXT DELAY
930 NEXT MAIN
940 RETURN
980 FOR DELAY = 1 TO 1000
990 NEXT DELAY
1000 RETURN
```

TIMEX SINCLAIR 1000 W/16K RAM PACK/ TIMEX SINCLAIR 1500/*WHIZ KIDS*

```
5 DIM D$(4,41)
6 SLOW
300 LET ROTTEN=40
310 LET OK=20
320 LET GOOD=7
350 LET FAST=1
360 LET SLOW=4
410 FOR C=1 TO 22
420 SCROLL
430 NEXT C
440 GOSUB 980
480 LET LINES=3
490 LET SPEED=SLOW
500 LET TYPIST=0
510 LET PROFICIENCY=ROTTEN
540 LET D$(1)="SYS-134  LOGON 06:38:10  HRD DSK
B43-0010"
550 LET D$(2)=""
560 LET D$(3)="PLEASE ENTER ACCOUNT NAME:  "
570 GOSUB 780
575 GOSUB 980
590 LET TYPIST=1
600 LET LINES=1
```

```
610 LET D$(1)="KILROY"
620 GOSUB 780
630 SCROLL
640 GOSUB 980
641 GOSUB 980
642 GOSUB 980
650 SCROLL
660 LET TYPIST=0
670 LET LINES=4
680 LET SPEED=SLOW
690 LET D$(1)=""
700 LET D$(2)="HELLO RICHIE."
710 LET D$(3)="THIS IS RALF."
720 LET D$(4)="WHY DIDN'T YOU PHONE EARLIER?"
730 GOSUB 780
731 GOSUB 980
732 GOSUB 980
740 SCROLL
745 SCROLL
760 STOP
780 FOR M=1 TO LINES
790 LET P$=D$(M)
791 LET LAST=0
792 FOR P=41 TO 1 STEP -1
793 IF P$(P)<>" "AND LAST=0 THEN LET LAST=P
794 NEXT P
795 LET P$=P$(1 TO LAST)
800 LET PL=LEN P$
810 FOR C=1 TO PL
820 IF TYPIST=1 THEN LET SPEED=RND*C*PROFICIENCY
830 FOR D=1 TO SPEED
840 NEXT D
845 IF C=33 THEN SCROLL
850 PRINT P$(C);
860 NEXT C
870 IF M<LINES THEN SCROLL
910 FOR D=1 TO 5
920 NEXT D
930 NEXT M
940 RETURN
980 FOR D=1 TO 5
990 NEXT D
1000 RETURN
```

MODIFICATIONS FOR OTHER COMPUTERS: APPLE/*WHIZ KIDS*

Use the base version, changing the variable named SPEED to PACE in lines 490, 680, 820, and 830. Also change the variable name DELAY to DLAY in lines 830, 840, 910, 920, 980 and 990.

ATARI/*WHIZ KIDS*

Use the base version, omitting the quotation marks in DATA statements: 540, 550, 560, 610, 690, 700, 710 and 720. Then add or change the following lines to read:

```
5 DIM PHRASE$(41)
790 READ PHRASE$:IF PHRASE$="" THEN
PHRASE$=CHR$(155)
850 PRINT PHRASE$(CHARACTER,CHARACTER);
980 FOR DELAY=1 TO 500
```

IBM PC/*WHIZ KIDS*

Use the base version with the following changes:

```
5 KEY OFF
760 KEY ON:END
```

TI-99/4A W/TI EXTENDED BASIC/*WHIZ KIDS*

Use the base version, changing single colons (:) to double (::) wherever they appear as separators in a multi-statement line. Then change lines 300, 310, 320, 350, 360, 820 and 850 to read:

```
300 ROTTEN=100
310 OK=20
320 GD=7
350 FAST=1
360 SLOW=4
820 IF TYPIST=1 THEN SPEED=RND*CHARACTER*PROFICIENCY
850 PRINT SEG$(PHRASE$,CHARACTER,1);
```

TRS-80 COLOR COMPUTER/*WHIZ KIDS*

Use the base version, changing the variable named LINES to LINZ in lines 480, 600, 670, 780, and 870 and the variable named DELAY to DE in lines 830, 840, 910, 920, 980 and 990. Finally change lines 300, 310, 320, 350, 360 and 410 to read:

```
300 ROTTEN=200
310 OK=100
320 GD=45
350 FAST=20
360 SLOW=80
410 FOR CLEAN=1 TO 16
```

TRS-80 MODEL III/*WHIZ KIDS*

Use the base version, changing the variable named LINES to LINZ in lines 480, 600, 670, 780 and 870. Then change line 410 to read:

```
410 FOR CLEAN=1 TO 16
```

VIC-20/*WHIZ KIDS*

Use the base version, making the following changes:

```
480 LINES=7
540 DATA "SYS-134  LOGON","06:38:10","HRD DSK
B43-0010"
560 DATA "PLEASE ENTER","ACCOUNT NAME: "
720 DATA "Why didn't you","phone earlier?"
```

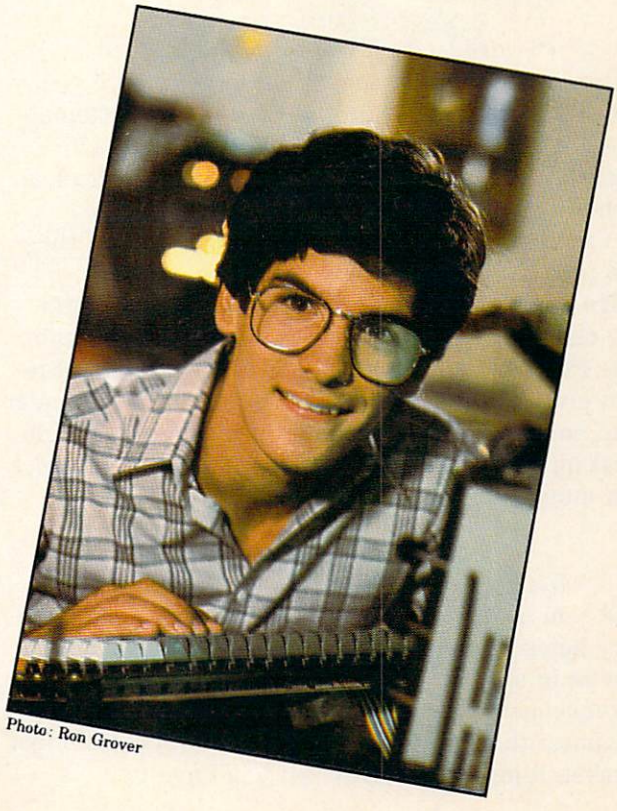


Photo: Ron Grover

At long last, here's Woof Ware, the latest in home computer products for man's best friend. Check out the newest software and peripherals for your computer-loving canine.

HOME MANAGEMENT

DOGHOUSEHOLD FINANCE

(Written by Benji Walker for the Wag-20)

Do you bury your bones, then forget where you put them? Do you dig up the yard in vain attempts to find them? With *Doghousehold Finance*, you won't have that problem anymore!! Simply draw a map of the family house, backyard, and surrounding areas, following the directions of the E-Z Map Construction Kit.

Then, whenever you bury a bone, put a colored "X" on the map to show where it is—red for lamb, blue for beef, etc. Now, whenever you get the urge that only a bone can satisfy, boot up the bone-finder map and you'll be able to dig up a delicious doggie treat quickly and efficiently. *Doghousehold Finance* is a must for today's modern canine.

DATA-BONE MANAGEMENT

(Designed by Ralf Rowlf for the Alpo II plus)

Do you develop an intense craving for some nice juicy bones in the middle of the night—only to find they're in short supply? Then *Data-Bone Management* is just for you! A modem hooks your computer to every garbage can, trash bin, and meat market dumpster in town. All you have to do is punch in, say, BONES. The monitor or a printout will show you where they are, the fastest way to get there, and the exact time the sanitation department is expected to pick them up.

It's the ultimate software for finding out about all the tasty trash and juicy junk in town. Also keeps track of rotten vegetables, old toys, and dead animals. You'll be the envy of the neighborhood as you network your way to the foulest debris in town!

EDUCATIONAL

STUPID PET TRICKS

(By Bob Letterman for the K-9 1000)

Here's everything you need to learn those popular and amazing tricks you've seen on the "Stupid Pet Tricks" segment of David Letterman's late night TV show. Learn to sing along with a kazoo, grab a Milk Bone out of a talk-show host's mouth, pop soap bubbles, and many, many more dumb stunts.

Nothing pleases a master more than a chance to be on television, and now, thanks to *Stupid Pet Tricks,* you can get yours on the most important show of all! After all, anyone who's anyone never misses "Stupid Pet Tricks."

GAMES

PAC-POODLE—The most famous dog/video game comes to canine computers at last!! Pac-Poodle runs around the maze eating yummies, while being

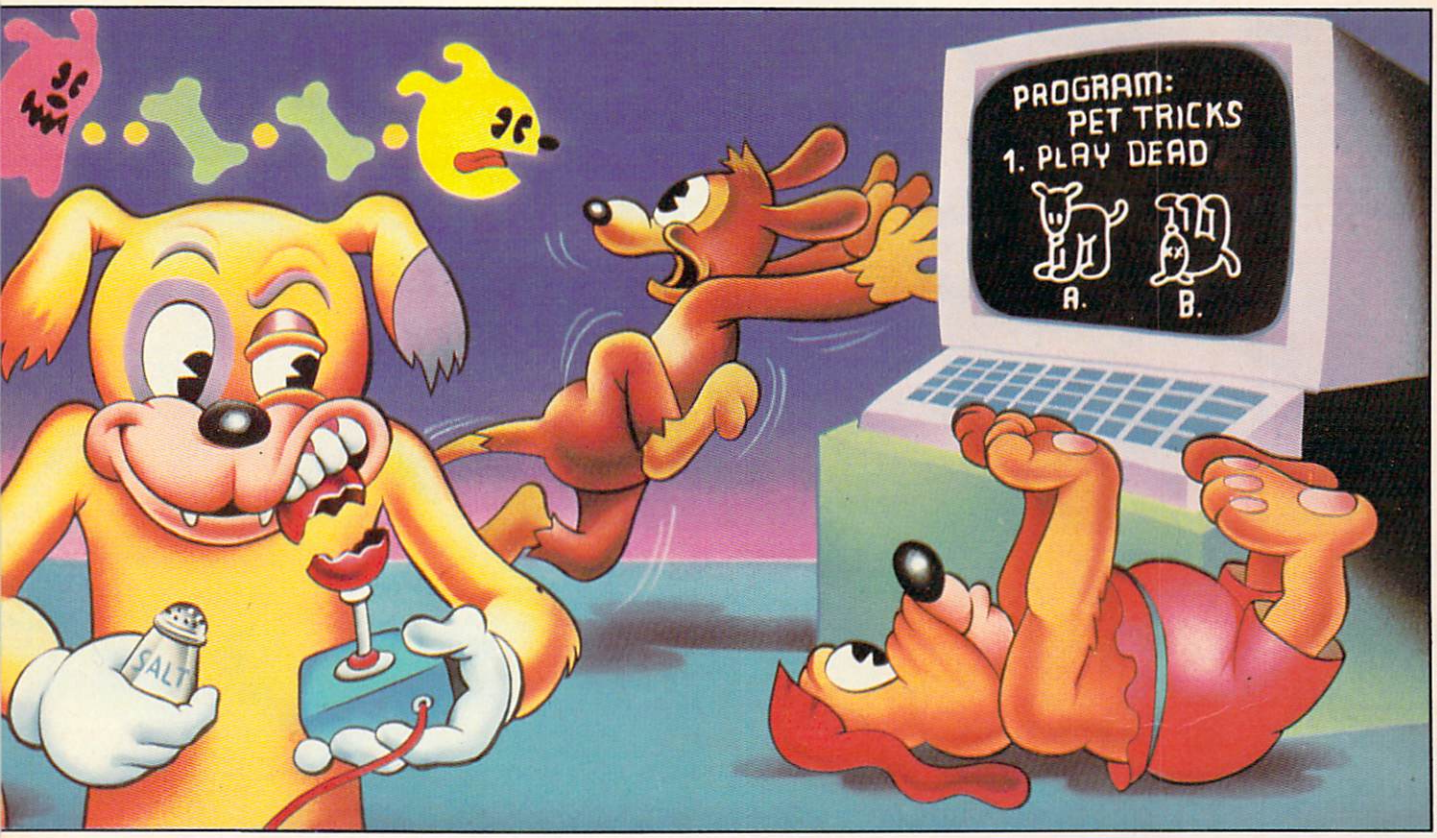


Illustration: Leslie Cabarga

chased by four Great Danes. Special power bags of Kibbles 'n Bits enable Pac-Poodle to bite the Great Danes and send them back to the kennel in the middle of the screen. Cartoon intermissions between screens feature Pac-Poodle, the Great Danes, and a fire hydrant.

DIG-DOG—The object of this game is to dig holes deep into the ground, searching for bones, cans of Alpo, leftover roast beef, and other delicacies while dropping rocks on the dog catchers who're trying to drag you to the pound. You can turn the tables by biting them in the pants very fast three times. This lighthearted game is fun for the whole litter!!

HYDRANT POSITION—Racing cars are all lined up, ready to take off in a cross-country race. And they're driving right past your favorite hydrant! Here's the ultimate thrill: chasing race cars that zoom by at 200 miles per hour. The three-dimensional effects will make you feel like you're actually in the race. Whoever can chase a car the longest without getting run over wins!

PERIPHERALS

JOYBONES—Delicious chewable joysticks that make great between-meal snacks. Have fun and enjoy a delectable taste-treat at the same time! After you finish playing a game with Joybone, you can finish the joystick! Comes in four flavors: beef, chicken, lamb, and cat.

DISH-DRIVE—Woof Ware programs come on special floppy dishes for easy loading, whether you use your paws or your mouth. Woof Ware's Dish-drive allows you to remove dishes after the program is loaded, so you can fill them with food or water.

NOSE-BALL—If you prefer trak-ball game-play to joysticks, here's the answer to your dreams. Woof Ware's Nose-ball is perfect for nose-play so your paws can keep busy pushing the fire button, or just scratching fleas. The perfect gift for the pooch who has everything.

BARK-BOX—This amazing add-on will translate hard-to-understand human commands and language from compatible human software into fluent barks, arfs, woofs, sniffs, and growls. A very useful device for mutts who want to expand their library of software. The Bark-box also translates BASIC and Pascal languages into dog languages. CHOW language soon will be available. □

JOHN HOLMSTROM *is* K-POWER*'s associate editor. Although he doesn't have a pet himself, he knows a dog when he sees one. Woof Ware is based on an idea by* PAM HOROWITZ. *It's dedicated to her computing canines: Killer and Bella.*

HAIL TO THE HYBRIDS!

TWO GAMES ARE BETTER THAN ONE

These new combos have a little something for every game fanatic and are an exciting step forward in computer gaming.

By James Delson

Does the old trigger finger get a little itchy as you read through text adventures? Do you long to use more than two brain cells while playing *Pac-Man*? If so, then you might just be ready for hybrids, the latest wave of home computer games.

Hybrids combine the best of both worlds: the action of arcade-type games and the more brain-straining elements of the strategy and adventure categories. By combining parts of two or more of the currently popular breeds of computer games into one package, designers have produced software that satisfies both strategists and joystick jocks alike.

HYBRIDS IN SPACE

A good example of a hybrid is Muse Software's *Titan Empire*. This space-war game has plenty of shoot-'em-up action and control-panel manipulation, but also adds another dimension: strategy.

On top of handling two types of weapons, you also have to keep your brain awake for a little strategic planning. For instance, you have to both defend and win back planets and their moons using armies to gain and hold territory.

Because it combines the best elements of games like Atari's action-packed *Star Raiders* with the ability to use highly complex computer commands to maneuver armies strategically, *Titan Empire* requires more than just run-of-the-mill decision making. Though a little primitive graphically (reminiscent of *Asteroids*), *Titan Empire* points the way for space games to come.

CHESS AT THE O.K. CORRAL

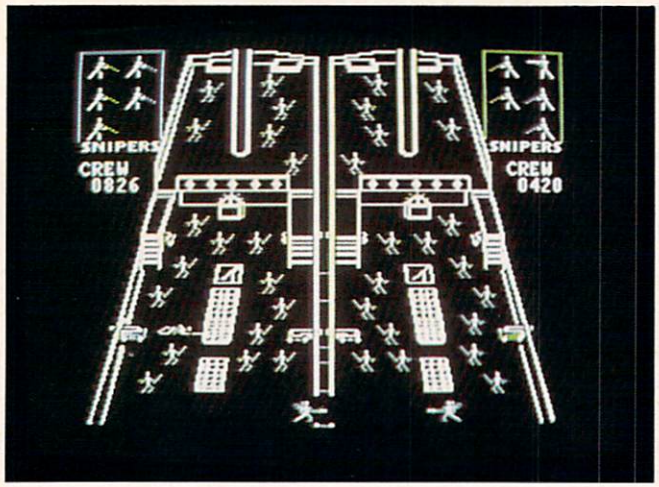
You also can double your fun with Electronic Arts' hybrid, *Archon*. You'll need all the hand-eye coordination you can muster for this one. But you won't make it too far without a mind for strategy. [*For more on* Archon, *read* K-POWER*'s Screening Room Strategy on page 62.*]

The most challenging strategy/arcade game of all the hybrids so far, *Archon* is a brilliant combination of a head-to-head shootout and animated chess. You can play this one with a friend or against the computer. Either way, each side is manned by an assortment of creatures with varying characteristics and fighting abilities. This alone makes the game memorable. But its designers didn't stop there. Parts of the game's playing board are constantly shifting color—darkness favors the "evil" side while light favors the "good." This means game strategy changes as the color changes. Just bullying your way into taking ground and holding it indefinitely won't work here.

ADMIRAL HORNBLOWER MEETS ERROL FLYNN

Archon might have been the most playable program of the hybrids except for one drawback: Players of unequal skill can't play a balanced game. This fault wouldn't be so glaring except for the existence of SSI's *Broadsides*.

In *Broadsides*, realism enters the game picture. Players pit 18th- and 19th-century sailing ships against each other or the computer in a complex battle of nerves, seamanship, and cannon fire. The object, naturally, is to sink your opponent, reduce his crew size to a minimum, or blow away his sails and masts before he does the same to you. But, where *Archon*'s playing pieces stay the same from game to game, *Broadsides* lets players "build" their own ships. Depending upon the options you choose, you can assemble a tiny two-gunned sloop or a gigantic 176-gun battleship.

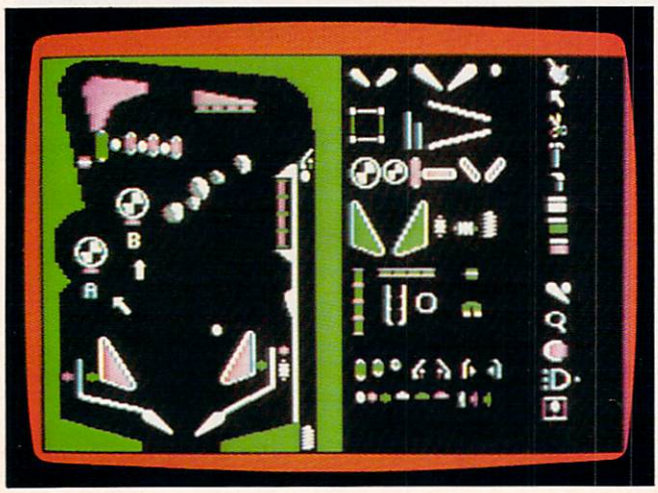


Not only that, almost every characteristic of each ship can be varied. That lets players at different levels even up their skills for a better balanced game. Among the characteristics are: reloading time, crew size, hull strength, turning time, speed (in knots), and even sniper effectiveness when the ships come alongside one another to engage in close combat.

Both *Archon* and *Broadsides* have different screens for tactical maneuver and for close combat. This is a new innovation introduced by the hybrids and will become a standard in computer games. But while *Archon* demands that good hand-eye coordination we're always hearing about, *Broadsides* requires nimble fingers. Two swordsmen duel at the bottom of the screen on the decks of the joined ships. The keys control their five separate movements (forward, back, thrust, counterthrust, and hack). The animated figures actually perform as they are commanded and even "die" when they lose duels or are shot by snipers.

PINBALL REVISITED

Leaving violence behind, Electronic Arts' *Pinball Construction Set* is a hybrid that exercises the user's imagination more than most existing building games.



Using a menu of pinball table components, players can create their ideal games, test them, then make any changes until the setup is complete. The table can then be played upon and either erased, or saved for future use. Now, it's true other games have included modification systems. Data Trek's *Maze Craze*, for instance, allows the player to build his own *Pac-Man* clone, and *Lode Runner* (Broderbund) offers the opportunity to put together a wide variety of games. But what makes *Pinball Construction Set* special is the system's flexibility. It lets players alter existing shapes of polygons, change the weight of the ball (via a gravity gauge), and even alter the bounce and kick of the table's surfaces. As an added bonus, *Pinball Construction Set* contains a coloring program, which makes it the most enjoyable building kit since the erector set.

THE OUTLOOK FOR HYBRIDS

Hybrids don't dominate the marketplace yet. But watch out. Their influence will be felt as more and more manufacturers and game designers begin to see the potential locked in their computers. Though *Escape from Rungistan* by Epyx added only a little arcade action, at least it showed the folks out there in text/graphic adventureland that hybrids would be the next wave of gaming. And *Missing Ring*'s attempt to add arcade action to *Wizardry* showed great games could be improved with animated graphics in the play action area.

Of all the game companies now moving toward hybrid specialization, it's Epyx that has gone the furthest to customize its line with the most up-to-date developments. Its *Apshai* series and other hybrid entries—*Crush, Crumble, and Chomp*, a movie-monster role-playing game, and *Star Warrior*, a space strategy/shoot-'em-up—have modifications built into their basic games. This kindly lets players stay alive long enough to actually learn how to play. But they still offer greater and greater challenges for advanced gamers.

A year from now the game scene may be entirely different. (Don't worry, we'll keep you posted.) By the time the computer game companies that copied the current successes grind out their hybrid clones, the next wave will be upon us. And again we'll have to change the way we look at and play games. □

JAMES DELSON *plays games for a living. He's written about games and movies for several national magazines from his home base in New York City.*

Illustration: Tim Parker

HACKER HEAVEN

FEBRUARY

PROGRAMS Page 44	PIXEL THAT! Page 48	PUZZLE POWER Page 54
You'll have to find out for yourself what the ?????? program does; we can tell you *Symphony in 3D* is the latest in electronic meditation.	Generate a *Roving Cupid* Valentine's message for your Atari.	Translate or improve our *Word Twister* puzzle for your computer, and get a chance to WIN a Timex 2068.

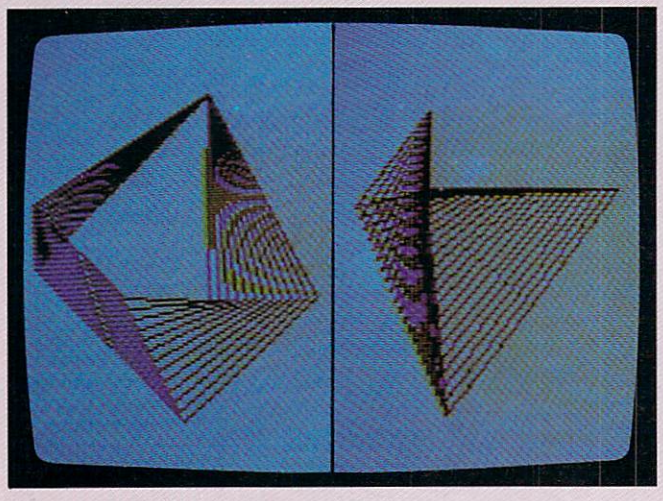
Symphony in 3-D

By K-POWER's Resident Hacker

Ever have one of those nothing-can-go-right days? Like the day you find a three-week-old tuna sandwich in your locker? Hook your spiral notebook on Mrs. Fletcher's 65-year-old knit skirt in the hallway? Have your gum fall out of your mouth during a history report?

K-POWER's resident hacker designed a little soothing program for days just like that. So sit back and relax. Forget your worries; you're in for a show. Random-generated shapes squirm and explode before your eyes as random music (a little on the eerie side) warbles in the background. It's the latest in electronic meditation.

No repetition here. Each combination of shape and sound is a surprise. So let your frustrations flow away. Be careful when you run it, though. It's guaranteed to work better than "Rock-a-Bye Baby." You might even want to run it to get those siblings out of your hair. It'll hypnotize 'em for sure.



APPLE/*SYMPHONY IN 3-D*

```
30 FOR X = 0 TO 28:READ A:POKE 768 + X,A:NEXT
40 FOR X = 0 TO 7:READ N(X):NEXT X
50 HGR2
60 HCOLOR= 3:A = INT(RND(1) * 8):IF A = A0 THEN 60
70 A0 = A
90 C = INT(RND(1) * 80) + 1
100 Q = INT(RND(1) * 80) + 1
110 J = INT(RND(1) * 80) + 1
120 F = INT(RND(1) * 80) + 1
130 HPLOT C,F TO F,Q:GOSUB 1000
140 HPLOT TO Q,J:GOSUB 1000
150 HPLOT TO J,C:GOSUB 1000
160 HPLOT TO C,F:GOSUB 1000
170 C = C + 2:F = F + 4
180 IF C > 180 OR F > 180 THEN 50
190 GOTO 130
1000 POKE 6,6:POKE 8,N(A):CALL 768:RETURN
2000 DATA 165,8,74,133,10,164,8,173,48,192,136,234
2010 DATA 234,208,251,165,7,56,229,10,133,7,176,237
2020 DATA 198,6,208,233,96
3000 DATA 243,217,193,182,162,144,128,121
```

ATARI/*SYMPHONY IN 3-D*

```
10 DIM N(8)
20 GRAPHICS 8+16:SETCOLOR 2,0,10:SETCOLOR 1,0,0:COLOR
1
40 FOR X=0 TO 7:READ A:N(X)=A:NEXT X
50 PRINT #6;CHR$(125)
60 A=N(INT(RND(0)*8)):IF A=A0 THEN 60
70 A0=A
80 SOUND 0,A,10,10:SOUND 1,A-2,10,10
90 C=INT(RND(0)*80)
100 Q=INT(RND(0)*80)
110 J=INT(RND(0)*80)
120 F=INT(RND(0)*80)
130 PLOT C,F:DRAWTO F,Q
140 DRAWTO Q,J
150 DRAWTO J,C
160 DRAWTO C,F
170 C=C+2:F=F+4
180 IF C>180 OR F>180 THEN 50
190 GOTO 130
3000 DATA 243,217,193,182,162,144,128,121
```

TRS-80 COLOR COMPUTER/*SYMPHONY IN 3-D*

```
20 PCLEAR 8:PMODE 4,1
40 FOR X=0 TO 7:READ N(X):NEXT X
50 PCLS:SCREEN 1,1
60 A=N(INT(RND(0)*8)):IF A=A0 THEN 60
70 A0=A
90 C=INT(RND(0)*80)
100 Q=INT(RND(0)*80)
110 J=INT(RND(0)*80)
120 F=INT(RND(0)*80)
130 LINE(C,F)-(F,Q),PSET:SOUND A,1
140 LINE-(Q,J),PSET:SOUND A,1
150 LINE-(J,C),PSET:SOUND A,1
160 LINE-(C,F),PSET:SOUND A,1
170 C=C+2:F=F+4
180 IF C>180 OR F>180 THEN 50
190 GOTO 130
3000 DATA 185,176,170,159,147,133,125,108
```

IBM PC/*SYMPHONY IN 3-D*

```
10 DIM N(8)
20 SCREEN 1: KEY OFF
40 FOR X= 0 TO 7: READ N(X): NEXT X
50 CLS
60 A=N(INT(RND(1)*8)):IF A=A0 THEN 60
70 A0=A
80 SOUND A,0:SOUND A,500
90 C = INT(RND(1) * 80 )
100 Q = INT(RND(1) * 80 )
110 J = INT(RND(1) * 80 )
120 F = INT(RND(1) * 80 )
130 LINE (C,F) - (F,Q)
140 LINE (F,Q) - (Q,J)
150 LINE (Q,J) - (J,C)
160 LINE (J,C) - (C,F)
170 C = C + 2: F = F + 4
180 IF C>180 OR F>180 THEN 50
190 GOTO 130
3000 DATA 243,217,193,182,162,144,128,121
```

??????????????????????

By Peter Cockcroft

Photo: Anne Krueger

I refuse to tell you anything about this program. Forget it. I won't talk. No, no, no, no, no. You're gettin' nothin' outta me, pal. No way. Mum's the word. This thing is strictly hush-hush. Cat's got my tongue. Top-secret stuff here. Boy oh boy, if you only knew . . . oops, can't tell you.

This is one skeleton that's gonna stay in the closet for sure. I'm keeping this one under my hat. Better yet, I'm keeping this one under the skeleton's hat and making sure he stays in that closet. O.K. you twisted my arm. I'll give you one hint: After you type this in and run it, press the space bar to slowly reveal the . . . oops! almost said it.

PETER COCKCROFT *is 16 and lives in New York City. He's president of his own mail-order software business and attends Stuyvesant High School, a virtual breeding ground for hackers.*

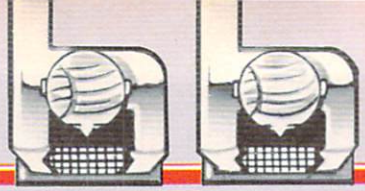
Illustration: Chris Reed

APPLE/*MYSTERIOUS MESSAGE*

```
10 DIM A(18)
30 TEXT:PRINT
50 HOME
70 G = 10:GC = 1:C = 19:S = 1000:BV = 1:D = 1:DC = 1
140 FOR I = 0 TO 18:READ A(I):NEXT I
210 VTAB 23:HTAB 14:PRINT "SCORE:";S;" "
230 X = INT( RND(1) * 19)
240 IF A(X) = 0 THEN 270
250 Y = INT( RND(1) * 50) + 32
260 VTAB 1:HTAB X + 10:INVERSE:PRINT CHR$(Y);:NORMAL
270 G = G + GC
280 IF G = 10 OR G = 28 THEN GC = - GC
290 VTAB 15:HTAB G - 2:PRINT " /"; CHR$(124); CHR$(92)
;" "
300 IF BV > 1 THEN 360
310 IF PEEK( - 16384) < = 127 THEN 230
320 POKE - 16368,0
330 IF A(G - 10) = 0 THEN PRINT CHR$(7):S = S - 1:GOTO
 210
350 BV = 15:BH = G
360 BV = BV - 1
370 IF BV = 1 THEN 410
380 VTAB BV:HTAB BH:PRINT CHR$(94)
390 IF BV < 14 THEN VTAB BV + 1:HTAB BH:PRINT " "
400 GOTO 230
410 VTAB 1:HTAB BH:PRINT CHR$(A(BH - 10))
420 A(BH - 10) = 0:C = C - 1
440 VTAB 2:HTAB BH:PRINT " "
450 IF C = 0 THEN 470
460 GOTO 230
470 RESTORE:VTAB 1:HTAB 10:FLASH
480 FOR I = 0 TO 18:READ A:PRINT CHR$(A);:A$ = A$ + CH
R$(A):PRINT CHR$(7);:NEXT I
530 VTAB 23:HTAB 14:PRINT "SCORE:";S;" "
540 IF INT(D / 2) = D / 2 THEN INVERSE
560 HTAB D:PRINT A$
570 D = D + DC
580 NORMAL:IF D = 20 OR D = 1 THEN DC = - DC
590 GOTO 540
2000 DATA 87,69,76,67,79,77,69,32,84,79,32,75,45,80,79
,87,69,82,33
```

TRS-80 MODEL III/*MYSTERIOUS MESSAGE*

```
10 DIM A(18)
50 CLS
70 G=854:GC=1:C=19:S=1000:BV=64:D=964:DC=4
140 FOR I=0 TO 18:READ A(I):NEXT I
210 PRINT @ 920,"SCORE:";S;
230 X=INT(RND(0)*19)
240 IF A(X)=0 THEN 270
250 Y=INT(RND(0)*50)+32
260 PRINT@22+X,CHR$(Y);
270 G=G+GC
280 IF G=854 OR G=872 THEN GC=-GC
290 PRINT@G-2," /";CHR$(124);CHR$(92);" ";
300 IF BV>64 THEN 360
310 IF INKEY$="" THEN 210
330 IF A(G-854)=0 THEN S=S-1:GOTO 210
350 BV=832:BH=G-832
360 BV=BV-64
370 IF BV=64 THEN 410
380 PRINT@BH+BV,CHR$(94);
390 IF BV<768 THEN PRINT@BH+BV+64," ";
400 GOTO 210
410 PRINT@BH,CHR$(A(BH-22));
420 A(BH-22)=0:C=C-1
440 PRINT@128+BH," ";
```




```
450 IF C=0 THEN 470
460 GOTO 210
470 RESTORE:CLS
480 FOR I=0 TO 18:READ A:PRINT @I+22,CHR$(A);:A$=A$+CH
R$(A):FOR DELAY=1 TO 30:NEXT DELAY:NEXT I
530 PRINT@920,"SCORE:";S
560 PRINT@D+DC,A$
570 D=D+DC
580 IF D>1001 OR D<964 THEN DC=-DC
590 GOTO 560
2000 DATA 87,69,76,67,79,77,69,32,84,79,32,75,45,80,79
,87,69,82,33
```

MODIFICATIONS FOR OTHER COMPUTERS:

ATARI/*MYSTERIOUS MESSAGE*

Use the Apple version, with the following corrections: Omit line 30. Change PRINT CHR$(7) to PRINT CHR$(253) in line 330. Change VTAB and HTAB pairs to equivalent POSITION statements in lines 210, 290, 380, 390, 410, 440, and 530. For example, you would change line 210 of the base version to read

```
210 POSITION 14,23:PRINT "SCORE: ";S;" "
```

Then type in these lines:

```
10 DIM A(18),A$(19),B$(19),D$(19)
50 PRINT CHR$(125):POKE 752,1
140 FOR I=0 TO 18:READ A:A(I)=A:NEXT I
260 POSITION X+10,1:PRINT CHR$(Y+128);
310 IF PEEK(764)=255 THEN GOTO 230
320 POKE 764,255
470 RESTORE:POSITION 10,1
480 FOR I=1 TO 19:READ A:PRINT CHR$(A+128);:A$(I,I)=CH
R$(A):B$(I,I)=CHR$(A+128)
490 SOUND 0,I,10,10:NEXT I:SOUND 0,0,0,0
540 IF INT(D/2)=D/2 THEN D$=B$
560 POSITION D,23:PRINT D$
580 IF D=20 OR D=1 THEN DC=-DC
590 D$=A$:GOTO 540
```

COMMODORE 64/*MYSTERIOUS MESSAGE*

Use the Apple version, omitting lines 30 and 540 and changing RND(1) to RND(0) in line 230. Then type in:

```
50 PRINT CHR$(147)
60 FOR I=55296 TO 56295:POKE I,1:NEXT I
70 G=1634:GC=1:C=19:BV=1064:D=1:DC=1:S=1000
210 PRINT TAB(255) TAB(255) TAB(135) CHR$(5);"SCORE:"
220 S$=STR$(S)+CHR$(32):FOR I=2 TO LEN(S$):POKE 1683+I
,ASC(MID$(S$,I,1)):NEXT I
250 Y=INT(RND(0)*26)+128
260 POKE 1074+X,Y
280 IF G=1634 OR G=1652 THEN GC=-GC
290 POKE G-2,32:POKE G-1,78:POKE G,66:POKE G+1,77:POKE
 G+2,32
300 IF BV>1064 THEN 360
310 GET IN$
320 IF IN$="" THEN 230
330 IF A(G-1634)=0 THEN GOSUB 1000:S=S-1:GOTO 220
350 BV=1624:BH=G-1624
360 BV=BV-40
370 IF BV=1064 THEN 410
380 POKE BV+BH,30
390 IF BV<1584 THEN POKE BV+BH+40,32
410 POKE 1064+BH,A(BH-10)
420 A(BH-10)=0:C=C-1
440 POKE BV+BH+40,32
470 RESTORE:PRINT CHR$(147):PRINT TAB(10)
480 FOR I=0 TO 18:READ A
490 IF A=32 OR A=33 OR A=45 THEN A$=A$+CHR$(A):GOTO 510
500 A$=A$+CHR$(A+64)
510 GOSUB 1000:PRINT MID$(A$,LEN(A$), 1);:NEXT I
530 PRINT TAB(255) TAB(255) TAB(135)"SCORE: ";S:PRINT
TAB(0)
560 PRINT TAB(D)A$
580 IF D=20 OR D=1 THEN DC=-DC
590 GOTO 560
1000 N=54272:POKE N+5,129:POKE N+24,5:POKE N+1,45:POKE
 N,150:POKE N+4,33
1010 FOR DELAY=1 TO 150:NEXT DELAY:POKE N+4,0:RETURN
2000 DATA 23,5,12,3,15,13,5,32,20,15, 2,11,45,16,15,23
,5,18,33
```

IBM PC/*MYSTERIOUS MESSAGE*

Use the Apple version, with the following corrections: Omit line 30. Change PRINT CHR$(7) to BEEP in lines 330 and 480. Then type in these lines:

```
50 CLS:KEY OFF:WIDTH 40
210 LOCATE 23,14,0:PRINT "SCORE: ";S;""
260 LOCATE 1,X+10:COLOR 0,7:PRINT CHR$(Y):COLOR 7,0
290 LOCATE 15,G-2,0:PRINT " /";CHR$(124);CHR$(92);" "
310 A$=INKEY$:IF A$="" THEN 230
320 DEF SEG=0:POKE 1050,PEEK(1052):A$=""
380 LOCATE BV,BH:PRINT CHR$(94)
390 IF BV<14 THEN LOCATE BV+1,BH:PRINT " "
410 LOCATE 1,BH:PRINT CHR$(A(BH-10))
440 LOCATE 2,BH:PRINT " "
470 RESTORE:CLS:LOCATE 1,10:COLOR 23,0
530 LOCATE 23,14:COLOR 23,0:PRINT "SCORE: ";S;" "
540 IF INT(D/2)=D/2 THEN COLOR 0,7
560 LOCATE ,D:PRINT A$;:COLOR 7,0:PRINT
580 IF D=20 OR D=1 THEN DC=-DC
```

TI-99/4A/*MYSTERIOUS MESSAGE*

Use the Apple version, changing all single colons (:) appearing in that version to double colons (::). Also make the following corrections: Omit lines 30, 320, and 540. Change RND(1) to RND in lines 230 and 250. Then type in these lines:

```
50 CALL CLEAR
70 G=6::GC=1::C=19::S=1000::BV=1::D=1::DC=1
210 DISPLAY AT (22,10):"SCORE:";S
260 DISPLAY AT (1,X+6) SIZE(1):CHR$(Y);
280 IF G=6 OR G=24 THEN GC=-GC
290 DISPLAY AT (15,G-2) SIZE(5):"/"; CHR$(124);CHR$(92
);" "
310 CALL KEY(0,DUM,ST)::IF ST=0 THEN 230
330 IF A(G-6)=0 THEN S=S-1::CALL SOUND(100,-1,1)::GOTO
 210
380 DISPLAY AT (BV,BH) SIZE(1):CHR$(94);
390 IF BV<14 THEN DISPLAY AT (BV+1,BH):" "
410 DISPLAY AT (1,BH) SIZE(1):CHR$(A(BH-6));
420 A(BH-6)=0::C=C-1
440 DISPLAY AT (2,BH):" "
470 RESTORE::CALL CLEAR
480 FOR I=0 TO 18::READ Z::DISPLAY AT (1,I+6) SIZE(1):
CHR$(Z);::A$=A$&CHR$(A)::CALL SOUND(100,-1,1)::NEXT I
530 PRINT TAB(10);"SCORE:";S
560 PRINT TAB(D);A$
580 IF D=1 OR D=9 THEN DC=-DC
590 GOTO 560
```

TRS-80 COLOR COMPUTER/*MYSTERIOUS MESSAGE*

Use the Model III version, with the following corrections: Change the quantity 920 to 491 in lines 210 and 530. Change 22 to 7 in lines 260, 410, and 420. Change 64 to 32 in lines 300, 360, 370, and 440. Then type in these lines:

EPYX GAMES

BUY ONE, GET ONE FREE

If you're one of those EPYX customers who keeps going back for more, we have good news for you.

Between now and February 29, 1984, we're offering you any computer game from this list...absolutely free.

It's simple. Just buy one of our computer games from your local retailer, then send us the box label showing number and computer type. Also, include the dated cash register receipt for the game. Most importantly, fill out the special order form telling us which FREE game you want, along with your name and address.

Buy one, get one free. Are you game for a deal like this?

EPYX COMPUTER SOFTWARE

Strategy Games for the Action-Game Player

Check the EPYX game you would like to receive free.

Atari	Apple (Disk Only)	Commodore 64	IBM (Disk Only)	VIC-20 (Cassette Only)	Radio Shack (Cassette Only)
Morloc's Tower Disk ☐ Cass. ☐	Morloc's Tower ☐	Curse of Ra Disk ☐ Cass. ☐	Curse of Ra ☐	Rescue at Rigel ☐	Invasion Orion ☐
Dragon's Eye Disk ☐	Dragon's Eye ☐	Sword of Fargoal Disk ☐ Cass. ☐	Rescue at Rigel ☐	Ricochet ☐	Morloc's Tower ☐
Crypt of the Undead Disk ☐	Sorcerer of Siva ☐	Crush, Crumble & Chomp Disk ☐ Cass. ☐		Crush, Crumble & Chomp ☐	Sorcerer of Siva ☐
The Night-mare Disk ☐	Fore ☐				Rescue at Rigel ☐
King Arthur's Heir Disk ☐					New World ☐
Escape From Vulcan's Isle Disk ☐					

Please print or type your name in the space provided below. Send this form with your dated cash register receipt and box label to: EPYX Game Offer
P.O. Box 814
Young America, MN 55399

Name _____

Address _____

City _____ State _____ Zip _____

This offer is valid only in the Continental United States. Offer is void where prohibited by law. Please allow six to eight weeks for delivery of free game. Offer Expires February 29, 1984. All forms must be received by March 31, 1984. If your selection is not available when order is received, we reserve the right to substitute a similar product.

```
70 G=455:GC=1:C=19:S=1000:BV=32:D=480:DC=1
280 IF G=455 OR G=473 THEN GC=-GC
290 PRINT@G-2," /";"I";CHR$(92);" ";
330 IF A(G-455)=0 THEN SOUND 9,2:S=S-1:GOTO 210
350 BV=448:BH=G-448
390 IF BV<416 THEN PRINT@BH+BV+32," "
480 FOR I=0 TO 18:READ A:PRINT@I+7,CHR$(A);
490 A$=A$+CHR$(A):IF A<>33 AND A<>32 AND A<>45 THEN B$
=B$+CHR$(A+32) ELSE B$=B$+CHR$(A)
500 SOUND 9,3:NEXT I
540 IF D/2=INT(D/2) THEN P$=B$ ELSE P$=A$
560 PRINT@D,P$
580 IF D=492 OR D=480 THEN DC=-DC
590 GOTO 540
```

ADAM/MYSTERIOUS MESSAGE

Use the Apple version, with the following corrections: Change the quantity 10 to 6 in lines 70, 260, 280, 410, 420, and 470. Change the quantity 14 to 10 in lines 210 and 530. Change the quantity 28 to 24 in line 280 and the quantity 20 to 13 in line 580. Add a semicolon at the end of lines 210 and 530. Then type in these lines:

```
310 A = PDL(0):B = PDL(0)
320 IF A=B THEN 230
330 IF A(G-6) = 0 THEN S = S-1:GOTO 210
480 FOR I = 0 TO 18:READ A:PRINT CHR$(A);:A$ = A$ + CH
R$(A):NEXT I
```

VIC-20/MYSTERIOUS MESSAGE

Use the Commodore 64 modification with the following corrections: Change the quantity 1683 in line 220 to 8129. Change 1074 in line 260 to 7703. Change 1064 in lines 300 and 370 to 7702. Change 1634 in line 330 to 8011. Change 1624 in line 350 to 8010. Change 10 in line 420 to 1. Change 40 in line 440 to 22. Change TAB(10) to TAB(1) in line 470. In line 210, change TAB(255) TAB(255) TAB(135) to read TAB(255) TAB(179). Omit line 540. Then type in these lines:

```
60 FOR I=38400 TO 40000:POKE I,0:NEXT I
70 G=8011:GC=1:C=19:BV=7702:D=1:DC=1:S=1000
210 PRINT TAB(255) TAB(179) CHR$(144);"SCORE:"
280 IF G=8011 OR G=8029 THEN GC=-GC
360 BV=BV-22
390 IF BV<7988 THEN POKE BV+BH+22,32
410 POKE 7702+BH,A(BH-1)
580 IF D=2 OR D=0 THEN DC=-DC
1000 N=36874:POKE N,135:POKE N+4,15
```


ROVING CUPID

How to create Atari animation and graphics without straining your computer's brain

Tearing your hair out over moving images on your screen? Player-missile (PM) graphics will solve your problems. Using them won't give your 6502 microprocessor a heart attack, or drive you insane with details.

Normal Atari graphics (playfield graphics), such as BASIC commands for PRINT, PLOT, DRAWTO, and FILL, create forms out of different-colored pixels. Playfield graphics make images that are embedded in a single picture plane like tiles in a mosaic. Because this arrangement doesn't separate "foreground" from "background," moving something from one place to another in the picture plane requires drawing and redrawing the object dot-by-dot in a series of locations. At the same time, you have to reconstruct the background over which the object moves.

This "brute force" approach to animation is OK, as long as your animated characters are few in number and simple in shape and move in front of a background that can be easily reconstructed or recalled by uniform subroutines. But when you want to animate many different shapes against detailed and complex backgrounds, all the busywork of drawing and redrawing begins to put a strain on the computer's tiny brain. It soon becomes impossible, even at machine-language speeds, to generate really smooth-looking animation in the normal playfield.

But PM graphics solves the animation problem by calling on special functions of the Atari's Antic display processor and Graphic Television Interface Adapter (GTIA). When properly controlled, these chips allow from one to eight user-defined forms

SWIG©

SOFTWARE WRITERS INTERNATIONAL GUILD

THE LARGEST PAID MEMBERSHIP PROGRAMMERS GUILD · OVER 5,000 MEMBERS WORLDWIDE!!

SCHEDULED SWIG ACTIVITIES & MEMBERSHIP BENEFITS

(1) $10,000 PROGRAMMING CONTEST (Members only)

(3) ANNUAL CONFERENCE AND SOFTWARE AWARDS CEREMONY (During National Computer Week)

(4) CONSULTANT REGISTRY (With computer store referral system for customized software)

(5) JOB PLACEMENT SERVICE (Free to individual members, fixed maximum fee to companies)

(6) FREE SEMINARS & MEETINGS LOCALLY

(7) SOFTWARE LIBRARY LENDING & EXCHANGE SERVICE (Professional quality assemblers, utilities, games, etc.)

(8) SOFTWARE LOCATION SERVICE (For companies & individuals-if it exists, **SWIG** will find it. If not, see #9)

(9) SOFTWARE DEVELOPMENT SERVICE (From novice to scientist, **SWIG** members can work on any project-from applications to games to R&D)

(10) LEGAL SERVICE

(11) AGENT (**SWIG** can represent you in sales to software publishers)

(12) 24 HOUR - 7 DAY BULLETIN BOARD SYSTEM (BBS) ACCESSIBLE BY COMPUTER FREE

(13) AND MORE!!!!

MEMBERSHIP APPLICATION FOR SOFTWARE WRITERS INTERNATIONAL GUILD

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE # ( ) _____

- CLASSIFICATION:

  ☐ NOVICE ☐ BEGINNER TO ADVANCED

  ☐ ADVANCED WITH ON THE JOB EXPERIENCE ☐ RESEARCH/SCIENTIST

- WHAT EQUIPMENT DO YOU HAVE EXPERIENCE WITH &/OR ACCESS TO &/OR PLAN TO BUY?

  ☐ MAINFRAME ☐ MINI ☐ MICRO ☐ DESIGN/R&D

  BRAND NAME(S): ☐ IBM ☐ XEROX ☐ APPLE ☐ TI

  ☐ COMMODORE ☐ RADIO SHACK ☐ ATARI ☐ OSBORNE

  ☐ TIMEX/SINCLAIR ☐ NORTH STAR ☐ HEWLETT PACKARD

  ☐ OTHER _____

- AREAS OF INTEREST:

  ☐ DATA PROCESSING ☐ BUSINESS APPLICATIONS ☐ GRAPHICS

  ☐ LEGAL ☐ VOICE ☐ MEDICAL ☐ APPLIANCE (HOME) CONTROL

  ☐ ROBOTICS ☐ GAMES ☐ MUSIC ☐ R&D ☐ OTHER _____

- MEMBERSHIP ACTIVITIES AND SERVICES OF INTEREST:

  READ THE LIST ON THE LEFT AND CIRCLE THE NUMBERS BELOW THAT APPLY.

  1 2 3 4 5 6 7 8 9 10 11 12

☐ I HAVE ENCLOSED $20 ANNUAL MEMBERSHIP FEE ☐ CK ☐ MO
(MAKE CHECK PAYABLE TO: **SWIG**)

RETURN TO: **SWIG**
P.O. BOX 87
STONY POINT, NEW YORK 10980
(914) 354-5585

(players and missiles) to be superimposed on the playfield or text display and manipulated independently of it. Players and missiles can be moved around conveniently *as units*. They can pass in front of or behind each other and parts of the playfield screen, and they're automatically monitored for collisions.

There are three basic stages to any player-missile application. First, you have to work out binary bit maps for your player images and POKE these lists of numbers into a block of protected memory called a "player table." Then you have to POKE a couple of enabling registers and pointer bytes with values needed by Antic and GTIA. Finally, you set the player colors, move 'em out on the screen, and start animating. We'll go over each stage in detail.

1. BIT MAPS AND THE PLAYER TABLE

A bit map is a picture built up from the 0s and 1s of a series of binary bytes stacked up to form a grid. When a player is displayed on-screen, the 1s in its bit map show as lighted pixels; the 0s are transparent.

According to the rules, each player bit map is one byte (eight bits) wide and up to 128 bytes high in the standard double-line-resolution player format. Double-resolution pixels appear square on the screen. Extra-vertical resolution (single-line resolution) up to a maximum length of 256 bytes per player is also possible, reducing the height of displayed pixels by half. Electing the double-resolution option will affect all players equally and force you to reserve a larger player table—more on this momentarily.

Defining the bit-map values for a player image isn't easy when you have to do it by hand. Instead, most serious PM freaks use a software tool called (appropriately enough) a "bit-map editor" to design players graphically without having to worry about binary math.

Once you've finished designing your players, you set up their bit maps in the player table—a specially formatted area of reserved memory which the Antic chip can access for display. Depending on whether you plan to elect double- or single-display resolution, your player table will require either 1K (1,024) or 2K (2,048) bytes of memory, and must be based either at a 1K or 2K boundary, according to its size. Generally, memory space for a player table is reserved by POKEing the system variable RAMTOP (location 106 decimal) with a lower value, in order to create a little island of protected memory above the playfield screen RAM. The value at RAMTOP is expressed in "pages," or 256-byte blocks. Four of these must be reserved for a standard player table, eight for a single-resolution table ($4 \times 256 = 1{,}024$; $8 \times 256 = 2{,}048$). In order to ensure that your table ends up properly based on a 1K or 2K boundary, it's best to incorporate an integer-division "safety" into the step of your program that resets RAMTOP. The basic formula for this is

```
POKE 106,INT((PEEK(106)-X)/X)*X
```

where X is either 4 or 8, depending on the table size you need.

The proper layout for a player table is shown below:

Double-line resolution		Single-line resolution
	Base Address (PMBASE)	
+ 384	Unused	+ 768
	Missiles	
+ 512	0, 1, 2, 3	+1024
+ 640	Player 0	+1280
+ 768	Player 1	+1536
+ 896	Player 2	+1792
+1024	Player 3	+2048

The bit maps of the individual players (numbered 0-3) are POKEd into compartments of the player table at specific offsets from the table's base address. Within the boundaries of a compartment, the position of a player bit map dictates its vertical position on the display screen. Bit-map bytes at relatively lower addresses appear higher on the screen, while those at higher addresses appear lower on the screen. In fact, when it comes to actually moving a player around on screen, vertical movement is accomplished by shifting its bit map up and down in its compartment, byte by byte. (Horizontal movement is much easier—we'll get to that in a sec.)

2. ENABLING THINGS

Once the player table is installed, you bring PM graphics on line by setting three control registers: PMBASE, DMACTL, and GRACTL.

PMBASE (Player-Missile BASE), at location 54279 decimal, gets POKEd with the page address of

COMMODORE 64
(more power than Apple II at half the price)

$99.50*

- 170K DISK DRIVE $159.00*
- TRACTION FRICTION PRINTER $109.00*

COMPUTER AND SOFTWARE SALE

WE HAVE THE BEST SERVICE

WE HAVE THE LOWEST PRICES

VIC-20
(a real computer at the price of a toy)

$69.50

- 40-80 COLUMN BOARD $59.00
- 32K RAM EXPANDER $95.00

*** COMMODORE 64 COMPUTER $99.50**
You pay only $199.50 when you order the powerful 84K COMMODORE 64 COMPUTER! LESS the value of the SPECIAL SOFTWARE COUPON we pack with your computer that allows you to SAVE OVER $100 off software sale prices!! With only $100 of savings applied, your net computer cost is $99.50!!

SOFTWARE BONUS PACK $29.95
When you buy the Commodore 64 Computer from Protecto Enterprizes you qualify to purchase ONE SOFTWARE BONUS PACK for a special price of $29.95!! Normal price is $49.95 (40 programs on disk or 24 programs on 5 tapes).

*** 170K DISK DRIVE $159.00**
You pay only $259.00 when you order the 170K Disk Drive! LESS the value of the SPECIAL SOFTWARE COUPON we pack with your disk drive that allows you to SAVE OVER $100 off software sale prices!! With only $100 of savings applied, your net disk drive cost is $159.00.

*** TRACTION FRICTION PRINTER $109.00**
You pay only $209.00 when you order the Comstar T/F deluxe line printer that prints 8 1/2 x 11 full size, single sheet, roll or fan fold paper, labels etc. 40, 66, 80, 132 columns. Impact dot matrix, bi-directional, 80 CPS. LESS the value of the SPECIAL SOFTWARE COUPON we pack with your printer that allows you to SAVE OVER $100 off software sale prices!! With only $100 of savings applied your net printer cost is only $109.00.

80 COLUMN BOARD $99.00
Now you program 80 COLUMNS on the screen at one time! Converts your Commodore 64 to 80 COLUMNS when you plug in the 80 COLUMN EXPANSION BOARD!! List $199 **SALE $99** PLUS—you also can get an 80 COLUMN BOARD WORD PROCESSOR with mail merge, terminal emulator, ELECTRONIC SPREAD SHEET. List $59.00 **SALE $24.95** if purchased with 80 COLUMN BOARD!! (Tape or Disk)

80 COLUMNS IN COLOR
EXECUTIVE WORD PROCESSOR $69.00
This EXECUTIVE WORD PROCESSOR is the finest available for the COMMODORE 64 computer! The ULTIMATE for PROFESSIONAL Word-processing application! DISPLAYS 40 OR 80 COLUMNS IN COLOR or Black and White! Simple to operate, powerful text editing with a 250 WORD DICTIONARY, complete cursor and insert/delete key controls line and paragraph insertion, automatic deletion, centering, margin settings and output to all printers! Includes a powerful mail merge. List $99.00 **SALE $69.00.** 20,000 WORD DICTIONARY - List $24.95 **SALE $19.95.** EXECUTIVE DATA BASE - List $89.00 **SALE $59.00.** (Disk only).

SPECIAL SOFTWARE COUPON

We pack a SPECIAL SOFTWARE COUPON with every COMMODORE 64 COMPUTER-DISK DRIVE-PRINTER-MONITOR we sell! This coupon allows you to SAVE OVER $100 OFF SALE PRICES! $200-$300 savings are possible!! (example)

PROFESSIONAL SOFTWARE
COMMODORE 64

Name	List	Sale	Coupon
Executive Word Processor	$99.00	$69.00	$59.00
Executive Data Base	$89.00	$59.00	$46.00
20,000 Word Dictionary	$24.95	$19.95	$14.95
Electronic Spreadsheet	$89.00	$59.00	$46.00
Accounting Pack	$69.00	$49.00	$32.00
Total 5.2 Word Processor			
Tape	$69.00	$56.00	$37.00
Disk	$79.95	$63.00	$42.00
Total Text 2.6 Word Processor			
Tape	$44.95	$39.00	$26.00
Disk	$49.00	$42.00	$29.00
Total Label 2.6			
Tape	$24.95	$18.00	$12.00
Disk	$29.95	$23.00	$15.00
Programmers Helper (Disk)	$59.00	$39.00	$29.95
Basic Tutor (Tape/Disk)	$29.95	$24.95	$15.00
Typing Teacher (Tape/Disk)	$29.95	$24.95	$15.00
Sprite Designer (Disk)	$16.95	$14.95	$10.00
Medicinemen (Tape)	$19.95	$17.95	$12.00
Weather War II (Tape)	$19.95	$17.95	$12.00
Professional Joy Stick	$24.95	$15.95	$11.00
Light Pen	$39.95	$19.95	$16.95
Dust Cover	$ 8.95	$ 6.95	$ 4.60

(See other items in our catalog!)
Write or call for
Sample SPECIAL SOFTWARE COUPON!

EXECUTIVE QUALITY
PROFESSIONAL BUSINESS SOFTWARE

The Cadillac of business programs for Commodore 64 Computers

Item	List	*SALE
Inventory Management	$99.00	$59.00
Accounts Receivable	$99.00	$59.00
Accounts Payable	$99.00	$59.00
Payroll	$99.00	$59.00
General Ledger	$99.00	$59.00

(*COUPON PRICE $49.00)

VIC-20 COMPUTER $69.50
This 25K VIC-20 computer includes a full size 66 key typewriter keyboard color and graphics keys, upper/lower case, full screen editor, 16K level II microsoft basic, sound and music, real time floating point decimal, self teaching book, connects to any T.V. or monitor!

40-80 COLUMN BOARD $59.00
Now you can get 40 OR 80 COLUMNS on your T.V. or monitor at one time! No more running out of line space for programming and making columns! Just plug in this Expansion Board and you immediately convert your VIC-20 computer to 40 OR 80 COLUMNS!! List $129. **SALE $59.00.** You can also get an 80 COLUMN BOARD WORD PROCESSOR with mail merge, terminal emulator, ELECTRONIC SPREAD SHEET!! List $59.00. **SALE $24.95** if purchased with 80 COLUMN BOARD! (Tape or Disk).

32K RAM EXPANDER $95.00
This cartridge increases programming power over **8 times!!** Expands total memory to 57K (57,000 bytes). Block switches are on outside of cover! Has expansion port!! Lists for $199 **(OUR BEST BUY!)**

60K MEMORY EXPANDER $49.00
Sixslot — Switch selectable — Reset button — Ribbon cable — CARDCO. A must to get the most out of your VIC-20 Computer!

8K RAM CARTRIDGE $39.00
Increases programming power 2 1/2 times. Expands total memory to 33K (33,000 bytes). Memory block switches are on outside of cover! Includes FREE $16.95 game.

16K RAM CARTRIDGE $55.00
Increases programming power 4 times. Expands total memory to 41K (41,000 bytes). Memory block switches are an outside cover! CARDCO Includes FREE $29.95 adventure game!!

12" GREEN SCREEN MONITOR $99.00
Excellent quality GREEN PHOSPHOROUS VIDEO MONITOR with antiglare, 1920 characters (80 characters x 24 rows). Save your TV! a must for 80 column word processors. PLUS $9.95 for VIC 20 or Commodore 64 Cable.

12" AMBER SCREEN MONITOR $119.00
Premium quality AMBER VIDEO MONITOR With antiglare, (80 characters x 24 rows), exceptionally clear screen, faster scanning. PLUS $9.95 for VIC 20 or Commodore 64 Cable.

• LOWEST PRICES • 15 DAY FREE TRIAL • 90 DAY FREE REPLACEMENT WARRANTY
• BEST SERVICE IN U.S.A. • ONE DAY EXPRESS MAIL • OVER 500 PROGRAMS • FREE CATALOGS

Add $10.00 for shipping, handling and insurance. Illinois residents please add 6% tax. Add $20.00 for CANADA, PUERTO RICO, HAWAII orders. WE DO NOT EXPORT TO OTHER COUNTRIES.

Enclose Cashiers Check, Money Order or Personal Check. Allow 14 days for delivery, 2 to 7 days for phone orders, 1 day express mail! Canada orders must be in U.S. dollars. VISA — MASTER CARD — C.O.D.

PROTECTO
ENTERPRIZES (WE LOVE OUR CUSTOMERS)

BOX 550, BARRINGTON, ILLINOIS 60010
Phone 312/382-5244 to order

the base of your player table, which—if you have placed your table at the new RAMTOP boundary as shown above—can be done by executing

```
POKE 54279,PEEK(106)
```

DMACTL, the Direct-Memory-Access ConTroL register, works to control the Antic chip, enabling various kinds of DMA. Normally, the value of DMACTL is set to 34, enabling normal playfield graphics and character display. In order to reset DMACTL for various kinds of player-missile functions, PEEK its value, then add the appropriate value from the table below, re-POKEing the sum:

Add:	For:
4	Missiles only
8	Players only
12	Players and missiles

the values shown above define these functions for normal, double-line-resolution players only. To elect single resolution, add 16 to the double-line-resolution sum, and POKE the result.

GRACTL, the GRAphics ConTroL register at location 53277, works with DMACTL to enable PM graphics. POKE GRACTL with 1 for missiles only, 2 for players only, and 3 for players and missiles.

3. READY TO ROCK

The hard part is over. Now the fun begins. Set the colors of your players by POKEing to color registers COLPM0–COLPM3 (COLor of Player-Missile 0–3) at locations 704 to 707 decimal. Values for these POKEs can range from 0 to 255 and express combined hue and luminance. You can figure the values to POKE by looking at a standard Atari BASIC SETCOLOR table, choosing a color number from 0 to 15, multiplying by 16, and adding a luminance value from 0 to 14.

Set the width of your players by POKEing to width registers SIZEP0–SIZEP3 (SIZE of Player 0–3) at locations 53256 to 53259 decimal. The registers are initialized automatically to 0 (normal width). POKEing a value of 1 will double the width of the associated player, and a value of 3 will quadruple it.

You're now ready to animate. By POKEing a value from 0 to 227 to one of the Player Horizontal Position registers at locations 53248 (player 0)–53251 (player 3), you can move a given player instantly to any horizontal position on the screen. As noted above, vertical movement of a player involves moving its bit maps higher or lower in its compartment. This can be accomplished in BASIC by subroutines such as those below:

```
1000 REM * PLAYER VERTICAL MOVEMENT *
1010 REM *     ROUTINE IN BASIC     *
1020 REM
1030 REM LCN=LOW ADDRESS OF PLAYER
1040 REM     BITMAP.
1050 REM LNG=LENGTH OF PLAYER BITMAP.
1060 REM
1070 REM ** MOVE PLAYER UPWARDS **
1080 FOR X=LCN-1 TO LCN+LNG-1
1090 POKE X,PEEK(X+1):NEXT X:RETURN
1100 REM **   MOVE PLAYER DOWN  **
1110 FOR X=LCN+LNG+1 TO LCN STEP -1
1120 POKE X,PEEK(X-1):NEXT X:RETURN
```

Such subroutines are not terribly fast, but, as we say, that's BASIC.

THEN THE PERFORMANCE!

Now let's examine the construction of a typical PM-graphics animation project. *Roving Cupid* generates an animated picture of a cupid, flying back and forth over a decorative Graphics 0 background. The body of the cupid is composed of two concatenated players (players 0 and 1), each 24 bytes long, but loaded with different vertical position offsets, as shown in the diagram below. Player 2, 13 bytes in length, represents the cupid's wing in folded position, while player 3, 24 bytes long, represents the wing extended. For higher image resolution and detail, the players are defined in single resolution and occupy a player table 2,048 bytes long based at RAMTOP.

Moving the cupid back and forth across the screen is done by a pair of loops that POKE a series of values from 185 to 110 to the players' horizontal-position registers. A horizontal offset value of 7 separates the leading and trailing players' positions, keeping them properly lined up.

Every 10 cycles of the horizontal-movement loop, the horizontal-position register of the player currently filling the wing position (either player 2 or 3) is POKEd with zero to make it disappear off-screen, and the other wing-image player is substituted. In this way, the angel's wings are made to flap.

When first loaded into the player table, the image of the cupid is facing left, and it begins its traverse of the screen from right to left. When you run the program, you'll notice that the figure of the cupid reverses itself quite nicely before heading back in the opposite direction. Turning a player bit map

around in this manner requires, in effect, that each byte be replaced with its own mirror image. Because BASIC doesn't let you directly manipulate bit values, you're left with no easy general way to manage this operation. One way to solve the problem of reversal would be to provide both left- and right-hand versions of the bit map at the start, and redefine the players each time the direction of movement changes. But this approach would require a good deal of program space and quite a lot of extra work. To keep the cupid of manageable size, I wanted a more compact means of achieving the reversal effect, and that, I finally decided, meant a machine-code subroutine.

The routine I developed is POKEd into locations 1536 to 1565, though it is relocatable and might as easily have been loaded into a string. To use it, you POKE the lowest address of the player bit map you want to reverse into the pair of spare bytes at 203 and 204 decimal (in high/low format) and POKE the length of the player into location 205 before executing a USR call to 1536. At each turn, this operation is repeated once for each of the four players.

So that's about it. I now suggest that you go off and design some bizarre and horrifying alien bit maps. Too many roving cupids aren't good for anyone.

ATARI W/32K RAM/ *ROVING CUPID*

```
10 DIM NAME$(20),OB$(20):FLAG=0
20 RESTORE 3000:FOR X=1536 TO 1565:READ A:POKE X,A:NEXT
X
30 PRINT CHR$(125)
40 POSITION 9,5:PRINT "****ROVING CUPID****"
50 PRINT :PRINT "WHAT IS YOUR NAME";:INPUT NAME$
60 PRINT :PRINT "WHO IS THE OBJECT":PRINT "OF YOUR AFFEC
TIONS";:INPUT OB$
70 REM --> RESERVE PM GRAPHICS AND CHARACTER-SET TABLES
80 POKE 106,INT((PEEK(106)-12)/12)*12:GRAPHICS 2+16:BASE
=PEEK(106)*256:CHAR=(PEEK(106)+8)*256
90 REM --> BORDERS AND DECORATIONS
100 SETCOLOR 4,7,3:SETCOLOR 0,1,6:SETCOLOR 1,3,6:SETCOLO
R 2,3,2
110 CSET=PEEK(756)*256:POKE 756,PEEK(106)+8
120 C=0:FOR X=CHAR TO CHAR+1023:POKE X,PEEK(CSET+C):C=C+
1:NEXT X
130 C=64*8:FOR X=CHAR+8 TO CHAR+15:POKE X,PEEK(CSET+C):C
=C+1:NEXT X
140 FOR X=0 TO 19:POSITION X,0:PRINT #6;CHR$(161):POSITI
ON X,10:PRINT #6;CHR$(161):NEXT X
150 FOR X=0 TO 10:POSITION 0,X:PRINT #6;CHR$(161);CHR$(1
61):POSITION 18,X:PRINT #6;CHR$(161);CHR$(161):NEXT X
160 POSITION 2,2:PRINT #6;"HAPPY":POSITION 5,3:PRINT #6;
"VALENTINE'S":POSITION 15,4:PRINT #6;"DAY":POSITION 9,5:
PRINT #6;"to"
170 POSITION 10-LEN(OB$)/2,7:PRINT #6;OB$:POSITION 8,8:P
RINT #6;"from"
180 POSITION 10-LEN(NAME$)/2,9:PRINT #6;NAME$
190 REM --> ESTABLISH PLAYER DOMAINS
200 P0=BASE+1024:P1=BASE+1280:P2=BASE+1536:P3=BASE+1792
210 REM --> CLEAR PLAYER SPACES
220 FOR X=BASE+1024 TO BASE+2048:POKE X,0:NEXT X
230 REM --> LOAD PLAYER DATA
240 RESTORE 4000:POV=P0+52:FOR X=POV TO POV+23:READ A:PO
KE X,A:NEXT X
250 P1V=P1+60:FOR X=P1V TO P1V+19:READ A:POKE X,A:NEXT X
260 P2V=P2+53:FOR X=P2V TO P2V+5:READ A:POKE X,A:NEXT X
270 P3V=P3+60:FOR X=P3V TO P3V+1:READ A:POKE X,A:NEXT X
280 REM --> SET UP PLAYER-MISSILE DMA
290 POKE 54279,PEEK(106)
300 POKE 53277,3
310 POKE 559,62:POKE 623,1
320 POKE 704,10:POKE 705,10:POKE 706,10:POKE 707,10
330 REM --> FLY RIGHT TO LEFT
340 FOR X=185 TO 110 STEP -1
350 POKE 53248,X-7:POKE 53249,X
360 IF X/10=INT(X/10) THEN FLAG= NOT FLAG:GOSUB 2000
370 IF FLAG=1 THEN POKE 53250,X:POKE 53251,0
380 IF FLAG=0 THEN POKE 53251,X:POKE 53250,0
390 NEXT X
400 GOSUB 1000
410 REM --> FLY LEFT TO RIGHT
420 FOR X=110 TO 185
430 POKE 53248,X:POKE 53249,X-7
440 IF X/10=INT(X/10) THEN FLAG= NOT FLAG:GOSUB 2000
450 IF FLAG=1 THEN POKE 53250,X-8:POKE 53251,0
460 IF FLAG=0 THEN POKE 53251,X-8:POKE 53250,0
470 NEXT X
480 GOSUB 1000:GOTO 340
1000 REM --> REVERSAL ROUTINE
1010 POKE 204,INT(POV/256):POKE 203,POV-INT(POV/256)*256
:POKE 205,24:A=USR(1536)
1020 POKE 204,INT(P1V/256):POKE 203,P1V-INT(P1V/256)*256
:POKE 205,20:A=USR(1536)
1030 POKE 204,INT(P2V/256):POKE 203,P2V-INT(P2V/256)*256
:POKE 205,6:A=USR(1536)
1040 POKE 204,INT(P3V/256):POKE 203,P3V-INT(P3V/256)*256
:POKE 205,2:A=USR(1536):RETURN
2000 SOUND 0,131,0,10:FOR DELAY=1 TO 30:SOUND 0,131,0,0:
RETURN
3000 REM --> MACHINE CODE REVERSAL SUBROUTINE
3010 DATA 104,164,205,136,177
3020 DATA 203,133,206,32,19
3030 DATA 6,165,207,145,203
3040 DATA 136,16,242,96,162
3050 DATA 7,24,38,206,102
3060 DATA 207,202,16,248,96
4000 REM --> PLAYER DATA
4010 DATA 24,60,60,60,60,60,92,92,159,159,191,255,255,14
3,135,135,71,71,7,7,7,3,1,1
4020 DATA 0,0,192,192,224,224,224,224,224,224,192,192,19
2,224,240,240,240,16,16,16
4030 DATA 255,252,248,240,224,192
4040 DATA 120,254
```

Please note: Line 160 of the above listing was originally entered using the keyword abbreviation POS. for POSITION. Though reproduced in expanded form, the line cannot actually be entered as shown. Substitute the abbreviation POS. for POSITION, wherever it appears, and you should have no trouble.

Word Twister

By Adam Schussheim

Photo: Victoria Studios, Ltd.

I'll admit it. I'm a word-search addict. There was even a time when I couldn't get enough of them. I can remember riding in the car or waiting in a line somewhere and playing word games to pass the time.

Now, thanks to computers, I get all the word games I want. So can you with *Word Twister*. It generates word-search puzzles and lets you play them. It's pretty simple, easy to type in, and is guaranteed to thrill Scrabble fans.

Here's how it works. After you've entered and SAVEd the program, run it. Next, set the skill level (1–10). The puzzle is made up of words you enter. The computer jumbles them up and tries to squeeze them all in somehow. It just might put them in diagonally, backwards, or in any number of ways. Maybe they'll even interlock. If the computer can't fit a word in, it'll tell you.

After the computer's shoved in the words and is done with the construction work, it'll display the finished product on the screen. The size depends on the number of words, their length, and the skill level. All the words you have to find will be listed along the side of the puzzle (unless, of course, you're a serious player and create a colossal game that takes up the whole screen).

Then comes the puzzling part. To solve whatever monster you've created, type in the location—by row number and by column number—of the first word you find. If you locate the word *kilobyte*, for example, type in the column number of where the "K" lies, press ENTER, then type in the

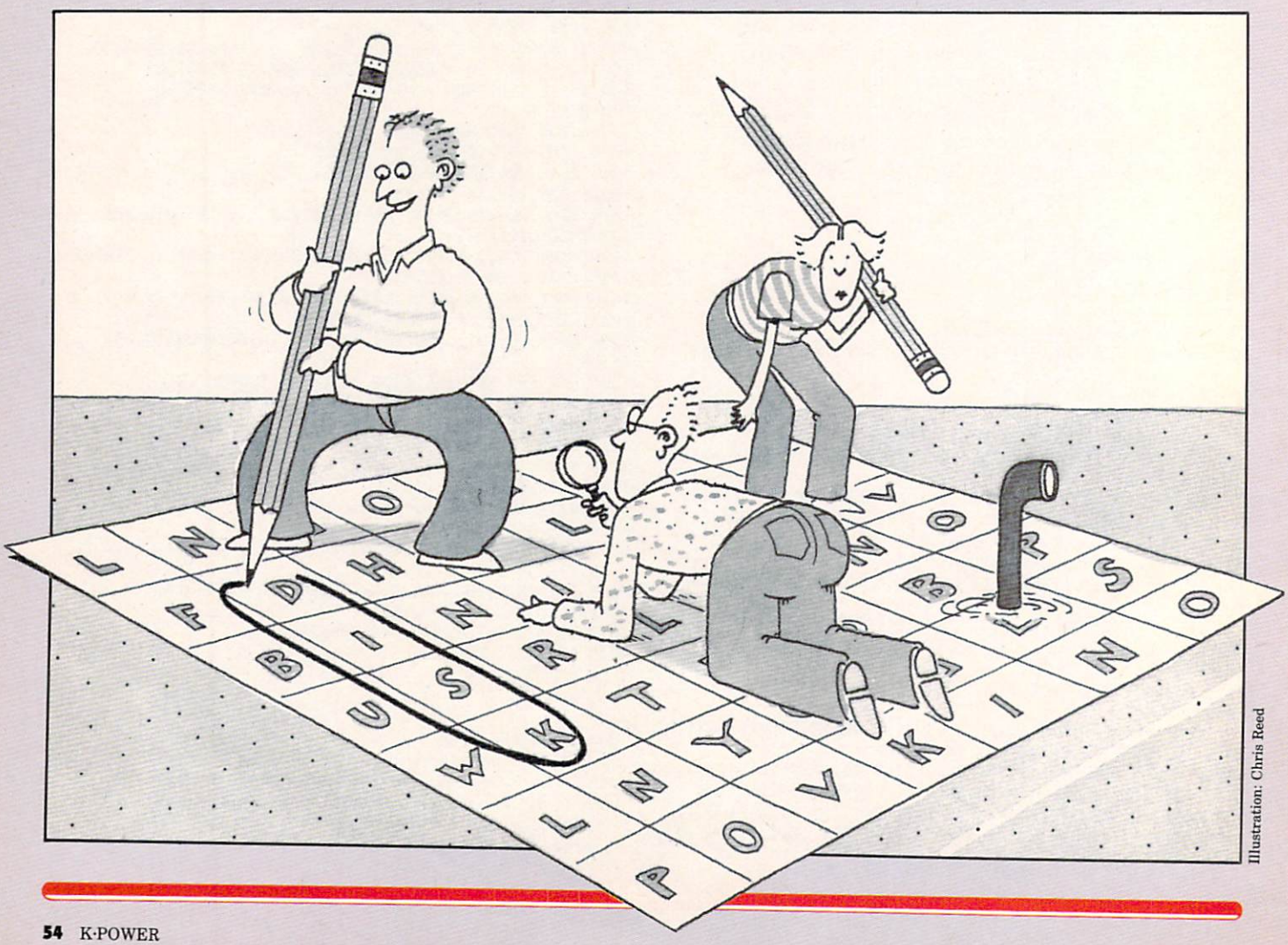


Illustration: Chris Reed

corresponding row number and press ENTER again. Do the same for the "E" in the word. If you're correct, the computer will let you know and will remove the word from the list. You can check on your progress by looking at the upper-left corner of the screen, where the total number of words in the puzzle is displayed. So is the number of words you've found.

Before you start, you should decide on the puzzle's theme—like sports words, music words, computer words, etc. But do what you want. Have fun and happy searching. Just think, if you have a portable computer, *Word Twister* can keep you occupied the next time you wait in a line, take a trip, or need a word-search fix.

ADAM SCHUSSHEIM, *17, still can't get his fill of words. He's editor-in-chief of his high school's newspaper,* The Southerner. *He writes his editorials on his TRS-80 from his home in Great Neck, New York.*

Test Your Programming: Win A Timex 2068 or 1500!!

See this TRS-80 Model III *Word Twister* puzzle? K-POWER *dares* you to submit a puzzle program for your computer system that does everything this one does (or more)!

Model III owners should try to improve the program with some of the special features mentioned below. Owners of other computer systems can faithfully reproduce the original or adopt some special features, too. Just remember, in case of a tie, the program for your particular computer system that has the best additional options will be chosen. Do that, and you could win a Timex Sinclair 2068 or 1500! Sixteen new Timexes will be awarded in all!

Some of the fancier features you could program into *Word Twister*:

1. As you locate words, the letters go to reverse video on the screen (like circling the letters on a printed page) so you can see which letters you've used and which you haven't used.

2. Devise a more sophisticated algorithm to form the puzzle.

3. Add scoring, either by number of words found or number of tries, or even time it takes you to solve the puzzle.

4. Use English words in the puzzle but show their French (or other foreign language) translation in the margin, or vice versa.

5. Be able to ask for hints or for the answers.

6. Be able to conceal a secret word or message in the puzzle that is revealed when all the words in the margin are crossed off.

7. Be able to print out the puzzle and/or the answer key.

8. Be able to choose the number of different directions the hidden words can run or whether or not the words interlock.

9. Be able to choose the horizontal and vertical size of the puzzle.

10. Be able to store the puzzle to disk or tape.

Good luck! Send your entries to *Word Twister* Puzzle Contest, c/o K-POWER, 730 Broadway, New York, NY 10003. Deadline: March 25.

TRS-80 MODEL III/*WORD TWISTER*

```
10 CLS:CLEAR 0:CLEAR (MEM-6000):PRINTCHR$(23);
20 PRINT@406,"WORD SEARCH";:PRINT@476,"MAKER";:PRINT@5
90,"BY ADAM SCHUSSHEIM";:FORP=1TO1500:NEXTP
30 CLS:RANDOM:INPUT"ENTER SKILL LEVEL (0=EASY THROUGH
10=HARD)";R:IF R<0 OR R>10 THEN 30 ELSE XL=28:YL=13:GO
TO40
40 INPUT"ENTER THE NUMBER OF WORDS";N:IF N<1 OR N>100
THEN 40ELSE PR=N:DIMW$(N),N(N),FL(N)
50 FORL=1TON
60 PRINT"ENTER WORD #";L;:INPUT W$(L):IF LEN(W$(L))<2
THEN PRINT"WORD TOO SHORT":GOTO 60 ELSE NEXT L:FOR L=1
 TO N:IF LEN (W$(L))>LL THEN LL=LEN(W$(L)):NEXT L:ELSE
 NEXT L
70 CLS:T=INT(SQR(L*LL+(N*R)))+1:T=T+INT(R/(RND(2)+2)):
IF T>YL THEN D=YL:E=INT(SQR(T[2-D)):GOTO 80   ELSE D=T
:E=T:GOTO90
80 IF E>XL THEN E=XL:GOTO 90
90 D=D+2:E=E+2:DIM P$(D,E):K=0
100 K=K+1:IF K>N THEN GOTO 290
110 BB=RND(N):IF W$(BB) = "0" OR FL(BB) = BB THEN GOTO
 110
120 IF AK<>1 THEN PRINT@448,CHR$(31);:PRINT@960,CHR$(3
1);:Z3=17+LEN(STR$(BB))+LEN(W$(BB))+3:PRINT@0,CHR$(30)
:PRINT@0,K-1;"WORDS DONE OUT OF ";N;:PRINT@480-(Z3/2),
"WORKING ON WORD #";BB;"= ";W$(BB);:
130 TR=0
```

```
140 X=RND(D):W=RND(E):IF P$(X,W)="" THEN GOTO 150  ELS
E GOTO 140
150 XX=X:YY=W:XC=RND(3)-2
160 YC=RND (3)-2:
170 IF XC = 0 AND YC = 0 THEN GOTO150
180 FOR L=1 TO LEN (W$(BB))
190 XX = XX + XC:YY=YY+YC
200 IF XX>D OR XX<1 OR YY>E OR YY<1 THEN TR=TR+1:IF TR
 > 9 THEN PR = PR - 1:W$(BB) = "0":GOTO 100 ELSE GOTO
140
210 IF P$(XX,YY) <> "" THEN XX=0:GOTO 200
220 NEXT :XX=X:YY=W
230 FOR L=1 TO LEN(W$(BB))
240 P$(XX,YY)=MID$(W$(BB),L,1)
250 XX = XX + XC:YY = YY +YC
260 NEXT
270 FL(BB) = BB:TR=0
280 GOTO 100
290 Y=0:GOSUB650:Y=1:FORP=1TOD:FORW=1TOE:IF P$(P,W)=""
 THEN P$(P,W)=CHR$(RND(26)+64):NEXT W,P ELSE NEXT W,P:
300 GOSUB660:CLS:FORL=0TO2*(E+3)-1:PRINT@L,CHR$(191);:
NEXT
310 PRINT:PRINT CHR$(191);:PRINTTAB(3);:FORL=1TOE:ZZ=Z
Z+1:PRINT USING"##";ZZ;:NEXT:PRINT"  ";CHR$(191)
320 FORP=1TOD:PRINT CHR$(191);USING"##";P;:PRINT" ";:F
ORW=1TOE:PRINT P$(P,W);" ";:NEXTW:PRINT " ";CHR$(191):
NEXT P
330 FORL=0TO2*(E+3)-1:PRINT CHR$(191);:NEXT
340 NO=0:U$="":FORL=1TO2:Q$(L)="":N$(L)="":NEXT:IF D<2
0 THEN GOSUB 580
350 PRINT@1,RIGHT$(STR$(PR),LEN(STR$(PR))-1);CHR$(191)
;RIGHT$(STR$(RT),LEN(STR$(RT))-1);
360 P=1
370 LO=965:PL=0:FORL=1TO2:Q$(L)="":N$(L)="":NEXT:PRINT
@LO,STRING$(13,32);:
380 LO=LO-1:GOSUB 400: F(1)=VAL(IN$):PRINT@LO,",";:GOS
UB 400:G(1)=VAL(IN$):PRINT@LO,":";:GOSUB 400:F(2)=VAL(
IN$):PRINT@LO,",";:GOSUB 400:G(2)=VAL(IN$)
390 PRINT@LO,CHR$(32);:LO=965:GOTO450
400 LO=LO+1:RE=0:R1=0:IN$="":FORI=1TO2STEP0:PRINT@LO,"
?";:FORK=1TO10:GOSUB410  :IF R1=1 THEN RETURN ELSE NEX
TK:PRINT@LO,CHR$(95);:FORK=1TO10:GOSUB410  :IF R1=1 TH
EN RETURN ELSE NEXTK:NEXTI
410 A$=INKEY$:IFA$=""THEN RETURN ELSE IFA$<>CHR$(8) AN
D A$<>CHR$(13)AND(ASC(A$)<48 OR ASC(A$)>57)THENRETURNE
LSEIFASC(A$)=8THENPRINT@LO,CHR$(32);:GOSUB440:LO=LO-1:
IF LO <965 THEN LO=965:RETURN ELSE RETURN
420 IF A$<>CHR$(13) AND A$<> CHR$(32) THEN IN$=IN$+A$:
PRINT@LO,A$;:LO=LO+1:RETURN
430 R1=1:RETURN
440 IF IN$="" THEN RETURN ELSE IN$=LEFT$(IN$,LEN(IN$)-
1):RETURN
450 FORP=1TO2:IF F(P)>E OR G(P)>D THEN GOTO 340 ELSE N
EXT
460 FORL=1TO5:IF INKEY$=CHR$(32) THEN GOTO 340  ELSE N
EXT
470 MX=F(2)-F(1):MY=G(2)-G(1)
480 IF MX<0 THEN SX=-1 ELSE IF MX>0 THENSX=1
490 IF MY<0 THEN SY=-1 ELSE IF MY>0 THENSY=1
500 IF MY<>0 AND MX<>0 THEN 520
510 FORY=G(1)TOG(2)STEPSY:FORX=F(1)TOF(2)STEPSX:U$=U$+
P$(Y,X):NEXTX,Y:GOTO 550
520 Y=G(1)-SY:X=F(1)-SX:H=0
530 H=H+1:IF H>ABS(MY)+1 THEN 550  ELSE Y=Y+SY:X=X+SX
540 U$=U$+P$(Y,X):GOTO 530
550 FORL=1TON:IF W$(L)=U$ THEN PRINT@LO,"* * RIGHT * *
";:RT=RT+1:W$(L)="0":GOSUB 570 ELSE NEXT:PRINT@LO,"! !
 NOPE ! !";:GOTO 340
560 GOTO340
570 IF RT=PR THEN PRINT@LO,"* * * ! ALL RIGHT ! * * *"
;:FORI=1TO4STEP0:IF INKEY$="" THEN NEXTI ELSE RUN ELSE
 RETURN
580 ZZ=0:X=E*2+8:IF NO<>0 THEN RETURN ELSEQ=X:GOSUB 64
0  :FORL=1TON:IF ASC(W$(L))<64 THEN LQ=VAL(W$(L)):PRIN
T@Q,STRING$(LQ,32);:Q=Q+LQ:NEXT:RETURN
590 IF Q+1+LEN(W$(L))<((ZZ+1)*64-1) THEN PRINT@Q,W$(L)
;:Q=Q+LEN(W$(L))+1:NEXT:LQ=((ZZ+1)*64-1)-Q:IF LQ=0 THE
N ELSE PRINT @Q,STRING$(LQ-1,32);:RETURN
600 ZZ=ZZ+1:Q=X+ZZ*64:IF Q<1023 THEN 810 ELSE RETURN
610 RETURN
620 IF X>=63 THEN NO=1:RETURN
630 RETURN
640 M=63-X:FORL=0TO15:PRINT@L*64+X,STRING$(M,32);:NEXT
L:RETURN
650 PRINT:IF PR<>N THEN PRINT"I FIT ALL BUT";N-PR;"OF
YOUR WORDS":RETURN ELSE PRINT"I FIT ALL OF THE WORDS I
N THE PUZZLE":RETURN
660 RETURN
```

ATTENTION PROGRAMMERS

K-POWER *wants to publish your best original computer programs. Send us your 100-to-150-line programs. We're especially interested in games, puzzles, and interesting applications. Send a disk or tape containing two copies of your program, plus a listing (preferably a printout) to Hacker Heaven, c/o* K-POWER, *730 Broadway, New York, NY 10003. We need to know your name, address, age, phone number, computer model, program title with brief description, and the level of BASIC and memory required. We'll pay $100 for programs we use, $150 for innovative computer puzzles. If you want your program returned, enclose a stamped, self-addressed mailer.* K-POWER *can't assume responsibility for the loss of or damage to any unsolicited materials.*

MICROSOFT FLIGHT SIMULATOR

HARDWARE REQUIREMENTS: *IBM PC, 64K (disk); color card*
MANUFACTURER: *Microsoft Corp., 10700 Northup Way, Bellevue, WA 98004; (206) 828-8080*
PRICE: *$49.95*

10

By Matthew Ocko

Microsoft's *Flight Simulator* by designer Bruce Artwick (who also authored *Night Mission Pinball*) is an excellent product with few flaws.

The object of Microsoft *Flight Simulator* (MFS) is to learn how to fly a small single-engine plane under varying environmental conditions. Realism ranges from a demonstration mode to a highly detailed aeronautical simulation. All factors—time, place, season, weather—are controlled from a user-friendly editor that can be entered while you're flying. For the arcade devotee, there's a complete, real-time World War I flying ace game that rivals the Atari classic *Red Baron*.

On boot-up, the user can back up the disk, see a demonstration, or proceed to fly. In demo or actual flight, the first screen shows a high-resolution, three-dimensional picture of a runway in the upper half of the screen and a detailed instrument panel in the lower half.

The demo mode is not a bad way to begin since you can relax, read the manual while the program's autopilot does the flying, and get a sense of how the plane's behavior is reflected in the instrumentation. The impatient may want to skip the demo since you can get the plane up in the air with only a cursory glance at the manual. Getting down may be another matter!

The plane's performance is controlled from the keyboard. While the absence of joystick control will disappoint arcade game jockeys and those looking for an absolutely authentic simulation, others may be overwhelmed by the 36 keys. Still, by just using the cursor and function keys you can put the plane through its sedate routine paces or flaunt your skill with loops, rolls, and high-speed dives.

The three-dimensional display and the instruments are updated constantly. The animation of the picture and of the instruments is smooth, fast, and flicker-free. The sensation of flight is actually imparted and there's immediate response to the keys. The challenge here is to take off, fly, avoid buildings and bad weather, and land successfully.

The editor can be entered during any phase of play and allows you to control shear factor, wind speed, cloud cover, and reliability factor.

There is also the British Ace mode, which seats you in the cockpit of a British fighter plane during World War I. You fly your fighter over the "world," which consists of several quadrants containing mountains, a river, friendly airbases where you refuel and refurbish your

THE RATINGS

K-POWER reviewers base their ratings on a 1–10 scale, with a 10 being that rare piece of software that's too outstanding for words. The lower end of the scale is reserved for the dogs that shouldn't have left the assembly line. Enough said.

plane, and hostile airbases and enemy factories that you bomb for points. The 3-D graphics are superb and the action is very fast. In this mode, you can earn points.

Armed with only your skill and 100 rounds of ammunition, you face a multitude of enemy pilots—some of them deadly aces. Though limited to five bombs and 100 rounds, you may resupply yourself at a friendly base. Shooting down enemy planes earns points, but straying into the path of enemy fire can be dangerous. You may be disabled and have to restart your engine. Worse yet, you may plummet to your death.

Though *MFS* is a brilliant game, it's not perfect. TV and color composite monitors will display 16 colors, but the RGB color monitor—because of its high resolution—displays only a disappointing black and white.

The radar view could also be improved. Its range is limited, and, because the image of the plane is not well resolved, it's sometimes difficult to see where you're going.

The real-time action is marvelous, but if you're a poor typist you can lose track of the keys and control of the airplane. An option for joystick control of some of the basic functions of the plane should be included, especially in the British Ace game. If you're an afficionado of *Crossfire* or similar games, however, the keyboard will pose no problems.

Although the manual is a model of good documentation, sometimes it assumes the reader is either very interested in flight or has some flying experience. It might have been better to have designed the manual on the assumption that most people just want to get off the ground and enjoy the sensation, and to have left the more technical data for advanced users in later chapters or in appendixes.

But, despite its flaws, *MFS* is well worth its price. Now, if only Bruce Artwick would design a real-time F-16 or Space Shuttle simulator . . .

MATTHEW OCKO *is 15 and lives in Raleigh, North Carolina.*

ZORK III

HARDWARE REQUIREMENTS: *Apple II/II plus/IIe, 32K (disk); also available for IBM PC, 48K (disk); TRS-80 I/III, 32K (disk); Atari 400/800/1200, 32K (disk); and Commodore 64 (disk, distributed through Commodore)*
MANUFACTURER: *Infocom, Inc., 55 Wheeler St., Cambridge, MA 02138; (617) 492-1031*
PRICE: *$39.95*

By Eric and Tom Saberhagen

Ever hear of *Zork*? It's this old game about exploring The Great Underground Empire. Bored with *Zork*? Is *Zork II*'s disk fried? Well, then try *Zork III*! Because if you liked *Zork*, you'll love *Zork III*.

Zork III is a brilliant Infocom game (especially if you're a text-adventure fan). It's the most intelligent text game for a microcomputer that we've ever seen.

The object is to meet and destroy the Dungeon Master himself. Don't expect to kill him the first time you play. (If you do, don't tell anyone; they won't believe you.)

Your quest begins at the bottom of an endless stair with a brass lantern at your feet. This isn't too hot, but with some exploration you can find better places to spend your time. Some places even change, so a room may not always be the same as when you left it 20 moves ago.

All you do to play is type in what you want your character to do.

When you begin to play, situations will definitely be confusing. Soon, however, your initial problems will seem trivial compared with the brain-racking problems that will follow. The game, though, is exciting, and those who don't enjoy it either don't like to think or can't tolerate being frustrated.

Zork III has an incredibly large vocabulary (more than 600 words), but it's still too limited to provide for many possibilities. Nonetheless, *Zork III* is intelligent (as far as adventure games go, that is). For example, if you command the computer to attack and there is only one reasonable object that can be attacked, the computer will know what is intended.

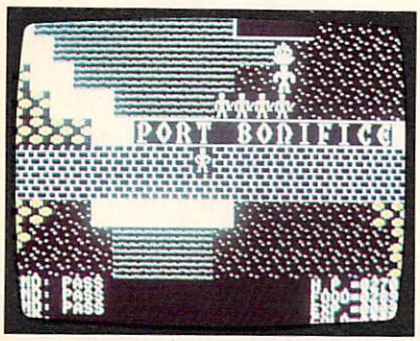
The scoring system is confusing at first. You are rewarded with points for picking up important items. This and the number of moves you make are factors in determining your score. If you run into trouble, don't worry too much, the Dungeon Master is patient; he'll reincarnate you twice before giving up and leaving you to rot. A word of advice: Never be afraid to try the stupid or obnoxious. Remember, if you die, you can always reboot!

ERIC *and* TOM SABERHAGEN *are 13 and 11, respectively, and live in Albuquerque, New Mexico.*

ULTIMA II

HARDWARE REQUIREMENTS: *Apple II/II plus/IIe, 48K (disk); Atari 400/800, 48K (disk); IBM PC, 64K (disk); IBM requires color card*
MANUFACTURER: *Sierra On-Line, Sierra On-Line Bldg., Coarsegold, CA 93614; (209) 683-6858*
PRICE: *$59.95*

By David Langendoen



From the moment you first boot *Ultima II*, you realize you'll never play *Ultima I* again. *Ultima II* is more sophisticated and has a quicker pace.

In *Ultima I*, the quest was to find and destroy the Prince of Darkness. In *Ultima II*, your foe, Minax, the Enchantress of Evil, is more powerful and harder to reach.

Ultima II is an animated graphic adventure game, which makes it more visually exciting than both text and graphic adventures. In this game, you can guide your character across a map (which scrolls in four directions) and command it to interact with the figures and symbols on the screen.

When you begin the game, you're greeted with a pleasant surprise: vivid graphics. There is an assortment of trees, mountains, plains, swamps, and, off to one side, an ocean that seems to move. Scattered about the beautiful scenery, however, are the silhouettes of various monsters that immediately converge upon you.

Since the keyboard is used throughout the game and there are more than 30 keys used in play, you'll need quick reflexes in order to fight off the seething hoards of gargoyles, fighters, thieves, demons, and devils. The controls are difficult at first, but don't be discouraged. Once you master them the game will be quick and enjoyable.

In order to begin your quest, you must create a character (you can't load characters from *Ultima I*). Your choices include: fighter, thief, cleric, and wizard.

To equip your character, you must venture into a town, village, or castle. Once there, you can acquire food, hit points, a horse, a ship, a plane, or other important items.

The universe of *Ultima II* is fascinating. Upon entering a town you may see red brick walks, swimming pools, shops, even the Hotel California. Scattered about the wilderness are time portals that can transport you across the span of time: from prehistoric times, through the present, and to the land of the Enchantress (it might help to keep a record of which portals lead where, though). Of course, you may become tired of Earth, in which case you can find a rocket and blast off to any one of the planets in our solar system.

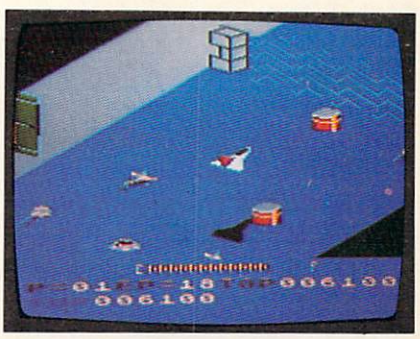
As you can see, *Ultima II* is unique and its storyline is original. That's why I like it.

DAVID LANGENDOEN, *15, lives in Brooklyn, New York.*

ZAXXON

HARDWARE REQUIREMENTS: *TRS-80 Color Computer, 32K (disk and cassette); also available for Apple II/II plus/IIe, 48K (disk); Atari 400/800/1200, 16K (cassette), 32K (disk); joystick required*
MANUFACTURER: *Datasoft, Inc., 9421 Winnetka Ave., Chatsworth, CA 91311; (800) 423-5916*
PRICE: *$39.95*

By Andrew Lentvorski, Jr.



Steve Bjork has done an excellent job of creating *Zaxxon* for the TRS-80 Color Computer. If you've played *Zaxxon* at the arcade, you won't miss any of the outstanding three-dimensional action by playing Datasoft's computer version.

In *Zaxxon* you're a fighter pilot on a mission to destroy the evil Zaxxon robot. To protect himself, Zaxxon has constructed two well-defended space fortresses separated by a void of space where you must dogfight with his robot spaceships. Within the space fortresses you must destroy his lethal defenses, capture fuel, navigate force fields, and maneuver over walls.

After you've successfully navi-

gated the two space fortresses and destroyed his robot spaceships, you'll finally face Mister Big, the Zaxxon robot himself. If you don't destroy him quickly, he'll fire a homing missile at you. This is the ultimate showdown. Destroy or be destroyed. After a successful encounter, you'll be transported back to the beginning, and everything becomes faster and more menacing.

I found it difficult to judge where to shoot in the deep space between the fortresses. Since there aren't any visual landmarks, locking onto targets isn't easy. However, programmer Steve Bjork made up for this problem to a certain extent by placing an X-shaped mark in front of the player's ship. If you shoot when the mark appears, you'll destroy an enemy spaceship whether you can see it or not.

The joystick control for your ship is like that of an old stick-controlled aircraft. This makes flying seem very realistic. However, the fire button doesn't have rapid-fire capability and must be repeatedly pressed and released.

The most outstanding feature of *Zaxxon* is its excellent three-dimensional graphics. The edges are crisp and clear, not muddy like some home video games. Many details—such as seeing your ship's shadow—enhance the feeling of flying.

Zaxxon is a fast-paced game that offers a lot of excitement and an interesting premise. The action is quick and smooth with no jerkiness between scenes. The controls are accurate and responsive, and the sound is well done. In my opinion, *Zaxxon* is a game that can't be praised enough.

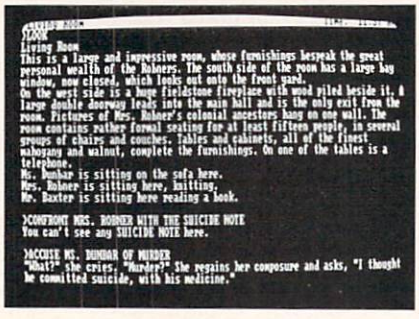
ANDREW LENTVORSKI, JR., *13, lives in Johnstown, Pennsylvania.*

DEADLINE

HARDWARE REQUIREMENTS: *Apple II/II plus/IIe/III w/emulator, 48K (disk); also available on IBM-PC, 64K (disk); TRS-80 I/III, 32K (disk); Atari 400/800/1200, 32K (disk); and Commodore 64 (disk, distributed only through Commodore).*
MANUFACTURER: *Infocom, Inc., 55 Wheeler St., Cambridge, MA 02138; (617) 492-1031*
PRICE: *$49.95*

8

By Anne Morris



In *Deadline*, Infocom's first mystery text adventure, you're a detective trying to solve the mystery of an apparent suicide.

When the game begins, it's 8:00 a.m., you're outside the victim's estate, and you have 12 hours to solve the case. Most of the commands you give the computer count as one minute. Some that may take longer in reality, though, also take longer than one minute in the game (e.g., SEARCH). To keep you aware of (and worried about) your deadline, the time is displayed constantly on the top of the screen.

On your search for clues, you're allowed to roam freely around the estate, enter any rooms, and examine anything of value to the case. When noon arrives, though, the lawyer shows up to read the victim's will, so keep an eye on the time.

Some of *Deadline*'s more interesting features include: commands that permit you to WAIT for an event to occur, ANALYZE objects at any time, FOLLOW people, discuss other people or things with suspects, and HIDE from someone if a hiding place is available. You also can ask the suspects any questions you want. When they answer, however, they're not always truthful. There are false leads, subplots, and as many as 25 different possible endings (including the death of the suspect, or your own death.)

To enhance the realism of *Deadline*, the game comes with all sorts of different items: a casebook describing the dos and don'ts of being a detective, a memo from the police department, a coroner's report, a letter from the victim's lawyer, a lab report describing items found by the body, a sample of the drug (candy, actually) the victim supposedly took an overdose of, a photograph of where the body was found, brief interviews with the suspects, and the suspects' fingerprints.

It's difficult to solve the mystery the first, second, or even fifth time you try. But it doesn't become boring after a few weeks. You can save up to eight different games to come back to, and since your time is used only when making moves, you can continue whenever you want. *Deadline* is very exciting, is as good, or better, than *Zork*, and will bring hours of enjoyment and, best of all, intrigue.

ANNE MORRIS *lives in Ann Arbor, Michigan. She's 15 years old.*

GOLD FEVER

HARDWARE REQUIREMENTS: *Commodore VIC-20 (cartridge); joystick required.*
MANUFACTURER: *Tronix Publishing, Inc., 8295 S. La Cienega Blvd., Inglewood, CA 90301; (213) 215-0529*
PRICE: *$39.95*

5

By Edward Fung

It's a race against time. You're in an abandoned gold mine, oxygen is running low, boxcars are rushing at you, and an evil claim jumper is trying to get rid of you before you can retrieve any gold. Sound tough? Well, besides these dangers, there are a few surprises in store. Milliseconds after a warning signal, boulders are hurled at you from out of nowhere and any wrong move can prove fatal.

All this excitement can be found in Tronix's *Gold Fever*. You begin the game with three miners and there are nine skill levels in all, each faster than the previous one.

Point scoring is as follows: each piece of gold is worth 100 points; jumping over a boxcar or the claim jumper earns you 30-40 points; jumping over a chasm earns you 20 points; and clearing the board will award up to 150 points, depending on how much oxygen is left.

When you get to the second level of *Gold Fever*, you'll need perfect timing. Your miners skirt disconnected tracks and hop boxcars at a fast pace. Sirens signal danger ahead and tons of boulders head your way. Your miners will have to build up good leg muscles in this game if they want to stay alive.

Gold Fever is very similar to *Donkey Kong*, because in both games you climb and avoid things. One problem with *Gold Fever* is it should have better graphics. After a while, looking at the same characters and background becomes monotonous. But I would recommend it to people who really want a challenge.

EDWARD FUNG *is a 14-year-old living in Rego Park, New York.*

JUMPMAN

HARDWARE REQUIREMENTS: *Commodore 64, 32K (cassette), 48K (disk); also available for Atari 400/800/1200, 32K (cassette), 48K (disk); Apple II/II plus/IIe, 48K (disk), IBM PC, 64K (disk); joystick required*
MANUFACTURER: *EPYX, 1043 Kiel Ct., Sunnyvale, CA 94986; (408) 745-0700*
PRICE: *$40*

7

By Adam Schussheim

Ever since the advent of the popular ladder game *Donkey Kong*, multiscreen arcade games have found a place in most computer users' libraries. Of those, *Jumpman* is definitely the best for the Commodore 64. With 30 different screens, superior graphics, and good sound effects, *Jumpman* has all that is necessary to provide long hours of enjoyment.

The player is the Jupiter Jumpman who must travel

through Jupiter Headquarters to reach and defuse every bomb that has been planted there by the evil Alienators. While doing this, Jumpman must avoid robots, Alienator bullets, dragons, birdmen, and a host of other dangers.

A typical *Jumpman* screen consists of a network of girders connected by ladders and ropes. The player must use the joystick to maneuver the Jumpman around the screen to reach each bomb either by jumping or by using the ladders and ropes. Once all the bombs have been reached, the player moves on to the next screen.

Each screen, however, is not the same. The designer, Randy Glover, was very creative when designing these, so each has its own twist. One to four people can play, and options include five different game variations and eight speeds.

In terms of aesthetics, *Jumpman* has very good—but not great—graphics, color, and sound. But because it's so enjoyable to play, it will be a long time before it's put away.

ADAM SCHUSSHEIM *is 17 and lives in Great Neck, New York.*

ARCHON: WHERE BRAIN MEETS BRAWN

What is Archon?
A game of strategy and hand-to-hand combat that pits the forces of Light against Dark

By Michael B. Tuomey

O.K., I'll admit it, I first played Electronic Arts' *Archon* because I was suckered in by the slick packaging (it looks like a shrunken heavy-metal album jacket). Once hooked, I booted the game and waited to see what it had to offer. After a few seconds the screen presented a chessboard. "Chess?!" I thought, "fancy cover art, mysterious title, for chess?" Just as I was about to dismiss it as all hype and no substance, the two armies (36 pieces in all) marched, flew, and squirmed to their places on the board. It was then I realized that *Archon* and chess were two *very* different games.

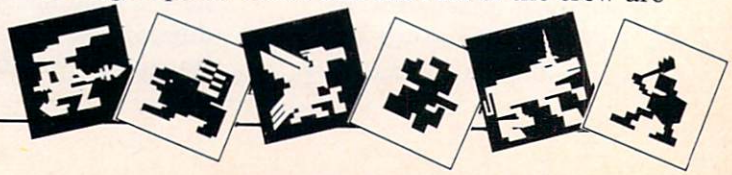
What *is Archon*, then? It's a game of strategy and hand-to-hand combat. When a piece (here called *icon*) invades a square occupied by an enemy, it's not automatically *given* the territory as in chess; it has to fight for it. The disputed square becomes a "combat arena" that expands to fill the entire screen and the two icons battle it out until one is destroyed. The survivor wins the square and is placed back on the board.

"What's all the fighting about?" you ask. Well, to win *Archon*, an army has to either get to *and* occupy the five squares containing "power points," or wipe out every last enemy icon via the combat arena. Both tactics are difficult.

ICONS

Icons move across the strategy screen by joystick control. The number of squares allowed per move is indicated on the screen after the choice of which icon to move is made. The combatants you maneuver (against your opponent—human or computer) are a curious assortment of beings.

According to the manual, they were drawn from "5,000 years of myth and legend and a close reading of certain contemporary writers of fantasy and science fiction." Among this potpourri are: quick but lightly armed Knights and Goblins; Valkyries and their magic spears; the Shapeshifter, which assumes the shape of whatever enemy it encounters; and a Wizard and a Sorceress, each with an array of magic spells. These and the rest of the crew are



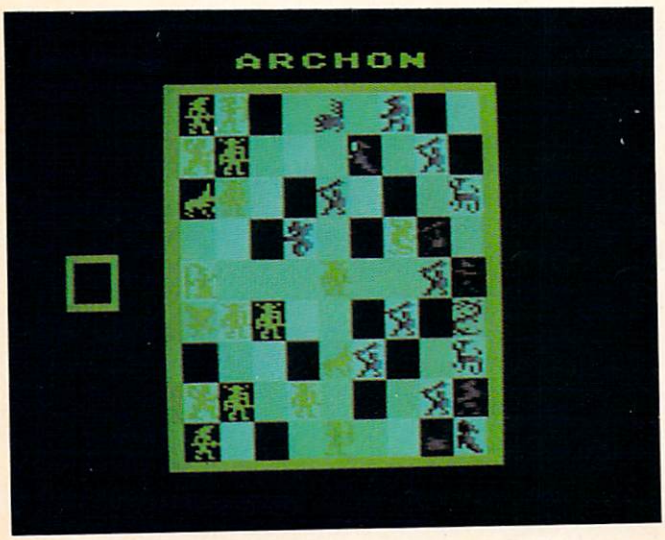
divided into sides: the army of Light and the army of Dark. Though the armies are equal in total strength, they're not mirror images of each other. Not even close. Every icon has its own set of seven "characteristics":

1: Movement (number of squares allowed per move)
2: Speed (in the combat arena)
3: Attack Mode (arrow, sword, fiery explosion, etc.)
4: Attack Force (effect of hit on an enemy)
5: Attack Speed (speed of arrow, etc.)
6: Attack Interval (reloading time)
7: Lifespan (ability to withstand attack)

The combination of these characteristics determines an icon's effectiveness in the combat arena, where duels between differently matched opponents (like the fleet-footed Unicorn and the all-powerful Dragon) provide the game's most exciting moments.

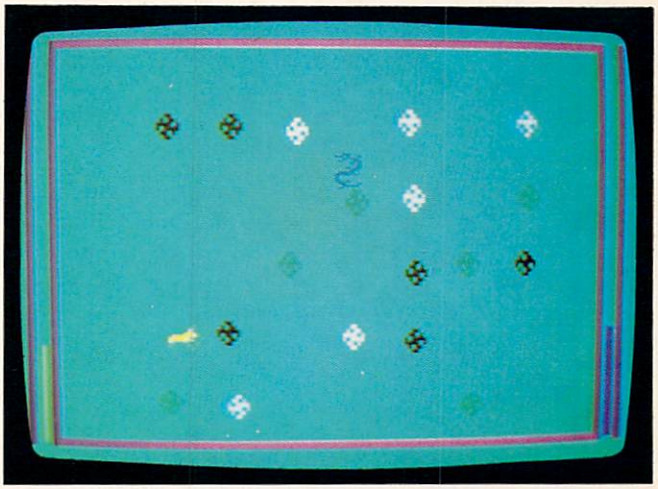
STRATEGY SCREEN

To get to the combat arena, you'll have to venture across the strategy screen. Though a 9 by 9 grid, it isn't a true checkerboard. Thirty-one of the squares are controlled by the "luminosity cycle." This means that while 25 remain black and 25 remain white, the "luminous" squares vary in brightness throughout the playing period in a constant pattern: black—dark—barely dark—barely light—white . . . and back again. This is important to remember because Dark-side icons are stronger on dark squares and Light-side icons are stronger on light squares. Learning to use these "tides" is a crucial factor in playing an effective game.



COMBAT ARENA

Once there, grab your joystick and don't let go till it's over. There's no place else to go once you're in, so you'll have to keep on your toes if you want to make it out alive. Your joystick allows you to maneuver and aim your attack in eight directions, and the fire button launches whatever attack is at your disposal. The arena can best be compared to a gladiator ring that has obstacles scattered within it. Joysticks will get a real workout here, so get a hold of the sturdiest and most responsive one you can find.



GETTING STARTED

Though *Archon*'s manual is extensive, it's unnecessary to read it to get started and have a decent game. Reading it, though, enhances the game tremendously. You can play a fellow human on the same skill level and enjoy the game right off the bat, but playing and beating the computer will require knowledge of the manual and hours of practice.

I'm sure you won't mind practicing. *Archon* is a lot of fun. It's a game you just don't get tired of because it's never the same twice. It can't really be mastered, either, because the game's skill level (like chess) adapts itself to the players involved. *Archon*'s designers have managed to combine simplicity, flexibility, and action to produce a game that uses both the computer's potential and that of its players. Turn the page for 12 game-playing tips.

MICHAEL B. TUOMEY *is* K-POWER*'s assistant editor. He's addicted to* Archon.

THE 12 KEYS TO ARCHON

Archon's authors, Anne Westfall, Jon Freeman, and Paul Reiche III, helped K-POWER's gaming expert come up with these 12 tips for tackling *Archon*:

Learn the characteristics of each icon. Know how and when they can be used most effectively and against which icons.

Move your icons onto squares of favorable color as quickly as possible. Teleport one of your heavyweights onto a strong enemy icon before it has the chance to get off an unfavorable square. If fighting the Dark, teleport a Knight on a kamikaze mission onto the Shapeshifter before it can escape from the light square.

Maneuver strong icons—via favorable squares—close to the power points, wait till the luminosity cycle is in your favor, then try to take them. Meanwhile, move two potent icons within striking distance of the opposite occupied power point.

Keep your icons spread out so they can be in position to attack any enemy that steps onto an opposite-colored square.

Learn to shoot diagonally. Diagonal shots increase your attack range dramatically.

Use the barriers. Race tightly around the barriers to shrug off icons that are pursuing too closely. This will put distance between your icon and an opponent's and give you time to "reload" and plan your next attack.

Icons with slow shots should close in on their opponents and jockey around the barriers until a clear, sure shot presents itself.

Icons with quick shots should keep as far from their opponents as possible, try to predict their movements, and then place shots in their path.

Time your attacks and counterattacks. Dodge and move constantly. Stay near the barriers for protection, draw the icon's fire, then move in, circle, and inflict as much damage as possible before it has a chance to prepare another attack.

Play aggressively. Many players panic and can't plan an attack while on the run.

If you want to learn the game quickly (and don't mind losing to a machine), play the computer. It's a very good teacher.

I stated earlier that every icon has a set of seven characteristics. There is an eighth that I neglected to mention: the player's cleverness. By playing an icon wisely you make this additional characteristic the most potent of all. —M.T.

Archon *is available on disk for Atari 400/800/1200, 32K; Apple II/II plus and IIe, 48K; IBM PC, 64K; and Commodore 64.*

How to make your family feel at home with a home computer.

1. Start with a Charter Subscription to Family Computing. New from Scholastic.

FAMILY COMPUTING isn't just about computers, but about families like yours.

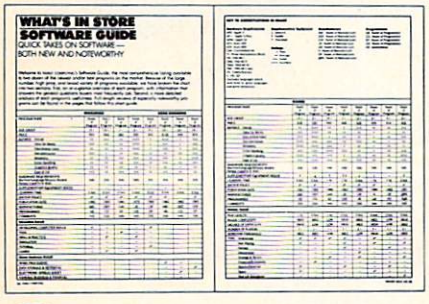
It's the first non-technical computer magazine for parents. Written in plain English. To help you make the right decisions about buying and using a computer for the whole family's benefit.

2. Find out which hardware and software make sense for you.

Most of us feel a little nervous about the first outing to the computer store. Which computer should you buy? How much should you spend? How do you know it won't be obsolete tomorrow?

Now you can look to FAMILY COMPUTING for advice on choosing the right system to match your family's needs. With the flexibility to grow with you as your needs change.

If you already own a computer, we'll help you pick the right add-ons and software to get more out of your investment.



3. Use your home computer for fun and profit.

Because there's so much to know about computers, FAMILY COMPUTING shows you exactly how other families are using their computers to become more knowledgeable, to make their lives more enjoyable, even to earn more money. As a Charter Subscriber, you'll discover: • Foolproof do-it-yourself programs for the Apple, Atari, Commodore 64, and Vic-20, IBM, Texas Instrument, Timex, and Radio Shack TRS-80. • How kids use computers for entrepreneurial ventures.

• Database services for family shopping, household finances, investments, up-to-the-minute news. • A computer buyers guide...and more.

You'll also find hands-on instruction to help parents (and kids) who aren't computer experts. FAMILY COMPUTING takes the mystique out of computers.

4. Help your kids from kindergarten through college.

Most parents buy a computer to help give their kids an educational advantage.

And that's also the best reason to subscribe to FAMILY COMPUTING from Scholastic—The publisher that has been making learning fun for more than 60 years.

In FAMILY COMPUTING, you'll discover the most effective way to coordinate your computer with your child's school work for faster, surer learning. What to do for a computer-resistant child (or one who knows more about computing than the teacher). How much you should help with computer-assisted homework.

And once you've helped them through high school, FAMILY COMPUTING can show you how to use a simple program to choose the right college.

5. Get 12 issues for only $15.97. And a free Computer Dictionary with your paid Charter Subscription.

Get your hands on a copy of FAMILY COMPUTING today! And make yourself feel at home with home computers. FAMILY COMPUTING is so simple, even an adult can understand it. We promise!

☐ **Yes.** I accept your Charter offer. Enter a subscription in my name at the special Charter rate of just $15.97 for 12 issues...a savings of 32% off the cover price. Rush me my FREE Computer Dictionary as soon as I've paid for my subscription.

☐ I want to SAVE EVEN MORE. Send me 24 issues for only $27.97. Same FREE Computer Dictionary offer applies.

MONEY-BACK GUARANTEE. Cancel your subscription at any time and receive a refund for all unmailed issues.

☐ Payment enclosed ☐ Bill me

Return to 5DA14
Family Computing
PO Box 2512
Boulder, Colorado 80321

Name (Please print)

Address

City State Zip

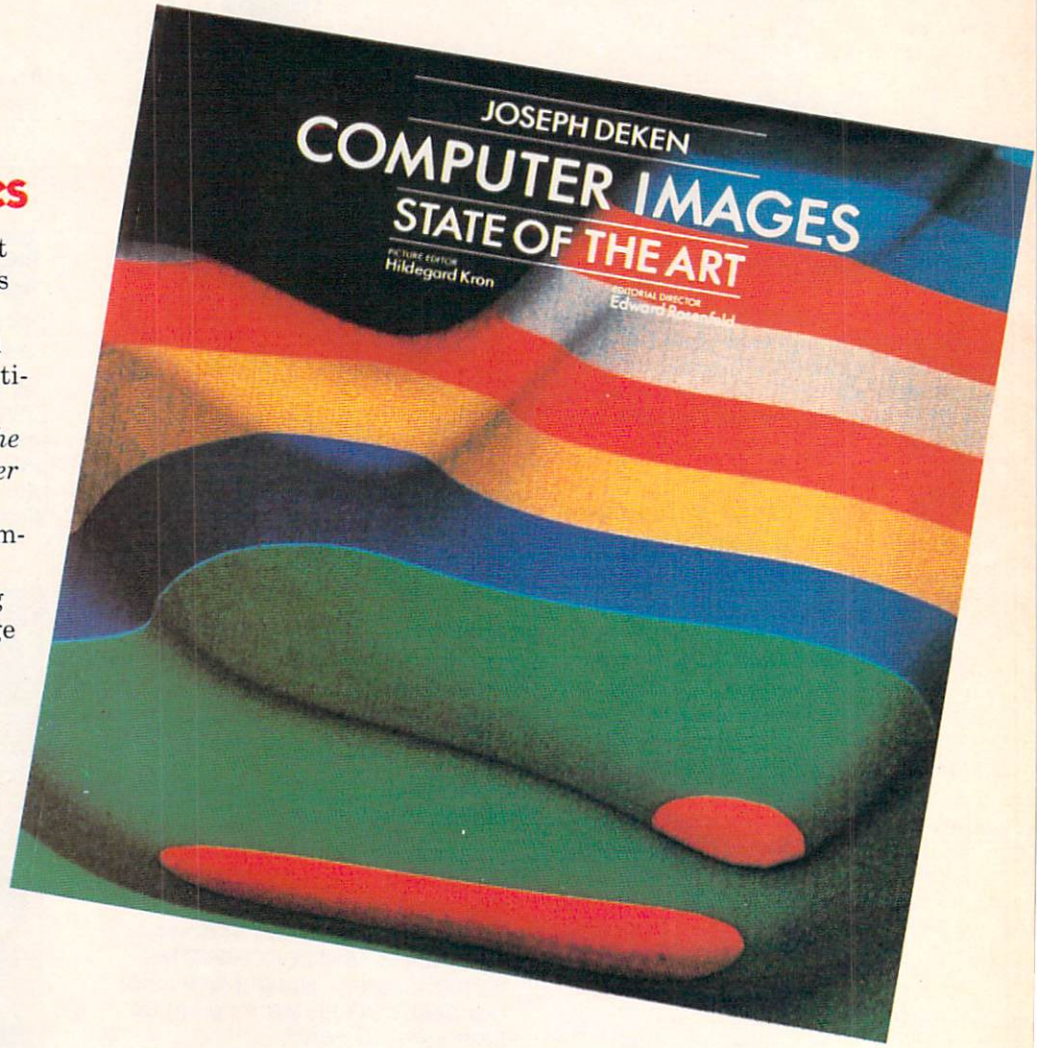
Please allow 4-6 weeks for delivery of your first issue. Rates good in U.S.A. only. Canadian residents add $6.00 per year. NEW SUBSCRIBERS ONLY, PLEASE.

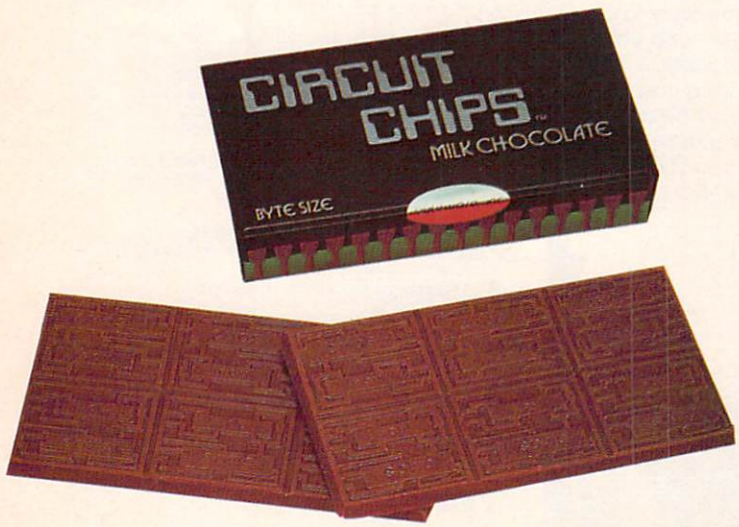
SCREENING ROOM

RISING STARS

Computer images

Art may not be your bag, but the evolution of computer art is bound to grab your attention. See how traditional artists and programmers are making beautiful use of computer technology in *Computer Images: State of the Art*, by Joseph Deken. *Computer Images* brings together more than 250 of the world's best computer graphics—the arts of the computer generation—in living color. You can find the 200-page book in many bookstores for $16.95 (paperback), and $25 (hardcover). Stewart, Tabori & Chang Publishers, 300 Park Ave. S., New York, NY 10010; (212) 460-5000.





Not for computer lovers only

Computer lovers are finding they can take a bite out of their computer circuit boards without going near the computer. In fact, you don't have to be a hacker at all to enjoy chocolate Circuit Chips. The only requirement is that you love fine milk chocolate. Bite into a 7-ounce bar or wrap it up and give it to your computer-loving (or computer-hating) sweetheart. Order in time for Valentine's Day by sending $4.95 to William A. Greca Co., 371 7th Ave., New York, NY 10001, or Byteware Inc., Box 6725, Lawrenceville, NJ 08648.

Madam, I'm ADAM

Ever get the urge for a big, juicy burger, but you only have a few cents? A lot of people lately have had an indescribable urge to buy a computer, but they only have a few hundred bucks. Coleco's ADAM may be for them. It's a complete home computer package that retails for only $750 and is aimed at those people who don't want to spend their life savings on a computer. Plus, you can upgrade your ColecoVision into an ADAM for less than $500.

ADAM's features already are well known, but we'll list them here once more, for all of you who've been vacationing on the island of Borneo for the past six months.

There's a Memory Console (with 80K, expandable to 144K) that utilizes a "high-speed digital data drive." This means you load data-pack cartridges instead of floppy disks (the data packs load more slowly than disks but faster than cassettes). The keyboard has 75 keys and looks as professional as more expensive models. The printer rattles out 10 characters per second and can work as an electric typewriter. (It's definitely noisy, but it's letter-quality.)

There's also the good ol' ColecoVision game system that's built right in, two joystick controllers, and three free data packs. One is the *Buck Rogers* game, another is a SmartBasic program (compatible with Applesoft BASIC), plus you get a blank data pack. BASIC is one of the easiest computer languages to learn, and since ADAM's version is closely compatible with Applesoft, almost all Applesoft programs that have been published anywhere can be typed directly into ADAM, with very minor changes, the company says. (Plus ADAM's savvy BASIC won't let you input an incorrect programming line!) ADAM is designed to be CP/M compatible, too, and many popular CP/M programs will be available on data packs. Coleco will provide users with short guides to learning BASIC, as well as SmartLOGO.

ADAM has a built-in word-processing program for easy typing, editing, and rewriting. Plus, Coleco is planning a whole bunch of expansion modules (like a disk drive and a memory expander) to keep them competitive with the rest of the industry.

Coleco promises a lot in the way of software, too. In answer to parents' requests and demands for educational software, there will be Dr. Seuss and Smurf stuff for the ADAM Easy Learning Series. Add that to the *COLORFORMS Electronic Crayons*, the *Homework Helper* series, and all the other goodies Coleco promises (nobody can forget how they bought up every arcade license they could find a few years ago, many of which no one had heard of), and you're bound to have fun with it.

ADAM really is the Big Mac of the computer biz. It's not the best system on the shelves (it's also not claiming to be), but it's versatile and possibly just right for a large number of computer users. Especially right for those of us who like to open one big package and get computing, and still have enough money left to buy a burger.

Available soon at computer stores or through the manufacturer: Coleco Industries, Inc., 999 Quaker Lane S., West Hartford, CT 06110.

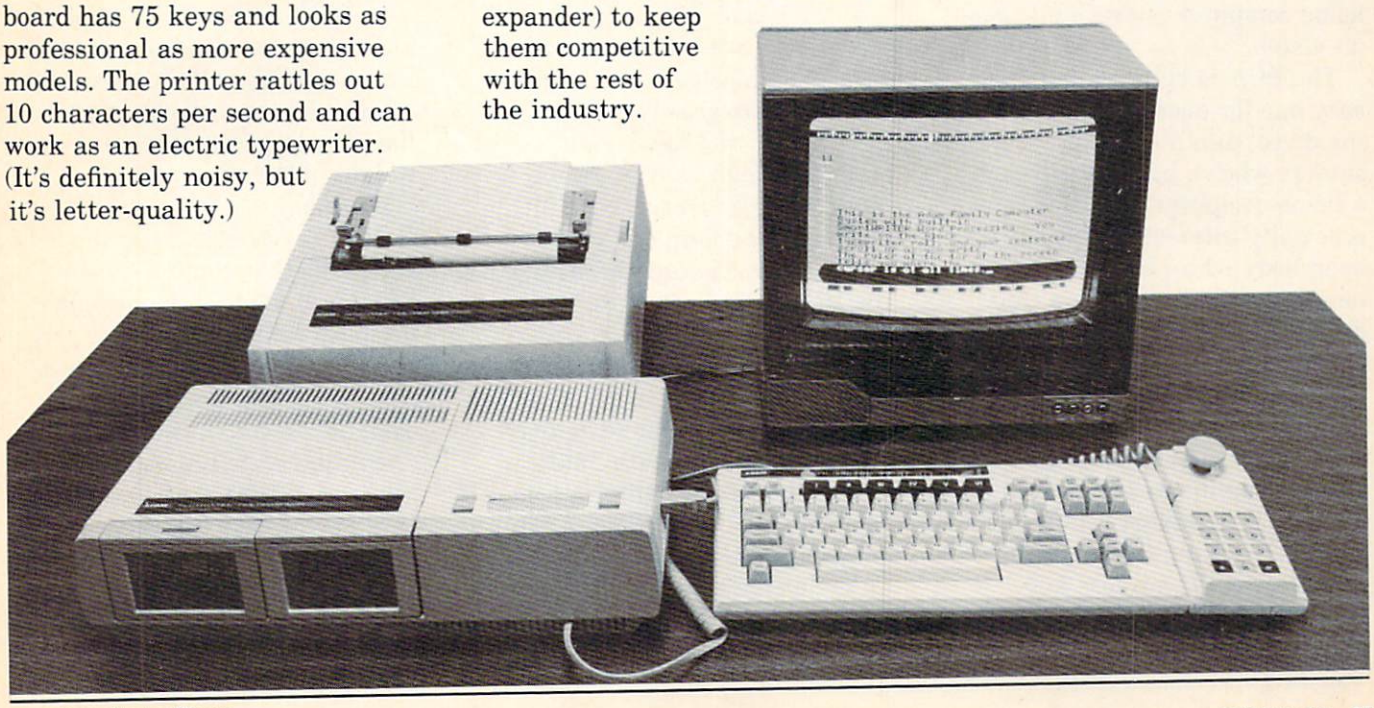
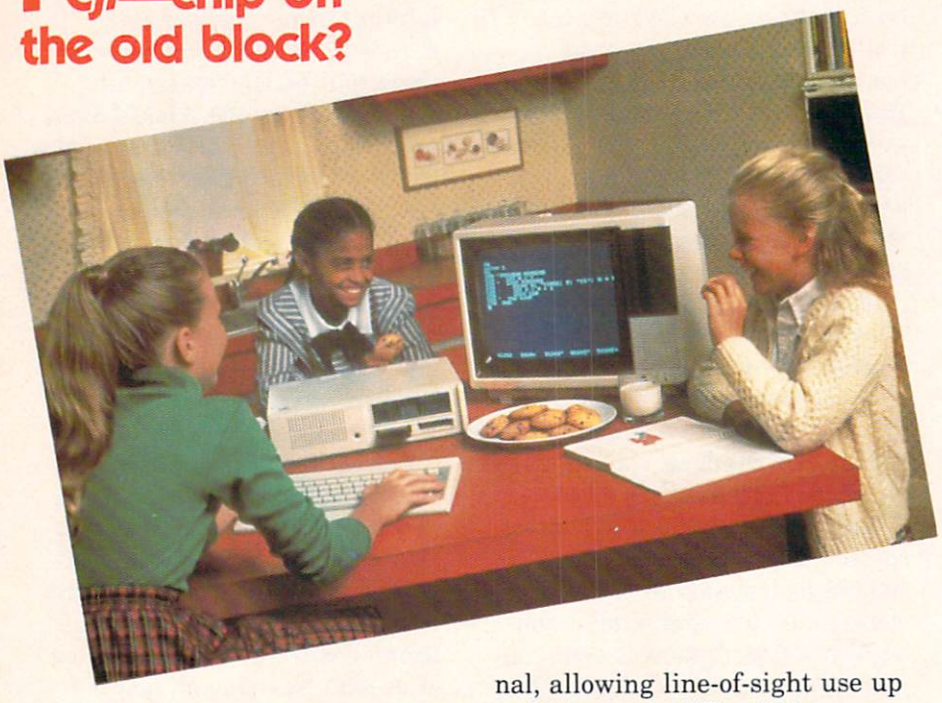


Photo: Stephen Shames

PC*jr*—chip off the old block?



Well folks, by now you know. There is no Peanut. Instead, the new kid on the block is IBM's PC*jr*—and it's spoiling to prove that it's the biggest, strongest, and best in town. IBM is one of the respected names in computers. When it announces its new home computer is available, people listen.

The PC*jr* is being called "the easy one for everyone." It's taking direct aim at all those consumers who've been considering a home-computer purchase. It's especially interested in tackling everybody who's been getting nervous over the shakeup that dropped TI a few months ago.

Entry model

The PC*jr* is available in two models. There's the Entry Model, which retails for $669 and is best for beginners and people looking for a budget computer. Its most exciting feature is its remote-control, cordless keyboard. It communicates with the system unit by an infrared signal, allowing line-of-sight use up to 20 feet away! The 62 keys on the board are not your typical typewriter keys, though. The keys are spread around the board in five separate rows, with lots of space in between.

The system unit boasts 64K of memory, and can expand to 128K by adding the Memory and Display Expansion peripheral, which will cost you another $140. You also get two cartridge slots for software. The cartridge prices start at $30 for games, and go as high as $75, for extended BASIC (regular BASIC is built in). The four new entertainment carts announced with the IBM PC*jr* were: *Mouser*, *ScubaVenture*, *Crossfire*, and *Mineshaft*. You can be sure there's more to come.

Peripherals for the PC*jr* include disk drives (with 360K, priced at $480), an internal modem ($199), and a compact printer ($175). The printer can print up to 50 characters per second, and has three different type styles.

Expanded model

The Expanded Model of the PC*jr* has a hefty price tag (about $1,269), but it has all the chops you'll need, and then some. It has 128K of memory, a built-in disk drive, and everything else the Entry Model has. For this baby, you might even want to spring for the IBM Color Printer, which costs a big $1,995. It can print high-quality graphics in eight different colors, and at four speeds—from 35 to 200 characters per second.

Lots of features have been added to *jr* to assist new computer users. For instance *Keyboard Adventure* is a program built right into the entry system. It uses graphics, colors, and sound to highlight the keyboard functions.

Both models feature a 12-month warranty and excellent repair service, and lots of options, from a carrying case to keyboard overlays. For all you hardcore hardware enthusiasts, you'll wanna know that each PC*jr* features a 16-bit microprocessor, which gives you capabilities usually found only in larger, more expensive machines. The advanced microchip technology involved in the building of the PC*jr* eliminated some of the adapter cards to improve the price, performance, size, and weight of the machine.

*Exploring the PC*jr and *Your IBM PC*jr *Sampler* both are tutorial disks that come with the Enhanced Model. The *Sampler* provides sample programs, and the *Exploring* disk is a tutorial that introduces the user to the computer's functions.

Available at IBM centers or authorized IBM dealers near you. For further information about IBM machines, write to: IBM, System Products Division, P.O. Box 2989, Delray Beach, FL 33444.

Cleaning up your act

You may not be able to squeeze another computer peripheral onto that cluttered desk of yours, but how about a mini-microcomputer caddy? Push aside those math books, computer magazines, and dirty basketball socks and make way for the CompuCaddy.

The CompuCaddy desk organizer is a plastic replica of a computer keyboard and monitor that organizes pencils, notepads, and other desk stuff. There's even room for a photo of your favorite programmer!

CompuCaddy is available for $14.98 plus $3.95 shipping and handling from Taylor Gifts, 355 E. Conestoga Rd., Box 206, Wayne, PA 19087; (215) 293-9306.

Grand master flash

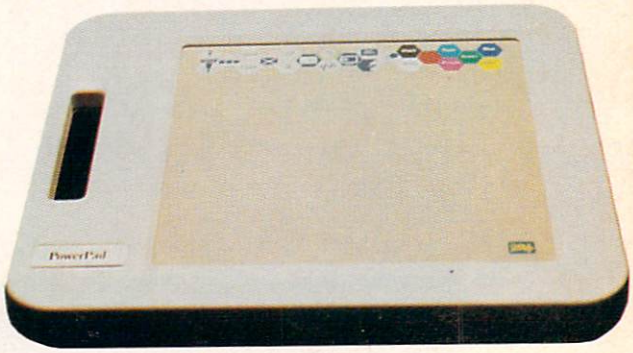
Chess pros and beginners alike are challenging the *Grand Master*, a computer chess game that can make its own moves. *Grand Master* is equipped with 12 skill levels, a memory, and hidden magnets that move the pieces. Play the *Grand Master* or challenge your favorite opponent. *Grand Master* can show you what your best move is or where you went wrong. There are no codes or robotic actions—just chess. Your parents will have to help you pay for this game. Get *Grand Master* for about $495 at many computer stores. The chess game also is available through the manufacturer: Milton Bradley Co., 111 Maple St., Springfield, MA 01105.

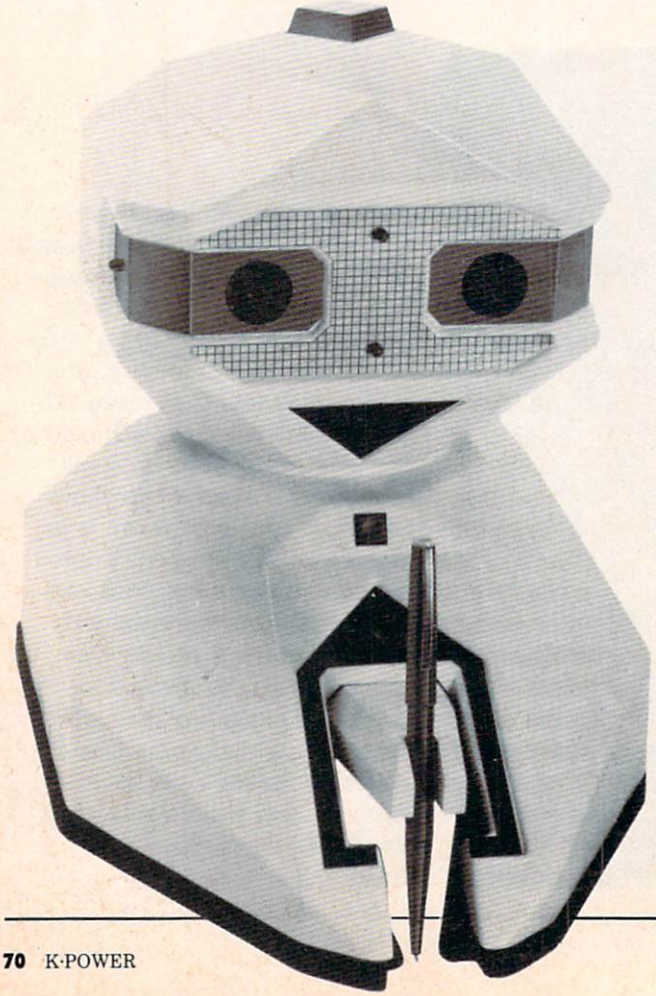
Prom byte

Getting the attention of that perfect prom catch takes careful game playing. Computer-kid Amy Ross knew exactly how to catch Mark's eye and she set out to do it. You can follow Amy to the local video arcade, where she meets her first love, in *Love Byte*, by Helane Zeiger. Amy's game plan might give you some tips on how to catch your own date for the prom. *Love Byte*, a Caprice Romance, costs $1.95 at bookstores or through TEMPO Book Mailing Service, P.O. Box 690, Rockville Centre, NY 11571. Prom time is just around the corner!

Power-up

A new power pad has landed in computer stores. Power pad power is exploding into new territory with the Chalk Board PowerPad. Eight plug-in cartridges or disk packages currently are available in music, language arts, social studies, math, and the sciences, and retail from $24.95 to $49.95. The 12- by 12-inch power pad is able to respond to more than one contact point at a time. Priced at about $100, the pad is available in many retail stores or by contacting the manufacturer: Chalk Board, Inc., 3772 Pleasantdale Rd., Atlanta, GA 30340.





Kid komputer

The new kid on the block this spring will be F.R.E.D., the pint-sized junior member of Androbot's computer family. F.R.E.D. is an educational computer toy for kids up to age 14, according to Androbot. F.R.E.D. may be spotted creating a geometric masterpiece with his drawing pen attachment or carting his mini-Androwagon around the house. Don't worry about the stairs, because this robotic toy avoids dangerous edges. F.R.E.D. can be operated by a home computer or through a remote infrared controller. Priced at less than $300, the robot will be available this spring at many computer stores or by contacting the manufacturer: Androbot Inc., 101 E. Daggett Dr., San Jose, CA 90134.

Photo: William Gallagher

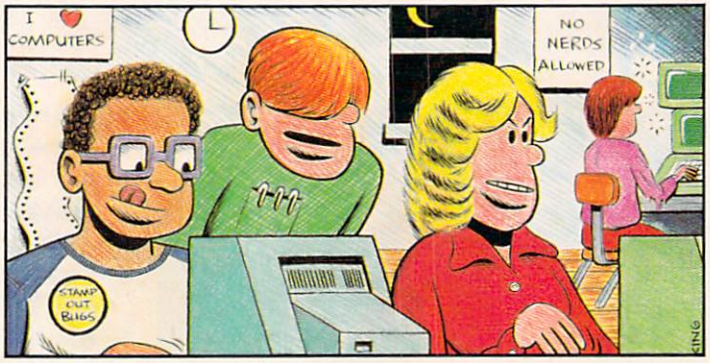
Computer date

Are you BUGGED a BIT because your DEDICATED gal or guy has no MEMORY for important computer terms? Well, DUMP those BASIC textbooks back in your drawer and DRIVE or CYCLE to the nearest mailbox LOCATION with your order for the Computer-Term-A-Day calendar. The 1984 wall calendar can boost anyone's computer vocabulary. There is a new term to learn everyday, complete with a definition and a sample sentence. For $5.95 you will put a HALT to your boyfriend or girlfriend's computer illiteracy. Call toll free: (800) 543-2397, or write Antioch Publishing Co., 888 Dayton St., Yellow Springs, OH 45387.

CONTEST

NAME THAT HACKER

What a pair! Inseparable. Can't tear yourself away! Does that sound like you—and your computer?! How about your friends? Do you all spend hours modeming, programming, and tweaking? Would you rather be computing than almost anything?!



Yeah? Well, then you and your computing pals are part of the whole new breed called . . . er . . . computer maniacs? . . . whiz kids? . . . hackers? . . . computer nuts? . . . enthusiasts?

This terminology business is a real dilemma. *Nerd* is a stupid word that we hope is on its way out. *Hacker* is being misused. "Whiz Kids" is the name of a TV show. The rest are labels noncomputing people have tacked onto serious computer users. Isn't it about time we thought of something new?

We know of one high school where serious computer users thought of their own name. They're called *spuds*. You're not alone if you can't figure out what potatoes have to do with computers. At least it's original. But there's room for more. Have you got something better? Send us your latest original hacker slang and win a K-POWER T-shirt.

So, go ahead and name that hacker! Let us know and we'll spread the word. And if you're among the five K-POWER readers who come up with the best lingo, you'll have a new shirt on your back.

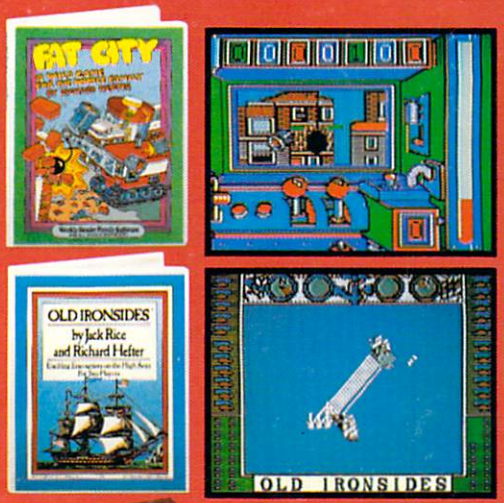
To enter, fill out and mail this short questionnaire to:

NAME THAT HACKER
K-POWER, 730 Broadway, New York, NY 10003

Please mail entries by March 25. All winners will be announced in a future issue of K-POWER. Who knows . . . you may be creating a whole new area of computer terminology!

WRECK'EM RAM'EM RESCUE'EM

3 Thrillers for the game players in your family!



For the Apple® Personal Computer. Developed by Optimum Resource, Inc. for Weekly Reader Family Software, all 3 games are available in finer computer stores everywhere. Or call toll-free 1-800-852-5000. Dept. AC-38.

Fat City™
Knock down buildings in your wrecker while dodging bricks, rocks, cans and tomatoes. 10 rounds. Poster, stickers, user's manual, vinyl binder included. Ages 8 and up. Only $39.95.

Old Ironsides™
Thrilling 2-player naval battle! Use the wind, cannons, compass to outwit rival ship. Detailed graphics recreate true sailing experience. Poster, log book, vinyl binder included. Ages 8 and up. Only $39.95.

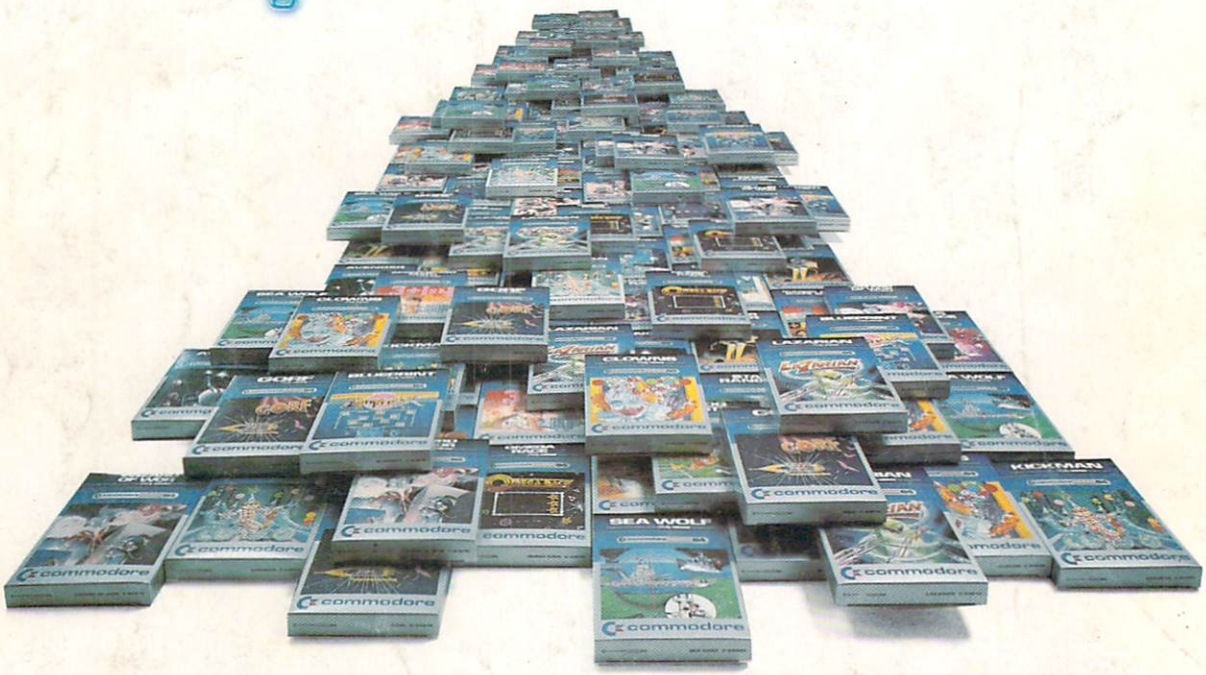
Chivalry™
The days of yore are recalled in this unique combination of board-game and computer game. Rescue the king by playing 20 animated games of skill — jousting, sword-play, etc. 1 to 4 players. Sturdy, colorful gameboard, playing pieces, poster, instructions. Ages 8 and up. Only $49.95.

A/M28-M38

Weekly Reader Family Software

A division of Xerox Education Publications
Middletown, CT 06457

Commodore Software– The Best Game in Town.



...Take on the world, toughen up your trigger finger and fire away...

Commodore is the best computer value in town...at home, at school and at work... with our exciting, easy to use, inexpensive VIC 20 and C64 computers.

We're fast becoming the best game in town when it comes to entertainment for the whole family...and at affordable prices.

THE BEST ARCADE IN TOWN can be in your own home with our exciting, faithful reproductions of the best of Bally Midway arcade games. Our **Kickman,** (which just received a coveted "Electronic Games" award for an arcade translation) lets you steer the unicycle to catch the falling objects, as they fall quicker and quicker!!

Gorf, Lazarian, and Omega Race give you the best in classic space action against the one-eyed leviathon, the droids or the evil Empire.

In **The Wizard of Wor** you attempt to defeat the Wizard and the Warriors, fighting your way through to the end. With the new Commodore "MAGIC VOICE"... It talks back to you too!!

You commandeer the fleet at sea with our version of **Seawolf,** and become the master tactician as you battle "it out" with enemy fleet.

Clowns and **Blueprint** round out our arcade entertainment package to keep your fingers nimble and your mind in gear.

commodore COMPUTERS

First In Quality Software

See your local dealer now... He's got the best game in town... just for you.