

COMPUTE!

The Leading Magazine of Home, Educational, and Recreational Computing

SPECIAL REPORT!

THE EXPLOSION IN HOME COMPUTING

Our First 100 Issues Tell How It Started, Where It's Going

MOVERS & SHAKERS

15 Key People—What They Did, Where Are They Now?

COMPUTE!
Celebrating Our
10TH YEAR

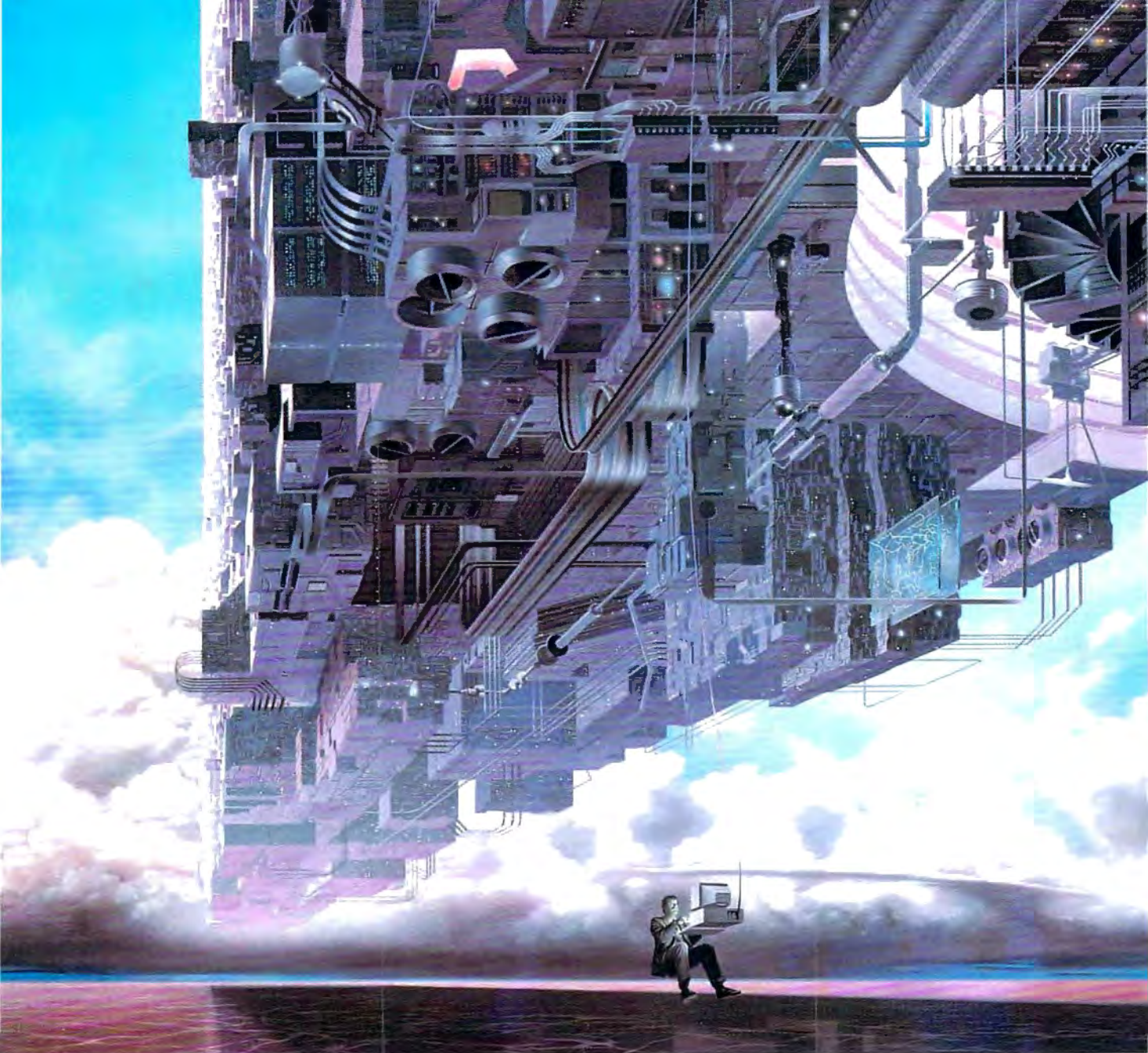


BONUS!
SUPER PULLOUT POSTER!
100 Milestones From PET to Mac II



USA \$2.95
Canada \$3.50





CONNECT YOUR COMPUTER TO A HIGHER INTELLIGENCE.

CompuServe's reference databases make you more productive, competitive, and better informed.

Remember the last time you tried to get your hands on hard-to-find facts? In a magazine article you read a year ago. In a news report you never saw. Or in a table of data you didn't know existed.

Imagine those facts just a few keystrokes away on your personal computer. Through CompuServe.

Your personal research center.

Save hours of research by going

straight to the reference information you need in seconds.

Access thousands of sources of information in the areas of business, finance, medicine, education, demographics, science, law, news, popular entertainment, and sports.

What you know can help you.

Research an industry or company through articles, financial statements, and other sources. Analyze an investment. Assist in a job search. Follow market competition. Investigate a business opportunity.

Check characteristics such as age,

income, and occupation in any U.S. community. For a geography report, a business plan, or a family move.

All you need to access CompuServe's unlimited world of information is a modem and just about any personal computer. Visit your computer dealer today. To order direct, or for more information, call or write:

CompuServe®

Information Services, P.O. Box 20212
5000 Arlington Centre Blvd., Columbus, OH 43220

800-848-8199

In Ohio and Canada, call 614 457-0802

An M&R Block Company

WINNER!

Best Educational Program

With Designasaurus from Britannica Software your child will see dinosaurs come alive with sights and sounds* that will astound you. Designasaurus recently won BEST EDUCATIONAL PROGRAM and BEST PRESCHOOL or PRIMARY PROGRAM categories of the SPA's Excellence in Software Awards.

Designed to never become extinct, Designasaurus for the Apple //GS has three *dino-mite* activities.

Survive as a Brontosaurus, Stegosaurus or T-Rex did millions of years ago. Thunder through forests, mountains and swamps. See if you can earn a certificate to the Dinosaur Hall of Fame.

Create your own prehistoric giant from a collection of fossilized bones.

Select different heads, bodies and tails from the Museum of Natural History. Build and name your own dinosaur!

Print out 12 different dinosaurs. Each complete with descriptions and information. Select from 3 formats: regular, poster and even T-shirt transfer. Color or paint them. Frame them or wear them. We even include a free T-shirt transfer in every box!

Artwork courtesy of:
4 SOFT-KAT INC



SUPER HI-RES GRAPHICS!*

DIGITIZED SOUND!*

Now available:

- MS-DOS
 - Apple IIe, IIc
 - Apple //GS
- Coming Soon:
- C64/128
 - Amiga
 - Macintosh



Apple //GS screen

Don't wait another million years. Get it today at B. Dalton's Software Etc., Babbage's, Egghead, Electronics Boutique, Software City, Waldensoftware, Sears and wherever fine software is sold.

*Apple //GS and Amiga versions only

By **DesignWare**
software designed to grow with you

COMPUTE!

SEPTEMBER
1988

VOLUME 10
NUMBER 9
ISSUE 100

The Leading Magazine
of Home, Educational, and
Recreational Computing

FEATURES

Years Gone By

We chart the history of home computing by offering up covers and articles from the last nine years of *COMPUTE!* magazine. | *Gregg Keizer* _____ **18**

That Was Then, This Is Now

What were 15 movers and shakers in the computer industry doing nine years ago, and what are they doing now? | *Paul Freiberger and Dan McNeill* _____ **26**



100 Milestones in Computer History

Our birthday present to you—the most important computer hardware, software, and publications on a collector's-edition poster. | *Editors* _____ **43**

Conversations

Epyx Grows with David Morse
Epyx's CEO spells out what it takes to move an entertainment publisher past the \$100-million mark. | *Keith Ferrell and Gregg Keizer* _____ **10**

Buyer's Guide

Classic Software
Browse through these 70 classic programs from personal computing's history. | *Caroline D. Hanlon* _____ **54**

REVIEWS

- Fast Looks** _____ **62**
- The Three Stooges**
Keith Ferrell _____ **66**
- The Graphics Studio**
Steven Anzovin _____ **67**
- Ultima V**
Shay Addams _____ **68**
- Wordbench**
Heidi E. H. Aycock _____ **72**
- Stealth Mission**
Tom Netsel _____ **73**
- Twilight's Ransom**
Brian Summy _____ **75**
- Read 'n Roll**
Carol S. Holzberg _____ **77**





COLUMNS

Editorial License

Throughout its first 100 issues, *COMPUTE!* has been the magazine that always speaks first and clearest to the home user.

Gregg Keizer _____ **31**

News & Notes

CES wears many guises, Nintendo faces great DRAM drought, and GEOS gets to two. *Editors* _____

6

Gameplay

Comics on computers take on the columnist, and win.

Orson Scott Card _____ **9**

Impact

The first 100 issues of *COMPUTE!* have seen the magic of a revolution's first decade.

David D. Thornburg _____ **12**

Discoveries

Writing, the key to success in school, can be fun and fruitful with a word processor.

David Stanton _____ **80**

Levitations

The Consumer Electronics Show sure isn't what it used to be.

Arlan Levitan _____ **88**

Letters

COMPUTE! helps take a bite out of crime! *Editors* _____

13

New Products!

Zak saves everyone's IQ, PC gets palm-sized, sports explode from Accolade, and more new products.

Mickey McLean _____ **34**



COMPUTE! SPECIFIC

MS-DOS

Clifton Karnes _____ **36**

64 & 128

Neil Randall _____ **38**

Apple II

Gregg Keizer _____ **39**

Amiga

Rhett Anderson _____ **50**

Macintosh

Sharon Zardetto Aker _____ **51**

Atari ST

David Plotkin _____ **52**

Hints & Tips

Editors _____ **15**

Cover photo © 1988 Mark Wagoner

COMPUTE! The Leading Magazine of Home, Educational, and Recreational Computing (USPS: 537250) is published monthly by **COMPUTE!** Publications, Inc., 825 7th Ave., New York, NY 10019 USA. Phone: (212) 265-8360. Editorial Offices are located at 324 West Wendover Avenue, Greensboro, NC 27408. Domestic Subscriptions: 12 issues, \$24. **POSTMASTER:** Send address changes to: **COMPUTE!** Magazine, P.O. Box 10955, Des Moines, IA 50350. Second class postage paid at New York, NY and additional mailing offices. Entire contents copyright ©1988 by **COMPUTE!** Publications, Inc. All rights reserved. ISSN 0194-357X.

editorial license

GREGG KEIZER



**COMPUTE!'s
Founding
Principle—to
Talk to All
Computer
Users—Is a
Strength
That's Lasted
a Lifetime in
Personal
Computing**

Looking back is only slightly less dangerous than looking ahead.

Both pastimes—nostalgically glancing at the past or pretentiously predicting the future—are often carried out with little information and an overpowering desire to look for trends and patterns. Hindsight has only one advantage—at least we can be relatively sure of the facts.

With that caveat in mind, we've decided to set aside most of our normal activities and dedicate this issue to remembrance of things past . . . our past specifically, a part of the computer industry's past generally, and perhaps even a bit of your past as well.

The reason? This is *COMPUTE!'s* 100th issue, as well as its 9th anniversary. The numbers, when compared to magazines in other fields, are not impressive. *Life* magazine recently celebrated its 1000th issue; *Time* is in its 65th year of publication. But in the personal computer publishing world, heading into a 10th year is the equivalent of several lifetimes.

It would be easy to take this birthday opportunity to look back and reflect on great achievements. Or to look ahead and set grander goals. I don't want to do either. Instead, let's look at now, today. Two things stand out.

First and most important, there is a home computer market, a consumer market for personal computers. Millions of Americans have brought the personal computer into their homes—recent surveys indicate that 20 percent of American households have a personal computer. That's an impressive figure. It's particularly impressive when you remember the death knells everyone was sounding for the home computer in 1984 and 1985. Here's an example: John Sculley, president and CEO of Apple, in his book *Odyssey*, called the home market "a figment of everyone's imagination," and said that "People weren't about to buy \$2,000 computers to play a video game, balance a checkbook, or file gourmet recipes as some suggested. The average consumer simply couldn't do something useful with a computer." Those claims are both true and false.

True: They weren't about to buy \$2,000 computers. Instead, they bought \$1,000 (and even less expensive) computers.

True: People aren't satisfied with computerized checkbook balancing and recipe filing. They want to do more—word processing, home education, telecommunications, and financial planning.

False: The average consumer can't do something useful with a computer. Every month, *COMPUTE!* magazine shows how you can make the personal computer not only useful, but indispensable, to modern life.

The second condition of today's state of personal computing is that the dominant computer system—in the home as well as in business—is the IBM PC and its clones and compatibles. The system has won over the home market because of typical consumer issues—price, performance, and price. The best evidence that the PC compatible is the champion of the home comes from software publishers, who continue to report phenomenal growth in MS-DOS entertainment and education titles' sales.

The effect of the PC compatible on the future home market? I'm not going to guess. Today, though, its impact is significant in two areas: The first is an increase in non-game use of home computers; the PC and compatible made their reputations in the office, and much of that work and software has come home. The second is the clamor for an easier-to-use interface, something less clumsy than MS-DOS's commands. Tandy has offered its DeskMate as one graphic alternative; IBM is working on another.

What does all this mean to *COMPUTE!* magazine as it heads into its tenth year?

I think it's a reaffirmation of *COMPUTE!'s* focus. *COMPUTE!* has always spoken to the home user first and most often. The magazine will continue to feature applications and issues of concern to anyone who has a personal computer at home—concerns ranging from home entertainment to education, desktop publishing, and financial planning. The fact that more and more of the magazine's readers own IBM PC compatibles is an important, but not driving, influence for *COMPUTE!* Nine years ago, the most important machine to the magazine's readers was the Commodore PET. Half a dozen important personal computers have ridden the crest of popularity since then. Another half a dozen may do so in the next nine years. And *COMPUTE!* will be there to speak to those users of future computers.

That's been the strength of the magazine, this founding principle of communicating to *all* computer users, not just a narrow niche of those who share a brand name. It's a strength that's lasted a lifetime in personal computing, one strong enough to last several more. □



FOR THOSE OF YOU WITH AN OFF-TRACK MIND.

Get ready for four of the most challenging, rugged, rump-bumping cross

country road racing courses this earth has to offer. Permanently. You will when you endure the longest winter of your life in the ice, sleet and slosh of The Michigan Course. The Georgia Red Clay Course has enough mud to keep you a human fossil for 2,000 years. And then there's Death Valley. Get it. D-E-A-T-H Valley.

There are boulders, rivers, potholes, and mudbogs to contend with. What are mudbogs? You'll find out. (Just after you find out there's a Demon 4 x 4 chasing you all through the race. A Demon hellbent on your destruction.)

Start with pre-race strategy. Select and customize your personal vehicle. Your supplies. Your repair equipment. Believe us. You'll need everything. If you win enough races, collect enough points, only then will the Victor's Cup be yours. It's the least we can do. After all, you did go through hell to get there.



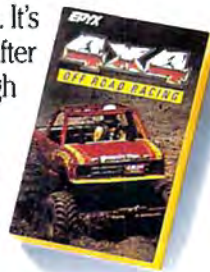
Plenty of thrills guaranteed on the following grounds: gumbo mud, packed snow, skid-sand, and the scrubbiest terrain south of the border

country road racing courses this earth has to offer.

Fight the torturous terrain of Baja. Rocks, boulders, skid-sand, even a few spikey cactuses. And of course, heat that's hot enough to fillet any forehead. Ever had your hands stuck to the wheel?

4x4 OFF-ROAD RACING BY EPYX

Commodore 64/128, IBM & compatibles, Amiga



news & notes



Computer Music Crossover Act

Jim Cuomo is a musician who wants to bring serious music into computer games and serious computer-game music into your home. His new CD (the kind you play through your stereo, not the kind you hook up to your computer), *Game Play: Top Scores from Computer Action/Adventures*, is a collection of his computer compositions from such hit games as *S.D.I.* and *Defender of the Crown*.

The sounds associated with early computer games are blips, bleeps, whistles, and buzzes. These sounds haven't disappeared, but real music has appeared. Far more impressive than the randomly generated computer "music" of the past, more carefully chosen and adapted than the occasional public domain or plagiarized song from earlier games, modern game tunes are now custom-designed soundtracks composed by real musicians.

Cuomo is a product of the age of specialists. Game design is far removed from the days when a programmer would submerge into a back room and emerge several months

later with a hit game. Now, game designers design the look and feel of the game. Game programmers write the code. Game artists design the graphics and animation. And game musicians write the music.

Game Play consists of 15 selections from nine games. The songs are the originals—right out of the computer, sweetened a bit by Cuomo's saxophone, clarinet, and recorder, and Camille Safeferis' percussion.

Unfortunately, you're not likely to find the CD in your local Record Bar or Camelot Music store. You'll have more success if you go directly to the source—Pigeon Music, 11684 Ventura Boulevard, Suite 520, Studio City, California 91604; (818) 505-1077.

Even if you survey each computer game as it comes along, you probably haven't heard all these pieces. *Game Play* brings to light music that only the best game players hear—the music from the climatic finales of the games. In other words, the songs for winners.

— Rhett Anderson

Consumer Electronics Show Wears Many Hats

Or was it the Celebrity Electronics Show?

Endorsements was one of the names of the games in Chicago, with appearances by Pete Rose (for Mediagenic via electronic hookup), wrestlers King Kong Bundy (Vendex) and Andre the Giant (Nintendo), and even Robocop (Nintendo again).

Maybe it was the Costumed Electronics Show. Booths were attended by personnel wearing assorted kimonos, combat gear, coats, caps, clogs, and promotional apparel of every stripe.

Could it have been the Closed-circuit Electronics Show? Pete Rose appeared on a live feed, but videotape re-

mained one of the more potent means of hyping products, with clips of films on which games are based, in-depth looks at the programming efforts that went into products, and plenty of just plain blarney. (One company's taped spokeswoman, in as attractive a Japanese accent as we've heard, intoned sonorously about "Superman's gullfriend, Louise Lane.") VCRs themselves figured in Epyx's product line, with both VCR games and *Home Video Producer*.

Was it the Cinematic Electronics Show? Could have been—software publishers showed games based on mov-



ies and television programs, including *The Three Stooges* and *Rocket Ranger* (Cinematware), *Twilight Zone* and *The Honeymooners* (First Row), *Platoon* (Data East), *Willow* (Mindscape), and enough *Top Gun*- and *Rambo*-compatibles to alter the global balance of power. No sign of *Crocodile Dundee* on disk—but give them time.

Might have been the Character-based Electronics Show. Although Infocom showed no new products, other companies filled the void in text and text/graphics games. Paragon's *Guardians of Infinity* lets you try to save JFK, Interplay gives you William Gibson's super-selling *Neuromancer*, and Lucasfilm extends the *Maniac Mansion* interface with *Zack McKracken and the Alien Mindbenders*.

Or the Combat Electronics Show. MicroProse has *Red*

Storm Rising ready to rise, while Accolade's tank simulation was referred to as a *Test Drive* on treads. Rainbird commissioned its *Carrier Command*, while Activision christened the U.S.S. *Ocean Ranger* missile ship. Interplay turned chess into a combat sport with *Battle Chess*. Mindscape went vertical with a Harrier combat simulator. Epyx brought *Battleship* to disk. Three Sixty's *Harpoon* promised to put the whole of the U.S. and Soviet navies on computer screens. Taito, flush with coin-op success, is putting on a push into the software market with a number of games, including *Operation Wolf*, which might be the most violent—and addictively so—game ever introduced. Combat of a more ancient variety is found in Koei's *Nobunaga's Ambition* and *Romance of the Three Kingdoms*, simulations

which recreate Japanese history.

What about the Calisthenic Electronics Show? Athletics played a big part in nearly every software line, with Accolade showing *Serve & Volley* tennis, *Fast Break* basketball, *Rack 'Em* billiards, and *TKO* boxing, complete with blood. Mountain climbing, of all things, is coming from Epyx, and TV football, from Cinematware. *Pete Rose Pennant Fever* is ready to hustle for Gamestar. Dolphin Marine Software puts players at the tiller.

Some said it was the Cartridge Electronics Show. Chalk up another big year for Nintendo, which dominated the software hall with a booth that seemed to go on forever. The game maker is convinced that its sales will go on forever, too. Talk at the booth was divided between the variety of new game cartridges—many of

them from established software superstars such as Broderbund—and the shortage of DRAM (Dynamic Random Access Memory) chips, which will have an effect on the availability of those cartridges. (The chip shortage is growing dire enough, we heard, that bribes are being offered in exchange for chip allocations. No word on whether the bribes were successful.)

For software publishers, the DRAM shortage, while not exactly a plus, was not exactly a minus, either: You don't have to put chips in a disk. Some publishers hope the anticipated shortage of cartridges will spur consumers toward computers, where you only buy silicon once. (The down side is that once is going to cost more. Blue Chip president John Rossi noted that DRAM prices are going to have an impact on computer prices.) ▶

PART 4



"Find Red Square" Contest!
Find Red Square in Moscow and enter to win a real trip for two to Europe, courtesy of SubLOGIC and TWA! See the SubLOGIC Product Chart at your dealer or write SubLOGIC for complete details and contest rules.



WESTERN EUROPEAN TOUR"

Scenery Disk is so beautiful to fly, you'll want to make it the centerpiece of your Scenery Disk collection! This is part four of a five-part guided tour from London to Red Square.

This month we continue our tour of Germany. Flying over Frankfurt at night can be a harrowing experience. Here we have a close encounter with a telecommunications tower.

Next stop, Stuttgart! We must approach the city carefully, avoiding the mountain ranges on both sides of our flight path.

Next month - on to Moscow!



subLOGIC
Corporation
501 Kenyon Road
Champaign, IL 61820
(217) 352-8425 Telex: 294969
ORDER LINE: (800) 637-4983

For all of Nintendo, Sega, and Taito's cartridge emphasis, not to mention the chip shortage, CES was good for software publishers—perhaps the best software CES in recent years. There was a sense throughout the show that software was back as a major force in consumer electronics, with a growing market that neither chip shortages nor cartridge wars can dim.

— Keith Ferrell

more.

"It was really something that was sort of waiting for CD-ROM," Brøderbund product manager Joanne Bealy said. "And then with *Hypercard* as the front end, it's a perfect match. It's ideally made for CD-ROM and *Hypercard*."

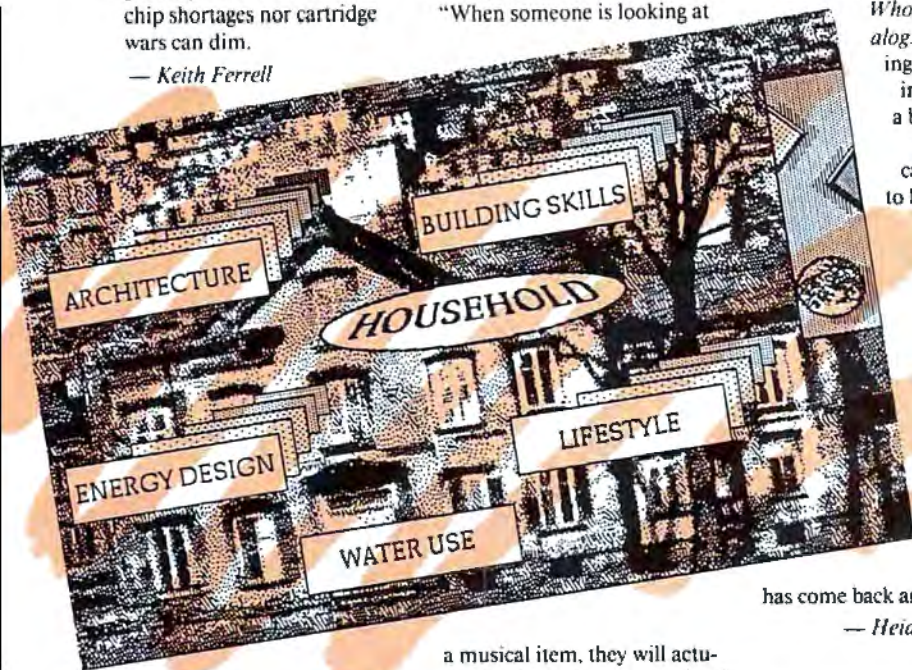
The catalog will use digitized pictures and sound. "When someone is looking at

more graphics and more varied indexing to give people more flexible ways to get at the information," Jordan said. "We're aiming for user serenity, for letting them find things that they wouldn't expect to find."

Jordan said putting the catalog on Compact Disc fulfills the original idea of *The Whole Earth Catalog*. Before deciding to print the information in a book, the originator of the catalog wanted to have a phone-in database.

"The fantasy at the time was a computer, which 20 years ago was not feasible to do," he said. "It's kind of interesting that it has come back around to that."

— Heidi E. H. Aycock



Catalogs on CD

You'll have sound, better indexing, and hyperlinked cross references between catalog entries, but you won't be able to read *The Electronic Whole Earth Catalog* in the bathroom—unless you happen to keep your Macintosh and CD-ROM drive next to the sink.

The Point Foundation, which puts together *The Whole Earth Catalog*, has given Brøderbund Software an exclusive license to market a CD-ROM version of the catalog. *Hypercard* will be the interface for the product. Brøderbund Software plans to release the package this fall, but a price has not been determined yet.

The catalog lists all kinds of tools and how to order them. Tools include more than hammers and screwdrivers, for *The Whole Earth Catalog* lists books, records, software, and

a musical item, they will actually be able to hear a sample of the product," Bealy said.

The project isn't really intended to make Brøderbund's fortune. It's more like an experiment in a growing field with a product that is well-suited to the new medium.

"We have no expectations of this being a moneymaker," Bealy said. "It's just that we want to get into this field. I think this will encourage other developers to go for it. I think it's going to become an industry standard."

For the Point Foundation, CD-ROM is a new way to present a special publication. "What we see at this point is a very important long-term advantage in that the CD is both very easily updatable and it's also much bigger in capacity than a print book," Keith Jordan, project manager at the Point Foundation, said.

"We'll be able to include

third in the game hardware market, plan on bringing several more million households into the game-system resurgence.

All this hardware has created a fierce demand for game cartridges. To prevent a repeat performance of the disaster that overtook Atari in the early 1980s, when supply outstripped demand and the market was plagued by shoddy games at fire-sale prices, Nintendo has kept considerable control over the manufacturing process. Nintendo makes all the game cartridges, for instance, and allocates cartridges to the various game publishers, as well. It hopes to keep the lid on the number of cartridges available at any one time, and it promises to keep quality high, answering concerns about the two primary contributors to the Atari debacle last time around.

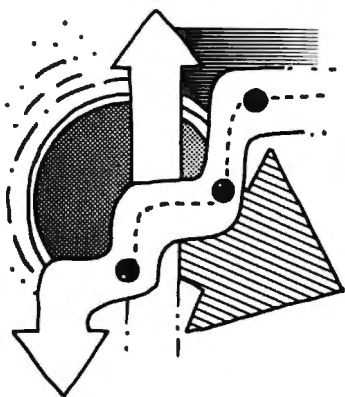
And some of the games are impressive. The Nintendo system plays games that compare with those which ran on eight-bit computers three or four years ago. Aimed at teenagers, the predominant players, the games are mostly sports-, action-, or fantasy-oriented. A few games outside these genres are appearing, however, including *The Battlefields of Napoleon*, a strategy war game based on the Napoleonic era, from Brøderbund. Elementary action role-playing games are also finding their way to the game systems; several were on display at the Sega exhibit. One even includes a small battery to keep saved games active until the next playing session.

Trouble looms for the dedicated game systems this year, though. The DRAM chip shortage (and even a reported spot shortage of ROM chips) is having a big impact on Nintendo and its competition. Each cartridge requires several RAM chips; the shortage of such chips and the spiraling cost of those that are available have put a crimp on sales plans

continued on pg. 81

gameplay

ORSON SCOTT CARD



I Take On Infocom's Computerized Comic Books, and the Result Isn't Pretty: Infocomics 3, Reviewer 0

The Infocom people have long tried to earn the title *interactive fiction* for their text adventures. Now, in collaboration with Tom Snyder Productions, they've created Infocomics.

What a great idea! Comics have really come of age in the last ten years, daring to call themselves graphic novels and insisting on being judged against artistic standards as high as those applied to prose fiction. Imagine something as good as *Batman: The Dark Knight Returns* or *The Watchmen* on your PC, Mac, or Amiga. Computer comics could combine terrific art, exceptionally good storytelling, and the chance for you to experience events in a way you simply can't on paper. But if you expect all that, you'll be letting your expectations rise a little too high.

The art was the biggest disappointment. In the PC versions at least, Infocom decided to rely on a boot disk to stymie the software pirates—but what that means is that the game has to work on the lowest form of game computer: a vanilla PC with a CGA screen, with a maximum of four colors. That's right, folks, a maximum of four colors. Sort of like time traveling back to 1984.

Worse yet, the story is almost entirely carried by narration in a box under the picture. The art is mere *illustration*, and a static illustration at that. As a result, the best simulation of comics art on the computer continues to be the superbly animated Sierra games—visually, Infocomics aren't even in the running.

What about the use of the computer's possibilities? Here the Infocomics score pretty well. They don't even pretend to be playable games. You don't make a single choice for the characters; the stories end the same way no matter what you do.

Infocom's game designers use a hypertext approach in Infocomics. At many branch points in the story, you can switch from one character's point of view to another's. If you want, you can get inside a character and see a flashback of his or her past, or you can flip back through the story to an earlier branch point and choose to follow a different character's adventures through the same time period. You don't have control over what happens—but you have a great deal of control over the order and depth of the presentation. What about the stories? My first thought was that they were shallow and predictable—and I found no surprises.

Lane Mastodon vs. the Blubbersmen is a Buck Rogers-type space adventure. It begins with rays from Jupiter that cause nor-

mal animals to grow into humongous monsters that destroy cities. When Lane Mastodon is sent to Jupiter to stop the ray, the Blubbersmen confuse things by making clones of Lane and his two helpers—a genius boy and a nubile girl he rescued from a derelict spaceship.

Gamma Force: Pit of a Thousand Screams is a superhero comic about three people who come from a planet that was taken over by the Nast. They each die and then are brought back to life with special powers which they must use to defeat the Nast. One can fly, one can control water, and the girl, a good fighter, is their leader.

Zorkquest: Assault on Egreth Castle is a fantasy adventure about a small group of travelers who are unexpectedly involved in battling an evil magician. The characters are pretty ordinary; still, each has a surprise or two for us. Clichés? Yeah. Lots of them. About as many as in George Lucas's *Willow*.

What finally dawned on me is that old guys like me aren't really the target audience for Infocomics. See, I performed a scientific test. I strategically left the games lying around where they'd be found by some of the shorter people in my household, and then I lurked.

My son Geoffrey played for hours. He didn't know about my ironclad law that a good game is one that lets the player change the outcome. He didn't know he was supposed to be annoyed by the CGA screen. He didn't know the stories were clichés—when you're ten years old, all stories are new.

I interviewed him for this column. "I really got excited about finding out what happened next," he told me. *Zorkquest* was his favorite. "The best thing is you can follow your own way through the story, just finding out what you're most interested in. You only go back to find out the other parts of the story when you want to."

Problems? "I got confused at first—by following one character all the way through. Things kept happening that I didn't understand until I followed other characters and found out what *they* did." Will he play again? Sure. He wants to go back to explore even more.

Score: Infocomics 3, Reviewer 0.

But maybe—since Infocom really *does* try to get better even when their first attempt is a hit—maybe future Infocomics will come with better art and better stories.

Please? I'll never be ten again, but I'd still like an Infocomic I can enjoy. □

//// / **■** *conversations*

Epyx chairman and chief executive officer David Morse attracted a good bit of attention at the Summer Consumer Electronics

Show when he announced an ambitious schedule for expansion that would drive the company to \$100-million size by 1990. A cofounder of Amiga Computer (sold in 1984 to Commodore Business Machines), Morse combines an engineer's fascination with technology with a businessman's concern for growth and profitability—all of it informed by an awareness of the entertainment industry and software's place in that industry.

Epyx Grows with David Morse

*Keith Ferrell
and Gregg Keizer*



Boy Toys

Epyx has found a great deal of success reaching what is primarily an adolescent male market with sports-related products. Will teenage boys remain the core of your market, or do you see the company reaching out to other consumers in the years ahead?

As we go down the road, we'll probably broaden that a lot. It's certainly our goal to appeal to the very wide range of entertainment software users, and I think that you've seen us, in the past year, get into some other categories.

Is your collection of VCR sports games an attempt to reach beyond the adolescent male audience or an attempt to deliver new products to the industry's traditional market?

It still addresses that segment. We're trying to be very disciplined as far as defining our business in technology-based entertainment aimed at teenage and young-adult consumers. Whether it's computer games or VCR games or other products, that is the

target market.

That's what we know. Over the last five years, Epyx has built up a lot of knowledge as to what our consumers like, and we're trying to take advantage of that.

Where the Girls Are

What about players who aren't teenage males—can you produce software for girls?

We've tried to do that, but we have not had huge success. We'd love to get the other half of the market. The first thing that's had that sort of appeal is *California Games*. In the testing that we've done, we've found that *California Games* has equal appeal to girls and boys. There are a lot more boys [in our market] since more boys are into computers.

Why is that?

Basically it's directly proportional to the interest in computers, and boys seem to have a much higher interest in computers than girls do.

Is that a limitation? How do you combat that?

Teenage girls have other interests. They just don't seem to be focusing on computers. I don't know if one software company can change that, but we are consciously trying to do some things that would broaden the appeal.

Games to Come

Are there entertainment categories we haven't seen yet?

There may be. Some of the stuff that we're conceptualizing right now might turn out to be a new category of game, or a mixture of several categories.

What sorts of things are coming up?

We're going to do a lot of simulations, role-playing games. We like the action/strategy category, which can cover a lot of ground. We'd like to do some things that are very strategic but which also have a lot of action, and raise the level of that category.

The company actually started with *Temple of Asphai* [a role-playing adventure] and so forth, and we really don't see why we can't do more of that sort of thing as well.

Without abandoning your existing base.

Yes. We're continuing to do a lot of sports games. Our *Games* line is not at an end—you'll see some more things there.

The focus on sports products and teenage products is where we are right now, but you will be seeing our approach grow much broader.

And there's a big, long tail on that young adult market, that goes out to include people in their 30s and 40s. That helps us—we don't restrict ourselves. We will sell our games to somebody who's 40 years old.

Sports games have a lot of appeal. It's a major segment of the software business—but it's not the only segment. And we want to be in all of the segments of the business.

Bigger and Bigger but Fewer and Fewer
Can a company grow to \$100 million or larger in a couple of years based on software alone?

Sure. It might take a while longer, but the market is growing. The penetration of computers in the home is edging up. I don't think it's going to go to 50 percent or anything like that, but it *is* growing. Software sales are up dramatically.

It's possible and probably likely that you'll see entertainment software companies approaching \$100 million.

Another reason that's going to happen is that the business is becoming more and more concentrated. It's more and more difficult for new companies to get into the business. Marketing and distribution is a real barrier. I think you're going to see some consolidation that will result in fewer companies. Or at least fewer companies that fully distribute and market their products.

Is that good for the industry? How will it affect consumers?

I think it'll mean better products. There are going to be some filters they'll have to pass through before they reach the market. That's going to weed out a lot of marginal things. A lot of retail space is wasted on products that aren't any good.

As retailers have fewer vendors, there will be more of a selection process.

Will creativity suffer as a result of fewer companies? Do we run the risk of a me-too/copycat entertainment software industry?

That may be. We're working real hard to try

and not get into that trap. There are certain things that we do that are based on formulas that we know are going to succeed. But we've also made a real effort to do some off-the-wall stuff.

Such as?

With something like *L.A. Crackdown* [a police thriller] or *Final Assault* [a mountain-climbing game], we're starting to do things that aren't really proven products. They're a little bit off the beaten path. And some of the stuff that we've been putting into the development process in the past six months is much less cautious and much more adventurous.

Machine Specifics
Let's look at some other hardware and get some quick responses to various computers.

MS-DOS machines?

The PC is the main platform that we're going to have to work on in the next few years. That is clearly what's driving the market right now and where we really have to excel to do well.

It's not easy to do.

Commodore 64?

The 64 is what has driven the market, but there are no new 64 buyers, or very few. It's a consistent group that's not growing. Just as a result of the aging process, it's going to shrink as part of our business.

Amiga?

If we want to show the world what we can do, and show them our best work, we'd like to do it on Amiga. It's gradually becoming more important. I hope for Commodore's sake it becomes a lot more important.

Apple II?

Apple II is a consistent, known market. But it's hard to do our best stuff on the Apple II.

Apple IIGS?

I put the GS in the same category as Amiga. We can do some good things—not as good as Amiga, but it's becoming more and more interesting.

Macintosh?

Macintosh is becoming more important to us. We've got our first Mac II product coming up.

Is the Mac likely to become more of a factor in the entertainment business?

Yes. There are a lot of Mac Pluses and SEs in homes, a lot of people are playing games on them. That's a lot of opportunity for play-

ing games. We're paying more attention to it.

Atari ST?

ST is important to us in Europe and is basically a nonfactor in the United States.

Real Computers for Real People
What's it going to take to create a VCR-size home-computer market?

I think price is one thing. If you look at penetration of videogame machines, it has been and will be a lot higher than computers. Part of that is because of price.

Usefulness is important. Computers have to be more important to more people.

Does ease of use figure in that? Are people scared off by the keyboard?

Sure. I'm scared off by that. I will not use an IBM PC; it's too much trouble. So to the average guy, who doesn't spend a lot of time with computers, it seems like a lot of hassle.

Do you see new technologies such as CD-ROM or CD-I (Compact Disc-Interactive) having an effect on the entertainment industry?

Yes, I do. I don't know which one, and I don't know when. Sooner or later it'll get developed and get useful enough versus the price that the impact will grow.

To do the next step in graphics, for example, the barrier is not basically power or being able to put the stuff on the screen.

My ex-Amiga guys at Epyx could give you absolute cartoon-quality resolution in six months, but the price would be out of sight because of memory requirements.

Looking Ahead
What are the biggest challenges and frustrations of the industry?

What excites me is just the endless array of possibilities, the things we can do and make happen to make our company grow while providing exciting products and experiences for our customers.

The frustrating thing is that you can't do them all. You've got to pick one or two or three and do them well.

Where do you see Epyx at the turn of the century?

I can't think that far ahead—1990 is as far as I go.

And Epyx is going to be a \$100-million company in 1990?

You heard it here first.

□

impact

DAVID D. THORNBURG



The First 100 Issues of COMPUTE! Reinforce One Principle— Those Who Live by the Crystal Ball Eat Crushed Glass

One of my most treasured possessions is my collection of *COMPUTE!*s dating back to the first issue, published September 1979. I had the honor of writing an article for that first issue and, except for two issues, I've had something to say in every one since.

With an office nestled in the heart of Silicon Valley, I've seen apricot orchards literally replaced by Apple buildings. I saw the first PET; watched Atari grow, collapse, and grow again; observed Apple's transformation of a city; and witnessed the pain and glory of more software companies than I can count.

Looking back on 100 issues of *COMPUTE!*, I've learned one thing—in the words of IBM's Harvey Long, *those who live by the crystal ball eat crushed glass*. I predicted the demise of the TI 99/4 just before its sales skyrocketed and rescinded my prediction just before the product was discontinued.

When I bought my first computer (a Commodore PET), it came with a tiny instruction manual that was virtually useless. User groups were essential in those days because they provided a forum for sharing the secrets of our computers. One user group's publication that was of great value in the early days was the "PET Gazette," published by Len Lindsay from his garage in Madison, Wisconsin. As far back as 1978, Len had advice for computer owners that still applies today: If you haven't seen a piece of software with your own eyes, pretend it doesn't exist. I find it strange that people are still willing to pay in advance for vaporware and then wait a year or even longer for delivery.

As personal computer use began to expand beyond the hobbyist market, there was a need for general magazines. Robert Lock called one day to tell me that his company had purchased the "PET Gazette" and was changing it to a quarterly magazine that addressed all computers using the 6502 microprocessor—a list that included the PET, Apple II, Atari 400 and 800, OSI Challenger, Sym-1, AIM-65, and KIM-1.

I was asked to write about the social impact of this technology and "Computers and Society" (now "Impact") was born.

As I look back over my years on these pages, there are some subjects that have a special place in my heart.

First, I've always thought that computers are not, in themselves, interesting, but that their applications are. Computers were created to meet the needs of people. There is

no excuse for computers being any harder to use than a CD player or a television set.

One criterion for measuring a computer's responsiveness to the user is to measure the time and keystrokes (or mouse clicks) it takes to bring you from an unpowered system to the start of your desired task. Advances in the design of user interfaces, coupled with improvements in computer systems' speed, have moved us far along the path toward user friendliness.

A second criterion for ease of use is the extent to which the computer allows you to feel that you have stepped through the looking glass and are touching the application itself. Again, progress has been made, but there is still room for improvement.

The second topic I have addressed on a continuing basis is that of software copyrights. From my perspective, there are aspects of this topic that are crystal clear and some that are cloudy.

One point is clear: The duplication and sale (or gift) of copyrighted software is wrong and should be punished. People who rip off software are stealing just as people who counterfeit money are.

I don't see copy-protection as a cure, however. Copy-protection works to the detriment of legitimate users who want to make backup copies or transfer their programs to other media, like hard disks. Also, pirates easily can break most copy-protection schemes.

The fuzzier side of the copyright issue involves the protection of look and feel—the visual displays and the behavior of a program independent of the program code itself. There is a point where it's very difficult to distinguish between the expression of a program and its underlying idea.

Lawyers tell me that expressions can be copyrighted but ideas cannot. Now that more look-and-feel cases are coming to court, we can only hope that the judges and juries have the wisdom to make the right decisions. My fear is that bad decisions will cripple innovation in an industry that sorely needs it.

Looking to the next 100 issues of *COMPUTE!*, I hope we'll grow beyond the point where software thievery is an issue. I also think that we'll see computers getting easier and easier to use.

Remember that it's you, the computer user, who ultimately shapes this industry. Thanks for your years of support. I look forward to our continuing dialog on these pages in the years to come. □

Letters

COMPUTE! Fights Crime

Through most of the 1980s, I have been investigating high-technology and computer-related crimes for the Austin Police Department. During that time, *COMPUTE!* has been my number 1 resource. Our offices have an assortment of IBM mainframes and personal computers; at home, I have an Amiga 500 system. But to be a successful investigator, I must keep on top of all the latest advancements in technology, and I have to be familiar with as many different computer systems as possible.

I subscribe to numerous computer publications, but *COMPUTE!* has consistently provided me with the best information. I applaud the new format. The deletion of type-in programs leaves more room for the useful reviews and articles. I especially enjoyed David Thornburg's recent article on viruses—a problem I began dealing with long before the general public knew about it. I'm looking forward to my next issue of *COMPUTE!*.

Sgt. Robert Ansley
Austin, TX

Hurray! No More Type-Ins

Congratulations. The new format of *COMPUTE!* is right on target for me. I started my subscription to your magazine in 1983 and also subscribed to *COMPUTE!'s Gazette* when it was introduced. As my computing needs have grown and changed from the VIC-20 to the Commodore 64 and now to the Macintosh, *COMPUTE!* has changed to cover a broader range of topics.

The type-in software was great at the beginning, but for the last few years, I haven't typed in a single program from any magazine.

The features, reviews, columns, and the "COMPUTE! Specific" sections are terrific. I like everything in them. But there is still room for improvement. The small print you use makes it difficult to read. I would much prefer a larger print size.

Arthur Mah
Slave Lake, Alberta

I would like to commend you on the improvement of your magazine. It's an excellent idea to eliminate the type-in programs. I think most people would prefer doing something else on their computer besides spending two or three hours typing in a program they may not get to work.

Your new format is a vast improvement over the old one. I currently own an IBM PC and a Commodore 128, and your magazine is the only one on the market that satisfies my need for information on both machines.

Jeff Barthel
San Francisco, CA

Better Than a Laser?

In your July issue, page 93, Neil Randall, in his "COMPUTE! Specific" section on the 64 and 128, says, "A good 24-pin printer can provide copy that is actually superior to that produced by a 300-dot-per-inch laser printer." Wow! I hope your author knows something I don't, but I doubt it.

Enclosed is a sample of 24-pin output driven by a Commodore 64. I trust you agree that it is not up to laser quality. I really believe that this is a gross misstatement and demands a retraction.

Thanks for a usually fine magazine and for your attention.

Les Tremayne
Sunnyvale, CA

Mr. Randall responds: *Although laser printers generally produce output superior to that of dot-matrix printers, I have seen output from some 24-pin dot-matrix printers that is superior to what's produced by some 300-dot-per-inch laser printers. Perhaps my original statement would have benefited from some elaboration, but it is true.*

Many 24-pin printers actually have a higher dot-per-inch (DPI) resolution than some laser printers, and they can produce amazing results. My advice for anyone planning to buy a 24-pin dot-matrix or laser printer is to get some samples of the output before you buy and to shop around. >

COMPUTE!

The Leading Magazine Of Home, Educational, And Recreational Computing

Editor Gregg Keizer
Senior Art Director Janice R. Fary
Features Editor Keith Ferrell
Assistant Editors Heidi E. H. Aycock
Clifton Karnes
Assistant Features Editor Tom Netsel
Buyer's Guide Coordinator Caroline Hanlon
Editorial Assistant Mickey McLean
Copy Editors Karen Siepak
Tammie Taylor
Karen Uhlendorf
Staff Contributors Rhett Anderson
David Florance
John Shadle
Randy Thompson
Contributing Editors Arlan Levitan
David Thornburg

ART DEPARTMENT
Assistant Art Director Robin Strelow
Junior Designer Meg McArn
Mechanical Artists Scotty Billings
Robin Case

PRODUCTION DEPARTMENT
Production Director Mark E. Hillyer
Assistant Production Manager De Potter
Production Assistant Kim Potts
Typesetting Terry Cash
Carole Dunton
Advertising Production Assistant Anita Armfield

COMPUTE! PUBLICATIONS
Group Vice President, Publisher/Editorial Director William Tynan
Managing Editor Kathleen Martinek
Senior Editor Lance Elko
Editorial Operations Director Tony Roberts
Executive Assistant Sybil Agee
Senior Administrative Assistant Julia Fleming
Administrative Assistants Iris Brooks
Cathy McAllister

ABC CONSUMER MAGAZINES
Senior Vice President Marc Reisch
Vice President, Advertising Peter T. Johnsmeyer
Vice President, Finance Richard Willis
Vice President, Production Ilene Berson-Weiner

CIRCULATION DEPARTMENT
Vice President Robert I. Gursha
Subscription Staff Ora Blackmon-DeBrown
Harold Buckley
Mitch Frank
Beth Healy
Thomas D. Slater
James J. Smith
A Heather Wood

Subscriber Service (800) 727-6937

One of the ABC PUBLISHING Companies

President Robert G. Burton
1330 Avenue of the Americas
New York, NY 10019

ADVERTISING OFFICES

New York: ABC Consumer Magazines, Inc., 825 Seventh Ave., New York, NY 10019. Tel. (212) 265-8360. Peter T. Johnsmeyer, Group Advertising Director; Bernard J. Theobald, Jr., Advertising Director.

Greensboro: COMPUTE! Publications, Suite 200, 324 West Wendover Ave., Greensboro, NC 27408. Tel. (919) 275-9809. Kathleen Ingram.

New England & Mid-Atlantic: Bernard J. Theobald, Jr., (212) 315-1665; Peter Hardy (508) 681-9000; Kathleen Ingram (919) 275-9809.

Midwest & Southwest: Jerry Thompson, Lucille Dennis (312) 726-6047 [Chicago]; (713) 731-2605 [Texas]; (303) 595-9299 [Colorado]; (415) 348-8222 [California].
West, Northwest, & British Columbia: Jerry Thompson, Lucille Dennis (415) 348-8222.

Southeast & International: Peter Hardy (508) 681-9000; Kathleen Ingram (919) 275-9809.

Address all advertising materials to: Anita Armfield, COMPUTE! Publications, Inc., 324 West Wendover Ave., Suite 200, Greensboro, NC 27408.

Editorial inquiries should be addressed to The Editor, COMPUTE!, 324 West Wendover Ave., Suite 200, Greensboro, NC 27408

PRINTED IN THE U.S.A.



More ST

First, let me say that I've been a reader of *COMPUTE!* since 1983, and I will continue to be, but the recent change in your magazine has brought to light a flaw in your reporting. *COMPUTE!* constantly places emphasis on the Commodore systems at the expense of others. The Atari ST and Mega computers outperform the Amiga, but your coverage of the Atari is lacking.

I haven't seen, for example, a review of *Spectrum 512* for the ST. This program allows the simultaneous use of 512 colors on the screen and provides more than 23,000 colors through dithering. It even has the ability to display the famous Amiga HAM pictures. This is a major software release that rivals the Amiga's graphics.

At Spring COMDEX, a data sheet was provided detailing a genlock system for the Atari, a long-heralded Amiga-only extra. There are also ST packages for MIDI and desktop publishing that haven't been reviewed in *COMPUTE!*.

Your omission of type-in programs has not hurt your magazine, but this system bias has. Show the computer industry what all systems have to offer, and I'm sure the user of any computer system will be fascinated.

David Brown
Atlanta, GA

COMPUTE! makes every effort to be fair in its coverage of each major computer. To guarantee this, each issue has a "COMPUTE! Specific" section in which developments for individual computers (including the Atari ST) are discussed.

In our first issue with our new format (May 1988), David Plotkin, our Atari ST expert, reviewed the product you mention, *Spectrum 512*. In the current issue, Mr. Plotkin covers the genlock product for the ST to which you refer.

Through "News & Notes," product reviews, and Mr. Plotkin's Atari ST "Specific" section, we try to keep readers abreast of the latest developments in Atari ST and Mega ST hardware and software.

Positively Square

You implied in your answer to Shane Evans in June's "Hints & Tips" that there is no such thing as the square root of a negative number. Have you forgotten the *j* factor defined as the square root of -1 ? As a retired electronic engineer, I have been using it for the past 60 years or more (I'm now 81) in the study of waveforms and quanta. If you have

read Einstein, you should remember.

Mr. Evans, in his quest for knowledge, asked a very legitimate question and you sidetracked him. Instead of shedding light, you returned to trivium. In common vernacular, you gave him a snow job. In view of his apparent basic knowledge, the expressions he mentioned were (in my humble opinion) encountered in the solution of some simple equation such as the quadratic. A far better answer would have been to refer to such. I believe that Mr. Evans is a searcher and would have arrived at the truth: that there is a square root of -1 which in computations produces vectors which have real values and are always positive.

My compliments to Arlan Levitan for his comprehensive coverage in his article on page 86 of the above-named issue. But why were pages 84 and 86 swapped? Turning backward is just not in accord with today's thinking.

Gayle Jones
Defiance, OH

We didn't mean to give Mr. Evans a snow job. Mr. Evans didn't explain why he was trying to take a square root of a negative number. We assumed (perhaps incorrectly) from his question that he was not trying to use a formula from physics. It seemed more likely that the formula was a financial or a simple geometric one.

*There is indeed a mathematical abstraction of the square root of -1 . It's commonly referred to as *i*. Readers interested in this subject should refer to complex numbers in an advanced-mathematics text.*

As for Mr. Levitan's column, beginning a column on the final page of a magazine is a common journalistic technique. Some browsers flip through a magazine from back to front.

Don't Forget to Teach

Thanks for Clifton Karnes' nice review of the 128D (*COMPUTE!*, May 1988). He mentioned the increase to 64K in 80-column video RAM. I would like to know how to make use of this additional RAM. In particular, how can I create hi-res multicolor graphics?

I like the new, readable format of *COMPUTE!*, as well as the increased number and quality of reviews. Thanks for the good work. If it means the loss of tutorial articles, however, that is regrettable.

Hilary Stinton
Santa Cruz, CA

The only product that we're familiar with that fully supports the 128D's ex-

tended graphics capability is BASIC 8.0, by Walrus Software, available from Pattech Software (P.O. Box 5208, Somerset, New Jersey 08873). BASIC 8.0 extends the 128's BASIC 7.0 with a number of hi-res drawing commands. As the new graphics chip becomes more common, we hope to see more applications that take advantage of its power.

COMPUTE! addresses many tutorial and technical issues in our "Specific" sections—which cover MS-DOS machines, the Commodore 64 and 128, and Apple, Amiga, and ST computers—and in "Hints & Tips."

Virus Damage

My machine was recently infected with a virus. The damage resulting from the infection took three months to repair. The symptoms started when I was unable to write to the disks because they were reported full by the operating system. I started using backup disks, but they also became infected and were thus damaged beyond repair. After weeks of trial and error, neither I nor my friends were able to discover what was causing these problems. As a result of my friends' helping me, their systems also became infected via disks used in my system. How far the virus spread beyond my immediate group is unknown.

I frequently read your magazine and have not seen any articles forewarning your readership of software viruses. I eventually read a *Newsweek* article that described the problem. It was astounding to find the virus problem being discussed in a periodical that is dedicated to general news events when *COMPUTE!* had no mention of it.

I think it is your responsibility to keep your readers informed about computer problems which could result in months of work being lost. The damage just to my system could buy a subscription to ten magazines for the next five years.

Ralph Allen
Arlington, VA

COMPUTE! has covered the virus story since its beginning with the Commodore Amiga. In our March 1988 issue, we published a feature, by Amiga expert Jim Butterfield, on the virus. That feature contained a program to detect the virus on an Amiga disk.

In subsequent issues, we've followed the virus story and its spread to the IBM PC and Macintosh computers in our columns, news stories, and "Specific" sections. We've also discussed commercial antiviral programs that can detect viruses before they do damage. □

hints & tips

Voices from the Past

1980

"Readers' Feedback," the precursor to "Hints & Tips," first appeared in the July/August 1980 issue of *COMPUTE!* (Issue Number 5). For its first year, the column simply printed the comments that readers wrote on the 3 X 5 Editor's Feedback cards inserted in each issue.

"Please make longer programs available on tape."
"I'd like to see more business applications reviews."
"I like *COMPUTE!*—keep it going! Make it monthly!"
"Let's get a high-level language for the PET."
"Give more space to Apple and Atari, and cut PET coverage in half."
"I want my *COMPUTE!* to arrive on time."

1981

In 1981, readers' enthusiasm and their questions had grown to such an extent that "Readers' Feedback" changed to "Ask the Readers," a column where readers would write their questions and other readers would respond in subsequent issues.

I saw a cryptic comment—I think in *COMPUTE!* #10: "PET Exec Hello" by Gordon Campbell. Second paragraph: POKE 59458,62 (this may damage your machine). Can I damage a PET with POKES?? It scared me.

Felix Rosenthal

You can damage your PET with this POKE. Luckily, it is the only POKE which is known to be risky, as far as we know. You can POKE freely anywhere else.

—1982—

I have a few questions regarding that pernicious malady known as "Atari lock-up." First of all, does this happen with other brands of micros? Secondly, though it is generally attributed to "over-editing," why does it occur at all? And finally, has anyone else suffered a similar occurrence which I shall dub "two-line lock-up"? In this frustrating instance, the cursor advances one row after a return, then does nothing! The screen may be cleared or reset, but any command issued will have the same two-line response followed by zilch, cipher, naught, nothing.

Greg Kopp

Several readers have responded to the issue raised by Greg Kopp in "Ask the Readers," May 1982, about the occasional "lockup" where the Atari will, mysteriously, "go away" and no longer respond to the keyboard.

Bill Wilkinson, *COMPUTE!* columnist and one of the authors of Atari BASIC, responds with "All substantial software has bugs. If it's in ROM, the bug can't be repaired unless a new set of ROM chips are brought out. For whatever reason, Atari has never brought out a new ROM set. To be fair about it, there are bugs in the original TRS-80 which have never been fixed either."

1983

In 1983, "Ask the Readers" changed its name back to "Readers' Feedback," but not to the original format. To provide answers for readers as quickly as possible, *COMPUTE!*'s editors began answering readers' questions—a policy we've continued.

I have a VIC-20, and I want to know which is better for the computer—to leave it on constantly or shut it off when you are done using it?

Bob Weber

This is debatable. Some would say that the initial power surge when turning on a computer is actually more damaging to the electronic components than leaving it on continuously. On the other hand, most electronic parts have a definite life span, and leaving the computer on 24 hours a day could shorten the overall useful life of the computer.

—1984—

Methods of RAM management are among the most important aspects of computer operation, but I can find practically no information on this. How does one computer compare with another in memory management? Why is it that even in the IBM 16-bit computer, BASIC RAM is limited to 60864 bytes with 256K memory installed? What about the new Apple Macintosh? More than anything else, the speed with which swaps in memory are made determines the horsepower of a computer.

Orville E. Bean

The factors which determine how effectively a computer can manage memory are the amount of memory the central processing unit (CPU) chip can address directly and the number of bits the CPU can transfer to or from memory at one time. To use your phrase, a 16-bit machine has more horsepower, since it can grab 16 bits at a time from memory instead of 8 bits. Most home computer CPUs, like the 6502 chip used in the Apple, Atari, and Commodore, can directly address 64K and transfer 8 bits at a time. The 8088 CPU in the IBM PC and PCjr can directly address 1024K. However, it organizes this memory into 16 blocks (called *segments*) of 64K each. IBM's Microsoft BASIC was written to operate within one segment, which is why only 60K is available for programming after the computer takes away what it needs for its own operations. Although the PC and PCjr are usually called 16-bit computers, their CPUs can actually transfer only 8 bits at a time. The CPU in the new Macintosh can directly address 16 megabytes (16384K) and can transfer data to or from memory 16 bits at a time.

1985

Is it possible to get the processing power of a \$4,000 IBM PC XT for just \$500? That was one of the questions back in 1985. The answer may seem ironic today: The Sinclair QL mentioned in our response to the following question is still alive in Europe, but it never made it in the U.S. market. And you can get an XT compatible for \$500 in 1988.

I read your piece on the PCjr in the October 1984 *COMPUTE!*. How dare you say that there will soon be computers with the processing power of the PC XT for less than \$500 and not say what they are? I was trembling on the verge of putting out \$600 or \$700 for an Atari 800XL system, and now I don't know what to do, and won't until your article entitled "Some Machines for Less Than \$500 Which Offer More Processing Power Than a \$4,000 PC XT" appears—probably (as they say in the computer biz) sometime during the first quarter of 1985.

Norman Hartweg

A recent CES report included four paragraphs on the new Sinclair QL, which has been available in Britain for several months. Standard features of the QL include 128K of RAM (expandable to 640K); a Motorola 68008 microprocessor; two built-in microdrives for mass storage; a full-sized, 65-key, typewriter-style keyboard with special function keys; BASIC in ROM; an operating system in ROM that supports windowing and multitasking; and more, all for \$499.

As you can see, the QL arguably has more processing power than an IBM PC XT. The XT's CPU is the same chip found in the PC: the Intel 8088, an 8/16-bit microprocessor. The QL's 68008 is a 8/32-bit microprocessor, a version of the 68000 chip found in the Macintosh.

1986

By 1986, *SpeedScript*, the most popular series of programs ever offered by a computer magazine, was available in versions for Apple, Atari, and the original Commodore. In fact, *SpeedScript* had become such an institution that people became interested in its history.

What are the differences between *SpeedScript* 3.0, 3.1, 3.2, and so on?

Leo Mitchener

Here's the genealogy of *SpeedScript* for the Commodore 64. The original 64 *SpeedScript* (now called version 1.0) appeared in the January 1984 *GAZETTE*. A slightly modified version (1.1) appeared in *COMPUTE!'s Second Book of Commodore 64*. The next major update, *SpeedScript* 2.0, appeared only on the premier *COMPUTE!'s Gazette Disk*, in May 1984. Like the original, its title screen did not include a version number; however, it can be distinguished from other versions by its custom character set and help screen.

Version 3.0 made its debut in the March 1985 issue of *COMPUTE!* and on the special *COMPUTE! Disk* for that month. It can easily be distinguished from its predecessors because the command line says *SpeedScript 3.0*. Several minor bugs were corrected for version 3.1. It was this version that appeared in the book *SpeedScript: The Word Processor for the Commodore 64 and VIC-20*, and on the companion disk for that book. Further corrections appeared in the December 1985 issue of *COMPUTE!* and resulted in version 3.2. This version appeared on the January 1986 *COMPUTE! Disk*.

For a description of how *SpeedScript* 3.0 differs from previous versions in terms of features, see the article in the March 1985 issue of *COMPUTE!*.

1987

One theme in 1987 was emulation—having one computer emulate another. Users who were considering moving up to more powerful machines didn't want to lose their existing machine's software.

Rumors abound that the Amiga is or can be compatible with the Commodore 64. If it were, I would buy one without hesitation.

William F. DeBerg

Can I expand my VIC to run 64, 128, Amiga, or Atari ST programs?

Jeffrey M. Powers

Judging by the letters we receive, and by the questions and comments in the user group newsletters that we read, there is a great deal of interest in emulation—making one computer run programs written for another.

Emulation is a complex subject, so let's begin with a simple question that was popular a few years ago: *Why can't my 64 run VIC programs?* (Some people asked the opposite question: *Why can't my VIC run 64 programs?*) They continue by saying that the two computers look similar, use the same peripherals, and were made by the same company.

Although there are many differences between the two computers, the major difference lies deep within the computers themselves: They have different display hardware. The VIC uses a video chip called the VIC; the 64 uses a chip called the VIC-II. For a program to work on two computers, it must "see" the same hardware registers in the same memory locations.

Adding components to your old computer to gain the speed and graphics capabilities of the new computers is simply not feasible. To add the features of the Amiga to your 64, for example, you would have to replace the microprocessor, keyboard, RGB output, and sound and graphics chips. Indeed, a 64 has almost nothing that an Amiga could use. In essence, you would have to add a whole Amiga to your 64.

Others want their old software to run on their new computer. This approach is only slightly more promising. Programmers are working on an Atari 8-bit emulator for the ST and a Commodore 64 emulator for the Amiga. Unfortunately, this approach is bound to lead to lackluster results.

The best solution to the problem is this: If you want to run programs written for a specific computer, or if you want to write programs to take advantage of the power of a certain computer, buy that computer. Any other option will lead to frustration.

1988

In May 1988, *COMPUTE!* was redesigned and "Readers' Feedback" was renamed "Hints & Tips." Although the department's name has changed, our goal is still to provide timely and complete answers to readers' questions.

I have a very perplexing problem. Is there such a thing as a conversion table or program to change Commodore 64 programs so that I can use them on my Plus/4? I love my computer, but it's frustrating trying to convert programs myself. I tried to type in one program by leaving out the POKEs. Ha! No way. So what's a Plus/4 owner to do?

Doug R. Lewis

The differences in the hardware of the two machines make it difficult to convert programs written for the 64 to run on the Plus/4. The Plus/4 is what's known as an orphan.

Many orphan computers were born in the explosive period that occurred before the industrywide shake-up in 1983. The Mattel Aquarius, the MSX computers, the Commodore Plus/4 and 16, the Texas Instruments TI-99/4, the Coleco Adam, and the Timex Sinclair are among the dozens of computers that are now called orphans.

Many people enjoy their orphans. Some buy a full orphan system, with plenty of software, as their first system. Needless to say, it's cheaper to buy a used Coleco Adam than it is to buy a used IBM AT. You can learn a lot by using one of these computers for a while. And if you write your own programs, you may never need another computer.

You may love your Plus/4 now, but someday you may decide that you'd like to buy a new computer.

Before you buy a computer, read all about it. There are many excellent computer magazines available. For instance, *COMPUTE!* Publications publishes magazines devoted exclusively to the Apple II, the IBM PC and compatibles, and the Commodore 64 and 128.

Here's What People Are Saying about **EIGHT-IN-ONE™ . . .**

"... a really powerful product... as good as \$300 to \$500... products."

— *Soft • letter*

"It's hard to suppress this reviewer's combination of admiration for [Eight-In-One] and bewilderment over how the company can offer so much for \$59.95."

— *PC Clones*

"... works as promised."

— *PC Week*

"... the only computer program they (users) will ever need..."

— *NY Times*

"****... the best integrated package I've ever seen..."

— *Home Office Computing*

"... very easy to learn and use... quite intuitive."

— *PC Week*

"PFS: First Choice and Microsoft Works, move over! BetterWorking Eight-In-One may turn out to be the low-cost integrated sleeper of the year."

— *PC Magazine*

"... this inviting and productive package would be a terrific bargain at twice the price..."

— *Washington Post*



BetterWorking Eight-In-One comes complete with every productivity tool you could ever need. It's a desktop organizer, outline, word processor, spelling corrector, spreadsheet, graphics program, data base and communications package all rolled into one. Plus, Eight-In-One is integrated, allowing you to pass work smoothly among all eight applications. The reviews are in... isn't it time you looked at BetterWorking's Eight-In-One?

Price: \$59.95

Available at fine software dealers,
Or: For orders only call 1-800-826-0706

- IBM® PC and True IBM Compatibles
- Requires: 384K/DOS 2.1 or higher
- Supports hard drive systems
- Graphics adaptor required for graphics output



©1988. Spinnaker Software Corp., One Kendall Square, Cambridge, MA. 02139
All rights reserved. Spinnaker is a registered trademark of Spinnaker Software Corp.

YEARS gone by

Gregg Keizer

For 100 issues, *COMPUTE!* magazine has charted the explosive growth of personal computers. We've reported on the strange and the sublime, and we've offered up technological help and comfort to millions. In this, the first issue of *COMPUTE!*'s tenth year, we take a moment to trace the times gone by.



1979

The PET Gazette With A New Name
COMPUTE.
 The Journal for Progressive Computing™

11.08

Fall 1979
 Issue #1
 104 pages



The first issue of *COMPUTE* magazine (note that the exclamation point had not yet made an appearance) hit readers' hands in the fall of 1979. Only a quarterly at this point, it billed itself as *The Journal for Progressive Computing*, a label it would keep on the cover for three years. Still on unknown ground, though, the magazine also made sure people knew it was *The PET Gazette With A New Name*. Robert Lock held the title of Acting Production/Coordinating Editor, while "PET Gazette" founder Len Lindsay was Senior Contributing Editor. The press run for the first issue was 10,000.



THE EVOLUTION OF A MAGAZINE
 The first issue of *COMPUTE* magazine was published in the fall of 1979. It was a quarterly at this point, and it billed itself as *The Journal for Progressive Computing*. The magazine was published by Small System Services, and it was edited by Len Lindsay. The magazine was published in a format that was similar to the *PET Gazette*, but it was more focused on progressive computing. The magazine was published in a format that was similar to the *PET Gazette*, but it was more focused on progressive computing. The magazine was published in a format that was similar to the *PET Gazette*, but it was more focused on progressive computing.

Len Lindsay, founder of the "PET Gazette," published the newsletter for over a year as a nonprofit enterprise. After seeing it grow beyond his capabilities, and not wanting it to simply fade away, he let Small System Services "carry on the 'Gazette' and improve it immensely."

1980

Introducing the OSI Gazette
 The OSI Gazette Migration
 Hard Disks For The Apple
COMPUTE!
 The Journal for Progressive Computing™

- COMPUTE! Looks At The New TRS-80 Color Computer?
- Times Square On Your Atari
- Interfacing KIM/SYM/AIM/OSI With BASIC
- Combining BASIC And Machine Language, II
- Visible Memory PET Printer Dump



November/
 December 1980
 Issue #7
 152 pages

Harry Blair was the artist whose work was synonymous with *COMPUTE!* and who created virtually every cover of the magazine. His cartoonlike style—relaxed, informal, and personable—was immediately recognizable on the newsstands. The exclamation point had been added by this time, finalizing the magazine's name. Another item of interest in this, the last bimonthly issue, included the debut of the OSI Gazette inside *COMPUTE!*: the Ohio Scientific Instrument company produced *single-board computers* such as the Challenger and Superboard II that, compared with today's machines, were more kits than computers. This issue also looked at the new TRS-80 Color Computer, a Radio Shack machine that is still being sold today.

Mark the position of the connector, and make a pencil mark. I drilled three holes around the edge of the board. I drilled the holes with a 1/16" drill bit. The holes are 1/8" apart. The holes are 1/8" from the edge of the board. The holes are 1/8" from the edge of the board. The holes are 1/8" from the edge of the board.

Fig. 1. A simple schematic diagram of a joystick interface circuit. It shows a joystick with four contacts (up, down, left, right) connected to a series of resistors and a common ground. The resistors are labeled with values like 10K, 5K, and 1K. The circuit is designed to provide a digital signal for each direction.

Fig. 2. A detailed schematic diagram of the joystick interface circuit. It shows the joystick contacts connected to a network of resistors and a common ground. The resistors are labeled with values like 10K, 5K, and 1K. The circuit is designed to provide a digital signal for each direction.

Many of the articles in the early issues of *COMPUTE!* looked like this. Titled "Atari Joysticks on the OSI CIP," this hands-on article showed readers how to build and program a joystick interface for a single-board computer. Thoroughly technical, complete with soldering directions and pin diagrams, articles like this were eagerly sought by early *COMPUTE!* readers. ▶



January 1981
Issue #8
144 pages

An embarrassing mistake put the wrong year on the cover date; this is actually 1981's January issue, not 1980's. It is also the first monthly issue of *COMPUTE!*. Typical cover highlights of the time hype programs for loading Commodore PET tape files into an Apple II and for putting 40-column screens on an 80-column PET (the latter was written by freelancer Richard Mansfield, who later became senior editor and then editorial director). The most interesting aspect of this cover, however, is the mention of player/missile graphics (called sprites on other computers) for the Atari.

Chris Crawford has been writing games for a long time, as evidenced by this insightful article on Atari computer player/missile graphics. Famed for such classic commercial efforts as *Eastern Front* and, most recently, *Balance of Power*, Crawford here outlines how to utilize one of the Atari's most impressive features, the spritelike player/missiles that made programming animation so easy on that machine. In years past, Crawford was director of research at Atari; today, he's a freelance game designer.



November 1982
Issue #30
256 pages

As the personal computer marketplace exploded into a multimillion-dollar business, *COMPUTE!* kept up by growing larger and offering even more articles and programs for even more home computer systems. Game programs were always very popular among *COMPUTE!*'s readers, and this issue included two—"Laser Gunner" and "UXB"—which appear, by today's standards, quaint and primitive. Some of the commercial games advertised in the issue were, however, only slightly more sophisticated.



One of the two games highlighted in this issue, "UXB" is a good example of the kind of entertainment programs published in *COMPUTE!* around this time. The program listing is quite short—the segment you see on this page is fully a quarter of the total program. The game came in two versions—one for the Commodore VIC and another for the Atari 400/800 computers (the Commodore 64 had just been released when this issue went to press, and IBM had yet to announce its ill-fated PCjr home computer). ▽

BUY ONE.

Purchase one of the following titles from your local dealer.

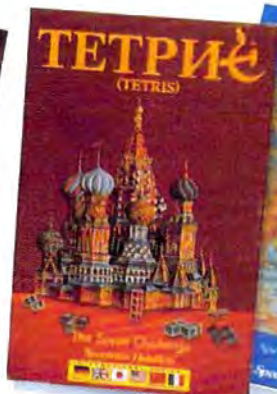


Soko-Ban
Action Strategy Game
IBM, Apple II and C-64



PT-109
Torpedo Boat
Simulation Macintosh

Falcon
The F-15 Fighter Simulation IBM,
Landy 1000 and Macintosh



Tetris
The Secret Challenge IBM, Apple II, iGS,
Macintosh, Macintosh II and C-64



Dondra
Animated Graphics
Adventure Apple II, iGS and C-64



Solitaire Royale
Collection of Solitaire games IBM/Landy 1000,
Macintosh, and Macintosh II

GET ONE FREE.

Receive one of the following titles from Spectrum HoloByte.



Lunar Explorer
Lunar Landing Vehicle Simulation Apple II



Wilderness
Survival Simulation IBM
and Apple II



Intrigue!
Mystery Thriller
Apple II and C-64



Orbiter
Space Shuttle Simulation IBM and Macintosh



TellStar
Astronomy Program IBM, Apple II
and Macintosh



The Art Studio
Graphics/Paint Program IBM

IT'S THE BEST DEAL AROUND! Buy one of Spectrum HoloByte's hottest titles from your local dealer between Aug. 1 and Oct. 31, 1988, and we'll send you another product of your choice absolutely FREE!

YOUR CHOICES TO PURCHASE ARE: FALCON, TETRIS, PT-109, SOKO-BAN, SOLITAIRE ROYALE, OR DONDRA.

Here's how it works. To redeem your free software simply complete either the coupon in this ad or one

from your local retailer; mail it along with proofs of purchase and \$4 (per free product) for shipping and handling. If our product is unavailable locally, call us direct at 415-522-0107. Tell us what product you wish to buy and which product you want FREE. We accept either Visa or MasterCard.

YOUR FREE PRODUCT CHOICES ARE: ORBITER, INTRIGUE, LUNAR EXPLORER, TELLSTAR, WILDERNESS, OR ART STUDIO.

Spectrum HoloByte™

A Division of SPHERE, INC.

2061 Challenger Drive • Alameda, CA 94501

All software products are trademarks of or licensed to Spectrum HoloByte. Hardware products are trademarks of their respective holders.

Mail-In Coupon

Please send my free software to the following address. Enclosed are required proofs of purchase (specified below) and \$4 (U.S. funds) per free product for shipping and handling. Check or money order should be made payable to Spectrum HoloByte.

Name _____ VISA MasterCard _____ Exp. Date _____

Address _____ City _____ State _____ Zip _____

My free software choice _____ Computer format I wish to receive _____

Signature _____

PROOF OF PURCHASE REQUIREMENTS: Send the following original items: (1) the dated cash register tape or sales receipt showing the product purchased, and (2) the actual UPC label located on the lower right corner of package back. (Cut the label off.)

Mail to: Spectrum HoloByte, BUY 1, GET 1 FREE, 2061 Challenger Drive, Alameda, CA 94501. Only valid requests postmarked by Nov. 1, 1988, will be honored. Allow 3-6 weeks for delivery.

1983



December 1983 Issue #43 392 pages



This was *COMPUTE!*'s largest issue, nearly breaking the 400-page barrier, with more than 250 advertisers listed. In hindsight, this moment was also the apex of the home computer-buying curve. When the huge jumps in home computer ownership didn't keep coming, companies which had expected 300-percent growth but which were actually experiencing only 30-percent growth found themselves in a pinch. Many went out of business. At the same time, however, *COMPUTE!* was continuing to chart the upswing in personal and home computer use. One of the features inside this issue, in fact, was titled "The Home Office," presaging a phenomenon that's only now gotten national attention.

Eight different personal computer systems were supported by *COMPUTE!* in this issue, including the now-defunct TI-99 from Texas Instruments. "Get the Gold" was a TI-specific adventure game with some interesting sound effects. Note that readers could send \$3 to the author of the program for a copy of the program on cassette tape (tape drives provided a more common and less expensive means of storing computer information than the costly disk drives of the day). Some program authors made more money from selling such tapes than from *COMPUTE!*'s purchase payment.

1984



July 1984 Issue #50 160 pages

Evolutionary To The Core: The Apple Ile Heads For Home



In the seven months from the December 1983 issue, *COMPUTE!* got smaller and began covering three more personal computers—IBM's PC and PCjr and the Coleco Adam. (None of the three are officially available, for even the venerable PC has been supplanted by IBM's PS/2 line.) The big news this issue was the introduction of Apple's new Ile computer (which debuted in April). The inside features of note covered everything from the evolution of the Commodore 64 ROMs to two games for kids.

Take a look at the cutline below the photo on this first page of the cover story about the new Apple Ile. See the price? The Ile is still sold, though it has been forced into a minor role as the Apple IIGs is marketed most heavily. Its current suggested retail price, however, is only \$995, and that's with a monochrome monitor. Hardware prices continue to fall at an average rate of 20 percent per year, something well illustrated by this now-dated article.

1985

What's New In Computer Display Devices

COMPUTE!

The Leading Magazine Of Home, Educational, And Recreational Computing

SPEEDSCRIPT 3.0

Our Enhanced Word Processor
Free Inside For Commodore 64

Disk It! For A10n
New Video For Last! File

PCJ Memory
Expansion
Moving Slow It's
Compatible

Space Covers
Ready-To-Type Action
Game For Apple, IBM PC,
PCJ, Commodore 64,
VIC-20, Atari

March 1985
Issue #58
160 pages

The most popular program published by COMPUTE! Publications has undoubtedly been *SpeedScript*, a word processor written by program editor Charles Brannon. First published in *COMPUTE!'s Gazette*, a Commodore-specific magazine, more than a year before it appeared in *COMPUTE!*, *SpeedScript* was a full-featured, easy-to-use word processor that was also blindingly fast. *SpeedScript* was so good, in fact, that it was comparable to commercial word processors of the time. Versions for the Apple II and Atari eight-bit computers quickly followed in *COMPUTE!*, and *SpeedScript* was used to launch a new series of disks which contained the programs found in the magazine.

SpeedScript 3.0

All Machine Language Word Processor For Commodore 64

After its introduction in the January 1984 issue of *COMPUTE!*, *SpeedScript* has become the most popular program published by COMPUTE! Publications. Written in machine language, *SpeedScript* offered nearly every command and convenience you'd expect from a quality word processor. Handling the word count for programs, the menu and word processor features of *SpeedScript* were among the best in the industry. It provided a wide range of editing, printing, and other features. The program's speed and ease of use were also among the best in the industry.

Typing in SpeedScript
The main disadvantage of *SpeedScript* is that you can't type directly into the program. You have to type in an ASCII character set of the keyboard. This means you have to use an entry-checking utility called "MLX," another program developed by program editor Charles Brannon, to type it in. MLX made it possible for sophisticated software to be entered without errors, a development that greatly expanded the universe of type-in programs, and something other computer magazines duplicated.

SpeedScript was a long program, one of the longest published in *COMPUTE!* magazine. Because *SpeedScript* was written in assembly language, readers used an entry-checking utility called "MLX," another program developed by program editor Charles Brannon, to type it in. MLX made it possible for sophisticated software to be entered without errors, a development that greatly expanded the universe of type-in programs, and something other computer magazines duplicated.

1986

Portfolio Power: Microcomputers And Personal Finances

COMPUTE!

The Leading Magazine Of Home, Educational, And Recreational Computing

The MS-DOS Invasion

An in-depth look at the fast-growing IBM PC-clone market—what's happening and why

Laser Strike
A challenging, one- or two-player strategy game for Apple, Amiga, Atari, Commodore 64, IBM PC/PCx, and ST

Mail Merge And Word Count
Two productivity tools for Commodore 64

Apple MATH Graphics
Dazzling screen displays with one program

Fortier 128
A Commodore 64-compatible character editor for the Commodore 64

Atari DOS Switcher
An Atari DOS menu software you need

December 1986
Issue #79
112 pages

The surge in sales of IBM PC clones changed the flavor and content of *COMPUTE!* just as it did the personal computer industry as a whole. As PC clones dropped in price and made their way into more homes, more of *COMPUTE!'s* readers wanted MS-DOS information and PC-specific programs. One way that *COMPUTE!* satisfied PC owners was to run an MS-DOS version of each issue's lead program—the game "Laser Strike" this time around.

Microcomputers And Personal Finances

Portfolio POWER

Kathy Hunt, Assistant Features Editor

Advanced financial modeling and market tracking software is being used by those computer owners in a variety of ways—developing new analyzing personal budget and financial plans or determining their investment.

The number of packages has diminished from the dozens available a couple of years ago, but a few very powerful, easy-to-use packages designed by financial experts have been quite successful in helping people manage their money and chart their investments.

On Portfolio's September 21st issue, the *Best Investment Strategy Program* award goes to *Investment* by *Investment* (1986). This program is a powerful, easy-to-use investment analysis tool that can help you track your investments and make informed decisions. It's a powerful tool for anyone interested in managing their money.

Charting the more unusual and, in many ways, the more powerful uses of personal computers is something that *COMPUTE!* writers have always enjoyed doing. Over the years, the magazine has taken its readers into the mundane and the esoteric uses of personal computers. This feature about personal finance software and portfolio management programs touched on everything from electronic banking to business simulations, where, if you lost your shirt, it was only an imaginary one. ▶

1987



September
1987
Issue #88
116 pages

As evidenced by this cover, *COMPUTE!* was trying to support a lot of different computer systems—ten at the time, according to the table of contents—although type-in programs were offered for no more than six of those systems. While there was something for everyone in this issue—from an audio recorder for the Apple II to extra memory for the Atari—the fragmentation of the magazine's contents actually meant there was only a little for anyone.



Solitaire games have always been extremely popular with readers—not surprising, really, when one realizes that much of the time spent in front of a computer is time spent alone. This card game was typical of many published in the magazine; it had originally been written by an outside programmer on the Commodore 64. Only after a program had been purchased was the *COMPUTE!* programming staff let loose to create what were called *homogs*, or translations, for the other five computer systems.

1988



May 1988
Issue #96
94 pages

On the surface, the first issue of *COMPUTE!* sans programs didn't look much different. The text displayed on the cover, however, gave readers a hint of how extensive the changes were. No mention of programs on the cover, for instance, was the only clue many readers needed to tell them something was up.



If there was one page in this issue which told readers things were different, this was it. Photographs had been a rarity within the pages of *COMPUTE!*, and a shot such as this was unprecedented. The subject matter, laptops, had not been touched upon by *COMPUTE!* and offered a perfect opportunity to show readers one of the kinds of articles that the magazine would now run.

Electrifying Software For Today's PC



MicroProse is committed to developing entertainment software that takes advantage of the speed and graphics capabilities of today's sophisticated PC. Look for these features in our exciting titles for IBM-PC/XT/AT/PS2/Tandy and compatibles:

- Full 16-color EGA and Tandy graphics (4-color CGA also supported)
- Automatic speed adjustment for different machine types
- More than 50 animated introduction screens in **PIRATES!**
- Solid, filled, 3-D terrain and targets in **GUNSHIP**
- Available in 3½" and 5¼" formats

Our quality software provides hundreds of hours of stimulating game play with multiple difficulty levels to ensure a progressive challenge. All subjects are painstakingly researched for authenticity and realism. The result is electrifying software for today's PC!

GUNSHIP is a sophisticated simulation of the U.S. Army's state-of-the-art AH-64A attack helicopter. From the cockpit view, more than 30 keyboard controls are needed to complete realistic missions in Western Europe, Central America and Southeast Asia. **GUNSHIP** is the new standard in PC entertainment software. Suggested retail price: \$49.95.

PIRATES! is the adventure-simulation that casts you in the role of a 17th-century privateer captain seeking fame and fortune on the high seas of the Caribbean. The intrigue of role-playing, the realism of simulation, and the interaction of adventure games are blended into one great package. Suggested retail price: \$39.95.

Available at a Valued MicroProse Retailer (VMR) near you. Call for locations! If product not found locally, call or write for MC/VISA orders.

MICRO PROSETM
SIMULATION • SOFTWARE

180 Laketront Drive • Hunt Valley, MD 21030 • 301-771-1151

That Was Then, This Is Now

Leaf through a yearbook of the class voted most likely to succeed in the microcomputer industry. Where were they nine years ago, what have they done, and where are they now?

*Paul Freiberger
and
Dan McNeill*

In the fall of 1979, the personal computer industry had entered a stage of transition. Though few realized it, the halcyon days of the hobbyist were ending and the machines were beginning to move into mass society.

Two pioneer companies, IMSAI and Processor Technology, folded. At the same time, *VisiCalc* and *WordStar* debuted, sparking an upsurge in demand for computers. Sales at Apple quadrupled in 1979, and cofounder Steve Jobs toured Xerox PARC making notes for the Macintosh. CP/M was the major operating system, and IBM's first personal computer was still two years away.

The technology has come a long way since then, and so have most of the prime players in the computer world. Some destinies have flared against the night sky, visible far beyond the precincts of the industry itself, while others have dimmed or faded.

We talked to Bill Gates, Nolan Bushnell, Andy Hertzfeld, Gary Kildall, Adam Osborne, and ten other notables, asking how they've fared, what highlights stand out in their careers, and whether they've enjoyed the ride.

Dan Bricklin

Author of VisiCalc; Founder of Software Garden

In mid-October 1979, Dan Bricklin's Software Arts had just started shipping *VisiCalc*, the first spreadsheet. "A month or two later," he said, "we moved out of the basement in Cambridge which we were sharing with

another company. We were four employees."

Not for long.

VisiCalc was a revolutionary product, tapping voracious demand and selling as fast as retailers could stock it. Moreover, since for a year it ran only on the Apple II, it firmly entrenched Apple in the industry.

Bricklin, now a minor statesman in the field, looks back with fondness on many aspects of his life: the awards he has won, the products he has made. "I've also had people say, 'You helped me get into computers; thank you very much.' One woman said *VisiCalc* helped her meet her husband. She needed help using it."

Today Bricklin runs Software Garden, a small but flourishing firm that sells a program for software developers called *Dan Bricklin's Demo Program*. Though currently interested in voice recognition, he is alert to all possibilities. "There are many more metaphors to be worked out besides the spreadsheet and paste-up board," he said, "and if I knew what they were, I'd be working on them."

"I'm in a much better position than I ever dreamed of," he mused. "Who would have thought, way back when. . . ."

Roger Buoy

President, Mindscape

In the fall of 1979, Roger Buoy was in Sydney, Australia, programming mainframes, as he had done since 1961. He worked at Rolls-Royce, monitoring the engine later used in the Concorde.

Buoy saw the potential of personal computers soon after the Altair, and he wrote a few Altair programs as a pastime. One tracked average scores for his wife's tennis team.

But he didn't seriously enter the industry until 1983, when he founded Mindscape in Northbrook, Illinois, just outside Chicago. "The Silicon Prairie," we called it," Buoy said.

"We went through the most difficult times of the industry," he said. "1984 through 1986 were dog-day years, and surviving that was a tremendous accomplishment. The success of *Balance of Power* is also something I take pride in, after so many said not to sell it because it was a niche product. It's sold over 150,000 copies by now.

"I believe good entertainment will always sell," he added, "and I think there are many things left to be done, with particular emphasis on the user interface. Even the Mac is rocket science to the uninitiated."

"In the fall of 1979, Pizza Time was very profitable and growing by leaps and bounds," Bushnell said. "We had 15 stores at that time. It grew to a total of 280 stores and \$240 million per year."

In many ways, Bushnell has been a frustrated bystander to the computer business since 1979. "My prime involvement was through 1978; then I was excluded for the following five years because of a noncompetition agreement with Atari."

He has other regrets. "At Atari, we talked about doing a personal computer before Apple. But we thought it was a smaller market and that the game business had greater potential. I also think I could have sold Atari to Warner while keeping the rights to the personal computer business."

Since then, Bushnell has created firms like a smiling god spinning off planets. His companies have manufactured robots, video terminals for shopping centers, talking teddy bears, and many other items. Recently, he announced plans to make coin-operated video games, for his heart has remained with the computer business.

"You're dealing with a fascinating class of people," he said. "There are very few mental slugs and I think that's exciting. The friends you have and the people you meet are the litmus test of whether you're having a good time."

a crux. "I was realizing that I was never going to make any money off safety reflectors," he said. "I was at the point of giving up. I was certainly confused. I'd been poor for a long time."

His brother Doug owned a TRS-80, and Gary had used it a bit. Doug suggested selling software, and in February 1980 they founded Brøderbund.

By December 1980, their *Alien Rain* was topping *VisiCalc* in sales, and their lives had changed forever. "It was the first time anyone had ever had a game sell better than *VisiCalc*. We went skiing to celebrate. And we paid ourselves, for the first time. We'd been accruing three-dollar-an-hour salaries. That was a highlight. I hadn't had any income since 1978."

Bank Street Writer provided another memorable moment. It was "the first time we had done something other than games." After the company had sold about 50 copies of the program, "Time magazine came out with a story saying it was a breakthrough because it featured ease of use rather than features. We went from selling 50 copies to, for a while, 10,000 a month."

In the past nine years, he has seen the business grow far more competitive, particularly with the boom in Nintendo products and entries from the British and French. "It isn't just 'Throw stuff at a wall and you'll get some good sales,'" he said. "Back in 1981 we could do that."

Nolan Bushnell

Founder of Atari; President of Axlon

By fall 1979, Nolan Bushnell had gone through several careers. He had founded Atari and popularized *Pong*, the breakthrough videogame. In 1976, he'd sold Atari; in 1977, he'd started Pizza Time Theatre, a fast-food chain with computer entertainment.

Gary Carlston

Cofounder, Brøderbund Software

In 1978, Gary Carlston was driving in Scandinavia and nearly hit a child waiting for a school bus. He decided youngsters needed safety reflectors, and began marketing animal-shaped ones in the United States. But he had failed to study the distribution beforehand, and the business was gasping.

By the fall of 1979, he had reached

Jan Davidson

President, Davidson and Associates

In the fall of 1979, Jan Davidson was launching a tutorial service and trying to determine whether she could use a 48K Apple II as an instructional tool. "I had purchased almost every piece of educational software available. That was 20 packages at most."

Their quality amazed her. "Most

of it didn't work," she said. "A lot had misspellings on the screen and weren't designed very well. It prohibited me from using this computer for education."

So, drawing on her background as a teacher, with her sense for holding children's attention, she started writing her own software.

"The most rewarding thing has been the response from users," she said, "whether it's been talking to teacher conferences or the letters from kids saying, 'I hated math till *Math Blaster*' or 'I never liked reading till I got *Word Attack*.'"

Davidson feels the educational potential of the machine has scarcely been touched. "The big thing is, you learn more if you're interactively involved," she said. "I see the computer, video, and publication industries merging, and that will be particularly important in education, because the value of the computer as a learning tool will be greatly enhanced by video."

John Dvorak

Columnist

In the fall of 1979, John Dvorak was selling software. He owned a small firm called California Software, and was also producing "Dvorak's Software Review," a newsletter.

"The big highlight for me was the realization that the IBM PC would be a dominating computer for a long period of time. The PC legitimized the business." Dvorak is still disappointed by the scarcity of conceptual breakthroughs such as *VisiCalc*. "It's the hardest thing to achieve: to find another use for these computers."

Today, Dvorak has established himself as a major character in the industry, known to everyone and famed for outrageous utterance. He also has an OpEd column in the *San Francisco Examiner*, where he speaks freely on

world affairs, the TV show he watched last night, and whatever else springs to mind.

The past nine years have been a carnival for Dvorak, who relishes his celebrity in the computer-journalism world. "As a hobbyist, this is like a dream come true," he said. "Instead of spending a lot of money and effort to keep up with the industry, things are thrown at you by the tonnage. I feel like a kid in a candy store."

William H. Gates

Cofounder and President of Microsoft

In the fall of 1979, Bill Gates was 23 and already a veteran computer executive, running one of the largest software firms of the time. Four years earlier he had joined MITS, maker of the first commercial PC, the Altair. Soon after, he founded Microsoft on the strength of the BASIC he had written.

It was a crucial moment in his career. If *Microsoft BASIC* had floundered, he had considered "doing pure theoretical computer science or pure mathematics, or possibly being some kind of trial lawyer. I think I would have ended up in AI research."

But it flourished, and since then his life has been one unbroken ascent. Such programs as *Excel*, *Word*, and *Chart* have earned hefty revenues, but his greatest coup was in 1981 when he introduced MS-DOS, the IBM PC operating system.

Today, Gates, 32, is the youngest self-made billionaire in the nation and probably the most powerful person in the industry. A few months ago he toured the country promoting IBM's PS/2 machines, for which Microsoft has written the base operating system, OS/2. He is also working on the Presentation Manager, its graphic user interface. "It's all a huge challenge and opportunity for us," he said.

Of his recent traveling, Gates said, "I think I'm going to tone that down, spend more time at headquarters on product-design decisions. Sometimes I feel it would be fun to focus on one product for a month, but I have people who work for me who get to do that."

Fred Gibbons

President, Software Publishing

In fall 1979, Fred Gibbons was product manager on the Hewlett-Packard 3000. "Steve Jobs came to H-P and walked me around the parking lot trying to recruit me to work on a project called Sara, which turned into the Apple III. He gave me an Apple II to take home to get religion."

Gibbons rejected Jobs' offer. He said, "Steve made me aware of PCs and I followed up on that." In April 1980, he incorporated Software Publishing, and recently observed, "We were profitable in a matter of months, without venture capital." Software Publishing's PFS line of software—low-cost and simple-to-use productivity programs—became the company's bread and butter.

The highlights of the last nine years "have to be those first orders in my company. And seeing my products sold on the Super Bowl by IBM. But going public would be it. You've achieved the objectives and the promises you've made to give a return to the investor."

The vagaries of the industry have fascinated him. "No MBA could ever have predicted 1-2-3's success, or *dBase's*. And there have been incredible failures, like Visicorp. They could have been the next Lotus."

Has he enjoyed it? "That question is similar to: 'Do you like winning a marathon?' The process of building a top-tier company is a difficult one and I've wanted to run that race."

KOEI

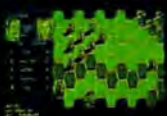
**More than
five years
a best seller**

**Greatest
simulation game
released in Japan**



\$59.95

Nobunaga's Ambition
The Struggle to Unite Japan



For the IBM PC and most compatibles

The Japan most people don't know about. The Warring States period of the sixteenth century. Central government was weak and ineffective as feudal lords called daimyos gained power. Each daimyo ruled a single fief, each wanted to rule the nation. One man, Nobunaga Oda, came close but failed. He paid the price for failure, death.

Nobunaga's Ambition is a military, economic and diplomatic simulation for one to eight that puts you in Nobunaga's place, or in the place of one of his rivals. You start with one fief and try to take the entire nation. A game of both strategy and tactics, success takes careful planning and opportunism.

Administer your fiefs during peace to increase their strength. Keep your peasants and army loyal or risk revolt. Use your resources effectively, not spending too much on either guns or butter. Negotiate with other daimyos, or perhaps you'd rather just send ninjas.

On the battlefield, control your troops in close tactical detail. Take advantage of terrain, attack, retreat, fight a war of attrition or go directly after the enemy general. Just be sure your side is smarter, tougher and better prepared.

Nobunaga's Ambition is fast moving and easy to play but historically accurate. Characters and game events come from the reality of sixteenth century Japan. Maps are almost entirely accurate, both geographically and politically. Advanced graphics and animation help give the game a feel of complete reality. One to eight may play either of two scenarios and five different levels of difficulty. Instruction manual and historical notes included.

Some comments from Japan's leading computer magazines:

"If you own a computer you've got to try this game."

OH! PC
January, 1987

"If the user can supply intelligence and imagination, Nobunaga's Ambition will provide more and better entertainment than any other game on the market."

Enter
August, 1986

"First released more than five years ago, Nobunaga's Ambition is still not just a best seller but one of the very best simulation games on the market."

Popcom magazine
January, 1987

"Nobunaga's Ambition is the absolute pinnacle of simulation gaming."

Mainichi Shimbun
May 7, 1987

"A great hit!"
Asahi Shimbun
February 20, 1986

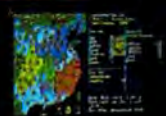
"Far and away the most authentic simulation game I've ever seen."

Hiroharu Seki, professor of Political Science at University of Tokyo in an interview with *Tokyo Newspaper*.



\$69.95

Romance of The Three Kingdoms
Live Second Century China



For the IBM PC and most compatibles

China's second Han dynasty has collapsed. The entire nation battles with itself as warlords struggle for supremacy. You are a Master, one of these warlords determined to beat out the others and control the country.

Manage the states under your control to increase their power and resources. Cope with disasters, both natural and otherwise, when they occur. Choose good subordinates and win their loyalty. Negotiate with other Masters, or take a less diplomatic approach, controlling your armies and those of your generals in great tactical detail on the battlefield. Take advantage of terrain as best you can. Choose the right kind of attack for the situation, or just try and trick the enemy. Do what the immediate situation calls for but don't fail to think ahead.

A huge data base together with advanced graphics, animation and programming give the game an unprecedented degree of reality. Romance of The Three Kingdoms is based painstakingly on the Chinese epic novel of the same name, but is fast moving and easy to play. Features include:

- *255 characters, each with a distinct personality
- *Military, economic and diplomatic simulation
- *Five different scenarios
- *Ten levels of difficulty per scenario
- *Play by one to eight
- *Demonstration mode
- *Complete instruction manual and historical notes.

"Our highest accolade to Koei's Romance of The Three Kingdoms."

Popcom magazine
May, 1987

"Highest award for a simulation game." "All around best game."

LogIn
July, 1987

"A simulation game without peer."

Enter
August, 1986

"Romance of the Three Kingdoms is simulation gaming at its absolute best."

Technopolis
July, 1986

"Romance of The Three Kingdoms is a simulation war game that will strengthen any businessman's ability to work through a problem, logically or intuitively."

P. C. magazine
October, 1986

"Romance of the Three Kingdoms may be pricey but the entertainment it provides makes it a good buy at any price."

OH! FM
March, 1987

For IBM* and compatibles

KOEI CORPORATION

20,000 Mariner Avenue, Suite 100 Torrance, CA.90503

PHONE. 213-542-6444

CIRCLE READER SERVICE 11

**TO BE RELEASED
JUNE, 1988**

Check with
your local dealer.

*IBM is a registered trademark of International Business Machines, Inc.

Trip Hawkins

President, Electronic Arts

In fall 1979, Trip Hawkins, business marketing manager at Apple, had just completed "the first-ever field training program in computer software."

Around then, Steve Jobs took him to Xerox PARC to see innovations that later appeared in the Macintosh and, via add-on software, most other PCs.

"Steve had a lot of crazy ideas which made sense intuitively. He really had the vision," Hawkins said. Jobs invited Hawkins to work on Lisa, the germ of the Mac. "Till then it was a pretty conventional computer: green display, no bitmapped graphics. The flicker was really noticeable."

In 1982 he founded Electronic Arts. It blossomed into a major software firm, with such best-selling games as *Pinball Construction Set* and *Earl Weaver Baseball*.

In retrospect, he seems most pleased by his original contributions to the field. "We were the first to talk of programmers as software artists, and the programmer as a producer. I think we had a lot to do with pioneering retail sales, in terms of developing our own direct sales. And everybody thought we were nuts to support the Amiga."

He added, "It's all been incredibly gratifying. I still get goose bumps when I see people in the store buying Electronic Arts software. We've sold well over five million games now, and it's amazing to me."

Andy Hertzfeld

Macintosh Programmer

"I was offered a job at Apple in December 1978, and I decided I'd bet-

ter wait six months to get my master's degree," said Andy Hertzfeld. "That cost me about 48,000 shares of Apple stock."

Despite this inauspicious start, he moved to Cupertino in August 1979, and by that fall he was working on a silent thermal graphics printer. By 1981 he was ensconced under the famous pirate flag atop one of the Apple buildings, helping write system software for the Macintosh.

The most rewarding experience was "obviously, doing the Mac. It was having my work affect a lot of people and make the world a better place." He also enjoyed the quickness and technological caliber of the people working with him.

After the Macintosh, he went on to write Switcher and Servant utilities and clever software for ThunderScan and the Radius big screen.

If Dvorak is like a kid in a candy store, Hertzfeld is like a kid making candy. "The best thing about working in the computer industry is I love programming," he said. "It's not really work. It's fun."

Gary Kildall

Author of CP/M; Chairman of Digital Research

In 1973, Gary Kildall wrote CP/M, an operating system designed to get a disk drive to work with a computer. Six years later, it was an industry standard, and his company, Digital Research, was hauling great bags of cash to the bank.

And that was just the beginning. "We were still relatively small," he recalled. "In 1979, I'd say we were doing maybe \$5 million per year, and employed about 40 people."

"That was the heyday for the small independent manufacturers," he noted. "We were getting a lot of action from the press and we were appearing

on national television. What impressed me most was that all that notoriety and publicity made it hard to get work done. I was more interested in programming."

By 1983, DRI had become one of the largest software companies in the world, earning \$200 million per year and employing more than 600 people. Since then, the firm has shrunk substantially, though it remains larger than it was in 1979, and Kildall is a very wealthy man.

Recently, Kildall and his wife formed a corporation called Video Design Group to make local commercials and videos for the computer industry. He also did well from the sale of a majority interest in his CD-ROM company, Knowledge Set, and reports that Digital Research turned a profit the last three quarters under a new president.

Robert Lissner

Programmer, Author of AppleWorks

In the fall of 1979, Robert Lissner was a consultant for a school district in San Jose, California, programming mainframes as he had for 17 years. He wondered if his knack for tight code would ever find satisfactory outlet.

In August 1981, a friend took him to Apple, telling him that he should be writing for personal computers.

"Mainframe programmers often think personal computers are jokes, at least at first," Lissner said. "In my case, it appeared they were for hobbyists."

He quickly changed his mind. Apple executive Mike Markkula offered him work on *QuickFile*, an early file manager for the 64K Apple II. "I saw that personal computers had a lot more horsepower than I realized," Lissner said. "I didn't see any problems making something run on 64K."

He finished *QuickFile* and, late in 1982, came across the Lisa office system. He recalled, "Someone said, 'If

The puck stops here!



SUPERSTAR ICE HOCKEY

Designed by Ed Ringler



STOP LOOKING. THEY DON'T GET ANY BETTER THAN THIS.

Here's what the critics say about the Superstar Ice Hockey action, strategy and on-ice moves:

"Superstar Ice Hockey is the best action-strategy sports simulation ever published. Period!"

—Ahoy!

"It combines 3 distinctly different elements of professional



Fast realistic action ice hockey — on-ice action, coaching and strategy, front office decision making — into one very impressive package."

—Run Magazine

"...comes pretty close to capturing the mental excitement of the game!"

—PC Magazine

"Superstar Ice Hockey is one of the



Complete league stats best sports simulations I've seen in a long time!"

—Family Computing

"The actual game has a nice feel to it, giving you the distinct

impression of actually being out there on the ice." —Computer Entertainer

"It's a crowd-pleasing software hat trick that scores with every shot!"

—Commodore

See what all the excitement is about. Play Superstar Ice Hockey by SportTime yourself!



M I N D S C A P E

Visit your retailer or call 1-800-221-9884 for VISA and MasterCard orders. To purchase by mail, send your card number and expiration date, check or money order for \$34.95 (C64 & C128), \$39.95 (Apple II family and IBM & compatibles) and \$49.95 (Amiga and Atari ST) plus \$3.00 handling to Mindscape, Inc., P.O. Box 1167, Northbrook, IL 60065. Allow 3-5 weeks for delivery. Lawyers like this part: © 1988 Mindscape, Inc. Mindscape is a trademark of Mindscape, Inc. Software under license from Designstar Consultants, Inc. Copyright © 1988 in conjunction with International Computer Group. Commodore, Apple, IBM, Atari ST and Amiga are registered trademarks of Commodore Electronics, Ltd., Apple Computer, Inc., International Business Machine, Atari, Inc. and Commodore Amiga, Inc. respectively. SportTime is a registered trademark of Designstar Consultants, Inc.

you could do that on the Apple II, you'd really have something."

He agreed. He began writing *AppleWorks*, and it went on to become the most popular and acclaimed application ever to appear on the Apple.

"The acceptance of *AppleWorks* first within Apple and then by the marketplace" was the high point of Lissner's last nine years. "It's that I did what I thought I was good at, writing small, high-speed code, and there was a market that appreciated that."

Lissner continues to work on revisions to the program, and also recently cofounded Connect, which markets a wide area network.

David Morse

President, Epyx

In the fall of 1979, David Morse was vice president of marketing and sales at Tonka Toys, a job completely unrelated to computers. Then in 1982 he met Jay Miner, who was designing the Amiga computer. Miner's ideas fascinated Morse, who decided to help create a company to build the computer.

"Certainly the most memorable thing was, when we were starting Amiga, to walk into a 5,000-foot-square building, and I was the only guy there. And I was terrified: How am I going to do this? How am I going to start this company?"

Another signal moment occurred on January 1, 1984, when all the prototypes worked for the first time. "Until that day, I wasn't sure we could build a great product," he said. "Then I was convinced we had something good."

Now, at Epyx, Morse rides the vagaries of the computer game market. "You'd be amazed at the financial disciplines at Epyx," he said. "I think that a few years ago everybody

thought the lid was a lot higher and the penetration of home computers was going to reach 80 percent in two years. The realities of the industry have molded the companies that have survived."

Adam Osborne

President, Paperback Software

In the fall of 1979, Adam Osborne was embarking on the greatest project of his life. He had already sold Osborne and Associates, his publishing company, to McGraw-Hill and was building the prototype of the Osborne 1, the first portable computer and the first with bundled software.

He unveiled the machine in 1981 and appeared on the cover of national magazines and on TV news shows. He claimed he would take on Apple and cut a blazing swath through the industry.

But his company faltered because of hasty growth, failure to advance the product line, and IBM. The last decade has not been springtime for Osborne. "I'd say there have been very few highlights," he said. "I introduced the Osborne 1, but that turned into a nightmare because of the lawyers. It's been a bleak last nine years."

Osborne is now president of Paperback Software, whose most salient program is a Lotus 1-2-3-compatible spreadsheet called *VP-Planner* (Lotus has sued for copyright infringement). "It's been very, very tough," he said. "The financial community said they didn't want to invest in me, so I had to do it on a shoestring. Despite that, we've fought our way to number 1 in AI software, and we expect to establish ourselves as number 2 in the spreadsheet market."

Even so, he would accept a decent offer. "Everything I've got is always for sale," he said. "I'm not in this for the ego. It's for business."

Steve Wozniak

Engineer and cofounder, Apple Computer

In the fall of 1979, Steve Wozniak was at Apple, occasionally offering advice on the infant Apple III and working on other projects. When Apple went public in 1980, he instantly pocketed more than \$150 million. In 1981, after a near-fatal crash in a plane he was piloting, he began distancing himself from daily corporate operations. Since then, he has been a man of leisure, community benefactor, and seeker of self-fulfillment.

First, he returned to the University of California at Berkeley to earn his degree. To avoid favoritism, he took courses under the name Rocky Clark and generally sat quietly in the back of the room. At least once, though, he startled a professor with a detailed critique of the class. He graduated in May 1986, and, in his commencement address, he called that his crowning achievement.

Under the heady influence of Berkeley life, he conceived the US Festivals, two rock concerts which lost about \$30 million. But Wozniak never cared about fabulous wealth, and he does not regret these affairs.

In addition, he formed a new company, CL-9 (for Cloud Nine), to market infrared remote-control devices for TVs. He also took up kayaking with ex-wife Candice, a kayak slalom champion, and suggested turning part of San Jose's Guadalupe Park into a world-class kayak course. In 1987, Wozniak funneled more than half a million dollars into a Bill Graham rock concert at Moscow's Izmailovo soccer stadium.

Today, sheepskin in hand, the technical wizard behind Apple has his teaching credentials and will teach elementary school children. It's always been a dream of his.

Paul Freiberger, coauthor of *Fire in the Valley*, one of the first books to detail the history of personal computing, is a former editor with *Popular Computing*. Dan McNeill, who has written several books and numerous magazine articles on the subject, has been reporting on personal computers for years.

GET THE KNOW-HOW TO SERVICE EVERY COMPUTER ON THIS PAGE

Learn the Basics the NRI Way—and Earn Good Money Troubleshooting Any Brand of Computer

The Department of Labor ranks computer service high on its list of top growth fields, with accelerated demand creating more than 30,000 new jobs within the next 10 years.

You can cash in on this opportunity—either as a full-time corporate technician or an independent service-person—once you've learned all the basics of computers the NRI way. NRI's practical combination of "reason-why" theory and "hands-on" building skills starts you with the fundamentals of electronics, then guides you through advanced electronic circuitry and on into computer electronics. You also learn to program in BASIC and machine language, the essential languages for troubleshooting and repair.

Total Computer Systems Training, Only From NRI

No computer stands alone... it's part of a total system. To really service computers, you have to understand computer systems. And only NRI includes a powerful computer system as part of your training, centered around the new fully IBM compatible Sanyo 880 Series computer.

You start with the step-by-step assembly of your Sanyo 880 computer. You build and test the "intelligent" keyboard, install the power supply and 5¼" floppy disk drive, and interface the high-resolution monitor. But that's not all. You go on to install a powerful 20 megabyte hard disk drive—today's most-wanted computer peripheral, now included as part of your hands-on training to dramatically increase your computer's data storage capacity while giving you lightning-quick data access. With your computer now up and running, you're ready to use the valuable software that completes your total computer system.

IBM is a Registered Trademark of IBM Corporation.
Epson is a Registered Trademark of Epson America, Inc.
Apple and the Apple logo are Registered Trademarks of Apple Computer, Inc.
Compaq is a Registered Trademark of COMPAQ Computer Corporation.
© 1986 AT&T Technologies, Inc.



need to quit your present job until you're ready to make your move. Your training is backed up by your personal NRI instructor and the NRI technical staff, ready to answer your questions and help you when you need it. You get it all with NRI at-home training.

Free 100-Page Catalog Tells More

Send the postage-paid reply card today for NRI's big, 100-page, color catalog on NRI's electronics training, which gives you all the facts about NRI courses in Microcomputers, Robotics, Data Communications, TV/Audio/Video Servicing, and other growing high-tech career fields. If the reply card is missing, write to the address below.

AND MORE!

It all adds up to confidence-building, real-world experience that includes training in programming, circuit design, and peripheral maintenance. You'll be learning about, working with, servicing, and troubleshooting an entire computer system—keyboard, power supply, computer, monitor, floppy disk, hard disk—to ensure that you have all the essential skills you need to succeed as a professional computer service technician.

No Experience Needed, NRI Builds It In

This is the kind of practical, hands-on experience that makes you uniquely prepared, with the skills and confidence you need for success. You learn at your own convenience in your own home. No classroom pressures, no night school, no



Your NRI total systems training includes:
• NRI Discovery Lab to design and modify circuits • Four-function digital multimeter with walk-you-through instruction on audio tape • Digital logic probe for visual examination of keyboard circuits • Sanyo 880 Series computer with "intelligent" keyboard and 360K, 5¼" floppy disk drive • 20 megabyte hard disk drive you install internally • High-resolution monochrome monitor • 8K ROM, 256K RAM • Bundled software including GW-BASIC, MS-DOS, WordStar, CalcStar • Reference manuals, schematics, and bite-sized lessons.

NRI SCHOOLS

McGraw-Hill Continuing Education Center
3939 Wisconsin Avenue, NW
Washington, DC 20016

We'll Give You Tomorrow.



new products!

Save the World's Intelligence

Aliens are trying to reduce everyone's IQ to single digits in *Zak McKracken and the Alien Mindbenders*, the latest release from Lucasfilm Games. Zak is the ace reporter for the *National Inquisitor*. He and his friends, two Yale coeds and an occultist, must travel around the world and beyond to save the planet from aliens.

Players control the four characters as they collect clues and objects from locations such as San Francisco, Stonehenge, Mexico, Atlantis, Mars, and the Bermuda Triangle. Players can solve problems and puzzles with one character or several characters at once. The characters, objects, and actions are controlled by joystick or mouse. There are no type-in commands. The game features 3-D graphics, music, and sound effects. Players can also use "cut scenes" to see what's happening in several places at once. Puzzle solutions change from game to game.

Zak McKracken and the Alien Mindbenders is available for the Apple IIc and IIe and requires 128K. It has also been released for the Commodore 64 and 128 and requires the 1541 or 1571 disk drive. Both have a suggested retail price of \$34.95.

The version for the IBM PC, XT, AT, PS/2, Tandy, and compatibles requires 256K and a CGA, EGA, VGA, MCGA, or Hercules graphics card. Both 5¼- and 3½-inch disks are available with a hard disk option. Players also have the option of using a joystick or a mouse. The suggested retail price for the MS-DOS edition is \$44.95.

The game is distributed exclusively by Mediagenic (formerly Activision).

Mediagenic, 3885 Bohannon Dr., Menlo Park, CA 94025

Circle Reader Service Number 200.

One in the Hand Is Worth . . .

Micro Palm Computers has released the PC/5000, a new hand-held MS-DOS personal computer. The PC/5000 is designed for data capture, processing, and transmission under almost any conditions.

Features include an 80C88 micro-processor and full implementation of the MS-DOS operating system. The battery-powered computer has a standard memory of 256K that is expandable to 2.2MB. Removable memory modules are included with the computer and function like normal disks. The memory modules come in 128K, 256K, 512K, and 1024K configurations. The memory is supported by a lithium battery backup.

The LCD screen, with a 20-character X 8-line display, has graphics capability. The unit has 51 large tactile keys, dual RS-232 ports, an optional built-in modem, and a high-speed, bidirectional, eight-bit parallel port. Users can operate the computer with bar-code wands, laser scanners, portable printers, and other input/output devices.

Using MS-DOS, the PC/5000 is



The hand-held PC/5000 uses the MS-DOS operating system.

compatible with programs and files from IBM PCs. Program and data files can be transferred from PCs to the PC/5000 with communications software from Micro Palm.

The unit can also operate in tem-

peratures ranging from -22 degrees Fahrenheit to 158 degrees Fahrenheit.

The suggested retail price is \$3,295.

Micro Palm Computers, 13773-500 ICOT Blvd., Clearwater, FL 34620
Circle Reader Service Number 201.

From the Good Sports at Accolade

Accolade has added four new sports titles to its line of computer games. The new action programs are *Fast Break*, *Serve and Volley*, *Rack 'Em*, and *T.K.O.*

Fast Break is a three-on-three basketball game that features full-court action from a television perspective. This one- or two-player game is played by professional rules complete with three-pointers and slam dunks. You can select defensive and offensive plays from a menu, design plays, and make substitutions. The game is available for the Commodore 64 and 128 for the suggested retail price of \$29.95.

Take to the tennis courts with *Serve and Volley*. The game emphasizes correct ball placement, timing, and stroke selection. You can choose from three difficulty levels and three court surfaces. Features include a full-court view with action windows. To play the game, choose from three serves and then hit volleys, forehands, backhands, smashes, and lobs. The game offers match or tournament play against the computer or two players against each other. Each tournament or match can be saved and resumed. *Serve and Volley* is available for the Commodore 64 and 128 for the suggested retail price of \$29.95. It has also been released for the Apple IIGS for \$44.95 and for the IBM PC, Tandy, and compatibles for \$39.95.

Rack 'Em consists of five billiards games: snooker, bumper pool, straight pool, eightball, and nineball. This one- or two-player game displays the pool table from overhead with a 3-D view. Several variables, including the ball and pocket, aim, English, and power, affect gameplay. A practice feature allows you to replay the last shot. You can try trick shots, and the ten best can be

Compiled by
Mickey McLean

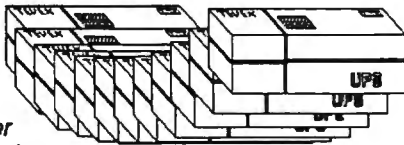
Tevox Computer Software

1-800-456-1162

PC software	List \$	Our \$	PC software	List \$	Our \$
AAW at Sea	\$45	\$31	Might & Magic	\$50	\$34
<u>Allen Fires</u>	\$45	\$31	<u>NBA</u>	\$40	\$28
Alternate Reality	\$40	\$28	Phantasie III	\$40	\$28
Balance of Power	\$50	\$34	Pirates	\$40	\$28
Bard's Tale	\$50	\$34	Police Quest	\$50	\$34
Breach	\$40	\$28	Rampage	\$40	\$29
<u>Civil War</u>	\$35	\$24	Reach for the Stars	\$45	\$31
Defender - Crown	\$40	\$28	Space Quest II	\$50	\$34
Earl Weaver BBall	\$40	\$28	<u>Star Command</u>	\$50	\$34
<u>EPYX Joystick</u>	\$40	\$28	Starfleet I	\$50	\$34
Falcon	\$50	\$34	Starflight	\$50	\$34
Gettysburg	\$60	\$41	<u>Stellar Crusade</u>	\$50	\$34
Gunship	\$50	\$34	Test Drive	\$40	\$28
Hunt for Red October	\$50	\$34	<u>Three Stooges</u>	\$50	\$34
<u>Impos. Miss. 2</u>	\$40	\$29	Ultima IV	\$60	\$41
King's Quest III	\$50	\$34	Univ Military Slm	\$45	\$31
<u>L.A. Crackdown</u>	\$40	\$29	Where - Europe?	\$45	\$31
Maniac Mansion	\$45	\$31	<u>Willow</u>	\$40	\$29
Marble Madness	\$35	\$24	<u>Wizardry IV</u>	\$60	\$41

Same Day Shipping

Just call us before 3:30 and we'll ship your order today by UPS. Your package is only days away with Tevox.



Free 40 page catalog with your first order. We stock hundreds of IBM games.

When ordering by mail send money order. Include phone number. SHIPPING: U.S. orders add \$3.00 for shipping and handling charge. Georgia residents add 4% sales tax.

TEVOX

4205 First Ave #100
Tucker, GA 30084
404-934-5059

New products are underlined

We accept
Visa or Mastercard

saved. With the generic game feature, you can establish your own rules. A construction set allows you to create a bumper pool table. The game is available for the 64 and 128 for \$29.95 and for the IBM PC, Tandy, and compatibles for \$39.95.

T.K.O. is an arcade-style boxing game that features large graphics and a split screen. The one- or two-player game features offensive and defensive maneuvers for each contender. Boxers can dodge and duck as the opponent throws punches. After a hit, the boxer's face will show the damage he has sustained, which may include black eyes, fat lips, swollen cheeks, a bruised forehead, and a cut jaw. *T.K.O.* is available for the 64 and 128 for the suggested retail price of \$29.95.

Accolade, 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128
Circle Reader Service Number 202.

Amiga Takes Off

Electronic Arts has announced the release of *F/A-18 Interceptor*, a flight simulator designed to take advantage of the Amiga's graphics and sound capabilities. The game is set in the San Francisco Bay Area and includes six combat missions, a training mission, and free flight.



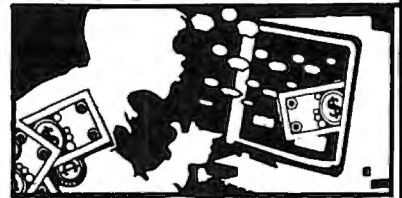
Players must maneuver beneath the Golden Gate Bridge in *F/A-18 Interceptor*.

In the free-flight mode, players must fly under the Golden Gate Bridge without crashing into the ocean. Other activities include bombing the Transamerica Pyramid and buzzing by Alcatraz. In the training and combat missions, players take off and land the F-18 Hornet on the USS *Enterprise* aircraft carrier or try to handle a land-based F-16 Falcon at several Bay Area locations, including the San Francisco Airport. Players can qualify for certain missions by enrolling in flight school.

The object of the game is to intercept and shoot down enemy aircraft before Air Force One is destroyed. The player's arsenal includes heat-seeking Sidewinder missiles, Sparrow radar-homing missiles, and the 20mm Vulcan Cannon. The program's 3-D graphics and digitized sound simulate screaming

LOTTO JACKPOT!

NOT JUST DUMB LUCK



Now, GAIL HOWARD'S famous Lottery Odds Improvement Systems are available for use with your IBM COMPUTER (or compatible).

As the nation's leading Lottery expert — Gail Howard has helped lotto players win prizes at an unmatched rate of success and has documented 11 JACKPOT WINS TOTALLING \$30 MILLION. Using Gail's systems:

GAIL HOWARD'S SMART LUCK COMPUTER WHEEL™ (29.95 + \$2 s/h)

— Over 100 Wheeling Systems with guaranteed minimum win assurance. From economical Power Number™ Abbreviated Balanced Wheels™ to full systems that improve your odds of winning up to 667% — Works with all Pick 6 Lotto games in the world, with systems for Pick 5 and Pick 7 games.

GAIL HOWARD'S SMART LUCK COMPUTER ADVANTAGE™ (\$39.95 + \$2 s/h)

— The most successful Number Selections Systems ever devised and includes charts for: Drawings since Hit, Skip & Hit, Multiple Hit Patterns, Companion Numbers, and Double Hit Ratios and Neighboring Pairs, etc.

Please indicate the state (or Canadian or German) Lottery you play — you will receive the entire historical winning numbers list for your game (\$7 for each additional game).

SMART LUCK

COMPUTER SYSTEMS



P.O. Box 1519 Dept. D1 White Plains, NY 10602 312-934-3300

jet engines, missile explosions, and cannon fire.

F/A-18 Interceptor requires 512K of memory, and a joystick is recommended. The suggested retail price is \$49.95.

Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404
Circle Reader Service Number 203.

Advice from Mindscape

Mindscape has made available a pamphlet that outlines the basics of software evaluation and selection. *A Guide to Selecting Educational Software* includes information on how to look for a computer user group, how parents can help their children learn about computers, and how to buy programs for a child with learning disabilities.

The guide is available free of charge, and it can be obtained by sending a self-addressed, stamped, business-size envelope to Educational Software Guide in care of Mindscape.

Institutions and organizations can purchase the guides in large quantities at a special rate. Interested organizations should contact Mindscape's educational customer service representative to place orders.

Mindscape, 3444 Dundee Rd., Northbrook, IL 60062
Circle Reader Service Number 204. ☐

COMPUTE!

specific

**Tandy's
DeskMate
Leaves
Home; BASIC
and GEOS
Make Friends;
New Chips
Take Years
Off Apples;
Amiga's
Monster
Arcade Game;
Newest Mac
Desktop
Buzzword;
and No
Gloom, No
Doom for ST**

MS-DOS

When Tandy recently announced that it was licensing its *DeskMate* interface to third-party developers, PC users raised a number of questions.

What is *DeskMate*? Will it run on my PC compatible? What *DeskMate* products will be available? Will I need a copy of *DeskMate* to run these programs? The answers to these questions shed some light on one of the most interesting software announcements of the year.

DeskMate is a graphics interface that Tandy has been bundling with its Tandy 1000 series of PCs for four years. The product started out as a simple text-based program, but has matured into a full graphics interface complete with mouse support. There are two variations of *DeskMate*: *Personal DeskMate*, an edition specially suited to the Tandy 1000's hardware, and *Professional DeskMate*, a version that supports networking and runs on any PC compatible. There are only minor differences between the two.

DeskMate's interface uses the desktop metaphor familiar from Apple's Macintosh and from such PC products as *Windows* and *GEM*. But *DeskMate* has its own look. Although the top line of the screen sports a menu bar, the

rest of the screen consists of rectangular application boxes—applications and their associated data files.

DeskMate comes with several built-in applications, including Text, a word processor; Draw, a drawing program; Filer, a simple database; Telecom, a telecommunications module; Calendar, an appointment book; and Worksheet, a spreadsheet. The applications are all basic, introductory programs, but some of the modules are surprisingly strong. The ensemble will definitely get a new user off to a good start.

In addition to the applications, *DeskMate* boasts a number of desk accessories, including a calculator, a calendar, a clipboard, a note pad, and a phone list. These accessories are available from the desktop or from any of *DeskMate*'s supplied applications.

What Tandy is licensing to third-party developers is *DeskMate*'s look and feel and the *DeskMate* runtime module—essentially *DeskMate*'s device drivers. This means that you don't need a copy of *DeskMate* to run the programs which sport the *DeskMate* interface; all of the new *DeskMate*-interface products will be stand-alone applications. If you do have a copy of *DeskMate*, it will automatically recognize the *DeskMate*-interface products, but this seems to be the only connection.

What *DeskMate* products will we be seeing? Only a few titles are known for certain: Intuit's popular check-writing program, *Quicken*; Sierra's flagship word processor, *HomeWord*; and Activision's outstanding music-composition program, *Music Studio*.

In the educational arena, First Byte is releasing eight *DeskMate*-interface products for children. Titles cover the topics of geometry, mathematics, speech, reading, and spelling.

Other developers actively creating *DeskMate* applications include Broderbund, 3Com, Digital Learning Systems, Electronic Arts, Epyx, The Learning Company, Software Publishing, Star Software, and Symantec, so there should be a good sampling of software with the *DeskMate*'s look available soon.

Whether or not *DeskMate* becomes the new standard interface for low-end PCs, we'll soon have several easy-to-use, consistent *DeskMate*-look-alike products from which to choose.

DOS Bookshelf

Whether you're a novice, a power user, or a programmer, if you want to get the most from your PC, books are the keys to knowledge. But choosing the right reading material isn't easy; there are more DOS books available than you can shake a stick at. Separating the good from the bad is an almost impossible task for a beginner; it's no easy matter for a seasoned pro, either. To make it simpler to find the books you need, here's a tour of some of the best DOS books around.

If you're new to MS-DOS, Van Wolverton's *Running MS-DOS* (Microsoft Press, \$22.95) is essential. Now in its third edition, this well-written volume has become a classic and is a must-have for serious PC users. Seventeen chapters and five appendices guide the new MS-DOS user through the DOS basics, covering everything from calling a directory to LANs and DOS 4.0 (a multitasking version of DOS 3.2 available only in Europe). One of the book's pluses is a DOS command reference, which can make this volume a handy guide for anyone whose PC system doesn't include an MS-

DOS manual. If you can only buy one DOS book, buy this one.

Inside the IBM PC, by Peter Norton, (Brady, \$19.95; a disk is available for \$65.00) is the now-classic nuts-and-bolts introduction to the PC. If you're interested in learning more about your machine's hardware and system software, this is the book to buy. The book's 22 chapters cover everything from the origins of the PC family to an analysis of DOS disk structure. A companion disk contains programs from the book. *Inside the IBM PC* is an excellent supplement to the author's famous *Norton Utilities*.

Supercharging MS-DOS (Microsoft Press, \$18.95) is Van Wolverton's sequel to *Running MS-DOS*—it's aimed at the intermediate user who wants to move up to the power-user class. The book's 300 pages cover the hexadecimal numbering system, the extended character set, the ANSISYS driver, printer codes, DEBUG, designing interactive menus, CONFIG.SYS, setting up a ramdisk, and advanced disk and file handling. Six appendices and a glossary round out the information. One of the book's strengths is that it guides you step by step through the process of building a custom batch file menu system. By the time you've finished the book, you'll have a friendly menu-driven interface for your system.

DOS Instant Reference (Sybex, \$10.95) is an easy-to-use, quick-reference guide to MS-DOS commands that covers DOS versions through 3.3. The discussion of each command includes information on version, type of command, syntax, options, command use, messages, and more. Appendices include batch files, CONFIG.SYS, hard-disk partitioning, a glossary, and ASCII codes.

If you're a programmer, there are two indispensable titles. The first is *Programmer's Guide to the IBM PC*, by Peter Norton (Microsoft Press, \$19.95). Its 426 pages include information on the anatomy of the PC; ROM; video, disk, and keyboard basics; the ROM-BIOS services; DOS inter-

rupts; DOS functions; program building; and programming languages. One of the book's most valuable features is its well-annotated reference of ROM-BIOS routines and DOS services.

Also for programmers is *Advanced MS-DOS*, by Ray Duncan (Microsoft Press, \$22.95). Its 13 chapters cover the history of MS-DOS, the programming environment, MS-DOS tools, MS-DOS devices, file and record handling, directories, subdirectories and volume labels, disk internals, memory allocation, DOS interrupts, installable device drivers, and DOS filters. There is some duplication between this book and Norton's *Programmer's Guide*, but *Advanced MS-DOS* concentrates on specific applications. The book boasts lots of examples in C and assembly language.

In a category all its own is *The MS-DOS Encyclopedia* (Microsoft Press, \$134.95). This is Microsoft's be-all-and-end-all reference to MS-DOS. Its 1570 pages are divided into five sections covering the development of MS-DOS, programming in the MS-DOS environment, user commands, programming utilities, and system calls. Fifteen appendices round out this amazing compendium. This is the final word on MS-DOS for programmers.

Corporate Computers

IBM may have lost the home PC market to the clone makers, but IBM is still the darling of the Fortune 1000.

According to a recent Gallup poll, IBM is still number 1 with corporate America, with 96 percent of those companies surveyed indicating they use Big Blue's microcomputers. Compaq runs a distant second at 52 percent, Apple garnered 21 percent, and Toshiba America came in fourth with a respectable 13-percent response (the percentages add up to more than 100 because many corporations use more than one kind of microcomputer). Although the poll didn't mention particular ma-

chines, the Apple in the Fortune 1000's eye must be the Macintosh; Toshiba is undoubtedly selling its popular portables to the movers and shakers.

Why do more of these companies use IBM's PCs than any other machine? First on the list was compatibility with the existing software base. Next came technical capability. And last, service was deemed important.

What machines are on the Fortune 1000's list for next year? IBM, Compaq, Apple, Zenith, and Toshiba.

Mighty Mice

The PC mouse is becoming more popular every day, and the battle for best mouse is narrowing to a race between Microsoft and Logitech. Microsoft has recently introduced a redesigned two-button PC mouse that it hopes will take the mouse-using world by storm. Logitech has continued to develop and refine its popular three-button mouse, with the C7 model as its flagship.

The two mice couldn't be more different. The Microsoft device is small and streamlined, with a very light clicking action and short button-travel. Perhaps this mouse's most noticeable characteristic is its large left button. You use the left button about 95 percent of the time with most applications, so Microsoft has decided that it should be larger. The right and left buttons are separated by a ridge to make it easy to tell them apart.

The Logitech Mouse is rectangular and wide (to accommodate its three buttons), has a firm click, and sports a longer button-travel than does the Microsoft device. Although the C7 is wide, the mouse is designed to be held between the thumb and little finger, which is quite comfortable and allows the mouse to be used for long periods without fatigue.

Both mice offer excellent control, but each is different. The Microsoft Mouse places the rollerball near the finger end of the mouse, giving it an unusual, though pleasing, feel.

The C7 positions the roller under the palm of your hand—the traditional location.

Both mice are available in serial and bus configurations, and both companies offer various software-bundling options. The basic package from Microsoft includes the mouse (and a mouse card if you choose the bus mouse) plus mouse drivers and some ready-made menus that allow you to use the mouse with applications not designed to support the device. Also included in the basic package is *PC Paintbrush*, a drawing program. More expensive bundles include either *EasyCAD* or *Microsoft Windows* and *PC Paintbrush for Windows*. Missing from the Microsoft bundle is the software that allows you to write your own mouse menus. This package is available from Microsoft for an additional \$25.

The Logitech Mouse comes with lots of ready-to-go menus; a compiler that allows you to create your own menus; sample programs; and Point, a mouse-driven text editor that one software expert named as one of the best products of 1987. Other bundling options include everything from desktop publishing software to an EGA card-and-monitor combination.

Choosing between these mice is difficult. Both are excellent performers. If you can, try both mice before you buy. If you can't try the mice, and money is an overriding concern, Logitech is the better buy by a small margin.

The Logitech Mouse is available from Logitech, 6505 Kaiser Drive, Fremont, California 94555; (800) 231-7717. A *Plus Package* is \$119 for the mouse and software. Other options include the *Publisher Package* (\$179), *LogiCADD* (\$189), and *LogiPaint* (\$149).

The Microsoft Mouse is available from Microsoft, 16011 NE 36th Way, Box 97017, Redmond, Washington 98073-9717; (800) 426-9400. The *PC Paintbrush* package is \$150. Other bundling options include *EasyCAD* (\$175) and *Microsoft Windows* and *PC Paintbrush for Windows* (\$175).

— Clifton Karnes ▸

By now, everyone knows that Berkeley Softworks' *GEOS* is the 64's Commodore-supported operating system. Packaged with the 64C since the computer first appeared, *GEOS* has spawned its own forums and applications groups on telecommunications services, including Q-Link and Compu-Serve, and Berkeley has released several highly useful *GEOS*-based products. Whether *GEOS 128* will become the 128's official operating system remains to be seen, but it certainly has a good chance. As of this writing, it is not being packaged with the 128D.

The problem is that not all software publishers recognize the *GEOS* standard. Some popular programs simply will not load from *GEOS*, and most copy-protected entertainment software, which has a huge impact on the 64/128 marketplace, relies on good old Commodore BASIC to get started. *GEOS* has reached a point where it needs third-party support to verify its official status; fortunately, developers are starting to come to its aid.

One significant recent product is *Becker BASIC*, from Abacus (5370 52nd Street, Grand Rapids, Michigan 49508). Actually developed by Data Becker in Dusseldorf, West Germany, *Becker BASIC* extends the 64's BASIC 2.0 and is compatible with *GEOS*. In fact, it runs under *GEOS 64* (but not *GEOS 128*).

The back of the box tells you pretty well all you need to know about *Becker BASIC*'s capabilities and whether or not you will want to give it a try. It includes a program called Pull-Down Menu Construction Set

with which you create *GEOS*-style menus. A separate program lets you fashion *GEOS*-style dialog boxes, which are probably the key to *GEOS*'s Macintosh-like interface. Besides listing these features, the box briefly outlines *Becker BASIC*'s new commands for editing, disk access, graphics and animation, and sound.

In all, *Becker BASIC* consists of 273 commands. Among these, you'll find 53 commands to aid disk access, plus 18 dedicated to creating sound, 20 to hi-res graphics, 37 to sprite creation and animation, and more than 20 to editing and programming tools.

DSQCONCAT, for example, lets you simultaneously add multiple sequential files to a new file; DSAVE saves specified lines of a program to disk; DMYPEEK pulls individual bytes into memory; DRESET resets the disk drive. The sound commands give you control over volume, frequency, wave, and envelope. Commands such as SDNOTE let you access a specific note. SDVCFTON gives you control over voice filtering, and SDRINGMODON controls ring modulation between two voices.

The graphics commands give you full control over boxes, frames, and lines. HRSTRING allows you to perform a series of commands with one controlling command, which saves some execution time and some memory. With the sprite commands, you control color (MBSETCOL), horizontal and vertical expansion (MBXSIZE and MBGTXSZ), and sprite collision. Meanwhile, editing commands include a sophisticated TRACE, which has, among other things, a mode that moves you through the program from command to command.

Becker BASIC contains three interpreter systems. The Input system and the Testing system work together. You can switch from one to the other without losing the program in memory. The Run-Only system lets you distribute the programs you've created to be used without *Becker BASIC*. Another program, Converter, converts your programs to *GEOS* format.

With *GEOS* and the interpreter systems in place, you have only 15,800 bytes of free programming memory. Overlays, which *Becker BASIC* allows, help out here, and you can free 8K if you decide not to use hi-res graphics. All in all, it's an impressive package.

Gold Printer

Super Graphix Gold is the most advanced printer interface in Xetec's growing line (Xetec, 2804 Arnold Road, Salina, Kansas 67401; 913-827-0685). It has 4 built-in fonts and 4 that can be downloaded to RAM. An accompanying utility disk holds 40 more fonts, and all fonts make use of underlining, italics, and super- and subscripting. Furthermore, all fonts print in nine different pitches.

The interface has 16 DIP switches, all easily accessed. There are modes for 1525 emulation and ASCII conversion (as well as many others), two available screen-dump modes, a command channel with more than 30 commands, and a host of other features. With support for standard serial for the 64 and fast serial for the 128, and with a built-in 32K print buffer (which eases waiting time substantially), this printer looks like a winner.

Xetec, incidentally, produces two lower-cost interfaces, the Super Graphix Jr. and the Super Graphix; both also offer high quality.

French Trains

On the games scene, Accolade's recent offerings are worth a serious look. *The Train* is a point-of-view-style game that places you in the French Resistance during World War II. For some reason, the sheer romance of the French Resistance has made few inroads in the North American game market, a point *The Train* takes to task.

Here you capture a train—a real train, with real coal, not one of those depressing modern diesel things—and

then plan your route to capture every station on your map of France. Standing between you and success are enemy-held bridges. Clearing these bridges is needlessly difficult because of enemy fighters strifing your engine, enemy-occupied stations, and such niceties as an engine that tends to accumulate too much steam pressure. When you capture a station, you can radio ahead to get help from fellow resisters. Use their help to take bridges.

Mini Golf

Mini-Putt, also from Accolade, is simply a lot of fun. A nice recreation of a fairly standard miniature putting course, the game also includes courses ranging from the unlikely to the nearly impossible. As with many computer golf games, the trick is to apply enough power at the proper angle during your swing, but you're hampered by windmills, swinging logs, and the inevitable walls and bridges, plus a wealth of other strange surprises. The only problem with *Mini-Putt* is that it's difficult to determine the direction of the inclines. Still, as a group activity, it's almost as enjoyable as the real thing.

Oldies But . . .

Although hardly new, two recent Infocom offerings deserve attention. *Border Zone*, an Iron Curtain espionage story, puts you in the role of not one, but three major characters. This multiple point of view makes it the most sophisticated interactive fiction to date, and it suggests a fascinating future for the genre. The game's online hints are highly welcome.

Another departure from the norm is *Nord and Bert Couldn't Make Head or Tail of It*, which is Infocom's first short-story collection. Unlike most Infocom stories, the interface demands an ability to play with words rather than a knack for logical progression

from one place to the next. Cliché, puns, and other kinds of wordplay make this game truly intriguing and educational. Actually, most interactive fiction depends on learning the designer's word systems, but *Nord and Bert* elevates the process to a new level.

Finally, an oldie. Since the 64 is an old machine by computer standards, an occasional look to the past is more than justifiable. This is true especially since the 64 was unquestionably the best game machine for a few years, and many good games were designed for it.

This month I'd like to re-call Electronic Arts' *Ultimate Wizard*, primarily because my children play it at least two hours every single day. A jumping game along the lines of *Donkey Kong*, *Hard Hat Mack*, *Lode Runner*, and *Jumpman*, *Ultimate Wizard* uses graphics and sound extremely well. Add to these some very attainable goals and a commendable lack of violence, and you have a favorite for anyone over the age of 6. By now, the game is available by mail-order for next to nothing; if you're in the market, consider it.

— Neil Randall

APPLE II

Broderbund, which only recently released *Showoff*, its Apple IIgs-specific desktop presentations package, has temporarily withdrawn the program from the market.

According to Jenay Cottrell, public relations manager at Broderbund, *Showoff* was

shipped with incomplete documentation. Specifically, information on how to format a presentation disk (what the program calls a *show* disk) was missing, as were details on using the package on a IIgs with a single 3½-inch drive.

Although copies had been released to the computer press, and sneak copies had made their way to dealers, Cottrell said that very few copies of *Showoff* made their way into users' hands. Broderbund is planning to re-release the program in mid-July.

In informal testing at the COMPUTE! office, however, we experienced problems seemingly unrelated to incomplete documentation. Art imported from *Deluxe Paint II*, for instance, went through an unexpected color transformation. Another problem was discovered when creating backgrounds, called *templates*; they should've automatically repeated from frame to frame, but did not.

No More Fun

Most of us like to play a computer game now and then—maybe more now than then in some cases—and computer entertainment has always been a big part of any machine's software repertoire. But if Apple has its way, that won't be true of the Apple IIgs.

Its recent reorganization has made it plain that Apple thinks little of computer entertainment. Home computing areas of interest have been shunted to business (home office) and education (home learning) divisions within the company. There has been no mention of home fun or of any home-based activity that doesn't fall into the categories of working or learning at home.

Developers putting together entertainment products for the IIgs aren't getting much help from Apple, either. Cinemaware, which just released its *Defender of the Crown* in a IIgs form, and which has five more IIgs games planned for 1988, had to delay *Defender* because of problems with Apple. Apple first provided,

then withdrew sound tools, leaving Cinemaware in the lurch. The company was forced to create its own sound-creation tools to recode the music and sound effects in the game, delaying it several months, according to Cinemaware.

AppleFest Boston

The Eastern installment of AppleFest, the rejuvenated Apple II user show, was held in the almost-finished Hynes Convention Center May 20–22 in Boston, Massachusetts. Amid the plaster dust and jackhammer sounds of construction, more than 21,000 people packed the aisles and browsed the displays of Apple II-specific hardware manufacturers and software publishers.

With more floor space and more exhibitors than last year's opening AppleFest in San Francisco, the Boston version was yet another indication of the continued interest in the Apple II, especially the Apple IIgs. Though Apple reportedly pressed Cambridge Marketing, the show management, into including more Macintosh products on the floor and more Macintosh material on the many panels, the people there were clearly rooting for the Apple II.

Highlights of AppleFest Boston follow.

AppleLink. Apple's own big news was the introduction of AppleLink—Personal Edition, the Apple-sponsored telecommunications service available on QuantumLink of Virginia (see the August issue of *COMPUTE!* for AppleLink details). Planned for startup June 1 (the already-printed monthly guide to AppleLink had events scheduled from that date), the service seemed to have little chance of meeting the deadline. Apple spokespersons were only saying *summer* when asked for a debut date.

No-Show. Even though a new Apple II computer had long ago been rumored for rollout, perhaps at AppleFest, no new machine showed up. The expected CPU, a heavily modified Apple IIc with more memory, a faster processor,

and an internal 3½-inch drive, would have made an excellent companion to the more expensive and expandable IIgs.

IIgs Everywhere. If AppleFest in San Francisco last September showed the IIgs wave forming, Boston made it plain that the machine is the Apple of choice among developers (and users who have deep pockets). With the exception of several desktop publishing programs, the most exciting Apple II software is being written for the IIgs. Ditto for the hardware that drew crowds of users—a perfect example is Applied Engineering's Audio Animator, a MIDI-equipped board that includes software which records a MIDI instrument, edits the melodies, then plays them back.

GSWorks on the Screen. *GSWorks*, a six-application integrated package for the IIgs, was up and running in demonstration form at AppleFest. Still scheduled for an August 1 release, the program packed the curious around the large StyleWare booth. The package looked good, at least in demonstration, and it undoubtedly will be one of the most anticipated (and hyped) Apple II programs this year.

More GEOS. Berkeley Softworks, makers of *GEOS*, the graphics operating system now available for the Apple II, showed prerelease versions of three new *GEOS* applications, *geoPublish* (desktop publishing), *geoCalc* (spreadsheet), and *geoFile* (database). Not actually new, since all three have working versions under Berkeley's Commodore 64 *GEOS*, they're scheduled for staggered release throughout this year—*geoPublish* is closest to completion, with *geoCalc* and *geoFile* further behind. All are worthy of attention, especially from anyone who has a 128K Apple IIe or IIc and wants to make use of a full-featured Macintosh-like interface and integrated applications.

CD-ROM in the Glass Case. You had to look hard for it. They weren't making a big deal of it. But in a glass case—so you couldn't touch it, much less plug it into a computer—in the First Class Peripherals booth (makers of the Sider se-

Lycy Computer

Marketing & Consultants

Since 1981

star
MICRONICS

NX1000



**w/cable purchase*

\$165⁹⁵*

- 144 Cps Draft
- 36 Cps NLQ
- EZ Soft Touch Selection
- Paper Parking
- Epson Std. & IBM Proprinter II Compatible

star
MICRONICS

NX15



\$289⁹⁵

- Auto Paper Feed
- Tractor Feed Std.
- Draft & NLQ Modes
- Expandable 4K Buffer
- Versatile Wide Carriage

star
MICRONICS

NB24-10



\$399⁹⁵

- Impeccable Letter Quality for Business
- 216 Cps Draft
- 72 Cps Letter Quality
- Tractor Feed Std.
- Auto Paper Feed Feature
- 8K Buffer

Look
for
Lycy
Bucks!

NX-1000	\$165.95*
NX-1000C	\$169.95
NX-1000 Color	\$225.95
NX-1000C Color	\$229.95
NX-15	\$289.95
NR-10	\$319.95
NR-15	\$419.95

star
MICRONICS

NB-15 24 Pin	\$689.95
NX-2400	\$309.95
NB24-10 24 Pin	\$399.95
NB24-15 24 Pin	\$545.95
Laser 8	\$1759.95
ND-15	\$349.95
NL-10	\$149.95

**w/cable purchase*

Play
Lycy
Bucks
and
SAVE!

**1080i
Model II**

Panasonic
Office Automation OA



\$159⁹⁵

- 150 Cps Draft
- Friction & Tractor Feed Std.
- Bidirectional & Logic Seeking
- NLQ in all Pitches

1595

Panasonic
Office Automation OA



\$419⁹⁵

- 240 Cps Draft
- 51 Cps NLQ
- Auto Paper Loading
- 136 Column for Multi-use Flexibility

KXP4450 Laser Partner



\$1649⁹⁵

- Incredible 11 Pages per Minute
- 2 Lettersize Cassettes Std.
- 300 dpi Resolution
- 5 Printer Emulation Modes
- 512K RAM Std.
- 5000 Page per Month Duty Cycle

Play
Lycy
Bucks
and
SAVE!

1080i Model II	\$159.95
1091i Model II	\$189.95
1092i	\$309.95
1592	\$375.95
1595	\$419.95

Panasonic
Office Automation OA

3131	\$289.95
3151	\$459.95
KXP 4450 Laser	\$1649.95
1524 24 Pin	\$559.95
Fax Partner	\$579.95
Optical Scanner	\$659.95

Look
for
Lycy
Bucks!

1-800-233-8760

Important Answers to Important Questions About Lyco Computer!

Why shop at Lyco Computer?

Lyco Computer is one of, if not the largest, oldest, and most established firms to provide only quality name brand computer products to the general public at prices 30% to 50% lower than retail. We've set many industry standards, and we are setting the pace for many more in the future. Our standards include: a separate department for customer service; a price guarantee; guaranteed factory fresh merchandise; diverse payment and shipping policies, including a C.O.D. policy which allows customers to have products in their hands before paying anything. Selection places Lyco at the forefront of the industry. Due to our in-stock volume, we cannot advertise all of our products. Enjoy one-stop shopping for national products by calling our marketing staff for products and low prices.



How do I know I will get the product I need?

Our marketing staff is well educated in the computer industry. They receive continuous formal training by our manufacturers which enables them to develop and maintain a high degree of expertise on the products they represent. Though our strict guarantee on providing only new merchandise prohibits free trial periods and a guarantee on compatibility, a wealth of knowledge is available to our customers to help with the purchasing decision. As thousands of people every week capitalize on our savings and services, we hope you too, will make Lyco Computer your first choice.



What about warranty or service?

At Lyco Computer we decided several years ago that a customer service department was needed in the industry. Unfortunately, few of our competitors offer this service. Our product line enjoys "name brand recognition." We back all of our manufacturer's warranties in accordance with the manufacturer's stated warranty terms. These warranty terms are normally outlined in each owner's manual or explained at a retail store near you. Our customer service department is available to provide assistance in all warranty matters. Many manufacturers will allow defective products to be exchanged. Before you return any item that appears to be defective, we ask that you call our customer service department. They will assist you in determining if the product is defective, and then will give you a special authorization number and speed processing of your order.

Will you rush an item to me?

Since 1981, we have set the standard in the industry by processing orders within 24 hours — not 4 to 6 weeks. We offer next day air, two day air, standard UPS, and postal international shipping services. With a multi-million dollar inventory and the utilization of an IBM mainframe for processing, our records show we fill 95% of our orders daily. Temporary shortages are normally filled within 10 days. Our experience indicates most of our customers will wait the ten days in order to receive the benefit of our price savings and products. If an order cannot be

filled within 60 days, money is refunded in full in the hope that the customer will reorder when the product is available. Any time prior to shipment, customers may cancel or change the out of stock product by simply contacting our customer service department.



How do I order?

Simply send your order to Lyco Computer, P.O. Box 5088, Jersey Shore, PA 17740. Or, call either 1-800-233-8760 or 717-494-1030. We provide four payment methods. We have always accepted C.O.D. orders through UPS. Prepaid orders over \$50 are shipped freight free. For orders under \$50, please add \$3 for freight. Orders prepaid by a certified check or money order payments, merchandise is shipped immediately. Personal and company checks require a 4 week waiting period prior to shipping. Visa and Master Card orders are accepted for your convenience, but we cannot pass along the 4% discount offered for cash. Purchase orders are accepted from Educational Institutions. We only charge sales tax on items delivered in Pennsylvania. For APO, FPO, and international orders, please add \$5 plus 3% for priority mail. Advertised prices and availability are subject to change.



Turn the page for more great buys!

Look for Lyco Bucks!

Lycó Computer

Marketing & Consultants

Since 1981

Prices special for this issue only!

The Novice Friendly **HEADSTART™** by VENDEX*

888-XT SYSTEM

\$814¹⁰ Mono Version

\$989¹⁰ Color Version

A fully IBM® compatible system perfect for the computer novice.



Mono and color options:

- Plug in and use immediately.
- Exclusive HeadStart™ training diskette assures efficient and productive use by both novice and experienced computer operator.
- Complete with a clock calendar and built-in ports for printer, RS 232, two joysticks, mouse, and light pen.
- Ultra fast 8 MHz Intel 8088-2 Processor.
- 512K RAM memory expands to 768K.
- Seven IBM slots and a hefty 135 watt power supply accommodates expansion.
- Two standard 360K disc drives.
- Free one year limited warranty, with optional low-cost extended coverage.

Color version extras:

- ATI Skill Builder
- Executive Filer™
- Executive Writer™
- Hot Pop-Up™ Services
- M, CALC™

Plus over \$1,000 in bonuses and discounts for accessories and software.

Celebrate

COMPUTE's Anniversary with Lycó!

10th

10th

Commodore Anniversary Package

\$725^{10*}

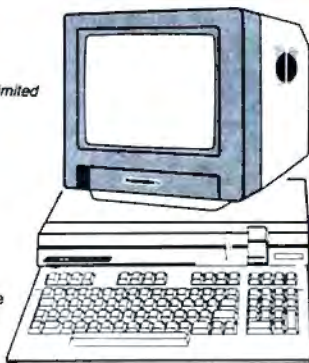
*Quantities Limited

COMMODORE 128 D System

- 128K Std.
- 3 Mode Operation 1 - 64: Runs 64 software
- 2 - C128: Faster, more mercury for increased productivity
- 3 - CPM: Uses standard cpm titles



Turn the page for more great buys!



THOMSON 4120

- 13" RGB/Video Composite/Analog
- 640 & 200 Resolution
- Green Text Switch
- Compatible with IBM, Apple, Atari, and Commodore
- RGB Cable Included

SEIKOSHA Sp180VC

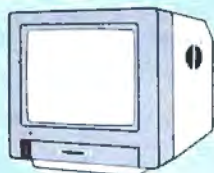


- 100 Cps Draft
- 24 Cps NLQ
- Std. Friction & Tractor Feeds
- Direct Connect Cable to Commodore C128 or 64C

1-800-233-8760

THOMSON 4120

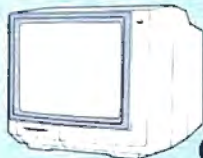
\$199⁹⁵



- 13" RGB/Video Composite/Analog
- 640 & 200 Resolution
- Green Text Switch
- Compatible with IBM, Apple, Atari, & Commodore
- RGB Cable Included

THOMSON 230A

\$69⁹⁵



- 12" Amber TTL
- IBM MDA, Hercules Compatible
- TTL Data Cable Included



Attention Educational Institutions:

If you are not currently using our educational service program, please call our representatives for details.

MONITORS

MODEMS

Thomson:

230 Amber TTL/12"	\$69.95*
4120 CGA	\$199.95
GB 100	\$119.95*
GB 200 Super Card	\$169.95*

**Quantities Limited*

Blue Chip:

BCM 12" Green TTL	\$64.95
BCM 12" Amber TTL	\$69.95

Magnavox:

BM7652	\$79.95
BM7622	\$79.95
7BM-613	\$79.95
7BM-623	\$79.95

CM8502	\$179.95
CM8505	\$199.95
9CM-053	\$339.95
CM8762	\$239.95
8CM-515	\$259.95
CM9043	\$CALL
8CM-873	\$499.95

Avatex:

1200e	\$65.95
1200i PC Card	\$65.95
1200p	\$89.95
1200hc Modem	\$79.95*
2400	\$149.95
2400i PC Card	\$139.95

**w/cable purchase*

Hayes:

Smartmodem 300	\$139.95
Smartmodem 1200	\$279.95
Smartmodem 2400	\$419.95

NEC

Multisync II	\$589.95
--------------------	----------

PRINTERS

Okidata

Okimate 20	\$129.95
Okimate 20 w/cart	\$189.95
120	\$189.95
180	\$219.95
182	\$209.95
182+	\$225.95
183	\$239.95
192+	\$339.95
193+	\$439.95
292 w/interface	\$449.95
293 w/interface	\$585.95
294 w/interface	\$799.95

393	\$955.95
Laser 6	\$CALL
390	\$479.95
391	\$649.95
320	\$345.95
321	\$445.95

Toshiba

321SL	\$489.95
341 SL	\$659.95
P351 Model II	\$899.95
351 SX 400 cps	\$979.95

Epson

LX800	\$184.95
FX850	\$339.95
FX1050	\$424.95
EX800	\$434.95
LQ500	\$339.95
LQ2500	\$789.95
GQ3500	SLOW
LQ850	\$525.95
LQ1050	\$699.95

Brother

M1109	\$159.95
M1509	\$335.95
M1709	\$459.95
Twinwriter 6 Dot & Daisy	\$899.95
M1724L	\$619.95
HR20	\$345.95
HR40	\$559.95
HR60	\$649.95

Citizen

120 D	\$144.95
180 D	\$159.95
MSP-40	\$279.95
MSP-15E	\$309.95
MSP-50	\$369.95
MSP-45	\$399.95
MSP-55	\$469.95
Premiere 35	\$445.95
Tribute 224	\$539.95
Tribute 124	\$439.95

SEIKOSHA

Sp180Ai



- 100 Cps Draft
- 24 Cps NLO
- Tractor & Friction Feed
- Epson FX & IBM Graphic Compatible

\$125⁹⁵*

**quantities limited*

SEIKOSHA

Sp1000Ap



- Apple IIc/Macintosh Compatible
- 100 Cps Draft
- 20 Cps NLO
- Auto Paper Loading
- Tractor & Friction Feed Std.

\$159⁹⁵

SEIKOSHA

SK3000Ai



- 300 Cps Draft
- 50 Cps NLO
- Quiet 55 dba
- 7 Colors
- Rear & Bottom Paperpaths

\$349⁹⁵

SEIKOSHA

SP 180Ai	\$125.95*	SL 80Ai	\$289.95
SP 180VC	\$125.95*	MP5420FA	\$999.95
SP 1000VC	\$139.95	SP Series Ribbon	\$7.95
SP 1000AP	\$159.95	SK3000 Ai	\$349.95
SP 1200VC	\$149.95	SK3005 Ai	\$419.95
SP 1200Ai	\$159.95	SPB 10	\$CALL
SP 1200AS RS232	\$159.95	SL 130Ai	\$599.95

Price Guarantee

Since 1981, we have led the industry by continuing to offer the lowest national prices while providing quality service. Many companies have come and gone trying to imitate our quality and service. If by some oversight we do not have the lowest prices advertised on the products you desire, then we would appreciate the opportunity to rectify this oversight.



Turn the page for more great buys!

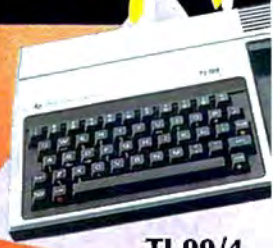


'72-'78

PET
Apple II
Heath H-8
TRS-80 Model 1

Hardware

'79



TI-99/4

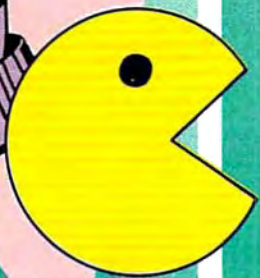


Atari 400/800



Sargon

Pong
BASIC



Pac-Man

VisiCalc
WordPerfect
dBase
Space Invaders

Software

Creative Computing
Byte
Dr. Dobb's Journal
Kilobaud
Personal Computing

Popular Computing
(formerly known as *OnComp*)

Publications

COMPUTE!

COMPUTER
The Journal for Progressive Computing



100 MILESTONES IN

'80

VIC-20
Apple III
TRS-80 Color Computer



'81

IBM PC
Osborne 1



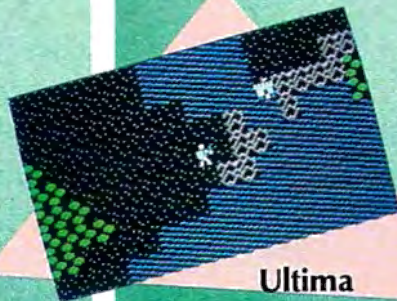
Timex Sinclair 1000

'82

Commodore 64



Zork
MS-DOS



Ultima



Pinball Construction

PC-Talk
Norton Utilities

Computer Shopper
80 Micro
Softalk

Commodore Magazine
InfoWorld
(Intelligent Machines Journal)

Antic
Computers and Electronics
Home Office Computing
(began as Family Computing)

ing)

E.



COMPUTER HISTORY

'83

Apple IIe
 Apple Lisa
 IBM PCjr
 Coleco Adam
 Tandy Model 100
 COMPAQ portable



Flight Simulator

Microsoft Word
 Lotus 1-2-3
 PC-Write
 WordStar
 Turbo Pascal

'84

Apple IIc
 Data General/One
 IBM PC AT
 Apple Macintosh
 Tandy 1000



The Print Shop

SpeedScript
 Microsoft
 Windows
 SideKick
 MacWrite
 MacPaint
 AppleWorks

'85

Apple LaserWriter
 Amiga 1000
 CD-ROM
 Commodore 128
 Atari ST

Excel
 SuperKey
 ThinkTank
 PageMaker

Balance of Power



PC Magazine
 InCider
 PC World
 A+



COMPUTE!'s Gazette

Run
 MacWorld
 Macintosh
 Buyer's
 Guide

COMPUTE!'s
 PC and PCjr



COMPUTE!'s
 Apple
 SPECIAL APPLICATIONS

COMPUTE!'s Apple Applications

AmigaWorld
 MacUser



'86

Apple IIgs

'87

COMPAQ
386-20
Macintosh II

'88

IBM PS/2



GEOS
Microsoft Works

HyperCard

Deluxe Paint II



Start
Publish!

COMPUTE!'s
PC Magazine

COMPUTE!'s Atari
ST Disk and Magazine



COMPUTE!
Celebrating Our
10TH YEAR

L Lyco Computer

Marketing & Consultants

Since 1981

Air Orders Processed Within 24 Hours

LASER 128

Apple IIc-IIe
Compatible

- Built-in 128K Ram
- Built-in 5 1/4 Drive
- Built-in Parallel Port
- Built-in Mouse/ Joystick Port
- Hi Res. Graphics



ONLY **\$359⁹⁵**

Seikosha SP 1000 AP \$169.95
With Laser Purchase

LASER COMPACT XT

ONLY **\$469⁹⁵**



- IBM PC-XT Compatible
- 4.77 - 8.00 Mhz Super Turbo Clock Speed
- Built-in 5 1/4 Drive
- Built-in RGB Video Output
- Parallel Printer Port
- Serial RS232
- Joystick/Game Port

LASER Desktop PC

\$569⁹⁵

- Dual Speed 4.77-8 Mhz
- 256K Std.
- Built-in ColorCard
- 8 Expansion Slots
- Can Expand to 2 Floppy + 2 Hard Drives!



- Green, Amber & Color Monitors Available

COMMODORE COLT PC



- IBM PC Compatible
- 640K Std.
- Two 5 1/4 Drives Std.
- Expansion for Hard Drive
- Turbo Processor
- MSDOS + GW Basic Included

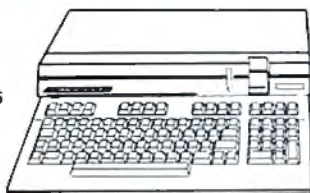
\$689⁹⁵

- Serial + Parallel Ports
- Mono/RGB Color Card Included

COMMODORE 128 D System

\$439⁹⁵

Commodore 128D Plus
Thomson 4120 Monitor
.....\$649.95



NEW! Seagate ST135R 30 Meg Internally Mounted Card

- Premounted on its own Controller Card
 - EZ Slot Installation (app. 10 min.)
- \$335⁹⁵**

20-30-49 meg drives available!

520 ST-FM Monochrome System

\$599^{95*}

*Quantities Limited



Call for more Hardware information.

PC COMPATIBLE HARDWARE

Laser Compact XTE 640K	\$549.95
Laser Desktop Turbo XT 640K ..	\$599.95
Blue Chip Popular	\$549.95
Vendex Headstart Color	\$989.95
Vendex Headstart Mono	SCALL
Vendex Headstart 888 LTD Color	\$1599.95
Sharp PC 4501	\$679.95
Sharp PC 4502	\$1239.95
Zucker CGA ColorCard	\$89.95
BCC CG ColorCard	\$94.99
Laser EGA + 4 Card	\$129.95
ATI Graphics Solution	\$129.95
ATI EGA Wonder	199.95
ATI VIP	\$299.95
Kraft PC Joystick Card	\$27.95

Seagate HARDWARE

5.25" Half Heights	
ST225 20 meg 65msec MFM ..	\$215.95
ST225N 20 meg SCSI	\$289.95
ST238R 30 meg RLL	\$229.95
ST251 40 meg 40 msec MFM ..	\$345.95
ST251-1 40 meg 28 msec MFM ..	\$429.95
ST277R 65 meg 40 msec RLL ..	\$389.95
3.5"	
ST125 20 meg 40 msec MFM ..	\$235.95
ST125N 20 meg SCSI	\$299.95
ST138R 30 meg RLL	\$249.95
ST138N 30 meg SCSI	\$329.95
ST157R 49 meg RLL	\$399.95
ST157N 48 meg SCSI	\$439.95

Seagate Internal Cards	
ST125 20 meg Internal Card ...	\$299.95
ST157R 49 meg Internal Card ..	\$485.95

Controllers	
MFM Controller (XT)	\$55.95
RLL Controller (XT)	\$64.95

Call for kit pricing and specials.

Ask about our

Seagate Paired Solutions!

COMMODORE HARDWARE

64C Computer	\$159.95
C128D Computer/Drive	\$439.95
1541 II Disk Drive	\$175.95
1581 Disk Drive	\$189.95
Excel 2001 C128 Drive	\$199.95
Excel FSD-2 + C64 Drive	\$149.95
1802C Monitor	\$189.95
1084 Monitor	\$299.95
C1351 Mouse	\$39.95
1764 RAM C64	\$117.95

LASER 128

Compatible with Apple Software:	
Laser 128 EX	\$429.95
Laser External 5 1/4 Drive	\$119.95
Laser External 3 1/2 800K Drive ..	\$199.95
Two Slot Expansion Box	\$44.95
Laser 128/EX Mouse	\$55.95



Turn the page for more great buys!

1-800-233-8760

Access:

Wld. Cl. Leader Board ..	\$9.99
10th Frame	\$27.95

Activision:

Beyond Zork	\$27.95
Lurking Horror	\$22.95
Might & Magic	\$28.95

Broderbund:

Ancient Art of War	\$26.95
Print Shop	\$34.95
Carmen San Diego	\$26.95

Electronic Arts:

Yeager's AFT	\$26.95
Weaver Baseball	\$25.95
Bard's Tale	\$32.95



\$27.95

Epyx:

California Games	\$22.95
L.A. Crackdown	\$28.95
Home Video Producer ..	\$28.95
Print Magic	\$33.95

Firebird:

Universal Military Simulator	\$28.95
Starglider	\$17.95

Microleague:

Microleag. Baseball	\$22.95
GM Disk	\$16.95

Microprose:

Gunship	\$27.95
Pirates	\$22.95

Mindscape:

Super Star Ice Hockey ..	\$22.95
Willow	\$22.95

Origin:

Ultima IV	\$34.95
Moebius	\$34.95

Strategic Simulations:

Phantasia III	\$26.95
Questron II	\$29.95

Sublogic:

Flight Simulator	\$34.95
Jet	\$30.95

Timeworks:

Wordwriter PC	\$27.95
PC Quintet	\$55.95

Unison World:

Newsmaster II	\$39.95
Print Master	\$29.95

Access:

Leader Board	\$22.95
10th Frame	\$22.95

Activision:

Music Studio	\$27.95
--------------------	---------

Broderbund:

Superbike Challenge ..	\$11.95
------------------------	---------

Electronic Arts:

Alien Fires	\$25.95
Hunt for Red October ..	\$32.95

Epyx:

Dive Bomber	\$22.95
Impossible Mission 2 ..	\$22.95

Firebird:

Universal Military Simulator ..	\$28.95
Carrier Command	\$25.95

Microleague:

Microleague Baseball ..	\$33.95
Micro. Wrestling	\$25.95

Microprose:

F-15 Strike Eagle	\$24.95
Gunship	\$28.95

Mindscape:

Balance of Power	\$28.95
Harrier Combat Simulator ..	\$28.95

Origin:

Autoduel	\$29.95
Ultima IV	\$34.95

Strategic Simulations:

Questron II	\$32.95
Stellar Crusade	\$35.95

Sublogic:

Flight Simulator II	\$30.95
Scenery Disks	\$CALL

Timeworks:

Wordwriter ST	\$44.95
Partner ST	\$27.95

Unison World:

Art Gallery 1, 2 or 3 ..	\$14.95
Print Master	\$19.95

Access:

Triple Pack	\$11.95
Leader Board Double Pack	\$9.99

Activision:

Music Studio	\$19.95
Great American Road Race	\$9.99

Batteries Included:

Paperclip	\$31.95
-----------------	---------

Broderbund:

Print Shop	\$26.95
Graphic Lib. I, II, III ..	\$14.95

Electronic Arts:

Pinball Con. Set	\$8.95
Mail Order Monsters	\$8.95

Microleague:

Microleague Baseball ..	\$22.95
GM Disk	\$16.95

Microprose:

F-15 Strike Eagle	\$19.95
Silent Service	\$19.95

Mindscape:

Gauntlet	\$20.95
Infiltrator	\$17.95

Origin:

Autoduel	\$28.95
Ultima IV	\$34.95

Strategic Simulations:

Phantasia III	\$26.95
Eternal Dagger	\$26.95

Sublogic:

Flight Simulator II	\$30.95
Scenery Disks	\$CALL



\$26.95

Access:

World Class Leader Board	\$23.95
Echelon	\$25.95

Activision:

Might & Magic	\$28.95
Maniac Mansion	\$19.95

Broderbund:

Print Shop	\$29.95
Carmen S. Diego (USA) ..	\$26.95

Electronic Arts:

Yeagers AFT	\$26.95
Bard's Tale III	\$32.95

Epyx:

St. Sports Basketball ..	\$22.95
Print Magic	\$33.95

Firebird:

Starglider	\$13.95
Guild of Thieves	\$25.95

Microleague:

Microleag. Baseball	\$22.95
Stat Disk	\$11.95

Microprose:

F-15 Strike Eagle	\$19.95
Pirates	\$22.95

Mindscape:

Indoor Sports	\$17.95
Paperboy	\$22.95

Origin:

Autoduel	\$29.95
Ultima V	\$34.95

Strategic Simulations:

Phantasia	\$26.95
Questron II	\$29.95

Sublogic:

Flight Simulator II	\$30.95
Jet Simulator	\$24.95

Timeworks:

Publish It	\$56.95
Font Pack 1	\$22.95

Unison World:

Art Gallery 1, 2 or 3 ..	\$14.95
Print Master	\$25.95

Berkeley Softworks:

Geofile C64	\$29.95
Geocalc C64	\$29.95
Geos 64	\$35.95

Broderbund:

Bank St. Writer	\$29.95
Print Shop	\$26.95

Electronic Arts:

Demon Stalkers	\$19.95
Dragon's Lair	\$16.95
Skate or Die	\$19.95

Epyx:

Fastload	\$22.95
California Games	\$22.95
Impossible Mission 2 ..	\$22.95
4x4 Off Road Racing ..	\$22.95



\$22.95

Firebird:

Elite	\$9.95
Guild of Thieves	\$25.95

Microleague:

Microleag. Baseball	\$22.95
Microleag. Wrestling ..	\$16.95

Microprose:

Airborne Ranger	\$19.95
Gunship	\$19.95
Pirates	\$22.95

Mindscape:

Infiltration	\$17.95
Gauntlet	\$19.95

Origin:

Autoduel	\$29.95
Ultima IV	\$34.95

Software Simulations:

Pure Stat Baseball	\$22.95
--------------------------	---------

Strategic Simulations:

Gettysburg	\$38.95
Phantasia III	\$26.95

Sublogic:

Flight Simulator II	\$30.95
Jet Simulator	\$30.95
Scenery Disks	\$CALL

Timeworks:

Partner C64	\$22.95
Swift Calc 128	\$28.95

Unison World:

Art Gallery 1, 2 or 3 ..	\$14.95
--------------------------	---------

AMIGA

Access:

World Class Lead. Bd. ..	\$25.95
--------------------------	---------

Activision:

Fairy Tale Adventure ..	\$28.95
Ebon Star	\$22.95

Electronic Arts:

Weaver Baseball	\$33.95
Ferrari Formula One ..	\$33.95

Epyx:

World Games	\$22.95
Destroyer	\$22.95

Firebird:

Guild of Thieves	\$25.95
Starglider	\$13.95

Microprose:

Silent Service	\$22.95
----------------------	---------

Mindscape:

Balance of Power	\$28.95
Harrier Combat Simulator ..	\$28.95

Origin:

Autoduel	\$29.95
Ogre	\$17.95

Strategic Simulations:

Gettysburg	\$38.95
Phantasia III	\$26.95

Sublogic:

Flight Simulator II	\$30.95
Jet	\$30.95

Unison World:

Print Master	\$25.95
Fonts & Borders	\$17.95

COMMODORE

Batteries Included:

Paperclip III	\$31.95
Paperclip Publisher	\$31.95

Access:

Echelon	\$25.95
Mach 128	\$28.95
Wld. Cl. Leader Bnd. ...	\$22.95
Famous Courses 1, 2, or 3	\$11.95

Action Soft:

Up Periscope	\$18.95
Thunderchopper	\$18.95

Activision:

Music Studio	\$18.95
Last Ninja	\$19.95

Diskettes

3.5

Maxell:

SSDD	\$11.50
DSDD	\$17.95

Bonus:

SSDD	\$10.95
DSDD	\$13.95

Verbatim:

SSDD	\$12.95
DSDD	\$18.95

SKC:

SSDD	\$9.95
DSDD	\$13.99

5-1/4

Diak Notcher

Diak Notcher	\$5.95
--------------------	--------

Maxell:

SSDD	\$7.95
DSDD	\$8.95

Bonus:

SSDD	\$5.95
DSDD	\$6.95

SKC:

DSDD	\$6.95
DSHD	\$13.95
Generic DSDD	\$4.95

Verbatim:

SSDD	\$8.99
DSDD	\$11.50

Tac 3	\$9.95
Tac 2	\$10.95
Tac 5	\$12.95
Tac 1 + IBM/AP	\$26.95
Silk Stick	\$8.95
Black Max	\$10.95
Boss	\$11.99
3-Way	\$19.99
Bathandle	\$16.75

Winner 909	\$24.95
Wico IBM/AP	\$28.95
Lipstick Plus	\$14.95
Kraft KC III Ap/PC	\$16.95
Kraft PC Joystick Card ..	\$27.95
Kraft Maze Master	\$8.95
I Controller	\$13.95
Epyx 500 XJ	\$13.95

COMPUTE! *specific*

ries of Apple II hard disk drives), you could find a CD-ROM drive for the Apple II and Macintosh lines. When would it be available? Shrugs all around. Who makes the drive? More shrugs. How much would it cost? Around \$800, \$900—somewhere in there. Talk about laid-back marketing.

Timeout Times Four. Beagle Bros. made a splash at last year's AppleFest when they released their Timeout series of *AppleWorks* add-ins. Ranging from small utilities to full-fledged applications, all Timeout programs can be run directly from *AppleWorks*. Four new additions to the line were introduced at AppleFest Boston: *Thesaurus*, *Desktools II*, *Macrotools*, and *Powerpack*. With the exception of *Macrotools*, (\$25.00), the new packages cost \$49.95 each.

Soviet Software. *Tetris*, a game that's gotten a lot of press because it was developed in the Soviet Union, is being readied for the Apple II and IIGs by Spectrum HoloByte. *Tetris* is deceptively simple: Colored blocks of various shapes drop from the top of the screen as you rotate and move them into position at the bottom. Large groups of people had to stare over shoulders to watch Spectrum HoloByte personnel hog the game—it's that addicting.

Fast, Fast Relief

The most exciting thing on the Apple II hardware horizon is the appearance of speed-up chips and boards. Apple II technology is over ten years old now, and in many ways it's showing its age.

Much of this aging problem is centered around speed, or the lack of it. The recent surge in graphics-intensive software—desktop publishing programs in particular—has pointed out the slowness of the Apple II's 65C02 microprocessor. The processor is just not fast enough to handle the full-screen graphics necessary in such software as *Springboard Publisher*, *Publish It!*, and *GEOS*.

The Zip Chip, a micro-

processor replacement for the Apple IIe, seemed to be coming to the rescue last September. The Zip Chip (\$129) was touted as being up to four times faster than the 6502. Horrendous shipping delays (caused by manufacturing problems and a huge demand for the chip, according to Zip Technology) made a lot of people skeptical. *COMPUTE!* magazine still has not received a chip for evaluation, for instance, although one was promised for arrival last January by the company's CEO.

The Zip Chip was at AppleFest Boston in late May, again showing how fast it makes 8-bit programs like *AppleWorks*. Several of the Apple IIe computers at the Berkeley Softworks booth were Zip Chip equipped; the speed-up of their *geoPublish*, *geoCalc*, and *geoFile* programs was noticeable and welcomed.

Another promised chip replacement made an appearance at AppleFest—the Rocket Chip from Bits and Pieces Technology. The prototype chip shown at AppleFest seemed similar to the Zip in both look and result. The Rocket Chip sped up the machine and the software running on it by as much as five times the normal speed, the company claimed. The chip can also be slowed sufficiently so that the gazelle-like computer can run programs that require slower speeds.

Without our having had a chance to evaluate either chip, however, recommendations certainly cannot be made. It would be prudent to wait until the desired chip is available in number before ordering—you shouldn't have to wait longer than a few weeks for *any* product you order by mail to arrive.

The Zip and Rocket chips take care of Apple IIe and IIc owners, but what of those with an Apple IIGs? The IIGs may be the fastest Apple II out of the box, but it's still too slow for many of the 16-bit applications either available or under development. Applied Engineering, known for its Transwarp acceleration boards (as well as for such hardware as PC Transport, the MS-DOS computer on a card), is in the midst of developing Trans-

warp GS. The prototype shown at AppleFest Boston will lead to a \$299 board either by the end of the summer or sometime in the fourth quarter of the year, depending on which Applied Engineering person you spoke with at the show. Whether it's available in August or December, the accelerator will reportedly double the speed of the IIGs, to about 6 megahertz.

In a completely subjective test on a Transwarp GS prototype-equipped IIGs, *Deluxe Paint II* operated noticeably faster. Such time-intensive tasks as painting with full-screen brushes were much faster on the prototype. In fact, the response was much closer to that of *Deluxe Paint II* running on a Commodore Amiga, a 68000-driven computer which also uses several graphics chips to take some of the processing load off the 68000.

—Gregg Keizer

AMIGA

Commodore recently announced that it has shipped over 600,000 Amigas worldwide in the two years since the machine's release, at the same time noting that the Amiga development community has written more than 1100 software programs for the graphics-intensive computer.

Max Toy, president and CEO of Commodore Business Machines, said, "We see the Amiga becoming a standard business computer as well as the graphics system for corporate communications departments, television studios, and video production houses."

While the Amiga is already a popular home computer, whether it can become a standard business computer remains to be seen (witness the difficulties Apple had in pushing its Macintosh into the business arena). The Amiga's hardware is up to the challenge, but there will have to be a lot more (and better) business software developed before the Amiga can compete in the business market.

Make a Video

Video software is the current rage among Amiga users. Television stations and animation studios are using the Amiga for dry runs of graphics and animations; artists are discovering Amiga digitizing, painting, and animation software; and home users are connecting Amigas to VCRs to make their own videos and movies.

The Director, from The Right Answers Group, is a display-and-animation programming language that makes it easier than ever to master the graphics of your Amiga.

The word *programming* may scare off some potential buyers. It shouldn't. If you know BASIC, you'll find yourself right at home with *The Director*—you'll be making *Director* scripts in minutes. If you've never programmed before, *The Director's* excellent manual will tutor you. The demos on the disk and the examples in the manual are very helpful; they show you how to program everything from a simple slide-show program to a full-blown animation with text, color cycling, sound, and more.

To write a *Director* script, you use a text editor to enter *Director* commands. The MicroEMACS editor supplied on your Amiga Extras disk works well. To run a script called *dog*, for instance, simply type *director dog*. *Director* creates a file called *dog.film*, then executes the script. After the *dog.film* file has been created, you can show your animation by typing *projector dog.film*. *Projector* is a program that can be freely redistributed—good news for budding animators who want to share videos with

their friends and the rest of the Amiga world.

The Director loads IFF images of any resolution, including HAM and overscan. Some of the features include fades, dissolves, blits (using the blitter to move rectangles with different effects), wipes, stencils, built-in drawing commands, and input commands.

If you have another animation program that produces ANIM files (the IFF standard for animation files), *The Director* can load and display them as well.

The Director (\$69.95) is available from The Right Answers Group, Box 3699, Torrance, California, 90510; (213) 325-1311.

Perfect

If the Amiga is going to be considered a business machine, it needs more heavy-hitting software companies to develop software. WordPerfect was the first (and so far the only) large software company to support the Amiga.

WordPerfect released the Amiga version of *WordPerfect* almost a year ago. They were amply rewarded for their foresight. Supposedly, they recouped their investment almost overnight.

What's next for WordPerfect? First, the company has said that it will eventually upgrade the Amiga version of its word processor to incorporate the features of its IBM PC version, *WordPerfect 5.0*. When will that be? After the fiasco of *WordPerfect* for the Macintosh, which was delayed month after month, WordPerfect would rather not say. The semiofficial word is that it will be available in a year and a half. But that's probably a longer wait than the consumers (or WordPerfect itself) would put up with.

In the meantime, there's *WordPerfect Library*, a collection of desktop programs. Included are Notebook, which lets you organize information into an index file format that can be read by *WordPerfect*; a Calendar designed for to-do lists and memos; a versatile Calculator, which features

mathematical, financial, scientific, and programming functions; a File Manager to handle directories; and *WordPerfect's* Program Editor.

WordPerfect Library is available from WordPerfect, 1555 North Technology Way, Orem, Utah 84057; (801) 227-4096. The price is \$129.

Amiga Arcade

Sick of sticking quarters in arcade machines? A personal computer has several advantages over game machines, ranging from mass storage to versatile input devices (mouse, joystick, and keyboard).

As a result, computers can play games that just wouldn't work in an arcade setting. But for those times when most computer games seem too cerebral, you can always play one of the many arcade-like games available for your computer. On the Amiga, two new translations, *Aaargh!* and *Roadwars*, bring the arcade home.

Both programs are distributed by Electronic Arts, though they were created by Arcadia, a company that supposedly uses Amiga chips in its arcade machines. The excellent graphics and sound clearly show the arcade heritage of these games.

Aaargh! is a one-player game. The players choose between two monsters—a lizard and an ogre. The game is largely a smash-and-burn campaign done in the style of a Godzilla movie. The graphics and animation are colorful and attractive. *Aaargh!*'s stereo sound is nice, too. Your goal is to smash the local buildings of 12 different cities, eating the food you find (including hot dogs, hamburgers, tacos, and the residents of the cities). When you find a golden egg, you must battle another monster for it. These battles are real knock-down, drag-out fights.

Arcadia's other release is *Roadwars*, a one- or two-player game. If you play solitaire, you play against a competent (if rather dull) computer player. In *Roadwars*, you are one of two balls rolling down a track. While in the form of a ball, you are shielded, but

when you shoot, you lose your shields. After all the obstacles on the track have been shot down, you move onto another track. *Roadwars'* digitized graphics are especially nice—the objects in the game have been digitized from models. The result is a game that looks oddly realistic—halfway between normal computer graphics and television. Digitized sound effects complement the game.

Aaargh! and *Roadwars* (\$34.95 each) are available from Electronic Arts, 1820 Gateway Drive, San Mateo, California, 94404; (800) 245-4525.

— Rhett Anderson

MAC

Do you think *desktop publishing* is the catch phrase today? If you do, you're a little behind the times. The latest is *desktop presentations*.

When *PowerPoint* was released last year, it really defined the presentation-software category. This software allows the user to design slides and easily make coordinated speaker's notes and audience handouts. Microsoft saw the writing on the wall and bought the program. *PowerPoint 2.0* is on its way.

In the meantime, *Cricket Presents . . .* was finally released in May. I first saw the program demonstrated in May 1987 at the New York MacFair, and I was told release was imminent. Cricket's announcement of the release was met by an announcement from Manhattan Graphics that

Ready-Set-Show was on the way. With the corporate presentation pie being so large, there are enough slices to go around.

PowerPoint, *Cricket Presents . . .* and *Ready-Set-Show* are intended for static slides: You create them on the Mac, have them turned into slides—Microsoft and Cricket have deals with slide-production companies—and make your presumably corporate presentation.

Personally, I prefer dynamic presentations, using my Mac and a projector. If you have that setup—and there are a lot of hardware possibilities out there these days—you can use any of the presentation programs; you can also use *More*, or *HyperCard*, or *VideoWorks*, and make interactive or animated presentations.

Quick Notes

No online surcharge. The FCC's plan to impose a five-dollar-an-hour surcharge on connect time for online services has been dropped, thank goodness. If you use any of the electronic services, you know how fast the online charges rack up, even without a surcharge.

Gassée's stock. Jean-Louis Gassée sold more than 60,000 shares of Apple stock in February and March, netting about \$2.7 million. Gassée, Apple's senior vice president of research and development, isn't saying why. Maybe it's because he laid out just under half a million for those shares about six months before; even after the tax bite on the \$2.2 million profit, he's left with a hefty chunk of money. What's Gassée like? I don't know, but when I met him in San Francisco in January at an awards dinner, he was wearing a tux with a needlepoint cummerbund, kiddy-print sneakers, and a diamond in his ear.

No thanks for the memories. The memory-chip shortage is still driving prices up. Apple's two-megabyte upgrade was less than \$600 a few short months ago; now it's \$849.

Cray and Apple. When Apple purchased a Cray to

COMPUTE! *specific*

help in its research and development, the amusing thing to note was that Seymour Cray was using a Macintosh to doodle new designs for a new Cray. Now, Cray Research's CEO, John Rollwagen, has been added to Apple's board of directors. It's a nice marriage for companies that make, respectively, supercomputers and super computers.

Out of Court

We'll just ignore the Apple vs. Microsoft/Hewlett-Packard litigation this month. Maybe a quarterly report will be sufficient to keep us up-to-date on what's sure to be a long, drawn-out precourt battle.

Antiviral Rx

The original Mac Peace virus was generally benign, but the next one, popularly called *Scores*, has been nasty. A virus is a self-replicating, autorun program that can creep into your system or files if you use infected software.

Scores is rampant: The cross-country plague has invaded NASA, Electronic Data Systems in Dallas, and corporations in Washington, D.C. If you're into online systems, you can download one of the many antiviral programs, some of which were specifically designed for fighting *Scores*. Look for KillScores, Ferret, Vaccine, Interferon, or Virus Detective. Apple has even posted Virus Rx, an anti-viral program of its own.

Systematic Updates

As I write this, the release of System 6.0 is imminent, but already there's a list of features for the 7.0 version. Apple is finally using a single number for the System/Finder combination, so we don't have to worry about which System goes with which Finder. Let's hope the System and Finder version numbers are finally adjusted

so they'll match the System Tools number.

The 6.0 System set includes QuickerGraf, a QuickDraw speed enhancement by Andy Hertzfeld. He probably did it on a coffee break some afternoon, after someone put an idle question to him: "D'you think QuickDraw could be made to work faster?" Also included in 6.0 is a desk accessory, Macro Maker, which lets you record keystrokes and mouse movements.

There's a terrific option slated for the 7.0 version: IAC (InterApplication Communications). It will include a "smart" clipboard to let you paste between applications and leave a dynamic link between them. If the information in the source document changes, so will the pasted material.

MultiFinder is slated to become the default operating environment, although the Finder (UniFinder?) will remain an option. With memory chips so scarce and expensive, and with MultiFinder's appetite for RAM, the change might have to wait until the minimum RAM configuration that comes with the Mac can be increased cheaply and easily to two megabytes.

Finder's Keepers

Last month's column included some tips on using MultiFinder. This month brings Finder tips.

- To close all the windows on the DeskTop in one click, hold down the Option key while you click in any window's Close box.
- Returning to the DeskTop from an application takes time because the DeskTop is rebuilt, with windows and icons redrawn wherever you left them. To save time, you can keep everything closed. If you want to open a disk or a folder, you can fool the Finder: Hold down the Option key as you open windows on the DeskTop. The Finder won't remember that you opened those items, and it won't redraw them when you quit to the DeskTop.
- If you like your icons neatly

lined up in the windows, you can, of course, use the Clean-up command to align them according to the invisible grid in the window. But if you're moving things around inside a window, the alignment is quickly lost. If you drag an icon around while holding the Option key down, it snaps into place on the grid when you release it.

- When you drag an icon from one window to another (as in a folder-to-folder transfer), the item is moved from one place to the other. If you want to move a copy of the original, hold the Option key down while you drag the icon. The original is left in place, and a copy is put into the new spot. The copy has exactly the same name as the original; it does not appear as "Copy of. . . ."

Click Art

If you need bitmapped clip art, any one of *Dubl-Click's WetPaint* volumes is a safe bet. The art is consistently excellent. There are 16 volumes so far, sold in 2-volume sets for \$79.95. In addition to terrific clip art, *WetPaint* volumes include one of the best desk accessories around: Art Roundup. Its original version was great, but the new, 2.0 version boasts even more utility.

Basically, Art Roundup lets you open any *MacPaint*-format document and select part of it to copy to the Clipboard. It includes a pencil and eraser for touch-ups, and a selection rectangle and lasso. You can also flip, copy, rotate, or even scale the selection before it's placed on the Clipboard. Art Roundup opens only a copy of the graphics document, so the original stays intact no matter what you do. The new version even lets you set up a quick slide show so that you can thumb through a whole folder of art very quickly.

Dubl-Click (18201 Gresham Street, Northridge, California, 91325; 818-349-2758) also has a line of *ImageWriter* fonts, called *World Class Fonts*, whose quality matches that of *Wet Paint*.

— Sharon Zardetto Aker

ATARI ST

Forecasts of impending doom for the ST are exaggerated. In fact, several auxiliary hardware developers are showing confidence in the machine by releasing products that make the ST even more powerful and versatile.

The ST's doom-and-gloom forecasts stem not only from the poor availability of Mega STs, but from the rumor that Atari is going to crack down on mail-order houses by limiting the shipments of STs to them and giving preference to established dealers.

This strategy worked well for Apple, enabling Apple dealers (and Apple) to garner healthy profit margins. This technique probably won't work as well for Atari, however, for the simple reason that Apples are available in a wide variety of computer stores, but it's hard to find a store that stocks Atari computers.

Because of Atari's limited dealer network, a significant number of people buy STs from mail-order houses. If that supply dries up, then it's likely that people who can't get Atari STs from mail-order houses will simply buy something else—perhaps a PC clone. The prices of these computers are in the range of ST prices and PC software is plentiful.

Mouse Moving Over

Practical Solutions' Mouse Master (1930 East Grant Road, Tucson, Arizona 85716; 602-884-9612; \$39.95) conveniently solves the problem of

simultaneously connecting two joysticks and a mouse to an ST.

Without such a device you must constantly plug and unplug the mouse and joysticks. Not only is this plugging and unplugging inconvenient and hard on the cables, but it's downright difficult on the 1040 ST, with its hidden connectors.

Many games require you to plug a joystick into the mouse port. To start many of these same games, you must use the mouse to move the mouse pointer to their icons; then you double-click. After that, you have to unplug the mouse and plug in the joystick.

Mouse Master eliminates this switching. The Mouse Master is a small box with a cable terminating in a pair of mouse/joystick connectors that plug into your ST. The box itself has a mouse port and two joystick ports, all clearly labeled. A switch on the top of the box lets you switch between using the mouse in port 0 and using the joystick in port 0. You can switch devices at any time.

Video Connection

A genlock allows computer graphics to be superimposed on an industry-standard external video source. While the concept sounds simple, a genlock package is not—it may have more chips than the computer with which it works.

There are many uses for a genlock. The combination of external video and computer graphics can generate effects that range anywhere from trivial to stunning.

With software such as the Cyber series, available on the ST for animation, a genlock creates the perfect marriage of computer graphics and live action. The recent introduction of the Cartoon Design Disk for use with *CAD 3D/Cyber Control* has made animating even easier.

JRI's first-generation genlock (P.O. Box 5277, Pittsburgh, California 94565; \$400.00) works with the Mega ST only, although a 520/1040ST version should ship

shortly. Installation is simple—there are no connections to solder. You simply remove the cover of the Mega and plug the board into two plugs that are available inside the case. (Remember that removing the case voids the computer's warranty.)

The external portions of this genlock extend through the expansion port on the back of the Mega, with a small control panel available for setting special effects. The JRI genlock provides a jack for video in (for the external signal). The input can be any standard NTSC signal: camera, VCR, even a TV cable. The computer graphics superimposed on the external video can be viewed on the color monitor in exceptionally bright, crisp color. The JRI genlock also has a video out signal for viewing the combined effects on a standard TV or recording on a VCR.

It's possible to provide external video with one VCR and tape the superimposed signal with a second one. An audio out jack is also provided to route sound to an amplifier. A second, RGB out jack allows previewing the computer animation without the external video. Thus, with two monitors, you can view the computer graphics either with or without the external video.

Software control of the genlock is also possible, although no software is currently available to integrate genlock functions with other software (such as the *Cyber System Software* from Antic). The JRI genlock provides an industry-standard RS-170 signal and will even synch to the output of a digital VCR.

Be Selective

The file-selector dialog box provided by GEM does work, but it's hardly convenient. For a machine that prides itself on point-and-click operation, there's entirely too much typing involved, and certain common functions are not available at all (moving a file, as opposed to copying it, for example).

Universal Item Selector, from Application and Design Software (226 Northwest F Street, Grants Pass, Oregon 97526; 503-476-0071; \$15.95), provides an excellent alternative to GEM's file selector.

It works much as the normal file selector does, but it provides many extras. Placed in the AUTO folder, the alternate file-selector box appears any time your application would normally show a file selector; plus, you can call it from the Desk Accessory menu. Extra buttons include Copy, Move, Rename, Delete, Format, and Folder.

The Format function lets you format a fresh disk. The other functions can be performed on single files as well as folders. The Rename function, when applied to a folder, actually creates a new folder, copies all the files to it, then deletes the old folder.

The Copy, Move, and Delete functions can also be applied to groups of files using wildcards. The file-selector box itself has a horizontal scroll bar so that the size and time of creation of the file can be viewed. Also, the status of any file (its size, the folder it's in, and so on) can be viewed, and the Read/Write status can be changed. Finally, you can even print out a listing of the files and folders in the current directory.

Hard Facts

ICD has released a new line of hard drives in a case designed to fit under a monitor or a Mega ST (faST Disk Drives, ICD, 1220 Rock Street, Rockford, Illinois 61101; 815-968-2228; 20 megabyte—\$699.95, 30 megabyte—\$949.95, 50 megabyte—\$1,099.95, dual 20 megabyte—\$1,149.95, dual 30 megabyte—\$1,349.95, dual 50 megabyte—\$1,699.95). These drives have a long, low configuration that can make finding space for one easier than might otherwise be the case.

The drives include an expansion port for plugging in other devices (such as a laser printer or another hard drive) and a built-in clock. No pro-

gram is provided for setting the time on the clock, but you can use the control panel accessory to set the drive clock.

Software packaged with the drive includes a hard drive install program, a program for configuring the drive for auto-boot, a format program, and some miscellaneous utilities. Strangely, there's no backup-and-restore program included, so you'll have to find one elsewhere.

The hard drive autoboot will boot from the floppy in drive A if the Control-Shift-Alternate key combination is held down during the boot process. This allows you to bring up your system with a custom configuration (to use GDOS, for example) without disabling the hard drive autoboot.

The documentation included with the drive contains all the basics as well as much information that is useful only to an engineer. An explanation of how to add other drives to the system is included, for example, but it is far too technical to benefit the average ST user.

Resources

Current Notes (published monthly, except January and August) is an exceptionally well-written magazine for Atari users. It includes material on the ST and Atari's 8-bit computers.

Articles, opinions, extensive reviews, and regular columns combine to provide a well-rounded, informative, and pleasant reading experience.

There is even a regular column devoted to questions and hints on adventure games. Editor Joe Waters does an excellent job on this publication. An extensive public domain disk library makes it possible to obtain a wide selection of good programs for a reasonable cost.

For information, write *Current Notes*, 122 North Johnson Road, Sterling, Virginia 22170; (703) 450-4761. A one-year subscription is \$20.00.

—David Plotkin □

buyer's guide

Classic Software

Remember the first software you ever bought? Remember your obsession with finding a key to the locked room in the castle tower? Remember setting up your household budget on your first spreadsheet or writing typo-free letters on your first word processor? Whether your first home computer was for games or productivity, there's a classic software package listed in this buyer's guide that will remind you of the early days of home computers.

Some of these programs may not be available anymore, or may be sold as an improved version with a new name.

Caroline D. Hanlon

AppleWorks

Clans
Apple II
\$249

AppleWorks combines a word processor, a database manager, and a spreadsheet for the Apple II. Add-on modules, such as the Timeout series, provide additional functions and increase the flexibility of this integrated package. Version 2.0 includes a mail-merge feature.

Apple Writer

Apple Computer
Apple II
DOS, 64K required
Not available*

Documents could be written, edited, and printed on the Apple II with this word processor. There were tabulation files, glossary commands, split screens, and formatting features.



You need international diplomacy and covert activities to win in *Balance of Power*.

Bank Street Writer

Broderbund
Apple II, Atari, Commodore 64
64K required for Apple and Commodore; 48K required for Atari
\$49.95 (Commodore, Atari); \$69.95 (Apple)

Onscreen prompts, commands, and tutorials help writers use this word processor to create and edit documents ranging from letters to term papers. Editing features include copy, erase, and move.

Balance of Power

Mindscape
Amiga, Apple II, Atari ST, IBM PC, Macintosh
\$49.95

The player takes the part of either the president of the United States or the general secretary of the U.S.S.R. in this strategic simulation. As head of the nation, the player has eight years to manage overt and covert actions, insurrections, political deceptions, divisions of troops, and diplomatic relations. During the course of play, each nation's prestige will rise or fall.

The Brooklyn Bridge

White Crane Systems
IBM PC, IBM PS/2
\$139.95

With this file-transfer utility, data can be accessed and moved between computers using either 3½-inch or 5¼-inch disks. Volumes with more than 32MB of data can also be transferred. Peripheral devices such as printers, plotters, and tape backup systems are supported. An eight-foot universal cable is included. Version 2.0 adds a file manager, four DOS utilities—move, remove, copy, and backup—device drivers, and Run, a utility that allows dual independent processing so an application can be driven on a remote computer while another program runs on the master computer.

*Although this program is not available from the manufacturer, you may be able to find it through other sources.

buyer's guide

CP/M

Digital Research
8080-series computers
One disk drive required, two preferred
CP/M is not available retail, but OEMs can purchase it directly from Digital Research.

An operating system for the 8080 series of computers, CP/M includes an assembler, editor, debugger, and file-management system.

Crosstalk XVI

Crosstalk Communications
IBM PC
128K and DOS 2.0 or higher required
\$195

This telecommunications package allows automated communication with either menu- or command-driven operation. Protocols include Crosstalk, XMODEM, and Kermit. Popular terminal emulations supported. Transfer rates range as high as 115,200 bits per second. Compatible with *Windows*.

dBase

Ashton-Tate
IBM PC, Macintosh (called *dBase MAC*)
256K required for IBM
\$695 (IBM); \$495 (Macintosh)

A relational database-management program, *dBase* can be used to collect, store, and process information such as mailing lists, research, inventory, accounting, expenses, and cost control. It includes applications for handling large quantities of data and a programming language to create specific applications. The current version is *dBase III Plus*. *dBase IV* should be available in the fall of 1988.

DeluxePaint II

Electronic Arts
Amiga, Apple IIGS
Kickstart 1.2 required for Amiga
\$99.95

This paint program incorporates a variety of tools, including ten built-in brushes; stenciling; four levels of zoom; dotted freehand; continuous freehand; straight line, curve, circle, and polygon tools; an overscan mode that eliminates the Amiga borders; more than 65 fills; and a palette of 16 colors created from 4096 shades. The brush tool can be flipped, stretched, and rotated or used like an airbrush. Spaces can be filled with patterns, solid colors, or gradient colors. The fixed background allows the painter to attach a picture to the background so that it will not be removed when it's painted over. The perspective feature lets the user rotate elements in three dimensions around a fixed point to create perspective. A range of colors is cycled through a static image to create the illusion of motion; as many as four cycles per picture can be stored. Pictures can be sent to selected printers.

DesqView

Quarterdeck Office Systems
IBM PC
512K required
\$129.95

DesqView is a memory-resident, multitasking integrator that offers bitmapped-graphics support for

spreadsheets. It runs DOS applications in virtual 8086 mode and accepts batch files. Version 2.01 also runs on 80386 machines and supports Lotus/Intel/Microsoft Expanded Memory Specification (LIM-EMS), version 4.0.

Eastern Front

Atari
Atari
Not available*

The premise of this game was to command the German forces invading the Soviet Union in 1941. Players needed to outmaneuver, surround, and destroy the Soviet army before its huge reinforcements arrived.



Eliza

Artificial Intelligence Research Group
Commodore 64, IBM PC
\$45

Eliza is a variation of the original psychoanalysis program designed by Dr. Joseph Weizenbaum of M.I.T. The user types in statements, and the program responds with questions or comments, similar to the way a psychotherapist might respond to a patient. The source code is written in Microsoft BASIC, and the program is available on disk.

Fastback

Hazox
IBM PC
\$179

Fastback is a hard disk-backup utility. It can back up a 10MB IBM PC drive in eight minutes on twenty-three 5¼-inch disks and a 20MB IBM AT drive in eight minutes on fourteen 5¼-inch disks. The time, date, and volume are recorded on each disk, and the program checks the disk label to prevent writing over a disk. The program disk also includes Freestore, a utility to restore lost and damaged data.

F-15 Strike Eagle

MicroProse
Apple II, Atari, Atari ST, Commodore 64, IBM PC
128K and CGA or EGA card required for IBM
\$34.95

Players can take part in seven historical flight missions, from dropping M-82 bombs on a Libyan oil refinery to firing air-to-air missiles at a Syrian fighter. This F-15 combat-jet flight simulator displays more than 24 cockpit controls and features radar, launch indicators, electronic defenses, missiles, aerobatics, and mach-speed capabilities. There are four skill levels.

Finder

Apple Computer
Macintosh
Not available*

Finder is the system software included with the Macintosh. It is the set of instructions that establishes the desktop and pull-down menus.

Flight Simulator

Microsoft
IBM PC, Macintosh
128K, color/graphics card required for IBM
\$49.95

Pilots can fly a single-engine Cessna 182 or a Gates Learjet with this flight simulator. The program takes pilots on scenic flights over the continental United States, Mexico, Canada, and the Caribbean, and to 118 airports. The instrument panel is displayed on the screen and includes flight controls and VFR and IFR instrumentation. Pilots can set conditions such as wind, time of day, and reliability of aircraft. Computer pilots have an out-of-the-window view much like an actual pilot's.

Gato

Spectrum HoloByte
Amiga, Apple II, Atari ST, Commodore 64, IBM PC, Macintosh
128K required for Apple, IBM, and Macintosh
\$14.95 (Commodore); \$39.95 (Amiga, Apple II, Atari ST, IBM); \$49.95 (Macintosh)

Control panels constantly display the speed, depth, heading, and radar trackings of a WWII Gato submarine. The player is challenged to carry out missions in the South Pacific and return to home base without being detected or destroyed. Digitized voice commands relay the missions from SUBCOM. Levels of difficulty increase as the game continues.

GEOS

Berkeley Softworks
Commodore 64
\$59.95

This graphics operating system includes a word processor, geoWrite; a color graphics program, geoPaint; desk accessories such as an alarm clock, a note pad, a calculator, and a photo album; and a desktop that manages files and displays them as icons or text.

*Although this program is not available from the manufacturer, you may be able to find it through other sources.

Hardball

Accolade
Amiga, Apple II and IIGS, Atari, Atari ST, Commodore 64, IBM PC, Macintosh
256K and color/graphics card required for IBM
\$39.95

A baseball simulation, *Hardball* offers a 3-D perspective of each field angle. Different screens provide the strategy selections for the managers. There are six pitches that can be thrown by left- or right-handed pitchers, and players appear in large graphics.

HyperCard

Apple Computer
Macintosh
One megabyte RAM and two 800K disk drives required
\$49

HyperCard is a programming environment and development tool that is provided with Macintoshes shipped since August 1987. It allows the user to create and modify graphics, music, video, animation, and text on the Macintosh by linking information stored on cards. The program is designed so beginning and more experienced programmers can develop applications. People who bought Macintoshes before August 1987 can purchase the program for \$49.

International Soccer

Commodore Business Machines
Commodore 64
Not available*

International Soccer was an arcade-style game that replicated player action and ball movement on the soccer field. It was available as a plug-in cartridge.

King's Quest: Quest for the Crown

Sierra On-Line
Apple II, IBM PC, Macintosh
128K required for Apple, 256K required for IBM
\$49.95

Sir Graham, the brave and noble knight, undertakes a journey to find the lost treasures of Davenport and return them to King Edward. Along the way, the knight meets many creatures, such as a witch, trolls, and a giant. There are a variety of paths to take, and Sir Graham must rely on skill and intellect in order to reap the rewards. This is the first in a series of King's Quest adventures.

Life

Electronic Arts
Amiga, Apple II, Atari, Atari ST, Commodore 64, IBM PC, Macintosh
\$14.95 (Apple, Atari, Commodore, IBM); \$19.95 (Amiga, Atari ST, Macintosh)

Currently sold as part of the package *Software Golden Oldies, Volume I*, *Life* is a computer simulation of the birth, life, and death of generations of cells. The program uses its own objects, phenomena, and physical laws to determine the survival of the cells, and the player can introduce patterns and situations. *Life* was designed in 1970 by John Horton Conway, a Cambridge mathematician.

Lode Runner

Broderbund
Apple II, Atari, Commodore 64, IBM PC, Macintosh
48K for Apple; 128K required for Macintosh and IBM; joystick optional for all versions
\$14.95 (Atari, Commodore 64); \$34.95 (Apple, IBM); \$39.95 (Macintosh)

A Galactic commando searches for stolen treasures by running, jumping, drilling passages with a laser gun, and solving puzzles. There are 150 game screens, plus a game generator to design new game boards.



Flight Simulator puts you in the cockpit with controls, instruments, and a view from the pilot's seat.

Lotus 1-2-3

Lotus Development
IBM PC
256K required
\$495

An integrated package for business users, *Lotus 1-2-3* combines a spreadsheet, graphics, and a database. The database can handle as many as 8191 records with a maximum of 256 fields and offers two levels of sorting. The spreadsheet includes ten cell formats, protected cells, variable column widths, and windows, and it can perform a variety of calculations and analyses. There are seven graph options for displaying data or creating what-if scenarios.

MacPaint

Apple Computer
Macintosh
\$125

MacPaint is a drawing program designed specifically for the Macintosh. It includes a variety of tools and palettes to use in creating detailed pictures and shapes. Drawings can be modified pixel by pixel with the Zoom option. The most current version is *MacPaint 2.0*.

MacWrite

Apple Computer
Macintosh
\$125

MacWrite is a word processing program that doubles as a typesetting tool. It can be used to design logos, letterheads, announcements, advertising flyers, and newsletters. It offers a variety of font sizes and styles. Text can be formatted for left, right, and center justification, and the margins can be set for any width. The most current version is *MacWrite 5.0*.

Managing Your Money

MECA Ventures
IBM PC, Macintosh
256K, DOS 2.0 or higher required for IBM; 512K required for Macintosh
\$219.98

Version 4.0 of *Managing Your Money* is a financial planning package made up of nine integrated programs. The programs cover major aspects of home financial planning such as checkbook management, budgets, tax planning, insurance and retirement planning, and portfolio management. The software incorporates the 1987 tax-law changes and contains a full-featured word processor with mail-merge capabilities. The program can be used to set up budgets, track net worth, plan finances for a maximum of five years, keep records of insurance and investments, and print checks, invoices, mailing labels, reports, graphs, and tax forms. Memos can be stored on the electronic calendar, and financial data can be exported to *Lotus 1-2-3*.

MasterType

Mindscape
Apple II, Atari, Commodore 64, IBM PC, Macintosh
48K required for Apple
\$39.95

This typing program helps students learn to touch-type and improve their skills in using a computer keyboard. By offering onscreen prompts, the program encourages the students to watch the screen rather than their fingers. There are 18 levels, from single letters to words and symbols. The package includes a user's guide.

Math Blaster!

Davidson and Associates
Apple II and IIGS, IBM PC
128K required for Apple; 256K, DOS 1.1, and BASICA required for IBM
\$49.95

Students in grades 1-6 learn the basic facts of addition, subtraction, multiplication, division, fractions, decimals, and percentages. The 600 problems are grouped by math area and level of difficulty. There are four activities. The first activity explains the math fact and the second activity presents a problem the user must solve. In the third activity, the problem is missing a piece of information which the user must supply. The fourth activity is an arcade-style game with 30 math problems. An editor helps users enter their own math problems.

*Although this program is not available from the manufacturer, you may be able to find it through other sources.

Shop OnLine

and turn over a new leaf!



SPECIAL INTRODUCTORY OFFER FOR
COMPUTER AND MODEM USERS!

3 MONTHS \$1 FOR **PLUS 1 HOUR FREE**
CONNECT TIME

With the change in seasons, why not change the way you shop? Turn to a more convenient alternative and use Comp-u-store OnLine. You'll pay the lowest prices on the products you order, while shopping from the comfort of your home. Shop when it's convenient for you, and save up to 50% off the manufacturers' suggested list prices on over 250,000 name-brand products.

- **User-friendly convenience.** We're open 24 hours a day, 7 days a week. Browse on-line, order on-line and have your purchases delivered to your door. Simple menus and step-by-step instructions make it easy.
- **Tremendous selection.** Without leaving the comfort of your home or office, compare makes and models, compare name-brands—best of all, compare prices!

- **Lowest-price guarantee.** If you can find a lower price on an item you buy from us, we'll refund the difference*.
- **Full warranties.** We sell only top-quality, name-brand products, and all products are delivered with warranties in full effect.
- **Free catalogs.** We'll keep you informed about our latest "Best Buys" and exciting additions to our database of fine products!
- **Enroll today.** You can enjoy full membership privileges for 3 months for just \$1. Then, unless you notify us, we will continue your membership and bill you for the low annual fee of \$25. And, of course, you can cancel and receive a full refund at any time during the first year.

Call 1-800-843-7777

compustore[®]
OnLine

Low connect time charges—only \$6 per hour 24 hours a day. First hour FREE!

© 1988, CUC International Inc.

Comp-u-store OnLine is a service of CUC International Inc.

*Conditions of our Lowest Price Guarantee Policy can be read on file.

C98CM

Sample the world's premier, and most complete on-line shopping service!

Microsoft Windows

Microsoft
IBM PC
320K, DOS 2.0 or higher, and graphics adapter card required
\$99

Windows is an operating environment that enables the user to work with multiple applications and switch between them without quitting. Most standard applications that run under MS-DOS can be run with *Windows*. A note pad, a calculator, a card file with autodial, and a terminal program are also included.



You and your computer can make beautiful music together with *Music Construction Set*.

Microsoft Word

Microsoft
IBM PC, Macintosh
\$450 (IBM); \$395 (Macintosh)

This word processing package contains an outline processor to help organize thoughts and ideas, a glossary, a dictionary, and a thesaurus. Style sheets can be used to establish page formats, and the WYSIWYG display can include special character formats. As many as eight windows can be in operation at one time, and the saved documents can be printed on a variety of printers.

Microsoft Works

Microsoft
IBM PC, Macintosh
384K, graphics adapter card required for IBM
\$195 (PC); \$295 (Macintosh)

Microsoft Works includes applications for word processing, database management, spreadsheets, and communications. The word processor contains a 100,000-word spelling checker and an Undo command. The spreadsheet has 57 built-in functions and can produce charts. The database and communications functions handle and transfer large amounts of data.

MS-DOS

Microsoft
IBM PC
Not available*

MS-DOS is a disk operating system for IBM PCs and compatibles. It is a collection of commands that allow communication between the hardware and the software of the computer. A clone's ability to run MS-DOS is the standard by which it is judged to be "IBM-compatible." MS-DOS is included with the purchase of some machines or it can be bought separately. The retail price is determined by the dealer.

M.U.L.E.

Electronic Arts
Atari, Commodore 64
\$14.95

The player and three associates colonize a planet and try to make it survive as they simultaneously attempt to become financially successful. M.U.L.E.'s are stubborn, robotic creatures needed to perform many of the tasks on the planet. The game requires strategy and skill.

Music Construction Set

Electronic Arts
Apple II, Atari, Commodore 64, IBM PC
\$14.95

Users can compose, edit, save, print, and play music with this program. It includes accidentals, octave raisers, triplets, dotted notes, and ties, along with graphic displays. The IBM version has six-note polyphonic sounds and 240 professional synthesized instruments. It also supports the Music Feature sound card.

The Newsroom

Springboard
Apple II, Commodore 64, IBM PC
256K and color/graphics card required for IBM
\$49.95

Desktop publishers can use this program to create newsletters for family, clubs, school, or business. *Newsroom* contains a word processor and more than 600 pieces of clip art. Text wraps around photos and graphics added to the composition. There are five fonts, and the program supports most printers.

The Norton Utilities

Peter Norton Computing
IBM PC
\$100

The Norton Utilities recover lost data and aid in disk management. The program, which indexes disk and system performance and provides graphic tree displays for directories, can read, write, or modify ranges of clusters or sectors. Context-sensitive Help screens are available online, and batch files are interactive. All the utilities can run from one control program.

Nota Bene

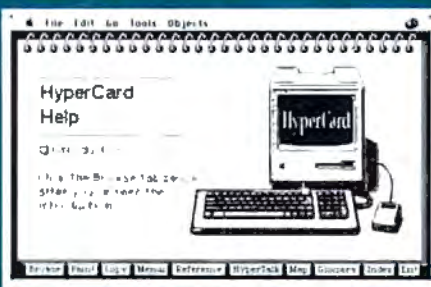
Dragonfly Software
IBM PC
256K and DOS 2.0 or higher required. 512K recommended
\$495

Nota Bene is an advanced word processor that combines the speed of *XyWrite* with the flexibility to edit and print long documents. It uses a database for free-form or structured text with Help files and *Lotus*-style menus. The program includes a variety of styles and formats, plus editing commands, sort features, mail-merge, math capabilities, printing capabilities, page layout, libraries and glossaries, a speller, a thesaurus, special characters, and programming aids.

Paperback Writer

Digital Solutions
Commodore 64 and 128
\$59.95

In 1986 the name of this software was changed to *Pocket*, and *Paperback Writer* is now marketed as *Pocket II*. This word processor supports word-wrap, search and replace, mail merge, 40 and 80 columns, side scrolling, global formatting, and a variety of formatting codes. The display is WYSIWYG, and the program offers 15 printer files. Enhanced versions for the 64 and 128 are available on one disk for \$59.95.



HyperCard's online Help is a good example of what you can do with hypermedia.

PaperClip

Batteries Included (Electronic Arts)
Apple II, Atari, Commodore 64
\$59.95 (Apple, Atari); \$49.95 (Commodore)

PaperClip provides a variety of standard word processing features and more specific options for each machine. Phrases, sentences, and blocks of text can be moved, copied, and erased, and the whole document can be reformatted for printing. A global search-and-replace automatically changes words and phrases. With the horizontal scrolling, documents can be as wide as 250 columns, and the program offers an 80-column video display so that the complete page can be viewed. Word processing features include columns, alphanumeric tabs, built-in arithmetic

*Although this program is not available from the manufacturer, you may be able to find it through other sources.

functions, headers, footers, automatic page numbering, personalized form letters, mailing label and mailing list capabilities, and printer commands for underline, boldface, italic, superscripts, and subscripts. The Commodore 64 version includes Spellpack, a spelling checker. *PaperClip* for the Apple provides macros and one-command access to the disk utility menu. The Atari version has dual text windows for transfer of text between files, macro commands, Spellpack, and automatic Save.

PFS:Write

Software Publishing
IBM PC
DOS 2.0 or higher and 512K required
\$199

The first word processor in the PFS line, *PFS:Write* can be used to generate form letters and documents. Data tables, graphs, and additional information can be added from other programs in the series (such as *PFS:Report* and *PFS:Graph*). The word processor is currently marketed as *PFS:Professional Write*. Version 2.0. People who own *PFS:Write* can upgrade to *PFS:Professional Write 2.0* for \$50.

Pinball Construction Set

Electronic Arts
Apple II, Atari, Commodore 64, IBM PC, Macintosh
\$14.95 (Apple II, Atari, Commodore 64 and IBM);
\$19.95 (Macintosh)

With *Pinball Construction Set*, players can build, test, modify, play, and save their own pinball games. The games include bumpers, flippers, springs, and an illegal-tilt sensor. Gravity, speed, and scoring can be varied to affect the way the game is played. Music and sound effects can also be added to the games. This program was the first in the software-construction-set genre.

The Print Shop

Broderbund
Apple II, Atari, Commodore 64, IBM PC, Macintosh
64K required for Apple; 128K or 256K for color printing and DOS 2.0 to 3.1 for IBM; 512K for Macintosh; printer for all versions
\$59.95

Cards, flyers, stationery, and signs can be created and printed using *The Print Shop*. There's an assortment of pictures, symbols, borders, backgrounds, and type fonts and sizes. The graphics and text editors allow simple changes. The program prints to most printers and accepts keyboard, joystick, or KoalaPad input. The package includes color paper and envelopes.

ProComm

DataStorm Technologies
IBM PC
192K and DOS 2.0 or higher required
\$75

ProComm is a file-transfer system that supports seven protocols, including Kermit and exploding windows. It provides a script language and offers terminal emulation. The current version available is *ProComm Plus*.

The Oregon Trail

MECC
Apple II, IIGS
64K required
\$55

Children aged 5 or older can relive the journey West on the Oregon Trail while they learn about nineteenth-century American history. Color scenes depict the rugged landscape, covered wagons, and adventures faced by the pioneers. The program also encourages users to practice decision-making and problem-solving skills.

PageMaker

Aldus
Macintosh, IBM PC
640K, graphics card, DOS 3.0 or higher required for PC; System 4.1 or higher, Finder 5.5 or higher, and a hard disk required for Macintosh
\$795 (IBM); \$595 (Macintosh)

A desktop publishing package, *PageMaker* can be used to design and produce documents by combining text from word processors with graphics from paint, draw, and clip-art programs. Developed for an office setting, *PageMaker* includes a text editor and tools to edit data and position graphics, define a format or layout, and then print out the document. Version 3.0 is now available for the Macintosh and the IBM PC.

PAL

Pro-Line Software
Commodore 64
\$19.95

Spinnaker PAL (Personal Assembly Language) is a machine language assembler for Commodore 64, 8000-series, and 9000-series computers. It is available in *The Programmer's Tool Box*, from Spinnaker Software.

Quicken Version 2

Intuit
IBM PC and PS/2
256K and DOS 2.0 or higher required
\$49.95

Version 2 of this program contains the same check-writing and financial-management features offered by the original version, plus some new capabilities. A bill-minder feature reminds the user when it is time to pay a bill, and the program can automatically write recurring checks. Financial records can be updated whenever a transaction occurs. Reports such as income and payroll tax records, budgets, and income and expenses can be generated and printed. Version 2 also allows an unlimited number of bank accounts and transactions. The package includes a quick-start-and-tips card, a manual, sample checks, sample envelopes, and a check and envelope order form. Disks are available in 3½-inch or 5¼-inch format. Free telephone support is provided.

Reach for the Stars

Strategic Studies Group (Electronic Arts)
Apple II, Commodore 64
\$45

One to four players compete to colonize empires in space. Empires can be built and maintained by im-

proving the industry and environment and by building warships. There are four classes of warships, transports, and explorers. Game options include novae, natural disasters, solar debris, and xenophobes. A tutorial is included.

Sargon III

Hayden Software (Spinnaker Software)
Apple II, Commodore 64, IBM, Macintosh
\$39.95

This computer chess program contains a library of more than 68,000 opening moves, instructions for novices, and brain-teasing chess problems for everyone to master. Players can replay 107 of the world's greatest chess matches and review 45 classic chess problems. The program has nine skill levels. The IBM and Apple versions are on one floppy disk.

Seven Cities of Gold

Electronic Arts
Apple II, Atari, Commodore 64, IBM PC, Macintosh
64K required for Apple
\$14.95 (Apple II, Atari, Commodore 64, IBM PC);
\$19.95 (Macintosh)

An educational adventure game, *Seven Cities of Gold* helps recreate the Spanish exploration of the New World. Players take the part of a conquistador to experience the thrills and problems of early explorers such as Cortez and Columbus. Obstacles include financing the expedition, navigation, resource management, mutiny, disease, and the unpredictable natives. Players can explore a variety of geographies in each game, or they can play on geographically accurate 3-D maps with real weather conditions.

Shanghai

MediaGenic (formerly known as Activision)
Amiga, Apple II, Apple IIGS, Commodore 64, IBM PC, Macintosh
256K required for IBM; 512K required for Amiga, Apple IIGS, and Macintosh
\$34.95 (Apple II, Commodore 64, IBM); \$39.95 (Amiga, Macintosh); \$44.95 (Apple IIGS)

Shanghai is based on mah-jongg, a game played by the Chinese. Colored tiles are stacked on each other and must be matched and removed according to the characters painted on each piece. There are solitaire and multiple-player options.

SideKick

Borland International
IBM PC, Macintosh
128K and DOS 2.0 or higher required for IBM; modem optional
\$84.95 (IBM PC); \$99.95 (Macintosh)

A collection of desktop accessories, *SideKick* can be used while other programs such as *WordStar*, *Lotus*, and *dBase* are running. Files as long as 25 pages can be entered and edited with the full-screen editor. A phone directory lists names, addresses, and telephone numbers. With a modem and the autodialer routine, telephone numbers can be located and dialed automatically. There is a monthly calendar for the years 1901-2099, as well as an appointment calendar to help the user keep track of meetings and appointments. The calculator can perform decimal-to-hexadecimal-to-binary conversions as well as standard business computations. An ASCII table is also included.

*Although this program is not available from the manufacturer, you may be able to find it through other sources.

SpeedScript

COMPUTE! Publications
Apple II, Atari, Commodore 64
Varies

SpeedScript is a word processor written in-house at COMPUTE! Publications and published as a type-in program in magazines and books. It allows users to write, edit, format, and print documents of all sizes, from letters to novels. Margins, page length, spacing, page numbers, headers, and footers can be changed or added to the document. Formatting features include pagination, underlining, and centering. Graphics can be added to the text, and the files can be linked to print one continuous document. This word processing program uses about 6K. It is available as a type-in program in book form, on disk, or in book-and-disk combinations. The price varies according to published format and machine required.

Star Raiders

Atari
Atari, Atari ST
8K required
\$6.95 (Atari); \$29.95 (Atari ST)

Star Raiders is an arcade-style game created for the original Atari eight-bit machines. The Atarian Federation is at war with the Zylon Empire, and the player's mission is to destroy all the Zylon star ships. There are four mission skill levels. The game is available as a plug-in cartridge.

Summer Games

Epyx
Commodore 64, Apple II, Atari
\$19.95

As many as eight players can enter their athletes in summer Olympic competition, including swimming, diving, track, skeet shooting, pole vaulting, and gymnastics.

SuperKey

Borland International
IBM PC
128K and DOS 2.0 or higher required
\$99.95

SuperKey is a utility program for the IBM PC and compatibles. It has macro capabilities so that many commands and keystrokes can be consolidated into one keystroke. By using the U.S. government data-encryption standard (DES), personal files can be encrypted so no one else can read them. And without the password, no one can decode the files. For more protection, *SuperKey* can lock the keyboard to prevent access. Another feature automatically turns the screen off after a predetermined amount of time to save wear and tear on the monitors.

ThinkTank

Living Videotext (Symantec)
Apple II, IBM PC and compatibles, Macintosh
DOS 2.0 or higher required for IBM; 48K required for Apple
\$195

An outline processor, *ThinkTank* integrates word processing and graphics capabilities to organize thoughts and ideas. The ideas can be listed as headings and subheadings or in paragraph format.

Turbo Lightning

Borland
IBM PC
256K, DOS 2.0 or higher, and two drives required
\$99.95

Turbo Lightning is a RAM-resident integrated information package containing a spelling checker, a thesaurus, and a dictionary. It can be used with word processors, databases, or other applications for whole-page or instant text correction. Words and phrases can be added to the dictionary, and the program recognizes upper-, lower-, and mixed-case words. It can also provide synonymous or sound-alike words. Additional utilities are provided with the *Turbo Lightning Libraries*.

Turbo Pascal

Borland
IBM PC
128K and DOS 2.0 or higher required
\$99.95

The basis of Borland's *Turbo Pascal* language-development system, *Turbo Pascal* is a Pascal compiler. The program offers window procedures, sound, color, graphics, I/O redirection, and DOS path support. Errors can be located and corrected with the built-in, full-screen editor. MicroCalc, a spreadsheet program, is also included.

Ultima I

Origin Systems
Apple II, Commodore 64, IBM PC
64K required for Apple; CGA or EGA cards required for IBM
\$39.95

In this fantasy adventure, the player searches the land of Britannia and outer space for clues to defeat the evil wizard Mondain. The game is written in assembly language for speed and graphics capabilities. The package contains a double-sided disk, four maps, a reference card, a manual, and coins of the realm.

VideoWorks

Spinnaker
Apple II, Macintosh
Not available*

An animation program, *VideoWorks* could be used to create presentations, storybooks, movies, and cartoons. It included drawing tools, artwork, tutorials, and examples.

VisiCalc

VisiCorp
IBM PC
Not available*

VisiCalc was one of the early spreadsheet programs created for use on personal computers. It predated *Lotus 1-2-3*.

Where in the World Is Carmen Sandiego?

Broderbund
Apple II and IIGS, Commodore 64, IBM PC
64K required for Apple; 128K required for IBM; joystick optional for all versions
\$34.95 (Commodore 64); \$39.95 (Apple, IBM)

The players follow Carmen Sandiego and her gang of thieves around the world, trying to solve mysteries while learning about world geography. The crime computer helps organize the clues, and the *World Almanac* provides information on the cities and countries visited. There are ten suspects in 30 cities, and more than 1000 clues. For children and adults.

WordPerfect

WordPerfect
IBM PC, Macintosh
256K, two disk drives and DOS 2.0 or higher required for IBM
\$395

Designed originally for the IBM PC, this word processor contains a thesaurus and a dictionary to check spelling. Word processing features include automatic formatting, footnotes, endnotes, automatic paragraphing, outline numbering, indexing, table-of-contents creation, five newspaper-style or parallel columns, and a List Files option that permits file operations such as rename, delete, and print without leaving the program. Math columns can be added to documents and automatically calculated. The merge feature can be used along with user-defined macros for special functions. Multiple documents can be printed, and the program works with more than 200 printers.



WordPerfect is a top-rated word processor because of its power and features.

Wizardry—Proving Grounds of the Mad Overlord

Sir-Tech Software
Apple II, IBM PC
48K for Apple; 128K and color graphics card for IBM
\$34.95 (Apple); \$49.95 (IBM)

Choosing from five races and eight different professions, the player assembles a party of six characters to explore a ten-level, three-dimensional maze. The goal is to find Werdna and retrieve the stolen Amulet. During the search, characters can gain experience, find treasure, battle dragons, and fight other foes. Characters can be transferred to other scenarios. This is the first of a trilogy.

*Although this program is not available from the manufacturer, you may be able to find it through other sources.

Publishers of Classic Software

Accolade
550 S. Winchester Blvd.
San Jose, CA 95128

Aldus
411 First Ave. S
Suite 200
Seattle, WA 98104

Apple Computer
20525 Mariani Ave.
Cupertino, CA 95014

Artificial Intelligence Research Group
921 N. LaJolla Ave.
Los Angeles, CA 90046

Ashton-Tate
20101 Hamilton Ave.
Torrance, CA 90502-1319

Atari
1196 Borregas Ave.
P.O. Box 3427
Sunnyvale, CA 94088

Berkeley Softworks
2150 Shattuck Ave.
Berkeley, CA 94704

Borland International
4585 Scotts Valley Dr.
Scotts Valley, CA 95066

Brøderbund
17 Paul Dr.
San Rafael, CA 94903

Claris
440 Clyde Ave.
Mountain View, CA 94043

Commodore Business Machines
1200 Wilson Dr.
West Chester, PA 19380

COMPUTE! Books
Customer Service
P.O. Box 2165
Radnor, PA 19089

DataStorm Technologies
2100 E. Broadway
Suite 217
P.O. Box 1471
Columbia, MO 65205

Davidson and Associates
3135 Kashiwa St.
Torrance, CA 90505

Digital Research
60 Garden Ct.
Monterey, CA 93942

Digital Solutions
2-30 Wertheim Ct.
Richmond Hill, Ontario
Canada L4B 1B9

Dragonfly Software
285 W. Broadway
Suite 500
New York, NY 10013

Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404

Epyx
P.O. Box 8020
600 Galveston Rd.
Redwood City, CA 94063

Hazox
P.O. Box 637
Chadds Ford, PA 19317

Intuit
540 University Ave.
Palo Alto, CA 94301

Lotus Development
55 Cambridge Pkwy.
Cambridge, MA 02142

MECA Ventures
355 Riverside Ave.
Westport, CT 06880

MECC
Distribution Center
3490 Lexington Ave. N
St. Paul, MN 55126

Mediagenic
(formerly known as Activision)
3885 Bohannon Dr.
Menlo Park, CA 94025

MicroPro International
33 San Pablo Ave.
San Rafael, CA 94903

MicroProse
180 Lakefront Dr.
Hunt Valley, MD 21030

Microsoft
16011 N.E. 36th Wy.
Box 97017
Redmond, WA 98073-9717

Mindscape
3444 Dundee Rd.
Northbrook, IL 60062

Origin Systems
340 Harvey Rd.
Manchester, NH 03103

Peter Norton Computing
100 Wilshire Blvd.
Suite 900
Santa Monica, CA 90401

Professional Software (PSI)
51 Fremont St.
Needham, MA 02194

Quarterdeck Office Systems
150 Pico Blvd.
Santa Monica, CA 90405

Sierra On-Line
P.O. Box 495
Coarsegold, CA 93614

Sir-Tech Software
P.O. Box 245
Charlestown Ogdensburg Mall
Ogdensburg, NY 13669

Software Publishing
1901 Landings Dr.
Mountain View, CA 94043

Spectrum HoloByte
2061 Challenger Dr.
Suite 325
Alameda, CA 94501

Spinnaker Software
One Kendall Sq.
Cambridge, MA 02139

Springboard Software
7808 Creekridge Cir.
Minneapolis, MN 55435

Strategic Studies Group
1747 Orleans Ct.
Walnut Creek, CA 94598

Symantec
10201 Torre Ave.
Cupertino, CA 95014

White Crane Systems
Suite 151
6889 Peachtree Ind. Blvd.
Norcross, GA 30092

WordPerfect
288 W. Center St.
Orem, UT 84057

WordPro

Professional Software
CBM/PET
Not available*

WordPro was copyrighted in 1980 for the CBM/PET computers. It was a word processing program with editing, mail-merge, and printout capabilities. It was designed to create multiple-page documents, form letters, and mailing lists. PSI has replaced *WordPro* with the *Fleet System* products.

WordStar Professional

MicroPro
IBM PC
Requires 384K or 512K with graphics card: EGA, CGA, VGA, or monochrome
\$495

First introduced in 1979, *WordStar* is a word processing program containing a spelling corrector, mail merge, a thesaurus, and indexing capabilities. The most recent version is *WordStar 5.0*. Updates are available for \$119.

Zork I

Solid Gold Software (Mediagenic, formerly known as Activision)
Apple II, IBM PC
\$14.95

In this interactive-fiction game, the player travels to the ruins of an ancient empire far underground to search for the treasures of Zork.

*Although this program is not available from the manufacturer, you may be able to find it through other sources.

////// ■ *fast looks*

**Yuck It Up, Paint
Pretty Pictures,
Delve into
Dungeons, Fly
Invisibly over
Enemy Territory,
Work Hard with
Words, Catch
Kidnappers in
the Big City, and
Read All About It**

Each month, "Fast Looks" offers up snapshots of the newest software and hardware for the Amiga, Apple II, Atari ST, Commodore 64/128, IBM PC, and Macintosh lines of personal computers. These capsule reviews look at notable programs and peripherals, products which have just arrived in our offices and which haven't yet been fully evaluated.

"Fast Looks" gives you glimpses of important and interesting software and hardware *now*, not next month.

Inset

Inset may be the easiest way on the planet to break into desktop publishing. With *Inset* resident in your IBM PC's memory, you can grab text or graphics screens, edit them, and insert them into word processing documents.

Installing *Inset* is easy. You simply type INSET at the DOS command line prompt. The first time you run the program, you go through an installation procedure. The program asks you to answer several questions about your video setup and printer, suggesting choices when possible. You also have the opportunity to change defaults (such as the hot key that invokes the program) during setup. When you've finished the setup procedure, *Inset* installs itself as a memory-resident utility, taking up about 137K of memory. If you decide to alter your configuration later, you can invoke a separate program.

With a text or graphics screen displayed on your monitor, you simply press the program's hot key to invoke *Inset* and grab the image. *Inset* presents a menu on the bottom of your screen, with options to view a screen, save the current screen, edit the screen, print a screen, or get help. You can use your cursor keys or a mouse to select an option.

Saving a screen is as easy as giving *Inset* the Save command and typing a filename. If you want to modify the image before you save it, *Inset* places a variety of commands at your disposal. Perhaps the most important are the Ink commands, which control the way the screen's colors are printed on a black-and-white printer. Ink provides several standard color mappings that print the screen image as is, reverse the light and dark values, or print a black-and-white image. If the standard mappings don't produce exactly the printout you need, there's a command that lets you selectively map each screen color to each printer gray level. For complex color images, this command is a must.

You can use *Inset* simply to grab screens and print them, but the program's real power comes into play when you incorporate your grabbed images into word processing documents. Merging text and graphics couldn't be easier. All you do is place the name of a saved screen within brackets in the text at the spot where you want the screen printed. When it's time to print, you use your word processor's print command. *Inset* monitors the output and prints the specified screen when it comes to the name in brackets.

Inset may not give you the power of some dedicated desktop publishing packages, but it provides all the tools you need to produce first-class documents that mix text and graphics.

— CK

IBM PC and compatibles—\$99.00

Inset Systems
Mill Plain Rd.
Danbury, CT 06811
(203) 794-0396



"An exceptional value."

Tom Badgett, *PC Clones*

"I was impressed.
It wins the cost-effective award."

John Dvorak, *PC Magazine*

"This program has all the features and capabilities of money management programs costing 10 times as much."

Leonard Hyer, *PCM Magazine*

We appreciated those kind words. They helped make **MONEYCOUNTS® 4.0** one of today's most popular accounting/money management programs for home and business. But we couldn't leave well enough alone. So we're introducing new

MONEYCOUNTS® 5.0 ...an unbelievable buy at just \$29!

MONEYCOUNTS® 5.0 balances your checkbook... prepares your budget... manages your cash, checking, savings, credit cards... prints 5 types of financial statements including net worth...3 types of inquiry reports... general ledger, accountant's trial balance, and graphics. Its fast financial data base handles up to 999 accounts and 100,000 transactions a year.

MONEYCOUNTS® 5.0 is a CPA-designed money management/accounting system you can use for home or business. It's easy to use, requires no accounting knowledge, is menu-driven with on-line help, has a fast financial calculator, works with monochrome or color monitors, comes with a **printed manual** and is **not copy protected**.

SAME DAY SHIPPING. Order today and own **MONEYCOUNTS® 5.0** for only \$29! Add \$5 shipping/handling (outside North America, add \$10). Iowa residents please add 4% sales tax.



375 Collins Road NE
Cedar Rapids, IA 52402

MONEYCOUNTS® 5.0 now also...

- prints any type of pin-feed check and updates your records automatically
- estimates your 1988 income tax
- analyzes financing options, savings programs...computes interest rates, loan payments...prints amortization schedules
- manages mail lists—zip and alpha sorts—and prints labels and index cards
- provides password protection, fiscal year support, and pop-up notepad.



VISA, MASTERCARD & COD ORDERS CALL

1-800-223-6925

(In Canada, call 319/395-7300)



Dept. COM
375 Collins Road NE
Cedar Rapids, IA 52402

MONEYCOUNTS®
VERSION 5.0

\$29 + \$5 shipping

NAME _____

ADDRESS _____

CITY _____

STATE ZIP _____ PHONE _____

CHECK MONEY ORDER VISA MASTERCARD

CARD # _____ EXP DATE _____

No. of Copies	Product	Price Each	Total
	MONEYCOUNTS® 5.0 (Needs IBM or compatible computer, at least 256k memory, DOS 2.0 or more, two disk drives or hard disk)	\$ 29.00	
	Shipping & Handling	\$ 5.00	\$ 5.00
TOTAL AMOUNT			\$ _____

Stellar Crusade

That the economics and sociology of interstellar warfare can be as fascinating as the mechanics of armed starships—or even more so—is displayed to good effect in this new SSI release.



Long-range contact has been made between the League and the Republic in *Stellar Crusade*.

The time is the distant future, the setting a cluster of stars inhabited by two cultures: one a corporate system, the other based upon religious fanaticism. Players must plant colonies, develop resources, and position war fleets and assault troops to counter the growth of the opposition.

Stellar Crusade offers several levels of play. At its simplest level, this is a strategy game in which task forces are moved about a stellar map over the course of four years, with each turn representing three months. At its most complex, the game spans decades, and each turn calls for economic, exploration, and military decisions and investments, as well as starship and weapons design and configuration. A variety of scenarios provide for games that last anywhere from a couple of hours to as many as 40 hours.

Although this is not a graphics game, its graphics are excellent. The basic star map of the cluster is quite convincing; icons are used to good effect for deriving information about control of various star systems.

A menu-driven interface makes getting to know *Stellar Crusade's* mechanics simple and efficient. The documentation is thorough without being exhaustive or exhausting. Reminiscent in some ways of SSG's *Reach for the Stars*, *Stellar Crusade* has more than a few original and thoughtful touches, making it one of the more mature SF games seen lately.

—KF

Atari ST with color monitor—\$54.95

IBM PC and compatibles—\$49.95

SSI

1046 N. Rengstorff Ave.
Mountain View, CA 94043
(415) 964-1353

Eng•Lan'

Gentry Software calls its Eng•Lan' package the easiest computer language in the world. That's saying a lot, but the package is simple to use.

The program presents you with 14 command options. You choose one, answer some questions about the command, and, presto change-o, you have a program statement. You can't encounter syntax errors because Eng•Lan' types the command for you.

For example, you choose an IF-THEN statement by hitting the I key. Eng•Lan' responds with a smaller group of options. You can choose from different types of comparative statements: IF variable 1 equals variable 2, IF variable 1 is greater than variable 2, and so on. After you've chosen one, Eng•Lan' offers a choice of variables for the statement. Finally, the statement appears in your program listing.

You can edit programs by choosing View Or Change from the options. Another option reads from a file, and still another runs the program. There are commands which display characters and commands which erase characters. You don't even have to remember the commands because they're on the screen.

This process saves you from those hours of frustration spent wrestling with syntax and rules. Eng•Lan' can't prevent you from making logical errors, however. No programming language can do that. But you'll be able to concentrate on correcting your errors in logic, not format, because Eng•Lan' takes care of some of the more tedious tasks.

Eng•Lan' won't be your last programming language; after a while, you'd need a more complex language because this package isn't powerful enough for building applications and games.

—HA

IBM PC with at least 256K—\$49

Gentry Software
P.O. Box 4485
Springfield, MO 65808
(800) 346-9475
(800) 634-8439 in Missouri

Publisher ST

What You See Is What You Get (WYSIWYG)—the ability of software and computer to *exactly* show the final document on the screen—has become the subtle benchmark of desktop publishing programs. For today's high-tech clientele, only WYSIWYG will do. Timeworks' *Publisher ST*, for the Atari ST 520, 1040, and Mega ST, makes WYSIWYG second nature.

Publisher ST lets you lay out, design, print, and produce documents that look thoroughly polished. Not happy with the way something looks? Resize it, change the font, or reshape the layout and see it on the screen. There are four views to choose from, ranging from full-page to twice the actual document size. *Publisher ST* can handle practically all your desktop publishing tasks. Newsletters, brochures, term papers, catalogs, leaflets, advertisements, labels, and almost anything else can be created with just a little imagination.



Publisher ST is a full-featured desktop publishing program which takes full advantage of the ST's graphics abilities.

Best of all, *Publisher ST* takes full advantage of all the built-in graphics capabilities of the Atari ST. The main interface includes four modes: text, paragraph, drawing, and layout. You can import text from any ASCII-based word processor (or use the accompanying converter program to change the file's format) and import graphics from *Easy-Draw*, *NEOchrome*, or *DEGAS*. The program works in color or monochrome. As for printing, *Publisher ST* drives practically any printer you

COMPUTER DIRECT Will Not Be UNDERSOLD! AND WE MEAN IT!*

Prices Expire 9-30-88

* 15 MHz IBM® Turbo XT Compatible System



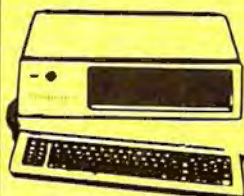
- 512K Professional Turbo XT Computer
- 360K Floppy Drive and Controller
- *15 MHz (Norton CI Rating)
- MS DOS 3.2 & GW Basic
- 12" Hi-Res 35 MHz Monochrome Monitor
- Genuine IBM® Printer With Interface
- One Roll Of Heat Transfer Paper
- Word Processor, Spreadsheet & Data Base
- Complete DOS & System Tutor Included FREE!

Our Low Sale Price
\$699⁹⁵

List \$1995

(Add \$35.00 shipping.*)

* 15 MHz IBM® XT Compatible Computer



- 512K Professional XT Turbo Computer
- 360K Floppy Drive and Controller
- *15 MHz (Norton CI Rating)
- MS DOS 3.2 & GW Basic
- Parallel, Serial & Game Ports
- TTL Monochrome Monitor Card
- Super Fast V20 CPU • "AT Style" Keyboard
- Security Keylock & Clock/Calendar

Our Low Sale Price
\$599⁹⁵

List \$1195

(Add \$10.00 shipping.*)

* 16 MHz 286 IBM® AT Compatible Computer



101
Keys

- 80286 16 Bit Microprocessor
- 1.2 MEG Floppy Disk Drive
- Parallel & Serial Printer Ports
- *16 MHz (Landmark CPU Rating)
- 101 Key "AT Style" Keyboard • 0 Wait State
- BIOS w/Built-In Support for 3 1/2" Drives
- Clock/Calendar & Security Keylock

\$899⁹⁵ With Floppy/Hard Drive Controller
Card & 512K RAM Memory Installed

Our Low Sale Price
\$599⁹⁵

List \$2295

(Add \$14.50 shipping.*)

Complete Commodore C64c System

FREE
GAME!



The Complete System Includes:

- Commodore 64c Computer
- Excelerator Plus Disk Drive
- 12" Monochrome Monitor
- Genuine IBM® Printer With Commodore Interface & 1 Roll Of Heat Transfer Paper
- GEOS Program For Word Processing & Drawing

Our Low Sale Price
\$395⁹⁵

List \$1049

(Add \$30.00 shipping.*)

Complete Apple® Compatible System



The Complete System Includes:

- Laser 128 Apple Compatible Computer
- Genuine IBM® Printer With Laser 128 Interface & 1 Roll Of Heat Transfer Paper
- 12" Hi-Resolution Monochrome Monitor
- Quality Word Processor, Spreadsheet And Data Base

Our Low Sale Price
\$479⁹⁵

List \$1409

(Add \$27.50 shipping.*)

Genuine IBM® Printer 8 1/2" Letter Size • 80 Column Limited Quantities



- Upper & Lower Case (with true lower descenders)
- Advanced Dot Matrix - Heat Transfer
- Graphics With Commodore, & Apple Interfaces
- Ready to Hook Up To Serial Port Of IBM® PCjr.
- Low Cost Adapters For IBM®, Apple, Commodore, & Laser Computers
- Underline & Enlarged

Our Low Sale Price
\$44⁹⁵

List \$199

(Add \$7.50 shipping.*)

15 Day Home Trial • 90 Day Immediate Replacement Policy

COMPUTER DIRECT
22292 N. Pepper Rd, Barrington, IL. 60010
Call (312) 382-5050 To Order!

* Illinois residents add 6 1/2% sales tax. All orders must be in U.S. Dollars. We ship to all points in the U.S., CANADA, PUERTO RICO, & APO-FPO. Please call for charges outside continental U.S. or C.O.D. MAIL ORDERS: enclose cashier check, money order, or personal check. Allow 14 days delivery, 2 to 7 days for phone orders and 1 day express mail. Prices, specifications & availability subject to change without notice. Shipping and handling charges are not refundable. (Monitors only shipped in continental U.S.) COMPUTER DIRECT will match any valid nationally advertised delivered price on the exact same product with a comparable payment method (excluding any applicable sales taxes). A physical copy order of the current valid lower priced ad must be supplied with the order, or within 15 days of date of purchase.

VISA — MASTERCARD — C.O.D.

have—dot-matrix or laser—including all Epson-compatibles and the Apple LaserWriter series, or any other *PostScript*-compatible printer.

Timeworks has a solid product here. If you do desktop publishing on the ST, you won't find a more appealing package.

— DF

Atari ST with at least 512K—\$129.95

Timeworks
444 Lake Cook Rd.
Deerfield, IL 60015
(312) 948-9200

Macro Assembler A86

Programming 8088 assembly language (the native language of the IBM PC and compatibles) isn't for everyone. It's for those who are willing to spend hours staring at a few lines of code with the fervent conviction that the bug *will* be found. Assembly language can be extremely frustrating, and it demands unlimited patience. But its speed borders on the miraculous; you can do with it what can't be done with any high-level language. Once you've learned assembly language, you have the power to speak to the microprocessor in its native tongue.

If you're ready to take the plunge into learning 8088 assembly language, *A86*, Eric Isaacson's shareware assembler, is an excellent choice, primarily because it avoids many of the complexities of the *Microsoft Macro Assembler (MASM)*. *MASM* was created to write massive programs—the MS-DOS operating system, for example—and is amazingly full-featured and powerful. But few of us need *MASM*'s power or its complexity.

While *A86* is ideal for beginners, it's by no means a limited assembler. It has full macro capabilities compatible with *MASM*—in fact, it can assemble many source files written for *MASM* with few or no changes in the code. It can produce .COM files directly without using LINK and EXE2BIN, or, alternatively, it can produce .OBJ files that are linkable with the linker on your DOS disk. It even assembles 80286 protected-mode mnemonics.

A86 is blazingly fast because it's a one-pass assembler, and because it's written in assembly language itself. It assembles a source file in a fraction of the time required by *MASM*. *A86*'s documentation, which includes both tutorial and reference sections, comes on the disk, so you have to print it yourself. *D86*, an interactive debugger, is

also available. *A86* is distributed as shareware, so you can try the program before you pay for it.

— JS

IBM PC and compatible computers—\$50 registration fee

Eric Isaacson
416 E. University St.
Bloomington, IN 47401
(812) 339-1811

Contributing to "Fast Looks" this month were Heidi Aycocock, Keith Ferrell, David Florance, Clifton Karnes, and John Shadle.



The Three Stooges

Breathes there a player with soul so dead who never to himself has said: "Hey, Moe! Yabibibibi! Nyuk! Nyuk! Nyuk!" The Stooges have arrived on disk.

High time, too. After a decade of Pac-Men, *Boulder Dash*-ers, Mario brothers, and others, we finally have the trio of characters who patented their own form of arcade action half a century ago. Arcade action? "Why soitanly!"

Think about it. A typical Stooges short placed Larry, Moe, and Curly in a race against time or circumstance, during which they overcame—or overwhelmed—a variety of obstacles at a breathless pace.

But how much of the Stooges can actually be captured on disk? Quite a bit. Cinemaware has taken the time and trouble to put together a game that *looks* like the Stooges, *sounds* like the Stooges—thanks to digitization of music, sound effects, and actual dialogue from Three Stooges films—and most important, *feels* like the Stooges.

This Stooge-esque sensibility ("Oh, a wise guy, huh?") flows from the moment the game is booted. In fact, the opening credits deliver not only the nostalgic atmosphere of a Stooges short, complete with theme song, but also an unexpected yuk or two.

In true Three Stooges fashion, the setup follows immediately after the credits. Plot in this interactive "movie" is about the same as plot in one of the three-some's short films: There's an objective that Larry, Moe, and Curly must achieve.

Part of the Stooges' success was that they were such nice guys, always out to help the underdog. Here, it's an orphanage under threat of foreclosure

by heartless banker I. Fleeceem.

Ma, the widowed orphanage owner, weeps helplessly. Her charges are going to be cast into the streets of Stoozeville. No true Stooze could let that happen. Our boys take to the streets to earn the money to save Ma and the kids from homelessness. They only have 30 days before Ma loses everything, and the boys lose their chance to marry Ma's gorgeous daughters. "Hiya, Toots!"

The money is earned the way you'd expect the Stooges to earn money. The boys move through the streets of Stoozeville in search of opportunity. What they find is something else. The town is set up like a board game, with various competitions derived from classic Stooze flicks. Players put the trio through their paces in pie fights, boxing rings, slapping and eye-gouging contests, vicious bowls of oyster stew, and a wild gurney race through crowded hospital corridors. "Calling Dr. Howard! Dr. Fine! Dr. Howard!"

Contests are selected via an icon-driven interface that represents the next six squares in the game board. Hit the right square, and you get the chance to make some bucks; the wrong square costs you time. The contests become progressively more difficult, and more profitable, as you move farther into the town.

All of the events are well realized. Larry's race to fetch the violin whose "Pop Goes the Weasel" can turn Curly into a boxer rather than a boxee comes from the short *Punch Drunks*, and it makes good use of a split screen. *Hoi Poloi*'s famous pie fight at a society luncheon puts you right in the midst of fly-ing meringue. The gurney race from *Men in Black*—the very first film the Stooges made for Columbia—might make you forget other racing games. The slapping sequence ("Look at the ground!") comes from all the shorts. The oyster stew is just as aggressive here as it was in *Dutiful but Dumb*.

Animation is superb throughout: The boys move realistically past well-rendered backdrops, with pratfalls, pokes, and punches reminiscent of the real thing. The game is stunning on the Amiga, and the IBM version contains some of the smoothest animation ever seen on that machine.

As the historical documentation notes, sound-effects man Joe Henrie was in essence the fourth Stooze. (Doink! Twink! Crunch!) Sound effects and music play a large part in the game as well. The sound track includes "Three Blind Mice," and the "Alphabet Song," which, although the lyrics are



Nyuk! Nyuk! Nyuk! *The Three Stooges* turns you into Curly (and Moe and Larry).

unfortunately not included in the documentation, went something like, "B - A (bay), B - E (bee), B - I (bicky, bye), B - O (bo), bicky-bye-bo, B - U (boo), bicky-bye-bo-boo." Sing along with the Stooges!

There's Three Stooges dialogue, too. Having Moe Howard's voice coming in and of itself; having his voice part of a delightful game for the whole family was an experience I wouldn't have missed. While the dialogue is excellent on the Amiga, 64, and 128, it leaves something to be desired on IBM compatibles, although the Tandy three-voice machine does a good job of letting the Stooges talk.

Naturally, this much game, graphics, sound, and music is disk-intensive, with swapping and accessing slowing things down somewhat. On the other hand ("How many fingers?"), I found the action and humor well worth the wait.

The Three Stooges are naturals for software entertainment, and their arrival is one of the high points of the season. Cinemaware has done well by the sainted Larry, Moe, and Curly, and all of their fans, delivering a game that recreates the Stooges as well as paying homage to them. What more can be said but, "Ruff! Ruff! Who! Who! Who!"

— Keith Ferrell

The Three Stooges

For . . .
Amiga—\$49.95
Commodore 64/128—\$34.95
IBM PC and compatible with CGA or EGA—\$49.95

From . . .
Cinemaware
4165 Thousand Oaks Blvd.
Westlake Village, CA 91362
(805) 495-6515

The Graphics Studio

Joining the recent spate of new paint programs is *The Graphics Studio*, from Accolade, an inexpensive, entry-level paint program that gives good value for the price. While not providing the latest and most advanced paint program features (stenciling, perspective, dithering, and the like), *Graphics Studio* offers most of the standard drawing and painting tools, including freehand and straight lines; outlined and filled shapes; custom brushes; text, magnify, and grid tools; extensive color palette controls; a pattern menu; cut-and-paste operations; and a spare page (called the Clipboard). Tools and options are available with an easy-to-learn, point-and-click interface that mixes Amiga conventions with those native to the Apple IIGS, for which this program was first written.

Pictures can be drawn on an 8½ × 11 inch page in the Amiga's lo-res (320 × 200 pixels) and hi-res (640 × 200 pixels) screen modes. The current version of *Graphics Studio* doesn't access the lo-res interlace (320 × 400), hi-res interlace (640 × 400), HAM (hold-and-modify), or overscan screen modes. A Show Page option lets you see a small-scale image of the entire page on the screen. Pictures are saved in the standard IFF graphic file format, so you can load your *Graphics Studio* pictures into Amiga word processors, desktop video and desktop publishing software, and other paint programs.

Some nice features that don't appear on other Amiga paint programs are a rounded-rectangle drawing tool; automatic concentric rectangles and circles; a tool for drawing visible grids; instant drop shadows cast at any angle and distance; an Apple-style scroll bar for moving around on the page; and versatile color cycling that lets you cycle through 32 full-color palettes at selectable speeds (especially useful for animating). Included with *Graphics Studio* is a slide-show program that will show your pictures in any sequence you define, using a simple script language detailed in *Graphics Studio's* adequate but unindexed manual.

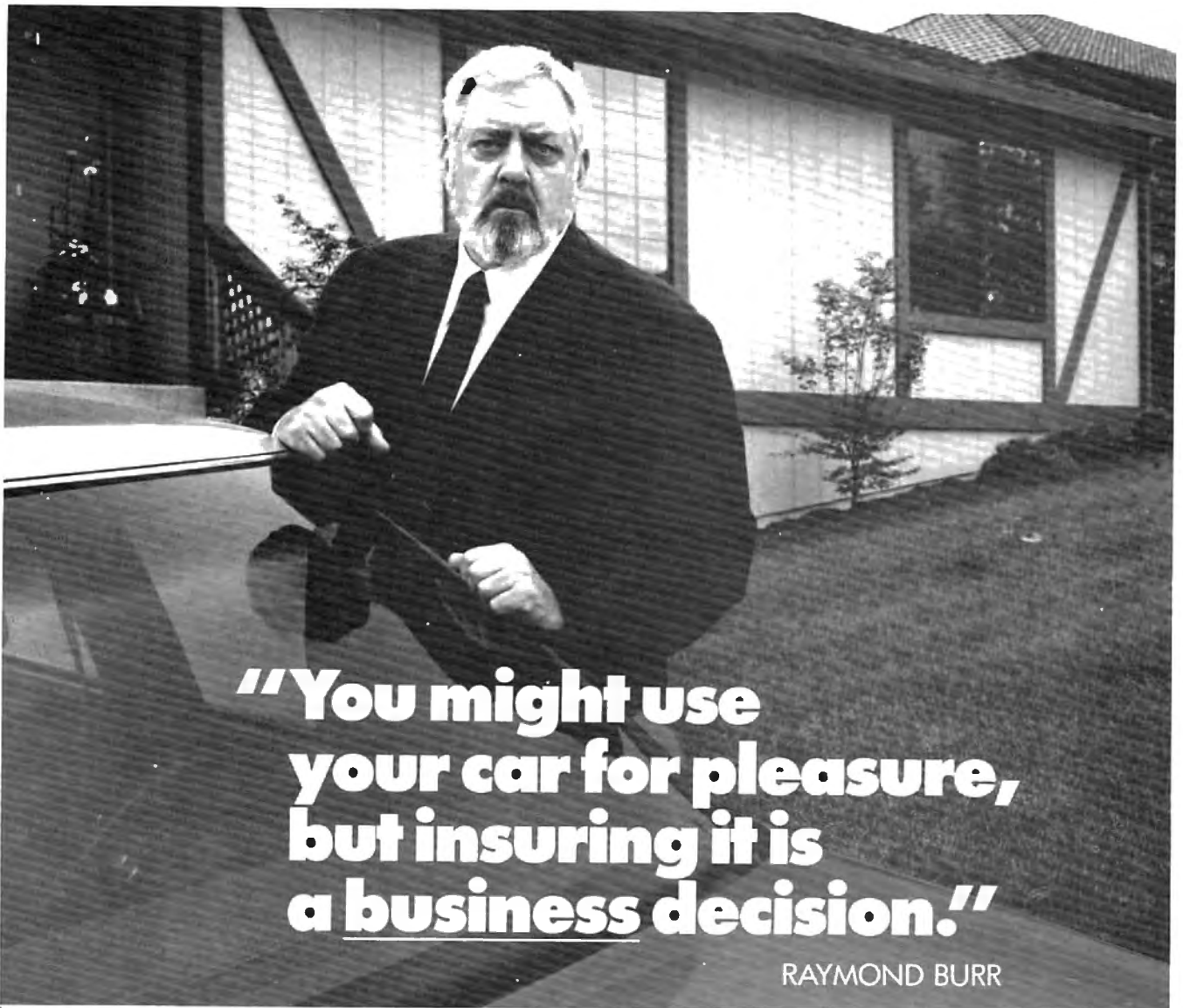
Due to its origins as an Apple IIGS program, *Graphics Studio* doesn't always follow the Amiga interface. For example, the program contains two kinds of menus: a menu bar that is operated with the right mouse button in the standard Amiga manner, and icon menus that are operated with the left

mouse button from tool palettes at the top and bottom of the screen. Experienced Amiga users will find it disconcerting at first to make menu choices with the left button. Nor are there any drawing operations that use the right button, as in most other paint programs. In the drawing area, the right button is used solely to hide and show the menu bar and palettes. Also, *Graphics Studio* doesn't multitask, as well-behaved Amiga productivity software should. It takes over the entire machine so that you can't run other programs at the same time. And it has some of the sluggish feel of IIGS graphics software; requester boxes take a long time to appear, and drawing thick patterned lines is slow. The version I tested contained one unusual bug—the pattern-edit requester box sometimes left a ghost image on my picture after I closed the box.



Computer painting is made simple with *Graphics Studio*.

Some basic aspects of the program need more polish. During cut-and-paste operations, you select a cut tool and define the area you want to cut by drawing a box around it on the screen. You can then drag the cut area anywhere else on the screen and stamp down a copy. One of the commonest uses for cut-and-paste is to stamp down multiple copies of the cut area—for example, to create a rose bush from a single painting of a rose. To facilitate this, most paint programs keep the cut area in memory so that you can paste down multiple copies with just a click of the mouse. With *Graphics Studio*, however, you can only paste down one copy at a time; to make multiple copies, you first have to choose the L (Last Copy) option from the cut-and-paste menu each time. Another minor annoyance is the behavior of the pointer. It doesn't change shape to indicate which tool you are using, and it disappears for seconds at a time while some operations are taking place, leaving you to wonder whether the program has locked up. Friendly



**"You might use
your car for pleasure,
but insuring it is
a business decision."**

RAYMOND BURR

Here's why... With the cost of auto insurance, particularly with two or more cars, you must make informed decisions. The right insurance company with the right coverages, with the proper limits at appropriate rates. Those are *business* decisions that require the advice and counsel of an Independent Insurance Agent. We represent several fine companies...not just one...so you choose the right policy at the right price, with the right service. An Independent Agent — always a good *business* decision.



INDEPENDENT INSURANCE AGENTS OF AMERICA
...and the insurance companies they represent INCORPORATED

BIG SAVINGS ON SOFTWARE!



EDUCATIONAL SOFTWARE

Make Learning Come Alive! It's fun and exciting when you use this Commodore Logo Educational Software. Now children and adults can explore math concepts. With list processing, Logo can be integrated into language arts and other curriculum. Color graphics, on-screen text, and enhanced music capabilities encourage active, hands-on problem solving. Take advantage of the **LOW price**. Order today...and put the fun back into learning!

- Logo is a Powerful Computer Language for Learning, Used in Many Elementary Schools Across the Nation.
- Easy to Use for the Novice or Expert.
- Encourages Experimentation.
- Enjoyable and User Friendly.
- Text Can be Put on Screen for Labeling Pictures, Word Games, More.
- Changeable Text Color Capability.
- Comes with Detailed Information Booklet, Language Disk and Utility Disk.
- Works with the Commodore 64, 64C and 128 Computers with a Compatible Disk Drive.

90-Day Limited Factory Warranty.

List: **\$69.00** **\$19**
Liquidation Price

Item H-3836-7342-074 S/H: \$4.50 ea.

Credit card customers can order by phone, 24 hours a day, 7 days a week.

Toll-Free: 1-800-328-0609

SEND TO:

COME Authorized Liquidator
1405 Xenium Lane N/Minneapolis, MN 55441-4494

Send Commodore Electronic Software Package(s)
Item H-3836-7342-074 at \$19 each, plus \$4.50 each for insured shipping, handling (Minnesota residents add 6% sales tax. Sorry, no C.O.D. orders)

My check or money order is enclosed (No delays in processing orders paid by check.)

PLEASE CHECK VISA MasterCard Discover American Express

Acct. No. _____ Exp. / _____

PLEASE PRINT CLEARLY

Name _____

Address _____ Apt. # _____

City _____ State _____

ZIP _____ Phone _____

Sign Here _____

REVIEWS

graphics eliminates the blocky staircase-look of rivers and oceans where they meet the edge of land.

The runic letters that appear in all the *Ultimas* have an even more important role in this adventure because you must learn to read them to understand the frequent signs at crossroads and other locations. The lavish documentation provides an easy-to-follow translation. When you read a sign, its picture and runic message appear in the text display.

But the biggest change brings day and night to the world of *Ultima*. As time passes, light wanes and visibility decreases. More significantly, the introduction of a time element imparts a new dimension to the lives of the populace. Depending on their professions or trades, each person follows a specific schedule. If you study their patterns, you can always count on finding certain people—farmers, cooks, pub tenders—doing predictable things at specific places. This is especially helpful in solving some of the puzzles, such as those dealing with regions patrolled by guards.

All combat occurs in an arena whose terrain matches that of the area where you bumped into the monsters you must battle. Each fiend is animated, there are lively sound effects, and you have individual control over your entire team. My favorite new feature deals with the way you fire missile weapons, such as arrows and long-range spells. In *Ultima IV*, I've always found it unfair that the monsters could fire diagonally at my characters, who were restricted to aiming in the four cardinal directions. The combat system now grants players diagonal-fire capability, and a foe you've aimed at remains targeted even if he moves. A few new spells have been added to your spellcasters' arsenals. You still must gather different ingredients for each spell, and now you also must learn 26 Latin-style root words that are combined to form spell names. You use these names when you plan to invoke magic.

A tour de force in the realm of computer role-playing, *Ultima V* is an enthralling experience for fantasy fans, but even with all the new features, graphics nuances, and fine-tuning, it doesn't match the elegance of *Ultima IV*. *Ultima* fans will still find weeks, if not months, of fun because the game offers a variety of engaging activities and puzzles, the true test of a role-playing game.

Each *Ultima* represents an evolutionary stage in Richard Garriott's



Characters can cast spells during combat in *Ultima V*.

often-copied game system, so those unfamiliar with the prior games will find the landscape of *Warriors of Destiny* a vast one whose puzzles are unusually perplexing—and the net effect will be rather intimidating. Even if you're a highly decorated veteran of a dozen other fantasy role-playing games, you'll appreciate the new elements and features introduced here much more after you've played an earlier *Ultima*.

— Shay Addams

Ultima V

For . . .
Apple 64K—\$59.95

From . . .
Origin Systems
136 Harvey Rd
Building B
Londonderry, NH 03053
(603) 644-3360

And . . .
5¼-inch disks can be swapped for 3½-inch version

ATTENTION FOOTBALL FANS, ROTISSERIE, AND FANTASY LEAGUE PLAYERS.

- Software for existing leagues or to form your own Franchise Football League
- Organizes your leagues draft and scoring
- So easy to use, all you need to know is football
- All results based upon 1989 NFL Season
- Weekly updates (ask available via Federal Express)

\$69.95

Plus Shipping
And Handling



1-800-USA-0-FFL

1-800-872-0335

800-558-0003

Mon-Fri 9am-9pm CST Sat 11am-5pm

Since 1982 Computer Ability Consumer Electronics

COM - 9 - 88

Mon-Fri 9am-9pm CST Sat 11am-5pm

THE HOME COMPUTER STORE THAT'S AS CLOSE AS YOUR TELEPHONE

P.C. COMPATIBLE COMPUTERS

VENDEX HEADSTART Turbo, Dual Disk, 512K, Serial, Parallel and Game Ports. Software and Monitor Included \$819 Mono \$959 Color

NEW VENDEX LTD Turbo, 512K, Serial, Parallel and Game Ports. 20 meg Hard Drive and a Mouse Included Software and Monitor Included \$1449 Mono \$1579 Color

Packard Bell PC AT System Includes 10MHz, 640K, 85Slot, 1.2 DD, Ser/Par, 3.2 DOS, 101 Keyboard \$1099

Packard Bell PC XT 8MHz, 640K, HERC/CGA, Ser/Par Clock/Calendar, 360K DD, AT Keyboard Dos 3.2 & GW Basic, Small Foot Print with Color Monitor \$919 with Mono Monitor \$869

Amstrad 1640 CALL Sharp CALL

Commodore PC20-III Call for the lowest prices

HARD DRIVES (PC)

Seagate ST-225 (20 Meg With Cable) 215 ST 238R (30 Meg With Cable) 239 ST 251 (40 Meg With Cable) 350 ST 251-1 (50 Meg With Cable (AT)) 425 ST125 (20 Meg With Cable) 40ms 235 ST138 (30 Meg With Cable) 40ms 249 ST-157 R (40 Meg With Cable) 395 DTC Controller Kit (PC/XT) 39.95 DTC RLL Controller Kit 49.95 For Western Digital Add \$10

DRIVES FOR OTHER SYSTEMS FSD-2 (For Commodore) .. 159 Indus GTS-100 (40 Meg) 189 Supra FD-10 (10 Meg) 829

AMIGA I COMMODORE

AMIGA 500 Computer A-501 Ram Exp Amiga 1010 Disk Drive Amiga 1084 Color RGB Monitor CALL For Prices

64C Computer C-128D Computer 1541 Disk Drive 1571 Disk Drive 1581 Disk Drive 1750 Ram Exp. 1351 Mouse 1670 Modem ICON Troller 1802 C Monitor Avatech Modems Xetec Interfaces 1764 RAM EXP \$109

MONITORS

Thomson NEC Taxan Princeton Amdek Magnavox

This Month's Special All Advanced orders placed for Epyx products will receive an additional \$1 off the price of the title.

Computer Ability Consumer Electronics P.O. BOX 17882, MILWAUKEE, WI 53217 800-558-0003 Order & Tech Info and WI Orders 414-357-8181

PRINTERS

STAR PANASONIC NX1000 175 1080I - II NEW 179 NX1000 Rainbow 239 1091I - II NEW 199 NX15 309 1092I 319 NX 2400 N E W 319 1592 409 ND15 399 1595 469 NR15 479 3131 309 NB24/10 439 1524 479 NB24/15 639 4450 LASER 1679

AMIGA AMIGA ATARIST ATARIST C-64

Table listing various computer games for IBM and Amiga systems, including titles like 3-D HeliCop, 4 X 4 Road Racing, and various sports and action games.

Table listing various computer games for Amiga and Atari systems, including titles like 4x4 Road Racing, Alien Foes, and various sports and action games.

Table listing various computer games for Atari and C-64 systems, including titles like Super Base Pro, Alien Foes, and various sports and action games.

IBM PRODUCTIVITY

Table listing IBM productivity software titles such as 8 in 1, Bant Mailer, DAC Easy Base, and various business management tools.

IBM CIO JOYSTICKS

Table listing IBM CIO joystick titles like Mouse Systems PC, Mouse Systems Mac, and Mouse Systems Atari.

PC CARD PRODUCTS

Table listing PC card products like Copy 2 Deluxe Option Board, Tandy Memory 256 K, and Game Card XT.

ORDERING INFORMATION: Please specify system. For fast delivery send cashier's check or money order. Personal and company checks allow 14 business days to clear. Shipping P.O.'s welcome. C.O.D. charges are \$3.00. In Continental USA include \$3.00 for software orders and 5% shipping, minimum \$19.00. All cards shipped outside the Continental U.S.A. are shipped third class insured U.S. mail. If foreign shipping charges exceed the A.M. P.O., you will be charged the additional amount to get your package to you quickly and safely. All orders are new and include factory warranty. Due to low prices all sales are final. All defective returns must have a return authorization number. Please call (414)357-8181 to obtain an RAR or your return will not be accepted. Prices and availability subject to change without notice.



Wordbench

When I heard about *Wordbench*, I told everyone I was going to sell my Macintosh and buy an IBM PC so that I could use this new word and idea processor. As I used *Wordbench* at work, I decided the Macintosh was my computer of choice after all. *Wordbench* is a beautifully conceived, well-stocked writing tool, but, practically, it's too awkward.

The strengths lie in what Addison-Wesley's new package offers: six integrated writing modules and seven desktop tools. The modules include a traditional word processor, an outline generator, and a database-like note-taking application. The desktop tools include a spelling checker, thesaurus, and reference organizer.

The Outliner is dynamically linked to the Notetaker. Together, they can generate a rough draft by sending outline headings and associated note-card text to the word processor. I don't know how exciting and unusual that sounds to anyone else, but it sure beats staring at a blank screen and fighting writer's block.

Besides boosting a writer over the first-draft hurdle, *Wordbench's* reference tool simplifies footnotes. Remember the pain of typing footnotes? Remember typing just a few lines too many on the page? Even with a word processor, footnotes are fairly tedious. With *Wordbench*, you can request a footnote window, request the source list you created, and copy the source into the footnote window. It's really very easy, and you only format a citation once for each source. *Wordbench* even provides online help about proper citation formats for different types of sources—books with two authors, interviews, and so on. What a treat for people producing term papers, theses, and dissertations!

Another highlight is the Add-In manager, which allows you to import text from other applications—most notably from *Brainstormer*, a collection of writing exercises. *Brainstormer* lets you forget about beautiful prose and just get ideas out. One exercise doesn't let you see what you write; another gives you a time limit; still another gives you a space limit. I enjoyed these tools, and they'd be helpful in starting a paper that defies the traditional writing techniques.



Wordbench integrates several writing tools and brainstorming exercises in one package.

Wordbench seemed great—so far. But after I used the package for a while, I found several annoying characteristics. Navigation was awkward, and there were features missing from some applications that I thought were indispensable. The package simply isn't flexible enough. ▶

COMPUTE!'s



AMIGA Games Disk

15 GREAT GAMES FOR ONLY \$9.95!

We've collected the best Amiga games from our archives, plus several *super* never-before-published games to put together a great value: 15 entertaining games—from frantic arcade-style to challenging strategy—all on one disk (documentation included) for only \$9.95 plus \$2 postage and handling. Don't miss out on this deal!

YES! Send me _____ copies of COMPUTE!'s Amiga Games Disk.

I've enclosed \$11.95 for each copy. _____ Amount
 _____ Sales Tax*
 _____ Total

Name _____

Address _____

City _____ State _____ ZIP _____

COMPUTE!'s Amiga Games Disk
 P.O. Box 5188
 Greensboro, NC 27403

*New York residents add 8 1/4 percent sales tax. North Carolina residents add 5 percent sales tax. All orders must be paid in U.S. funds by a check drawn on a U.S. bank. Sorry, no credit card orders accepted.

Disks will be shipped the first week of August. Please allow 4-6 weeks for delivery.

ORDER NOW!

In the Outliner, you must follow the logic of a traditional outline: no A without a B, no 1 without a 2, and so on. To protect that logic, *Wordbench* won't let you rearrange headings if the result would break up a logical group. Sometimes you must promote many headings just for the sake of reassigning the level of one heading. Then you must demote the other headings to get them back where you want them. This structure discourages outline revision. To be safe, you must sketch the outline on paper first to be sure you won't need any drastic changes onscreen. Also, the outline headings are limited to one line, and you can only have four levels of headings. The Outliner is good at establishing a structure for your paper, but it's not helpful as an idea processor.

In the Notetaker, you can't manipulate blocks of text. When I realized I wanted to break up a note, I had to copy the information from one note to the next. I could retype the text into each note, or I could copy the contents of the last card onto the newest card and delete or change what was different. Imagine deleting three paragraphs one letter at a time.

In the word processor, I found everything I needed. Although the spelling checker was a bit slow, and the thesaurus didn't work nearly as well as the bound version on my desk, all the other features worked fine. The interface for the IBM PC version of *Wordbench* is much like *Microsoft Word's* interface. You choose menus with a keystroke and then an option from the menu with another keystroke. Like an older version of *Word*, you must choose a writing mode from a menu, too.

You choose nearly everything from menus in two-step operations. Navigation, through the word processor specifically and through the program as a whole, is too involved. You go through two doors to get out of one room. To enter a note, you must go to the field, hit Enter to get in the field, and then type. To finish a note or a citation in the reference tool, you must hit Control-Enter twice.

In all fairness, some of these problems might be a matter of only using the package for a short while. You might grow accustomed to those things that seemed like idiosyncracies at first.

If you don't have a favorite word processor and you want something that simplifies report writing, *Wordbench* would be a good choice. It is a better-than-average word processor, the price is very reasonable, and the features are stunning.

I'd love to have many of the features of *Wordbench* on my own word processing software. But I don't want to trade ordinary flexibility and grace just so I can have spectacular options.

— Heidi E. H. Aycock

Wordbench

For . . .

Apple II with at least 128K—\$189
IBM PC and compatibles with at least 256K—\$149

From . . .

Addison-Wesley Publishing Company
Rt. 128
Reading, MA 01867
(617) 944-3700

And . . .

The program comes on both 5¼- and 3½-inch disks.



Stealth Mission

The people who brought us the excitement of 3-D flight with *Flight Simulator* now have something a little hotter on the runway. *Stealth Mission* puts you in the cockpit of an F-19 Stealth fighter, an experimental forward swept-wing X-29, or a Navy F-14 Tomcat.

Strategy and tactics are the keys to this simulation. While you'll need dexterity and coordination to reach a target through a barrage of surface-to-air missiles, all your efforts will be wasted if you're armed with the wrong weapons. After you select one of *Stealth Mission's* eight missions and ten levels of difficulty, decide on a plane and the correct complement of ten specialized rockets and bombs to get the job done.

Each plane has its own flight style and characteristics. The F-19 Stealth fighter is the slowest and least maneuverable, but its secret radar-absorbing technology makes it almost undetectable. The X-29 is small, fast, and maneuverable, but it carries the smallest payload. The F-14 Tomcat is fastest and carries more armament than the others, but it turns slowly.

Before flying, read the instruction manual. You probably won't be able to leave the ground otherwise. If you don't know the difference between an AIM-9 Sidewinder and an AGM-84 Harpoon, how can you know which weapons you'll need? It's a compliment to *Stealth Mission's* sophistication and attention to detail that the game's handy reference card contains more than 60 flight, view, weapon/defense, radio, and

Reader Service Number/Advertiser	Page
102 Britannica Software	1
103 COMB	70
104 CompuServe	IFC
105 Comp-U-Store	57
106 Computability	71
107 Computer Direct, Inc.	65
Computer Learning Month	84-85
108 Epyx	5
109 Franchise Football League	70
110 BRIWALL/Free Spirit Software	75
111 Gentry Software	78
112 Independent Insurance Agent	69
113 Indus-Tool	78
114 Koei Corporation	29
115 Lycos	40-42
116 Lycos	47-49
117 Marathon Software	77
118 Meca	BC
119 MicroProse Simulation Software	25
120 Mindscape, Inc.	31
121 Montgomery Grant	83
NRI Schools	33
122 PC Enterprises	76
123 Parsons Technology	63
124 Precision Data Products	82
125 Renco Computer Printer Supply	78
126 Smart Luck Computer Systems	35
127 Spectrum HoloByte	21
128 Spinnaker Software Corp.	17
129 Software Discounters of America	87
130 Strategic Simulations, Inc.	IBC
131 subLOGIC	7
132 TEVEX	35
133 Wright Computers	76

Classified Ads	79
COMPUTE!'s Amiga Disk	72
COMPUTE!'s Apple Disk	74

MAIL TO:

COMPUTE! SUBSCRIBER SERVICE

P.O. Box 10955, Des Moines, IA 50340-0955

Change of Address: Please advise as early as possible. Attach label with your old address and write in new address below.

New Subscriber: Fill in your name and address below. Use separate sheet for gift orders.

PLACE LABEL HERE

Renewal: Attach label.

..... One year \$24.00 Two years \$45.00
(Foreign subscribers please add \$6.00 per year for postage)

NAME
STREET
CITY STATE ZIP
..... Please bill me..... Payment enclosed

For other subscription questions or problems, please write a note and send entire form to the above address, OR CALL TOLL-FREE:

1-(800) 727-6937

simulation controls.

Once in the cockpit, you're faced with an array of 26 different gauges, dials, radar screens, and computers, all feeding you flight, navigation, and weapons information. You can maneuver with a joystick, the keyboard, or a combination of the two. Until you get the feel of a particular aircraft, you may be all over the sky trying to achieve level flight with a joystick. Touch a couple of keys on the keyboard, though, and your jet automatically levels out.

Your view changes realistically as you gain speed and altitude. The perspective projection is generated from a 3-D database. You can look forward, left, right, up, and to the rear. You can also switch views to a spot plane or control tower to watch yourself fly—this adds another dimension and viewpoint to a value-packed simulation.

Midair refueling is another nice touch. If you're low on fuel and far from an airport, you can search out the KC-10 refueling tanker circling the mission area. Docking with the tanker takes considerable skill, but an on-board computer can handle the chore for you. You can follow the action from the



Stealth Mission is packed with so many features, you'll learn something new every time you fly it.

cockpit or from the spot plane. After you've refueled, your plane is rearmed and repaired. Until you perfect your flying skills, *Stealth Mission* has an automatic landing procedure to get you back to base and down safely.

Stealth Mission has a full complement of navigational instruments: VOR, ILS, VDF, and DME. They'll help you locate the refueling tanker or find your home base. Instrument landing approaches are not available with *Stealth Mission*, but they are with SubLOGIC's *Scenery Disks*.

When flying combat missions, enemy targets flash as they come into view. Select a proper weapon, and a red targeting box is superimposed over the target. Maneuver the crosshairs of your gunsight within this box and press a key to lock the weapon onto the target. This is where dexterity comes into play: It takes two hands to fly the plane with the joystick, and a third one is needed to lock onto the target. If you're successful, the target-tracking computer will guide your missile or smart bomb to the target.

According to the manual, you can lock onto several targets and then fire when you're within range by pressing the space bar or fire button. This is where *Stealth Mission* currently has a problem. When you lock onto a target, a bug in the program fires your missiles whenever you move your joystick to another position. SubLOGIC is aware of the problem and should have it corrected by the time you read this. A company spokesman said people who bought early versions of *Stealth Mission* and experience this bug should contact the company.

There are some ways to sidestep

COMPUTE!'s Apple Applications Disk is the easy way to enjoy the terrific programs found in **COMPUTE!'s Apple Applications**, your best source for inexpensive, quality Apple II software.

Save yourself hours of typing time.

Use the disk with Apple II+, IIe, IIc, and IIgs personal computers.

Get *all* the programs found in each bimonthly issue of **COMPUTE!'s Apple Applications**, along with additional supporting data files and even source code.

Here are just some of the programs that you'll find on the October disk:

Window Pack. Give your Apple II programs that professional look with windows and pull-down menus. A full-blown "Window Pack" demo program is included on the disk.

Air Rescue. Imagine a pilot's test where you have to dodge the clouds. Can you pass?

Fractal Sketcher. Explore the beauty of computer-aided art by creating your own fractal designs. Several pre-designed fractals are included on the disk.

COMPUTE!'s
APPLE
APPLICATIONS

COMPUTE!'s Apple Applications Disk offers you some of the best and least-expensive Apple II software on the market. A year's subscription (that's six program-packed disks, more than 30 programs in all) costs only \$39.95. Complete documentation for the disk is provided in *COMPUTE!'s Apple Applications* (a one-year subscription to the magazine is available separately for only \$18.00).

To subscribe to *COMPUTE!'s Apple Applications Disk*, call toll-free, 1-800-727-6937 (U.S.A. only). Or send a check or money order to

COMPUTE!'s Apple Applications Disk
P.O. Box 10767
Des Moines, IA 50340

the bug. After locking onto a target, cycle to another weapon before you move the joystick. You can then change directions without the missiles firing. When you're within range and ready to shoot, cycle back to that weapon and press the space bar. The program doesn't seem to respond to the fire button. You can also use the keyboard flight controls since they're not affected.

On the whole, *Stealth Mission's* animation techniques are excellent, but the system seems to overload occasionally with data. While flying down a narrow canyon, the black walls and the green canyon floor sometimes suddenly and unexpectedly trade places, then flip-flop back. It can be hard to tell if you're flying into a wall or landing on the floor of the canyon.

A lot of sophisticated programming has gone into *Stealth Mission*, eliminating much of the annoying disk access that slows other simulations. In fact, this simulation is packed with so many features, you'll learn something new every time you fly it. One nice feature is the missile's-eye-view as a bomb or rocket homes in on a target.

If you select a zero level of difficulty, it's impossible to crash or get shot down. You can even land at enemy airfields, refuel, and rearm. At higher levels, if your aircraft is critically damaged, you can bail out and watch from the spot plane as your ejection seat comes out and your parachute opens.

When a program offers so much, I feel like it's nitpicking to ask for more, but there are a few extra touches I'd like to see programmers squeeze out of a 64 or 128. I'd like to see my rockets streak forward. I'd also like to see tracers when I fire a burst from the M61 cannon. I know hits on the enemy are registered, and I can hear explosions when a primary target is wiped out, but I'd like to see a few explosions as well. Watching a MiG go down in flames may do nothing to improve international relations, but I think most armchair jet jockeys would appreciate the effect.

It would make an already great simulation truly outstanding.

— Tom Netsel

Stealth Mission

For . . .
Commodore 64/128—\$49.95

From . . .
SubLOGIC
P.O. Box 4019
Champaign, IL 61820
(217) 359-8482

Twilight's Ransom

It has action! It has adventure! It even has suspense! *Twilight's Ransom*, from Paragon Software, is as interesting and challenging an adventure game as any I have played.

This is an interactive graphics-and-text game with terrific illustrations, beautifully written descriptions of various locales, and one of the most sophisticated command parsers you are likely to encounter.

The game's basic premise is simple: Your girlfriend has been kidnapped, and you have until sunrise to deliver what her kidnappers want . . . without knowing what they want or how to go about getting it. What follows is a desperate race against time, and also against all of the dangers a big city can pose: muggers, hustlers, and every other kind of criminal and natural hazard that an average crime-infested metropolis possesses.

As the game progresses, you will find subtle clues to the solution of the mystery, but you must distinguish these from the false leads and distractions scattered throughout the quest. Take nothing at face value, for you will surely regret it. So far, I've been shot, stabbed, mugged, and dumped in sewage.

Try everything; it's amazing how many command options the game designers have anticipated. No matter how illogical your command may seem, the designers have probably accommodated it. The parser exhibits a sense of humor, too—the game recognizes an interesting range of vocabulary.

The command parser has a large vocabulary, and is very easy on new players. It will accept UNLOCK DOOR WITH KEY, and it will also accept UNLOCK THE DOOR WITH THE KEY, THEN OPEN THE DOOR. Thus, you may be as terse or as verbose as you please. Furthermore, if additional information is needed, the program asks you for it. You don't have to retype the entire command. This feature, in my opinion, is the best of all. I'm a programmer, and nothing bothers me more than having to retype a long command several times.

This is a well-thought-out text adventure. The descriptions are very clear, and you manage their interaction with the graphics automatically or manually. In automatic picture mode, the first time you enter a scene that has an associated picture, the illustration is automatically displayed; in manual

BRIWALL

SOLID PRODUCTS • SOLID SUPPORT

OUR PRODUCTS: We carry a complete line of software products and accessories for your Commodore 64 and 128 and Amiga computers.

OUR PRICING: Our prices are very competitive and are normally discounted 20% to 35%, some even more.

OUR PROMISE: Quite simply we promise your satisfaction. With our no-nonsense low prices, our full satisfaction guarantee and our dedication to service, we feel that you cannot get a better deal anywhere else!

Write or call for your free catalog today:

P.O. BOX 129
56 NOBLE STREET
KUTZTOWN, PA 19530
TOLL FREE 24 HRS.
1-800-638-5757

Free Spirit
Software Inc. 

1541/1571 DRIVE ALIGNMENT

"... excellent, efficient program that can help you save both money and downtime."

Computer's Gazette
Dec. 1987

1541/1571 Drive Alignment reports the alignment condition of the disk drive as you perform adjustments. On screen help is available while the program is running. Includes features for speed adjustment and stop adjustment. Complete instruction manual on aligning both 1541 and 1571 drives. Even includes instructions on how to load alignment program when nothing else will load! Works on the C64, SX64, C128 in either 64 or 128 mode! Autoboots to all modes. Second drive fully supported. Program disk, calibration disk and instruction manual only \$34.95!

SUPER
81
UTILITIES

Super 81 Utilities is a complete utilities package for the Commodore 1581 Disk Drive and C128 computer. Copy whole disks or individual files from 1541 or 1571 partitions. Backup 1581 disks. Contains 1581 Disk

Editor, Drive Monitor, RAM Writer, CP/M Utilities and more for only \$39.95.

ULTRA DOS UTILITIES MODULE I

High Speed Hard Drive or dual floppy drive backup utility for the Amiga 500, 1000 or 2000. 512K Amiga required. Compatible with any hard drive that follows conventional AmigaDOS protocol. Backup those valuable files on your Hard Disk the easy way for only \$59.95!

If you can't find our products at your local dealer, you can order direct by calling:

1-800-552-6777

In IL (312) 352-7323

or write to us at:

FREE SPIRIT SOFTWARE, INC.

905 W. Hillgrove, Suite 6

La Grange, IL 60525

mode it is not. In both modes, the command PICTURE displays the picture if one is available. The dual mode is useful because you can easily display pictures for visual effect or suppress the pictures for faster progress.

The pictures are fantastic, especially in color. It's clear that the game designers invested a great deal of time and effort on game scenes. The inclusion of graphics in a text adventure game helps bring the game alive. Even the most detailed descriptions can't put across the look of a city as these pictures can. Monochrome-monitor owners must play the game without the superb graphics.

The game's prose isn't so shabby, either. The text-based descriptions are impressive in their own right. The passages read like a mystery novel—this is not the usual sketchy adventure-game prose. You'll find yourself deep into the feel of the game because of the extensive detail included in the scenes.

Twilight's Ransom has some other impressive features. A save-and-restore function lets you stop in the middle of a game. You can save many games, and you can restore one at load time or any



Kidnappers hold your girlfriend for ransom in *Twilight's Ransom*.

time during the game. Two command parameters allow you to skip the title screen and/or load all of the descriptions into memory at once so you can leave the picture disk in the drive. A Transcript command allows you to keep a record of a game and save it to disk or print it as you play.

Twilight's Ransom comes on 5¼- and 3½-inch disks and is not copy-protected. Some nifty clues come with the game. You encounter the clues as you go through the game, but instead of reading a description, you actually have some in your hands—a nice touch.

The locations and characters encountered in the game are amazingly lifelike; each place has some interesting detail to discover. Every bar has some one interesting to talk to, every item is worth examining, and even the street derelicts have character. There is never a dull moment as you wind your way through the dark streets of an unfamiliar city, in search of the clues which will return your loved one to you. It's not easy. Even as I write this I have not yet solved the mystery.

Twilight's Ransom is an excellent, interesting, tough adventure game.

— Brian Summy

Twilight's Ransom

For . . .

Amiga—\$34.95
Atari ST—\$34.95
Commodore 64/128—\$34.95
IBM PC—\$34.95

From . . .

Paragon Software
(Distributed by Electronic Arts)
1820 Gateway Dr.
San Mateo, CA 94404
(800) 245-4525

PCjr Owners

Everything you'll ever need!

- Memory sidecars which increase memory to 736K
- Second & third disk drives which snap on top
- Disk drives which read & write 1.2 MB AT diskettes
- 3½" disk drives which store up to 813K
- 20 MB hard disk drives which are DOS compatible
- ROM's which make your display easier to read
- Upgrades which expand 128K sidecars to 512K
- Speed up & pseudo DMA cartridges
- Clock modules, printer ports & speech attachments
- Joysticks, optical mice & light pens
- Adapters to use your PCjr monitor with a PC
- Switching boxes for monitors and/or serial devices
- Full size keyboards & numeric keypads
- Keyboard, modem, printer & monitor cables
- Basic manuals & also Cartridge Basic
- Game cartridges, software & Paint programs

PLUS MUCH, MUCH MORE!!

Write to us or call our toll free number to receive a FREE catalog of PCjr add-on products.

PC ENTERPRISES

"The jrProducts Group"

Box 292 • Belmar, NJ 07719

(800) 922-PCJR (201) 280-0025

Wright Computer

IBM SOFTWARE	LIST	OURS
Microsoft Word	\$450	\$230
Lotus 1-2-3	495	345
Wordperfect	495	255

IBM ENTERTAINMENT SOFTWARE

Balance of Power	\$50	\$33
Beyond Zark	50	33
Breach	40	26
Chuck Yeager AFT	40	26
Defender of Crown	40	28
Earl Weaver BB	40	28
Falcon	50	32
King's Quest I, II or III	50	32
Mini Putt	40	26
Patton-Rommel	45	29
Pirates	40	26
Police Quest	50	34
Silent Service	35	23
Space Quest I or II	50	32
Starflight	50	32
Thexder	40	26
3-D Helicopter	50	32
Ultima IV	60	41

*SEND FOR COMPLETE LISTING
**OTHER FORMATS AVAILABLE.

VISA • MASTERCARD
(316) 681-0331
Call Collect

Wright Computer
P.O. Box 780444
Wichita, KS 67278-0444

Same Day Shipping (subject to availability)

Order by mail with money order or check (check orders not shipped until cleared).
Do not send cash

SHIPPING U.S. orders sent U.P.S. Add \$2.50 for shipping and handling. Kansas residents add 5% sales tax

Read 'n Roll

A new reading program bowls a strike on skills improvement and doesn't spare the fun, either.

Read 'n Roll combines entertainment with drill and practice in basic reading skills. It offers 320 reading passages for children in grades 3-6, divided according to grade level. Each level has 80 stories. There is also a program editor to help teachers create original exercises.

The more children read, the more their comprehension skills develop. When they work through passages in *Read 'n Roll*, they get practice in one of five reading-enrichment areas: identifying the main idea, recalling specific details, remembering a sequence of events, reading between the lines, and building a vocabulary. Passages focus on one comprehension skill at a time, so teachers can better assess each student's strengths and weaknesses. Since each activity concentrates on building a single skill, it's not necessary to follow the menu options in any particular order.

While all program activities reinforce reading-comprehension skills, one in particular deserves special mention. It's an arcadelike game called *Strike 'n Spare*. Students try to define words during a bowling match. For correct answers, players can control an animated bowler—hence the name *Read 'n Roll*.



Read 'n Roll uses bowling as a setting for reading-improvement drills.

The game is a lot of fun. It uses words from one or all of the other activities and operates at each student's reading level. If the game is played prior to the other activities, children be-

come familiar with the vocabulary used in the passages. If players choose *Strike 'n Spare* after they've read the passages, they can test their knowledge of the words. Instructors can use the program editor to customize onscreen sentences. *Strike 'n Spare* teaches vocabulary and spelling without being overly pedantic.

The four other activities work differently from *Strike 'n Spare*. Students read passages and then answer multiple-choice questions about what they've just read. Correct choices are rewarded with a colorful, animated graphic (a girl whizzing by on a skateboard, a single-engine airplane zipping upward, a bright orange car or a red fire engine zooming along, a rolling bowling ball, and more). Unfortunately, with a digital RGB monitor on an Apple IIe, you get only a dull gray monochrome, and the graphics are difficult to see. Composite monitors, however, offer color graphics. There's no problem with an analog RGB monitor on an Apple IIGs.

Each animated graphic is accompanied by an encouraging message such as "You're flying high," "Moving right along," or "Awesome job." There's also some audio reinforcement. Much to the

PIK'EM 88



A Complete Pro Football Prediction Program For The 1988 NFL SEASON

60% + Accurate Since 1982

More In '88 To

BEAT THE SPREAD

★ ★ FEATURES ★ ★

- Predicted Scores All Games
 - Season Schedule By Week
 - Season Schedule By Team
 - Scores By Week
 - Scores By Team
 - Scoring Summary
 - Win Loss Record Home/Away
 - Division Standings
 - Stats — Accumulated & Average
 - Line By Week
 - Line By Team
 - Record vs Line
 - Record vs Common Opponents
 - Individual Team Match-Ups
 - Printed Copy All Screens
 - 1983-1987 Data Base (Includes All of the Above)
 - Easy Updates Playoffs/1988
 - AND MORE
- Dealer Inquiries Invited

64⁹⁵ INCLUDES DISK AND DOCUMENTATION

- IBM, Tandy & Compatibles
- Commodore 64 — 128
- Apple II+ — IIc — IIe — IIGs

Stats Needed To Run Program Available In Local Newspapers Or We Will Furnish All Stats By 1st Class Mail. Season Price 40⁰⁰.

Our Bulletin Board Will Furnish All Stats, Lines, Predictions and Trends Updated Daily. Season Price 55⁰⁰. Program Comes Updated Thru Current Week of Season . . . No Extra Charge.

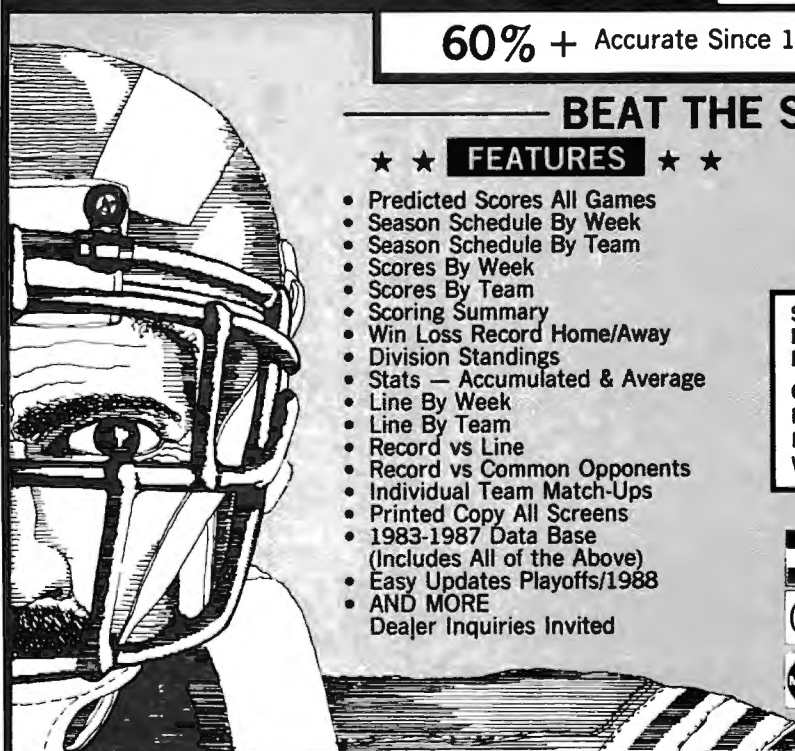
ORDERS SHIPPED IN 2 DAYS
PHONE LINES OPEN 24 HRS.
ADD 3⁰⁰ SHIPPING & HANDLING



TOLL FREE — 800-722-2277
INFORMATION — 214-586-8212

MARATHON SOFTWARE DEPT. 1
P. O. BOX 1349 — 641 FORT WORTH ST.
JACKSONVILLE, TEXAS 75766

TOLL FREE FOR ORDERS ONLY



REVIEWS

program's credit, if the child answers incorrectly there is no negative-sounding buzz. The screen merely shows "Try again." After a second incorrect reply, the computer responds with the correct answer.

Some teachers prefer programs that make students choose correctly to programs that answer for the student. Davidson might want to consider adding a new option to the Activity menu. If teachers choose this item, students would be required to answer for themselves without help from the computer.

As children work through the menu activities, they are awarded points for correct answers. Questions answered correctly on a second attempt score only half as many points as those answered correctly on the first try. In Facts and Inferences, students find a helpful hint if they look back at the passage after one incorrect answer.

The program is packed with options. You can use a mouse or the keyboard. If you use the keyboard, you can access the menu bar by pressing Open Apple-Escape. Sound can be toggled on or off. Teachers with printer access can make certificates of excellence for de-

serving students or a hardcopy of student progress reports.

During the reading activity, a digital clock ticks silently in the upper right corner of the screen. The timer tells how long it takes the student to read the passage and answer the question. If a child finds the clock too distracting, it's possible to hide it.

If you know you are going to take advantage of the program's printing features, be sure to configure the printer at program startup. There is no option for printer configuration during program operation. While the printer setup conveniently remains in effect each time you boot the program, all other menu options unfortunately default to their original settings.

The package includes two double-sided, 5¼-inch floppies and an informative manual. If you have only one 5¼-inch disk drive, prepare for a lot of disk swapping. If your computer is equipped for 3½-inch disks, do yourself a favor and take advantage of Davidson's free exchange offer. With an 800K floppy, you'll avoid the disk swapping and save mechanical wear and tear on your drive. The rugged nature of a 3½-inch

disk makes it more suitable for classroom use.

Davidson has done it again—*Read 'n Roll* is another software winner. The program makes reading an enjoyable experience. The 320 passages are well-written and the focused activities will improve the reading-comprehension skills of children in grades 3-6. Even adults will want to try their hand bowling frames in *Strike 'n Spare*.

— Carol S. Holzberg

Read 'n Roll

For . . .

Apple II with 128K (Ile with extended 80-column card)—\$49.95
IBM PC or compatibles with 256K and color graphics card—\$49.95

From . . .

Davidson and Associates
3135 Kashiwa St.
Torrance, CA 90505
(213) 534-4070
(800) 556-6141

And . . .

The program is available on 3½- and 5¼-inch disks.

EMERGENCY POWER SYSTEM

FULL Back-Up Computer Protection!

as low as **\$359**



Transfer time to emergency power 10 Milliseconds. Self-contained with enclosed gel cell battery. 425-Watt and 200-Watt 28 ampere models operate up to 35 minutes allowing ample time for safe shutdown! 3-Way AC line filter stops transient spikes and surges. 4 Receptacles. Automatic regulated battery charger. Output voltage 117vAC, 60 hz. frequency controlled ± ½ cycle.

- 200-Watt (10 ampere hours) only \$359
- 200-Watt (28 ampere hours) only \$429
- 425-Watt (28 ampere hours) only \$599

Order toll free 1-800-662-5021
IN ILLINOIS, CALL 1-312-648-2191 OR MAIL COUPON

INDUS-TOOL, 730 W. Lake Street
Dept. CI, Chicago, IL 60606

Enclosed is \$ _____ or charge on
 MasterCard or Visa Express _____
Card no. _____

Send model # _____

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

COLOR RIBBONS & PAPER

COLOR RIBBONS	RED, BROWN,	BLUE, PURPLE,	GREEN, YELLOW,	
			Black	Heat Transfer
Apple Imagewriter I/II			3.75	6.50
Citizen 120 D			5.00	7.95
Commodore MPS 801			4.15	5.75
Commodore MPS 802			6.00	—
Commodore MPS 803			4.95	7.00
Commodore MPS 1000			3.95	6.75
Commodore MPS 1200			5.00	7.95
Commodore 1525			6.00	—
Okidata 82/92/93			1.75	4.50
Okidata 182/192			6.50	—
Panasonic KX-P 1090			6.75	—
Seikosha SP 800/1000			5.25	7.95
Star SG 10			1.75	4.50
Star NX10/NL10			5.00	7.95

COLOR PAPER

BRIGHT PACK - 200 Sheets/50 each color: Red, Blue, Green, Yellow. 9 1/2 x 11 - \$10.90/pk.
PASTEL PACK - 200 Sheets/50 each color: Pink, Yellow, Blue, Ivory. 9 1/2 x 11 - \$10.90/pk.

T-SHIRT RIBBONS (Heat Transfer) - Call For Price.

COLOR DISKETTES

5 1/4" DS/DD Rainbow Pack. 10/pack - \$12.50

For ribbons & paper not listed above, call for price & avail. Price & spec. subject to change w/o notice. Min. order \$25.00. Min. S & H \$3.50. Add \$2.25 C.O.D. add'l. IL res. add 6.25% tax. MC & Visa accepted.

RENCO COMPUTER PRINTER SUPPLIES

P.O. Box 475, Manteno, IL 60950 U.S.A.
1-800-522-6922 • (IL) 1-800-356-9981
815-468-8081

If You Can Read This Sentence, You Can Program A Computer.

Introducing EngLan

- A New computer language
- Completely menu-driven.
- Easy to learn.
- Easy to use.
- Easy to teach.

Innovative. You pick commands from a menu. EngLan writes the program for you. EngLan makes programming fun.

\$49.00. Educational package available.

Dealer inquires welcome.

Call 1-800-346-9475

(in MO call 1-800-634-8439).

EngLan™

By Gentry Software, Inc.™

Programming Computers Just Got Easier

Classified

SOFTWARE

25 SCOTCH BRAND 5¼" DISKS 2S2D, \$19.95. Texas add \$1.50 tax. Check or Money Order to: Professional Business Services, POB 1707, Sherman, TX 75091

IBM SOFTWARE SALE—35 GAMES ONLY \$5
Sent on 3 disks with 16 page S/W catalog in 24 hours. Send \$5 to PACIFIC EXCHANGE 333 Cobalt Way, Suite 107, Sunnyvale, CA 94086 (CA residents add 7% sales tax).

PUB. DOMAIN SOFTWARE for C-64, C-128, Atari 8 bit, Atari ST, IBM. FREE catalog. Visa/MC BRE Software, 6210 N First St, Ste 130, Fresno CA 93710 (800)622-7942, (209)432-2159 in CA.

FANTASTIC DAILY NUMBER FORECASTER!
Not a R/N Gen. Guaranteed! Str. Hits. C/64, APPL, MS/DOS, Atari. OH adds % ST. SASE for info. \$42.45 on disk. Prog. for LOTTO: Tracker, Picker, Wheeler, 4-Dig. Z-Way, P.O. Box 9017C, Canton, OH 44711

FREE PUBLIC DOMAIN SOFTWARE
Request free catalog or send \$2 for sample disk & catalog (refundable). APPLE, C64-128 (specify) CALOKE IND., Box 18477, K.C., MO 64133

Quality IBM SOFTWARE from \$2 per disk. Games/WProc/DBases/Educ/Sprst/Util/More. PD/Shareware-Latest Versions! Free Catalog. SOFSOURCE, Box 828, East Lansing, MI 48826 (517) 349-3560 CALL OR WRITE TODAY!

FREE CATALOG OF DISCOUNT SOFTWARE.
Apple, Atari, Commodore, and IBM. WMJ Data Systems-C, 4 Butterfly Drive, Hauppauge, NY 11788. (516) 543-5252

TRY BEFORE YOU BUY: C64, 128, AMIGA.
Games utilities, educn'l, classics, new releases. 100's of titles. Free brochure. Specify computer. RENT-A-DISC, Frederick Bldg. #221, Hunt'n, WV 25701 (304) 529-3232

FREE* IBM SOFTWARE *FREE
5¼" AND 3½" FORMATS
FREE CATALOG: AP-UP, INC.,
BOX 1155, W. BABYLON, NY 11704

50 CENTS/DISK RENTAL for IBM, C-64, C-128, CPM. For info send SASE (specify computer) to: PUBLIC DOMAIN USERS GROUP, PO Box 1442-A11, Orange Park, FL 32067

Navigating Your Hard Disk Or Floppy getting you Down? Create Your Own Menu System With DOS VALET!



Run Each Program With One Keystroke
Use at Home, School or Business
For PC/XT/AT and compatibles.
Includes Powerful File Manager
Write or Call: **CenterPost**
Suite 111-189, Dept. H
15 Churchville Rd., Belair, MD 21014
\$49.95 + \$3.50 SH : MD res incl 5% tax
Use MC/VISA call 1-800-835-2246, ext 277

C64/128 FINEST PUBLIC DOMAIN PROGRAMS
Pretested quality programs * Most \$1.50 * *On Disk* YOU pick the programs that YOU want!!!
Free diskfull of programs with first order!
For a list + description, send SASE to:
JLH Co., Dept. H, Box 67021, Topeka, KS 66667

FUNDAMENTAL (RATIO) INVESTMENT ANALYSIS
Unusual -C64- for stock investors/clubs. For info-#10+50¢ p. SASE. Winston Norris 2706 Fisherman Rd., Trenton, MO 64683

FREE SOFTWARE—BEST OF PUBLIC DOMAIN & shareware. Carefully selected and edited programs for I.B.M. Send S.A.S.E. for free catalog. C.C.S., Inc. Dept. C1, P.O. Box 312, Lafayette Hill, PA 19444

ATARI 800/XL/XE SOFTWARE—New Releases, Hits, Classics—ALL INTERESTS! Send \$1 (refundable) for 28-page SUPER CATALOG to 25th Century, POB 8042, Hicksville, NY 11802

IBM PUBLIC DOMAIN SOFTWARE \$3 PER DISK
Send stamp for catalog (on disk). Hundreds of disks to choose from. Excellent service.
Two disk sizes now available: 5¼" @ \$3.00 and 3½" @ \$5.00. Send for your list.
Now accepting MasterCard and VISA.
JDX/C, P.O. Box 1561, Corona, CA 91718

Shareware, Freeware, Public Domain Software
For IBM & compatibles
1-800-426-3061
For Free Catalog
PARAGON PC..SOFTWARE

FREE CATALOG - OVER 1000 PUBLIC DOMAIN Programs of IBM PC and Compatibles. Buy or Rent. Low as \$1.00/disk. Write to Softshoppe, POB 21224, Dayton, OH 45431

PERPETUAL CALENDAR FOR IBM PC/XT & LIKES. 9999BC - 9999AD with all natl. internatl. Hebrew, Christian Holidays, Sun & Moon, \$49.95 & 2.45 handling, SAFE SOFTWARE INC., POB 222, Warrington, PA 18976

CASTLE RALF: An outrageous text adventure for IBM PC w/ 384K & DOS 2+. Send \$32 (\$33.28 in MI) to Douglas Enterprises, 1105 Comerica Bldg, Battle Creek, MI 49017

FREE CATALOG

Over 20,000 P.D. programs for C64/C128. Priced from \$1.25 disk. Midwest Public Domain, POB 5048, Terre Haute, IN 47805

Cheap Software / IBM, PCjr, Compatibles.
5.25 or 3.5 disk. For catalog of diskettes available for education, games, business, etc. Write: Morning Star Industry, Box 3095, Ann Arbor, MI 48106

OWN YOUR OWN GAMES LIBRARY FOR \$29.95
Over 10 Meg. of Public Domain and User Supported Software for IBM on 5.25 disks. Over 300 games, some as big as one disk. Arc. files \$save\$, **VOLUME PRICED ACT NOW! SAVEWARE**, P.O. 274, Glenview, IL 60025

OUTSTANDING IBM SOFTWARE—FAST SERVICE Most popular PD & Shareware programs. \$2.75/disk for 5.25" or \$4.00 for 3.5" Write for list or send stamp for disk ctg. ACL, 1621 Fulton #35-C8 Sac. CA 95825

HARDWARE

TRY LOCATOR • DOTS™ FOR EASY KEYBOARD OPERATION

SEND \$4.95 FOR TWO 6-PACKS

PRODIGY PRODUCTS CO.
P.O. BOX 18116, CLEVELAND, OHIO 44118-0116

Now! SPEECH THING™
For all PCs, compatibles, laptops

\$69.95 CLEAR, CLEAN, DIGITIZED SPEECH & MUSIC, UNLIMITED TEXT-TO-SPEECH

Attaches outside the computer.

Now get popular speech technologies in ONE product! Speech Thing is a full-featured 8 bit D/A sound converter. Easily attaches outside the computer—no slots required. Software includes pre-recorded speech vocabularies, synthetic text to speech (speaks any ASCII text), demo programs, and complete editing features. Price only \$69.95. Also available: Voice Master PC plug in board for digital recording, editing, and VOICE RECOGNITION. (Requires Speech Thing for sound output.) Only \$79.95. Patented price/performance breakthroughs!

TO ORDER BY MAIL include \$4 shipping & handling (\$6 Canada, \$12 overseas) per order. Visa, MasterCard phone orders accepted. 30 day money back guarantee, one year warranty. Other voice I/O systems available for Apple, Commodore, and Atari computers.

Call or write today for FREE Product Catalog
COMOX INC. (503) 342-1271
675 Conger St., Eugene, Oregon 97402

COMPUTE! Classified is a low-cost way to tell over 250,000 microcomputer owners about your product or service.

Rates: \$25 per line, minimum of four lines. Any or all of the first line set in capital letters at no charge. Add \$15 per line for boldface words, or \$50 for the entire ad set in boldface (any number of lines.) Inquire about display rates.

Terms: Prepayment is required. Check, money order, American Express, Visa, or MasterCard is accepted. Make checks payable to COMPUTE! Publications.

Form: Ads are subject to publisher's approval and must be either typed or legibly printed. One line equals 40 letters and spaces between words. Please underline words to be set in boldface.

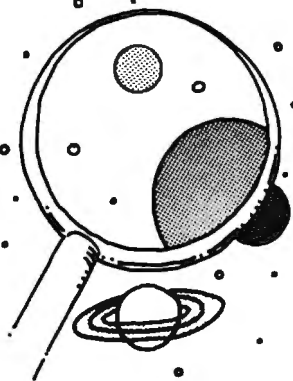
General Information: Advertisers using post office box numbers in their ads must supply permanent address and telephone numbers. Ad will appear in next available issue after receipt.

Closing: 10th of the third month preceding cover date (e.g., June issue closes March 10th). Send order and remittance to: Kathleen Ingram, Classified Manager, COMPUTE!, P.O. Box 5406, Greensboro, NC 27403. To place an ad by phone, call Kathleen Ingram at (919) 275-9809.

Notice: COMPUTE! Publications cannot be responsible for offers or claims of advertisers, but will attempt to screen out misleading or questionable copy.

discoveries

DAVID STANTON



Put a Word Processor in the Hands of a Child and Watch Writing Soar to New Heights

Jot notes and reorganize at will. Mold and refine sentences for the perfect effect. Replace weak words. Juggle paragraphs. Correct, improve, and enhance until Shakespeare blushes.

And when the writing process is all finished, computer print looks crisp and neat and clean, while pens produce a scrawl of messy goo. Such benefits can hardly go unseen.

Questions of literary talent aside, quill pens and their modern-day counterparts don't stand a chance against today's powerful word processors. No other applications software has achieved such universal acceptance in business. When was the last time you saw a traditional typewriter in the pressroom of your local newspaper? Or at your lawyer's office?

But word processing software can do much more than assist in the office. For thousands of Americans, it could radically change lives. Word processing holds great promise for those who struggle with writing-related learning difficulties.

Various sources estimate this group to be anywhere from 10 to 30 percent of the population. Do you know a child who reads several grades below the expected level, in spite of diligent efforts to improve? Or someone who simply cannot spell? Do letter reversals crop up regularly in your child's work—*saw* for *was*, *b* for *d*?

If not, here ends this column. If so, please consider the following personal observations based on several years of watching students struggle with these very real and debilitating problems. Nothing scientific, mind you—just a few thoughts and musings.

- People who fail to recognize spelling errors in their own handwriting often spot and correct them when they see their work on a screen. Perhaps this happens because on-screen letters are more clearly recognizable. Regardless of the reason, spelling improves when students compose on computers.
- Spelling checkers further refine processed text. Though some teachers have opposed the use of such software in the past, a recent study at the University of Oregon found that the use of spelling checkers has no negative effect on spelling performance.
- Although grammar checkers are still quite primitive, they do assist with homonym errors of the *too*, *to*, and *two* variety. Many even offer advice on punctuation, cliché avoidance, and other typical writing problems.

- Word-processed assignments always look good when completed. Once students see how well their work can look, they begin to take greater pride in themselves and their writing.
- Word processing turns the usually tedious process of rewriting into a pleasant (and efficient) experience.
- Better-written work means greater success. In school, that translates into higher grades. In business, it may mean landing a better job or earning a promotion.
- Perhaps most important of all: Computers make writing fun! Reluctant writers frequently change their attitude when they learn how easy it is to produce "publishable" material.

School success hinges on the ability to produce understandable and legible written work. Few skills can claim greater importance from kindergarten to graduate school. Those who cannot write face constant frustration and failure.

That need not happen. Excellent word processing software is available for every personal computer. If you don't already have the software, look for something that includes a built-in spelling checker or one that is compatible with a stand-alone checker. The best programs accommodate children and adults alike—nothing too simple, nothing too complicated. Space prevents a listing of recommendations here, but good advice is available in *COMPUTE!* magazine software reviews, from knowledgeable friends, and from appropriate school personnel.

One more thing: Don't rely on local schools in this matter. Some teachers still distrust technology, and those teachers who recognize its benefits may nevertheless find access to the lab limited.

Word processing is computer-intensive. It requires several hours of writing and revising to produce each essay. Unfortunately, most school districts have too few machines to handle this demand. If you want the job done, at least for now, you'll have to do it yourself.

Will it work for your family? Maybe. Maybe not. Anyone who works with people knows the difficulty of predicting human behavior. If it does work, though, it could change someone's life. □

David Stanton can be contacted via CompuServe (72407,102) or by mail at P.O. Box 494, Bolivar, New York 14715.



©1988 Commodore International, Inc.

for game publishers. According to some sources, Nintendo has authorized production, on the average, of only 25 percent of the number of cartridges requested by publishers. Some publishers are getting a far higher percentage of requested production levels, while others are getting next to nothing. Millions of dollars of potential sales are going to be lost.

Everyone involved in the current game-system craze is keeping at least one eye on the sales curves. With figures from the last game system go-round in front of them, some publishers (and probably Nintendo as well) are wondering when the bottom will fall out. When system penetration reaches saturation level, the theory goes, things will start to unravel. Nintendo had a big year in 1987; will 1988 be the top of the wave, with everything else simply downhill? Some publishers believe 1988 will see the Christmas of Nintendo, its high-water mark. Others think that the pent-up demand for games due to the RAM shortage will postpone the inevitable until 1989.

The effect on personal computers and personal computer entertainment-software publishers? Again, mixed answers. The optimists believe that game-system purchasers

will grow up to become personal computer buyers, and carry their thirst for games with them to the more powerful machines. In other words, though sales of the Nintendo system, and others like it, may dent the rise in personal computer entertainment software, it's only a temporary problem. The pragmatists, on the other hand, simply want to make money while there's money to be made, either by investing directly in the cartridge business, as Activision has done, or by licensing successful games to others, as Epyx has done with its popular *California Games* (licensed to Milton Bradley).

Still others believe that the way to beat Nintendo is to market high-quality games on disk—a medium that doesn't rely on RAM chips. Taito, the Japanese arcade-machine giant, is one such believer. It's bringing a half-dozen of its top-flight arcade games to disk-dependent computers such as the Commodore 64, the IBM PC, the Commodore Amiga, and the Atari ST, before it takes them to the Nintendo. One Taito source said the company wanted Nintendo to "sit up and take notice" of games going first to personal computers. —Gregg Keizer

GEOS Turns Two

GEOS 2.0, the newly announced version for the Commodore 64, features new tools and increased capabilities, said Berkeley Softworks president Brian Dougherty at the June Computer Electronics Show.

The upgrade should please seasoned GEOS users because of the new features: a

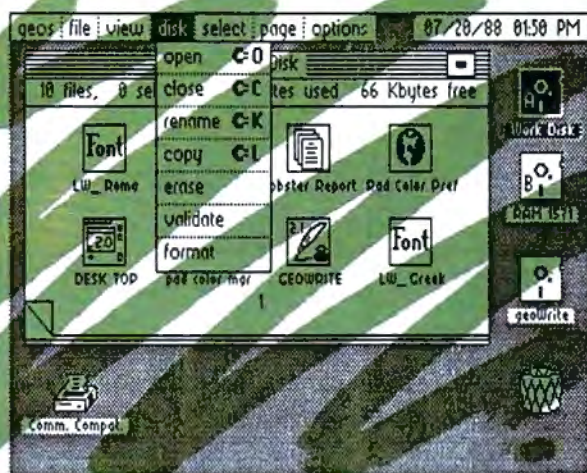
processor and a graphics package.

"We've taken a lot of customer feedback and put that into improving our package," Lee Llevano said. Llevano is vice president of marketing at Berkeley Softworks.

"We've taken input from a variety of sources," he said. Those sources include customer response and suggestions, comments in user-group publications, and in-house development by product engineers.

Besides the new features, GEOS 2.0 sports new possibilities for old friends. The new deskTop adds the 1581, a 3½-inch disk drive, to its list of supported storage devices. The graphics interface supports two disk drives and a RAM Expansion Unit. You can perform file operations on more than one file at a time, and you can retrieve the last file you tossed in the wastebasket.

geoWrite flexes new muscles: individual paragraph formatting, four text-alignment choices, decimal tabs, search and replace, and full-page preview are only some of the enhancements. Using the new Paint Drivers, you can create



spelling checker, mail merge, a file converter, a laser-printer driver, and more power for older tools. People who are new to the Commodore 64 will appreciate the completeness of the package—besides the operating system, you get a word

columns and borders and include graphics with text.

The upgrade to geoPaint adds more control over graphics creation. For example, you can stretch and scale photo scraps, use transparent paintbrushes to create overlay ef-

fects, and constrain shapes to perfectly proportioned circles or squares.

For people who already own the old version of *GEOS*, the upgrade costs \$29.95, including shipping and handling, and can be obtained from Berkeley Softworks, 2150 Shattuck Avenue, Berkeley, California 94694; (415) 644-0883. The retail price of *GEOS 2.0* is \$59.95.

Another announcement publicized the new, lower price on *GeoPublish*, Berkeley Softworks' desktop publishing package. The price will come down from \$69.95 to \$49.95.

Llevano said Berkeley Softworks had been working hard to reach more home computer users with *GEOS* and associated products. For the future, the company will develop its product line to make it more useful for both experienced users and novices.

"We're going to continue to improve the existing product line. That's where we'll be concentrating," Llevano said.

— Heidi E. H. Aycock

Epyx Gets the Gold, Heads for Hardware

Epyx, one of the country's leading entertainment-software publishers, is pulling in \$8 million in new financing from several venture-capital groups in an effort to make itself a \$100 million/year company by 1990.

Best known for sports and action games aimed at teenagers, an entertainment category personified by its popular *California Games*, Epyx last year launched a consumer-electronics division by announcing three VCR games and two audiocassette games.

According to David Morse, CEO of Epyx, the new financing will go to the new division since the entertainment-software side of the company is self-funding.

The financing is coming from both current and new investors, and is nearly double the \$4.3 million brought in when the company sought its initial round of venture capital in 1979. Although Morse would not specify exact figures, he did say that the new financing was buying control of less than 30 percent of Epyx.

What will the money be used for? One thing is certain—Epyx is staying with what it knows best. Morse claimed that his company "really understands entertainment for teenagers and young adults," and said that he "doesn't see a lot of potential for productivity software."

Part of the money will undoubtedly be used to market the existing VCR games—*VCR California Games*, *VCR Golf*, and *VCR Play Action Football*—and the audiocassette games—*Head-on Baseball* and *Head-on Football*. A \$4 million ad campaign is scheduled for print in magazines such as *Sports Illustrated* and *Sport*, and for television during such events as football games on national networks and ESPN. A current campaign is airing on MTV.

Morse said that the VCR game market is potentially huge—\$100 million a year. "I would expect we would be the leading player in that market a year from now," he said at the June Consumer Electronics Show.

But Morse and Epyx obviously have their eyes set on more than just VCR games. Morse, who cofounded Amiga in 1982 and sold it to Commodore two years later, has experience in developing state-of-the-art personal computers and related hardware. Epyx's



consumer-electronics division is working on an as-yet-undisclosed hardware product. Earlier this year it was thought that the unveiling would happen late this summer, but that's been pushed back to January 1989 at the earliest.

"A lot of the \$8 million is going into that [hardware product] . . ." Morse said. And that was all he would say.

Taking a \$27 million (Epyx's income in 1987) company to \$100 million in just over two years would seem dependent on hardware, not simply computer software and VCR games. But if hardware it is, what is that hardware?

Epyx's considerable talents lie in the area of fast-paced games for young people. That's the same group which makes up the huge audience for dedicated game systems such as the Nintendo and Sega machines. Morse helped create the Amiga—a personal computer so graphically powerful that some claim Amiga versions of arcade-machine games look better on the Amiga than they do on the arcade box. (In a supplemental note, Epyx recently hired Richard Rice, formerly with Commodore-Amiga, where he implemented production of the Amiga 1000 in Japan.)

What if Epyx puts the two together? A 16-bit, dedicated game system as powerful and graphically advanced as the Amiga running hot teenage games. As they say in California, "What a concept!"

— Gregg Keizer □

HIGHLAND DISKETTES

Manufactured by 3M
to meet your needs...

Economical diskette backed by 3M's reputation for quality and reliability. Polished media surface for consistent read/write performance. Precision punched center hole for perfect media-to-head alignment. Clipping level meets industry standards.

5-1/4" Diskettes

Save 35% off List Price

(10/Box) Min 100 disks Discount at 300 disks

SSDD...47ea.

DSDD...40ea.

DSHD...\$1.10ea.



Package your valuable media for a safe trip in our Media Mailers

3M 5.25" diskette mailer Made from 200 lb. test E-Flute corrugated fiberboard. Includes re-closeable plastic bag for added protection. For use in the most demanding mailing situations.

For one 5.25" diskette



Order No. 00297

1-9ea. \$1.75

10-9ea. \$1.20

3M 5.25" diskette master Twenty point coated white paperboard and a polyethylene film lining provide excellent protection from bending, dust, static and moisture. Holds up to three diskettes and can be used with a postal meter machine. Adhesive lined flap for excellent closure and a perforated strip for easy opening.

Order No. 12329

1-9ea. .85e

10-9ea. .65e

Plus Shipping and Handling

Call For FREE Catalog

Foreign Inquiries Invited

Quality computer supplies

Please Mention Adv. #C98

Minimum Order: \$50.00 No surcharge for VISA/MC. COD (add'l \$4.00) payment with cash, certified check, money order. MI Residents add 4% tax. School Purchase Orders Welcome. Prices subject to change.

ORDER TOLL FREE: 800-258-0028 IN MI: 800-632-2468



Precision Data Products™

P.O. Box 8367, Grand Rapids, MI 49518

616-452-3457 FAX: 616-452-4914 C.O.D.



CELEBRATING
OUR
20TH
YEAR
1968-1988

MONTGOMERY GRANT

COMPUTE 9 86

Retail Outlet: Penn Station, Main Concourse
(Beneath Madison Square Garden) NYC, N.Y. 10001
Store Hours: Mon-Fri 8:30-8/Sat-Sun 9:30-7

FOR ORDERS & INFORMATION CALL TOLL FREE

1-800-759-6565

OR WRITE TO:
Montgomery Grant Mail Order Dept.
P.O. Box 58 Brooklyn, NY 11230

FAX NO. 7186923372
TELEX 422132MGRANT

OPEN 7 DAYS A WEEK FOR ORDERS: Monday-Friday 9am-7:30pm/Saturday & Sunday 9:30am-6pm (EDT)

NO SURCHARGE FOR CREDIT CARD ORDERS / WE INVITE CORPORATE & EDUCATIONAL CUSTOMERS

NO SURCHARGE FOR CREDIT CARD ORDERS

WE INVITE CORPORATE & EDUCATIONAL CUSTOMERS

EPSON EQUITY I+ IBM PCXT COMPATIBLE PACKAGE



• 640K RAM w/Clock Calendar • 1.2MB Drive
Keyboard • Serial/Parallel Ports • 12" High Resolution Monitor • Box of 10 Diskettes

\$769

Same Package with 1 Floppy & 20MB Hard Drive **\$1029**

Same Pkg. with 2.36KB Drives **\$849**

EPSON EQUITY II+ IBM AT Compatible Hard Drive Package



Keyboard • 640K RAM • 80286 Microprocessor • 1.2 MB Floppy Drive • 20 MB Hard Drive • Mono Monitor

\$1399

EPSON EQUITY III+ 40 MB Hard Drive Package IBM AT Compatible



Keyboard • 80286 Processor • 640K RAM • 6.8 10 MHz • 1.2 MB Floppy Drive • 40 MB Hard Drive • 12" Monitor • 8 Expansions on Slots Serial and Parallel Ports

\$1899

NEC POWERMATE I IBM PCXT/AT COMPATIBLE PACKAGE



• 800286 6MHz Processor • 640K RAM • 1.2B Floppy • 12" Monitor

\$1299

Same Pkg. w/NEC 20MB Hard Drive **\$1529**

POWERMATE I w/Monitor **\$1799**

IBM XT HARD DRIVE PACKAGE

• IBM XT Computer • IBM Keyboard • 256K RAM Expandable to 640K • 360K Disk Drive • 20MB Hard Drive • Package of 10 Diskettes • (monitor optional)

\$1299

IBM XT Package with 2.36KB Floppy Drives **\$1079**

LEADING EDGE MODEL D PACKAGE



512K RAM Computer • Keyboard • 360K Floppy Drive • 4.7 - 7.16 MHz • 12" High Resolution Mono Monitor

\$729

Same Package with 20MB Hard Drive **\$989**

IBM PERSONAL SYSTEM 2 MODEL 50

w/720K Floppy Drive & 20MB IBM Hard Drive

\$2599

Personal System II Model 25.....\$1049
PS II Model 25 w/Color Monitor.....\$1299
Personal System II Model 30.....\$1199
PS II Model 60 w/44MB Hard Drive & 1 720K Floppy Drive.....\$3299
PS II Model 60 w/70MB Hard Drive & 1 720K Floppy Drive.....\$3799
PS II Model 80 w/44 MB Hard Drive & 1 720K Floppy Drive.....\$4295
Model 80 w/70MB & 720K Floppy.....\$4895
5 1/4" External Drive for PS II.....\$229

IBM PERSONAL SYSTEM MONITORS

8503 Mono.....\$209 8512 Color.....\$459 8513 Color.....\$519

PS II Model 30 w/720K Floppy Drive & 20MB IBM Hard Drive **\$1599**

VENDEX HEADSTART IBM PCXT COMPATIBLE

4.77 8 MHz Dual Floppy Drives • 7 Expansions on Slots • 512K Expandable to 768K Parallel & Serial Ports • Mouse Available in Color or Mono System • Over \$1000 Worth of Software • NO CHARGE

Mono System **\$849** Color System **\$999**

BLUE CHIP IBM PCXT COMPATIBLE PKG.

512K RAM Expandable to 640K • 360K Floppy Disk Drive • 12" Monitor

\$449

Same Pkg. w/ 20MB Hard Drive **\$699**

commodore PC10-1 IBM PCXT COMPATIBLE PACKAGE



• PC10-1 Computer • 512K Expandable to 640K • 360K Disk Drive • Enhanced Keyboard • Serial & Parallel Ports • 12" Monitor • All Hook up Cables & Adapters • Package of 10 Diskettes

\$499

Same Package with 20MB Hard Drive **\$749**

AMIGA 500



68000 Processor • 512K RAM Expandable to 9MB Graphics Processor

500 with 1084 **\$779** 500/1084/1010 **\$979**

AMIGA 2000 IN STOCK

ALL PERIPHERALS IN STOCK

A-501 512K Expansion • A-1010 3.5" Floppy Drive • A-1020T 5.25" Disk Drive with Transformer • A-2088D Bridge Card • A-1084 RGB Color Monitor • A-1680 Modem • A-1060 Sidecar • A-2090 Hard Drive • Controller for A-2000 • A-2010 3.5" Internal Disk Drive for A-2000 • A-2052 2MB Expansion for A-2000

Supra 20MB Hard Drive for Amiga 5000.....\$699

PRINTERS

LAPTOPS

HARD DRIVES

Apple



Apple IIC or IIE Keyboard • 5.25" Disk Drive • 12" Monitor • All Hook up Cables & Adapters • Pkg. of 10 Diskettes

APPLE IIC **\$579** APPLE IIE **\$779**

Apple IIGS Computer • 3.5" Disk Drive • Apple RGB Color Monitor • Package of 10 Diskettes • All Cables & Adapters **\$1379**

MAC Plus Computer Package.....\$1199
IMAGEWRITER II Printer.....\$449
MAC SE Computer w/Dual Drive.....\$1949
MAC SE Computer w/20MB Apple Hard Drive.....\$2599
Apple MAC II.....CALL

SANYO PR-3000 Letter Quality Daisy Wheel Printer \$89.99

OKIDATA 120.....	\$189
OKIDATA 180.....	\$219
OKIDATA 183.....	\$299
OKIMATE 20.....	\$139
EPSON FX-85E.....	\$28.95
EPSON FX-286E.....	\$419.95
EPSON LQ-500.....	\$315.95
EPSON LQ-800.....	\$329.95
EPSON LQ-850.....	\$509.95
EPSON LQ-1050.....	\$699.95
EPSON LX-800.....	\$149.95
EPSON LX-1000.....	\$459.95
EPSON LX-800.....	\$199.95
STAR NX-1000.....	\$169.95
STAR NX-1000C.....	\$179.95
STAR NX-1000C RAINBOW.....	\$229.95
STAR NX-2400.....	\$319.95
STAR NX-15.....	\$299.95
STAR NB-2410.....	\$409.95
STAR NB-2415.....	\$559.95
STAR NX-1000 RAINBOW.....	\$219.95
PANASONIC 1080-II.....	\$159.95
PANASONIC 1091-II.....	\$189.95
PANASONIC 1092.....	\$289.95
PANASONIC KXP-1524.....	\$499.95
NEC P-6.....	\$419.95
NEC P-2200.....	\$339.95
TOSHIBA 321-SL.....	\$479.95
TOSHIBA 341-SL.....	\$649.95
IBM PROPRINTER II.....	\$369.95
HP LASERJET SERIES II.....	\$1629.95
HP DESKJET.....	\$719.95
COMAR/DORNE DPS-1101.....	\$419.95
DICOMX 150.....	\$299.95

MONITORS

THOMSON 12" HI-RES.....\$229
THOMSON TTL Amber 12".....\$69
MAGNAVOX 8505 RGB Monitor.....\$199
MAGNAVOX EGA Monitor.....\$339
MAGNAVOX EGA Monitor & EGA Card.....\$459
NEC Multisync II.....\$559

TOSHIBA 1000

• 720K Floppy • 512K RAM • 4.77MHz • Super Ywist LCD Screen

\$749

ZENITH 181.....\$1449
ZENITH 183.....\$1999
SPARK by DataVue (640K w/2 720K Drives).....\$999
SPARK EL.....\$1149
NEC MULTISPEED.....\$1049
NEC MULTISPEED HD.....\$1399
NEC MULTISPEED HD.....\$2179
TOSHIBA 1200.....\$2199
TOSHIBA 3100/20.....\$3929
TOSHIBA 3200.....\$3695
TOSHIBA 5100.....\$4895

SEAGATE 20MB w/Controller \$269

MINISCRIBE 40MB w/Controller \$369

30MB w/Controller \$319

SEAGATE 40MB w/Controller \$439

commodore COMPUTERS & PERIPHERALS



64C Personal Computer.....\$149.95
C-128 Personal Computer.....\$219.95
C-128 D w/Built-In Disk Drive.....\$429.95
MPS-1250 Computer Printer.....\$239.95
DPS-1101 Daisy Wheel Printer.....\$149.95
1541C Disk Drive.....\$149.95
1541-II Computer Disk Drive.....\$164.95
1571 Computer Disk Drive.....\$199.95
1581 Computer Disk Drive.....\$189.95
1084 RGB Color Monitor.....\$279.95
1802 Color Computer Monitor.....\$169.95
1700 128K Expansion Module.....\$99.95
1764 Expansion Module.....\$114.95
1660 Modem.....\$119.95
1670 Modem.....\$66.95

commodore COMPUTER PACKAGES

C-64C COMPLETE PACKAGE

• C-64C Computer • 1541 Disk Drive • Computer Printer • 12" Monitor • GEOS Software Program

COLOR MONITOR ADD \$110 **\$369**

C-64C COLOR PACKAGE

• C-64C Computer • 1541C Disk Drive • Computer Printer • Color Monitor • GEOS Software Program

\$478

C-128C COMPLETE PACKAGE

• C-128 Computer • 1541 Disk Drive • 12" Monitor Computer Printer

COLOR MONITOR ADD \$110 **\$469**

TO SUBSTITUTE C-1571 FOR C-1541 ADD \$60

C-128C DELUXE PACKAGE

• C-128 Computer • 1571 Disk Drive • 1802 Color Monitor • 1515 80 Column Printer

\$659

COMPAQ DESKPRO 386 MODEL 40 Hard Drive Package



Keyboard • 80386 5 MHz Microprocessor • 1 MB RAM • 40 MB Hard Drive • 2 MB Floppy Drive (monitor optional)

\$4295



Credit Card, Bank Check, Money Order, Mastercard, Visa, Amex, Diner's Club, Carte Blanche, Discover Card, C.O.D.'s and approved P.O.s accepted. No additional surcharge for credit card orders. Non-certified checks must wait 4-6 weeks for clearance. Please add \$4 for shipping and handling. APO/FPO addresses add 15% for shipping and handling. All APO/FPO are shipped first class priority air. N.Y. residents add applicable sales tax. Prices subject to change without notice. Not responsible for typographical errors. Return of defective merchandise must have prior return authorization number or returns will not be accepted. IBM PC AT are registered trademarks of International Business Machines Corp. All orders can be shipped Air Express. Call for details. For your protection we check for credit card thefts. NYC DCAS00233



Photo: © Chuck Keeler Jr./Athena Image

Businesses, schools, groups... communities everywhere sponsor free events during Computer Learning Month.



Photo: © Comstock, Inc./Tom Grill

Spend quality time learning together with our free Family Activities Guide.



Photo: © Four By Five, Inc.

Discover how computers are helping kids learn with our free book for parents.



Photo: © Comstock, Inc./Tom Grill

By learn relation And with

Take Part In Computer Learning Month.

Free contests, books, events... Computer Learning Month is an easy, exciting way to discover more about computers. And to explore what they can do for you. Computer Learning Month helps people of all ages learn together. Because by learning together, we build better relationships. With computers. And with people.

Contests Make Learning Fun.

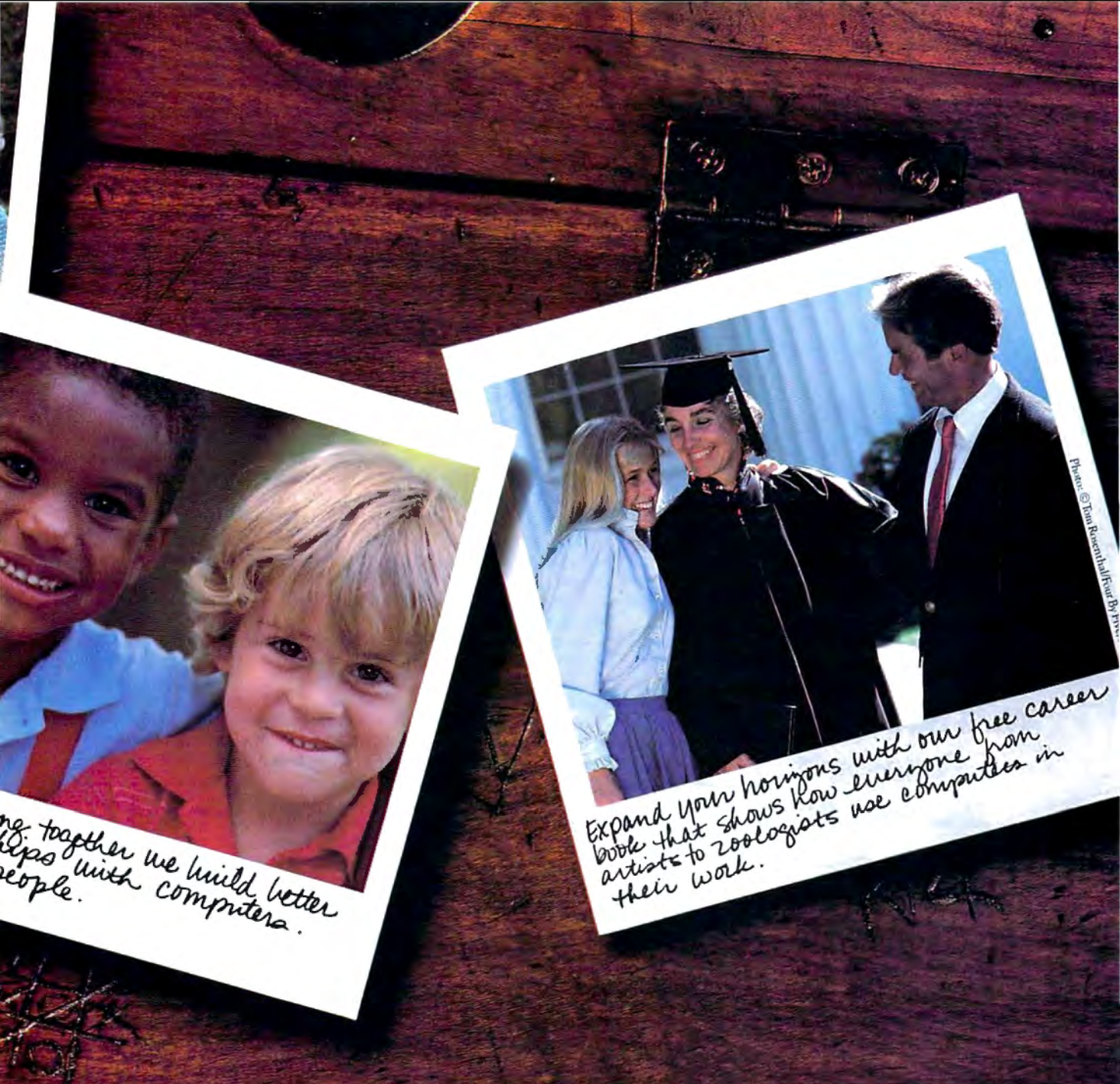
Win thousands of dollars worth of computers and software. And you don't have to own a computer to enter. There are contests for individuals and groups. Kids, families, even entire schools. Entering is easy. Participating is fun. And if you win a prize, your school wins one too.

Materials Make Learning Easy.

Easy-to-read materials are packed with how-to information for everyone. Our free book for parents explains how computers are used in learning. And our free career book shows how everyone from artists to zoologists use computers in their work. The Family Activities Guide helps families learn together. And for educators there are books with lesson plans and even a university software resource guide. Read at home, or share the fun... put on a community event with our Computer Learning Night Kit. Learn a little. Share a lot. Or choose anything in between.

**Endorsed by the National Education Association, American Federation of Teachers, and many more.*

Computer Learning Month 1988 is an official project of the Software Publishers Association and is sponsored by: A+ Magazine ■ Academic Computing* ■ Activision, Inc. ■ Addison-Wesley Publishing Company, Inc. ■ Advanced Ideas ■ Apple Computer, Inc. ■ Berkeley Softworks ■ Britannica Software* ■ Broderbund Software, Inc. ■ Claris™ Corporation ■ Classroom Computer Learning ■ Commodore® Business Machines, Inc. ■ Compu-Teach™ ■ Compute! ■ Computer Gaming World ■ Corvus Education & PLATO ■ Curriculum Product News ■ Davidson & Associates, Inc. ■ DLM Teaching Resources ■ Education Systems Corporation ■ Educational Dealer ■ Electronic Learning ■ Focus Media, Inc.



*... together we build better
relationships with computers.*

*Expand your horizons with our free career
book that shows how everyone from
artists to zoologists use computers in
their work.*

Photo © Tom Rosen/Photo Bank

You'll Love The Relationships That Develop.

Local Events Make Learning Convenient.

Throughout October, PTA's, universities, scout troops, museums, computer and software stores, schools, and clubs everywhere will be handing out materials and putting on special events. Maybe that's why we're the non-profit program that's endorsed by so many national organizations, State Departments of Education and even the U.S. Senate. Learn in your group, enter a contest, pick up a free book... just clip the coupon and we'll send you everything you need to get started fast. But hurry. Because the sooner you do, the sooner you'll develop relationships of your own.

YES!! Show me how to enter a contest. Tell me how to get free materials. Send me everything I need to get started.

I am an educator parent student
 I own a computer yes no
 (type of computer _____)
 I have children in K-6 7-12 university none

Name _____
 Address _____
 City _____ State _____ Zip _____
 Phone (_____) _____
 Mail to: Computer Learning Month, Dept.
 P.O. Box 60007 Palo Alto, CA 94306-0007



- IBM Corporation • inCider Magazine • The Learning Company* • Logo Computer Systems Inc. • MicroPro International Corporation • MicroProse™ Software, Inc.
- Microsoft® Corporation • Mindscape, Inc. • Novell® Inc. • Pinpoint™ Publishing • Prodigy Services Company • Random House Media • Scholastic Software,™ Inc.
- Society For Visual Education, Inc • Software Magazine • Springboard Software, Inc.™ • Sunburst Communications, Inc. • Tandy/Radio Shack • Teaching and Computers
- Terrapin, Inc.™ • T.H.E. Journal • Today's Catholic Teacher • Tom Snyder Productions® • Unison World • UpTime. The Disk Monthly • Weekly Reader Software



Levitations

**Videogame
Violence Is
Everywhere.
You Can Bet
We'll Soon See
Gruesome
Games with
Slasher-Flick
Tie-ins.**

continued from page 88

Rambo, Predator, Platoon, Robocop, and Wrestlemania abounded. The ultraviolence theme hit home as a PR flack proudly demonstrated Sega's Uzi look-alike rapid-fire light pistol. You can bet that, by next January's CES, gruesome games with tie-ins to such horror flicks as *Nightmare on Elm Street, Friday the 13th, and Texas Chainsaw Massacre* will be on the screen.

After a full day of this electronic mayhem, I was pleasantly surprised by Intersel's *Gone Fishin'*, a bass fishing simulation available for the Amiga and Atari ST. The game captures a lot of the slow, laid-back quality of leisurely casting for bigmouths. The only feature I found myself wishing for was a two-player mode. Half the fun for most anglers is sharing a boat and an afternoon of conversation with a friend. If you're looking for a break from the latest twitch-and-shoot arcade hit, give *Gone Fishin'* a try.

Sports personalities endorsing products are always fashionable at CES. Walter Payton, Andre the Giant, and King Kong Bundy were among the luminaries who patiently sat for hours signing reams of publicity photos for show goers who lined up.

Mediagenic (formerly Activision) hosted a breakfast with a live satellite hookup that let the press quiz baseball great Pete Rose on the company's new *Pete Rose Pennant Fever* game. Autographed baseballs (which one Mediagenicist claimed would be worth \$150 as soon as Charlie Hustle made the Hall of Fame) were handed out as souvenirs. The best questions weren't about the game, though, but were about what Pete thought of the wrist slap Bad Billy Martin got for tossing dirt on an umpire.

Those who weren't athletically minded could chat with a pair of Reagan/Gorbachev look-alikes plugging Spectrum Holobyte's *Tetris*, an addictive game imported from the Soviet Union.

While computer hardware manufacturers were relatively scarce on the show floor, the software scene seemed decidedly healthy, although considerably more low-key than the salad days of 1985 and 1986. Although I don't own a Commodore 64, I've got to admit that I'm impressed with both the number and quality of new titles for that venerable machine. Today's programmers are pushing the 64's graphics and sound capabilities for all it's worth, and, according to the software manufacturers I spoke to at the show, their 64 sales have remained brisk, even as the popularity of Atari and Apple

eight-bit titles has waned. Entertainment software for the IBM PC and its clones is continuing on a roll, with more and more titles including high-quality EGA graphics as a display option. Software development for the Atari ST line is in the dumper, with most software houses blaming poor sales on the current slowdown in ST sales and a higher-than-normal amount of software piracy in the ST market. Developers are hot on new titles for the Amiga, but they've expressed concern over well-organized cadres of Amiga crackers based in Europe.

With such a paucity of computers and software to graze, I went afield and hit the audio and video part of the show. High-end audio equipment manufacturers traditionally take over the entire McCormick Center Hotel; the combined effect is said to simulate a sustained 8.5 on the Richter scale. The only thing more awesome than the sound of Infinity system's IRS Series V loudspeakers was its price. I can understand how they came up with the product name. If you can afford the \$45,000, the IRS probably is interested in chatting with you for a while.

Everyone who has used a camcorder knows that real home videos are supposed to be perpetually out of focus and jerky. It's not enough that nearly every video camera sold today automatically keeps Uncle Fred in focus. Now Panasonic has wiped out the last vestige of amateur artiness with a camera featuring something called "electronic image stabilization," a consumer version of Hollywood's Steadicam.

The computer product drought continued unabated throughout the week. I was even suckered in by Integ's Junior Computer, a math and spelling tutor for young yuppies-in-training that looks just like Mom and Dad's laptop. The widest-vertical-market computer-product award goes to the Lotronic's Personal Computer, which turned out to be a hand-held device with a one-button keyboard that picks up to six 2-digit numbers at random.

I headed for the Gemini booth to check out the latest in low-cost printers. Whoops! Wrong Gemini. These guys were hawking the FlashFormer, an electronic device designed by noted electronics wizard Grand Master Flash. The FlashFormer lets uncoordinated boobs such as myself "rock, rap, and hip-hop . . . with one hand tied behind your back." I backed away warily, headed for my car and home, convinced that if these folks decided to market an impact printer, not all of the pins would be firing. □

SOFTWARE DISCOUNTERS OF AMERICA

S.D. of A.

For Orders Only—1-800-225-7638
PA Orders—1-800-223-7784
Customer Service 412-361-5291

- Free shipping on orders over \$100 in continental USA
- No Surcharge for VISA/MasterCard
- Your card is not charged until we ship

Datsoft

As captain of Russia's newest state-of-the-art sub your goal is to cross the Atlantic and rendezvous with the American Navy.

Hunt for Red October
List \$49.95
Our Discount Price \$32



Our largest selection of software ever for your IBM or Compatible!

DATASOFT	GFL Ch. Football . . . \$24
Alternate Reality: City . \$26	Star Rank Boxing 2 . . . \$24
Hunt for Red October . \$32	HI-TECH
Tomahawk \$21	Print Power \$9.88
DAVIDSON	Sesame St. Print Kit . \$9.88
Algeblaster \$30	INFOCOM
Grammar Gremlins . . \$30	Beyond Zork \$32
Math & Me \$24	Hitchhikers Guide . . \$9.88
Math Blaster Plus . . \$30	Infocomics:
Spell It \$30	Gamma Force \$8.88
Word Attack \$30	Lane Mastadon . . . \$8.88
ELECTRONIC ARTS	Zork Quest \$8.88
Software Classic Series:	Leather Goddesses . \$9.88
Adventure Const. Set . \$9.88	Zork 1 \$9.88
Lords of Conquest . . \$9.88	Zork Trilogy \$32
One-on-One \$9.88	LEARNING COMPANY
Pinball Const. Set . . \$9.88	Math Rabbit \$24
Seven Cities Gold . . \$9.88	Reader Rabbit \$24
Super Boulder Dash . \$9.88	Think Quick! \$32
ELECTRONIC ARTS	Writer Rabbit \$32
Alien Fires \$23	MECA
Arctic Fox \$23	Andrew Tobias: Managing
Bard's Tale \$32	Your Money \$139
Chestermaster 2000 . \$26	Financial Calculator . \$29

MINDSCAPE

This is it. The game everybody's been waiting for. Gauntlet, the most successful arcade game of all time has come home.

Gauntlet
List \$39.95
Our Discount Price \$24



ACCESS

Echelon \$29
10th Frame Bowling . \$29
World Class Leader
Board Value Pack . \$9.88

ACCOLADE

Ace of Aces \$9.88
Bubble Ghost \$23
Hardball \$9.88
Mean 18 Golf \$29
Mean 18 Famous
Course Disk #2 . . . \$14
Mean 18 Famous
Course Disks #3 & 4 \$23
Mini-Putt \$24
Test Drive \$24

ACTION SOFT

Up Periscope Call

ACTIVISION

Black Jack Academy . \$24
Hacker 1 or 2 . . . \$9.88 Ea.
Last Ninja Call
Maniac Mansion . . \$29
Might and Magic . . \$32
Postcards \$16
Rampage \$24
Shanghai \$23

ALTURAS

Maxx Yoke Adapter . \$69

ARTWORX

Bridge 5.0 \$19
Strip Poker \$25
Data Disk #1 Female . \$14
Data Disk #2 Male . . \$14
Data Disk #3 Female . \$14

LINKWORD LANGUAGES:

French \$19
German \$19
Spanish \$19

AVALON HILL

NBA Basketball . . . \$25
Super Bowl Sunday . \$23

BOX OFFICE

All's First Adventure . \$9.88
California Raisins . . \$16
High Rollers \$9.88
\$100,000 Pyramid . \$9.88
Psycho \$16

BRODERBUND

Ancient Art of War . . \$27
Ancient Art of
War at Sea \$27
Bank St. Writer Plus . \$49
Carmen San Diego
Europe \$29
USA \$29
World \$25

KARATEKA

Karateka \$9.88
Loderunner \$9.88
Memory Mate \$44
Print Shop \$36
P.S. Companion . . . \$32
P.S. Graphics
Library #1 or #2 \$21 Ea.
Toy Shop \$32

CENTRAL POINT

Copy 2 \$23
Deluxe Option Board . Call
PC Tools Deluxe . . \$47

CINEMAWARE

Defender of the Crown \$25
S.D.I. \$25
Three Stooges \$32

DATA EAST

Ikari Warriors \$24
Karnov \$24
Lock On \$24

ELECTRONIC ARTS

More powerful paint tools. Superior color capabilities. An intelligent interface. Unleash the artist in you.

Deluxe Paint 2
List \$99.95
Our Discount Price \$65



CHUCK YEAGER'S AFT

Chuck Yeager's AFT . . \$26
Deluxe Paint 2 \$65
Earl Weaver Baseball . \$26
Marble Madness . . . \$23
Metropolis \$26
Patton vs. Rommel . . \$26
Rockford \$26
Scrabble \$26
Starflight \$32
Twilight's Ransom . . \$23

EPYX

Boulder Dash
Construction Kit . . . \$14
California Games . . \$24
Death Sword \$14
Destroyer \$24
4x4 Off Road Racing . Call
Home Video Producer . \$32
Impossible Mission 2 . \$24
Print Magic \$39
Spy vs. Spy 3: Arctic Antics \$14
Street Sports Baseball . \$24
Street Sports Basketball \$24
Sub Battle Simulator . \$24
Summer Games 2 . . . \$14
Winter Games \$14
World Games \$14

GAMESTAR

Champ. Baseball . . . \$9.88
Champ. Basketball . . \$9.88

MICROPOSE

F-15 Strike Eagle . . \$21
Gunship \$32
Pirates \$25
Silent Service \$21

MINDSCAPE

Balance of Power . . . \$32
Blockbuster \$23
Bop & Wrestle \$19
Captain Blood \$24
Defender of the Crown \$24
De Ja Vu \$24
Gauntlet \$24
Harrier Combat Sim. . \$23
Indoor Sports \$19
Infiltrator 2 \$19
Into the Eagle's Nest . \$23
Super Star Ice Hockey \$24
Super Star Soccer . . \$24

MONOGRAM

Dollars & Sense . . . \$109

MY SOFTWARE

My Label Maker . . . \$9.88
My Mail List \$9.88
My Phone Book . . . \$9.88

ORIGIN

Moebius \$39
Ultima 1 or 3 \$25 Ea.
Ultima 4 \$39
Ultima 5 Call

SHARE DATA

Family Feud \$8.88
Jeopardy \$8.88
Jeopardy Jr. \$8.88
Wheel of Fortune . . \$8.88
Wheel of Fortune 2 . \$9.88

SIERRA

Black Cauldron \$24
Gold Rush Call
King's Quest
1, 2, or 3 \$32 Ea.
King's Quest 4 Call
Leisure Suit Larry . . \$24
Leisure Suit Larry #2 . Call
Manhunter Call
Mother Goose \$19
Police Quest \$32
Space Quest 1 or 2 \$32 Ea.
3-D Helicopter Sim. . \$32
Thexder \$23

SIMON & SCHUSTER

Star Trek:
Rebel Universe Call
Typing Tutor 4 \$32

SIR TECH

Deep Space \$24

WIZARDRY SERIES:

Knight of Diamonds \$32
Legacy of Lyngamin \$32
Proving Ground . . . \$32
Return of Werdna . . \$32

SOFTWARE SIMULATIONS

Pure Stat Baseball . . \$24
Pure Stat College
Basketball \$24

SPECTRUM HOLOBYTE

Falcon \$32
Solitaire Royale . . . \$23

TETRIS: THE RUSSIAN CHALLENGE \$23

SPINNAKER

Backgammon \$14
Eight in One \$39
Kindercomp Gold . . \$24
Splash \$65

SPRINGBOARD

Certificate Maker . . \$24
C.M. Library #1 . . . \$19
Newsroom Pro \$49

SSI

Gettysburg \$39
Kampfgruppe \$39
Questron 2 \$29
Star Command \$32
Stellar Crusade . . . \$32

THREE SIXTY

Dark Castle \$24
Harpoon \$24

THUNDER MOUNTAIN

Pac Man \$6.88
Top Gun \$6.88

TIMETWORKS

Data Manager \$25
Partner \$25
PC Quintet \$65
Publish It! \$129
Swiftcalc w/Sideways \$25
Sylvia Porter's
Investment Mgr. . . \$95
Word Writer \$32

TITUS

Crazy Cars \$24

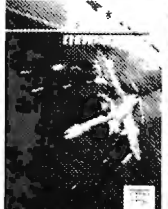
WEEKLY READER

Stickybear Math 1 or 2 \$23 Ea.
Stickybear Numbers . \$23
Stickybear Reading . . \$23
Stickybear Spell Grabber \$23

MINDSCAPE

This is the real thing. You're flying this mission solo into territory that's as hostile as it gets.

Harrier Combat Simulator
List \$34.95
Our Discount Price \$23



Datsoft

This role-playing fantasy game combines music with state-of-the-art graphics in the ultimate real-time adventure.

Alternate Reality: The City
List \$39.95
Our Discount Price \$26



P.O. BOX 111327—DEPT. CP—BLAWNOX, PA 15238

*Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order: Orders with cashiers check or money order shipped immediately on in stock items! Personal & Company checks, allow 3 weeks clearance. No C.O.D.'s! Shipping: Continental U.S.A.—Orders under \$100 add \$3; free shipping on orders over \$100. AK, HI, FPO, APO-add \$5 on all orders. Canada & Puerto Rico-add \$10 on all orders. Sorry, no other International orders accepted! PA residents add 6% sales tax on the total amount of order including shipping charges. CUSTOMER SERVICE HOURS: Mon.-Fri. 9 AM-5:30 PM Eastern Time. REASONS FOR CALLING CUSTOMER SERVICE—(1)Status of order or back order (2)if any merchandise purchased within 60 days from S.D.of A. is defective, please call for a return authorization number. We will not process a return without a return auth. #1 Defective merchandise will be replaced with the same merchandise only. Other returns subject to a 20% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased & return directly to the manufacturer. Customer service will not accept collect calls or calls on S.D.of A.'s 800# order lines! Prices & availability are subject to change! New titles are arriving daily! Please call for more information. NEW, MORE CONVENIENT ORDER LINE HOURS: Mon.-Thurs. 8:30 AM-7:00 PM Fri. 8:30 AM-5:30 PM Sat. 10:00 AM-4:00 PM Eastern Time.



levitations

ARLAN LEVITAN

**The Consumer
Electronics
Show USED to
Be the Home
Computer
Market's Big,
Bad Blowout.
No More.**

As I pulled onto the exit ramp for Detroit Metropolitan Airport, I winced at the thought of yet another plane flight on CattleCar Air. A scant quarter of a mile away, thousands of travelers immersed in the hurry-up-and-wait lifestyle queued up for tickets, checked luggage destined to be misdirected to a remote radar outpost north of the Arctic Circle, and fumed while gate agents offered air-travel vouchers. I glanced at my watch and listened to the growl in my gut. Both told me that it was about half past noon. The sky was a cloudless azure—a color I would surely get to know during the 45-minute holding pattern over O'Hare Airport that the flight promised. An inexplicable force took hold of my steering wheel, and my car merged back onto Interstate 94. I figured I could stop at Kellogg's in Battle Creek (cereal capital of the world) for a quick bowl of corn flakes that I could wash down with a bottle of Pinot Blanc from Tabor Hill in Buchanan.

Out of my car's glove compartment came the requisite road-trip survival kit—compact disc player, cellular phone, and radar detector. I set my vehicle's cruise control at warp 9 and settled into my seat. The steady hum of four Pirelli P6's were a counterpoint to the music of Swing Out Sister, INXS, and the Talking Heads as the asphalt ribbon that binds the Motor and Windy Cities unwound before me. A mere three hours and 24 minutes later, I was pulling into the parking lot of Chicago's McCormick Center Exposition Hall (I leave it to the math students and state troopers in the reading audience to calculate my average speed).

During the height of the home computer and videogame wars, the Summer and Winter Consumer Electronics Shows were *the* trade shows for the home computer market. Atari, Commodore, Radio Shack, Texas Instruments, and Coleco would fly in massive displays—staffed with scores of marketing types who didn't know which way to insert a floppy into a disk drive—in an effort to convince retailers that their machine was the hottest home computer. Wild all-night parties, extravagant press conferences, and bizarre promotional events were de rigueur.

Then came the great shakeout. As the armies of competitors were winnowed and the money dried up, the carnival-like aspects of CES subsided. The catchword for vendors of computer-related products at the last two shows was a shell-shocked "You still here?" While CES is still a potent show

for home video and audio manufacturers, COMDEX has become the show of choice for most computer manufacturers.

In fact, Atari and Commodore decided not to exhibit their computer products at Summer CES. Most of the handful of computer manufacturers present were PC-clone manufacturers the likes of Vendex, Blue Chip, Amstrad, and Hyundai. Even they were not in particularly high spirits.

Three of the four privately admitted that IBM has contacted them (and other clone manufacturers) about royalties allegedly owed on IBM patents that their products supposedly use. Even if some IBM patents are in widespread use in clones, why has Big Blue waited over five years before deciding that it owns a piece of just about every PC compatible? IBM's actions are the poker equivalent of sandbagging—declaring that your cards are not good enough for an initial bet and then raising the stakes after someone else opens. Even in games where such checking and raising is not expressly forbidden, it's considered a scumbag tactic.

I suppose IBM figures that if it can't make enough millions from lagging PS/2 system sales, it might as well cut itself in on the profits of companies successfully selling classic PCs. The unfortunate truth is that many companies, when faced with the prospect of a protracted and expensive legal battle with IBM, throw in the towel, regardless of the relative merits of the case. Even the U.S. Government gave up without going to court after spending hundreds of millions of dollars in the late 1970s preparing an anti-trust case against the computer behemoth.

As I searched the show floor, it became apparent that PC products were as scarce as RAM chips at this CES. Even some old standbys couldn't be counted on. Bondwell had been purveying a line of low-cost PC laptops for several years. They must surely have some new computer wares on display, right? As I strolled up to the booth, a marketing type zeroed in on my press badge like a heat-seeking missile and pumped my arm vigorously. "Our hot new products . . . yes, sir . . . just check out this Ferrari Testarosa telephone and minimix console for kiddies who want to play disk jockey. . . ."

The stand-alone videogame market has come back with a vengeance. Nintendo dominated almost an entire floor of McCormick North, with Sega and Atari both maintaining a solid toehold. Grisly game cartridges with big-name titles such as

continued on page 86

COMPUTE!

THE LEADING MAGAZINE OF COMPUTING

Subscribe now and receive COMPUTE! for 12 months at 32% OFF – or 24 months at the low rate of 36% OFF the \$2.95 cover price.



Term	Cover Price	Your Price	You Save
12 MONTHS	\$35.40	\$24.00	\$11.40
24 MONTHS	\$70.80	\$45.00	\$25.80



Check one: 1 Year (12 issues – \$24.00) 2 Years (24 issues – \$45.00)

FOR FASTER
SERVICE CALL:
1-800-727-6937
TOLL FREE

Mr./Mrs./Ms. (circle one) (please print)

Street Apt. No.

City State Zip

Check one:
 Payment enclosed
 Please bill me later

Canada & Foreign add \$6 per year.

J9CS27



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

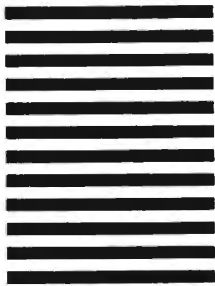
BUSINESS REPLY MAIL

FIRST CLASS

PERMIT NO. 7478

DES MOINES, IA

POSTAGE WILL BE PAID BY ADDRESSEE



COMPUTE!

P.O. Box 10955
Des Moines, IA 50347-0955



BEST SERVICE PLAY LYCO BUCKS LOWEST PRICE

\$2

LYCO BUCKS

Any purchase over \$50

Offer good on orders postmarked before October 30, 1988.

For details, see reverse side.

\$2

CELEBRATE COMPUTE'S 10TH ANNIVERSARY

BEST SERVICE PLAY LYCO BUCKS LOWEST PRICE

\$2

LYCO BUCKS

Any purchase over \$50

Offer good on orders postmarked before October 30, 1988.

For details, see reverse side.

\$2

CELEBRATE COMPUTE'S 10TH ANNIVERSARY

PLAY LYCO BUCKS

BEST SERVICE PLAY LYCO BUCKS LOWEST PRICE

\$5

LYCO BUCKS

Any purchase over \$200

Offer good on orders postmarked before October 30, 1988.

For details, see reverse side.

\$5

CELEBRATE COMPUTE'S 10TH ANNIVERSARY

BEST SERVICE PLAY LYCO BUCKS LOWEST PRICE

\$5

LYCO BUCKS

Any purchase over \$200

Offer good on orders postmarked before October 30, 1988.

For details, see reverse side.

\$5

CELEBRATE COMPUTE'S 10TH ANNIVERSARY

PLAY LYCO BUCKS

BEST SERVICE PLAY LYCO BUCKS LOWEST PRICE

\$145

LYCO BUCKS

Model II 1080i

Offer good on orders postmarked before October 1, 1988.

For details, see reverse side.

\$145

CELEBRATE COMPUTE'S 10TH ANNIVERSARY

BEST SERVICE PLAY LYCO BUCKS LOWEST PRICE

\$25

LYCO BUCKS

Any purchase over \$1,000

Offer good on orders postmarked before October 30, 1988.

For details, see reverse side.

\$25

CELEBRATE COMPUTE'S 10TH ANNIVERSARY

\$2 CELEBRATE COMPUTE'S 10TH ANNIVERSARY **\$2**
IN LYCO WE TRUST

For \$2 off prices advertised in this issue, mail this coupon along with your computer type and order to:
 Lyco Computer - P.O. Box 5088 - Jersey Shore, PA 17740

- Only one coupon per purchase.
- Valid on all advertised Lyco merchandise in this issue.
- All Lyco policies apply as stated in advertising.
- Coupon may not be reproduced.
- Coupon may not be used as legal tender.
- Void where prohibited.

\$2 SINCE 1981 **PLAY LYCO BUCKS** **\$2**

\$2 CELEBRATE COMPUTE'S 10TH ANNIVERSARY **\$2**
IN LYCO WE TRUST

For \$2 off prices advertised in this issue, mail this coupon along with your computer type and order to:
 Lyco Computer - P.O. Box 5088 - Jersey Shore, PA 17740

- Only one coupon per purchase.
- Valid on all advertised Lyco merchandise in this issue.
- All Lyco policies apply as stated in advertising.
- Coupon may not be reproduced.
- Coupon may not be used as legal tender.
- Void where prohibited.

\$2 SINCE 1981 **PLAY LYCO BUCKS** **\$2**

\$5 CELEBRATE COMPUTE'S 10TH ANNIVERSARY **\$5**
IN LYCO WE TRUST

For \$5 off prices advertised in this issue, mail this coupon along with your computer type and order to:
 Lyco Computer - P.O. Box 5088 - Jersey Shore, PA 17740

- Only one coupon per purchase.
- Valid on all advertised Lyco merchandise in this issue.
- All Lyco policies apply as stated in advertising.
- Coupon may not be reproduced.
- Coupon may not be used as legal tender.
- Void where prohibited.

\$5 SINCE 1981 **PLAY LYCO BUCKS** **\$5**

\$5 CELEBRATE COMPUTE'S 10TH ANNIVERSARY **\$5**
IN LYCO WE TRUST

For \$5 off prices advertised in this issue, mail this coupon along with your computer type and order to:
 Lyco Computer - P.O. Box 5088 - Jersey Shore, PA 17740

- Only one coupon per purchase.
- Valid on all advertised Lyco merchandise in this issue.
- All Lyco policies apply as stated in advertising.
- Coupon may not be reproduced.
- Coupon may not be used as legal tender.
- Void where prohibited.

\$5 SINCE 1981 **PLAY LYCO BUCKS** **\$5**

\$25 CELEBRATE COMPUTE'S 10TH ANNIVERSARY **\$25**
IN LYCO WE TRUST

For \$25 off prices advertised in this issue, mail this coupon along with your computer type and order to:
 Lyco Computer - P.O. Box 5088 - Jersey Shore, PA 17740

- Only one coupon per purchase.
- Valid on all advertised Lyco merchandise in this issue.
- All Lyco policies apply as stated in advertising.
- Coupon may not be reproduced.
- Coupon may not be used as legal tender.
- Void where prohibited.

\$25 SINCE 1981 **PLAY LYCO BUCKS** **\$25**

\$145 CELEBRATE COMPUTE'S 10TH ANNIVERSARY **\$145**
IN LYCO WE TRUST

To purchase our Panasonic 1080i at \$145, mail this coupon along with your computer type and order to:
 Lyco Computer - P.O. Box 5088 - Jersey Shore, PA 17740

- Only one coupon per purchase.
- Valid on all advertised Lyco merchandise in this issue.
- All Lyco policies apply as stated in advertising.
- Coupon may not be reproduced.
- Coupon may not be used as legal tender.
- Void where prohibited.

\$145 SINCE 1981 **PLAY LYCO BUCKS** **\$145**

COMPUTE!'s

FREE Reader Information Service

Use these cards to request FREE information about the products advertised in this issue. Clearly print or type your full name and address. Only one card should be used per person. Circle the numbers that correspond to the key number appearing in the advertisers index.

Send in the card and the advertisers will receive your inquiry. Although every effort is made to insure that only advertisers wishing to provide product information have reader service numbers, COMPUTE! cannot be responsible if advertisers do not provide literature to readers.

Please use these cards *only* for subscribing or for requesting product information. Editorial and customer service inquiries should be addressed to: COMPUTE!, P.O. Box 5406, Greensboro, NC 27403. Check the expiration date on the card to insure proper handling.

Use these cards and this address only for COMPUTE!'s Reader Information Service. Do not send with payment in any form.

COMPUTE!

101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117
118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134
135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151
152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168
169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185
186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202
203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219
220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236
237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253

Circle 101 for a one year *new U.S.* subscription to COMPUTE! you will be billed for \$24

Please let us know. Do you own:

- | | | |
|------------------------------|--------------------------------|------------------------------|
| <input type="checkbox"/> 270 | Apple _____ | <input type="checkbox"/> 271 |
| <input type="checkbox"/> 272 | Atari _____ | <input type="checkbox"/> 273 |
| <input type="checkbox"/> 274 | Commodore _____ | <input type="checkbox"/> 275 |
| <input type="checkbox"/> 276 | IBM _____ | <input type="checkbox"/> 277 |
| <input type="checkbox"/> 278 | TI-99/4A _____ | <input type="checkbox"/> 279 |
| <input type="checkbox"/> 280 | Other _____
(specify model) | <input type="checkbox"/> 281 |

plan to buy:

Please print or type name and address.
Limit one card per person.

Name _____
Address _____
City _____
State/Province _____ Zip _____
Country _____
Phone _____

Please include ZIP Code

Expiration Date 10/31/88

GA0988

SUBSCRIBE TO COMPUTE!

- \$24.00 One Year US Subscription
 \$45.00 Two Year US Subscription

For Fastest Service,
Call Our **Toll-Free**
US Order Line
800-727-6937

Name _____
(PLEASE PRINT)
Address _____
City _____ State _____ Zip _____

- Payment Enclosed Bill me

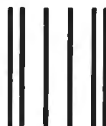
Your subscription will begin with the next available issue. Please allow 4-6 weeks for delivery of first issue. Subscription price subject to change at any time. Outside the U.S.A. please add \$6 for each subscription Basic Rate \$24.

J9CS19

Place
Stamp
Here

COMPUTE! Reader Service

P.O. Box 2141
Radnor, PA 19089



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 7478 DES MOINES, IA

POSTAGE WILL BE PAID BY ADDRESSEE



COMPUTE!

P.O. Box 10955
Des Moines, IA 50347-0955



Prepare for the ultimate fantasy when the first official **Advanced Dungeons & Dragons®**

Game Product comes alive on your computer!



Commodore 64/128.
IBM PC/Compatibles.
Conversions are in the
works for Apple
and other personal
computers.

SSI proudly presents **POOL OF RADIANCE**, the culmination of its collaboration with TSR to bring the legendary **ADVANCED DUNGEONS & DRAGONS®** fantasy role-playing system to your home computer.

POOL OF RADIANCE is set in the huge, complex world of the Forgotten Realms, a world brought to life by the combined talents and skills of top designers and programmers from both companies. Its game system adheres faithfully to AD&D® standards. Its state-of-the-art graphics push the very limits of the computer's capabilities. The only way to believe it is to experience it for yourself — wherever game software is sold.

Look for the entire line of AD&D computer products coming soon from SSI.



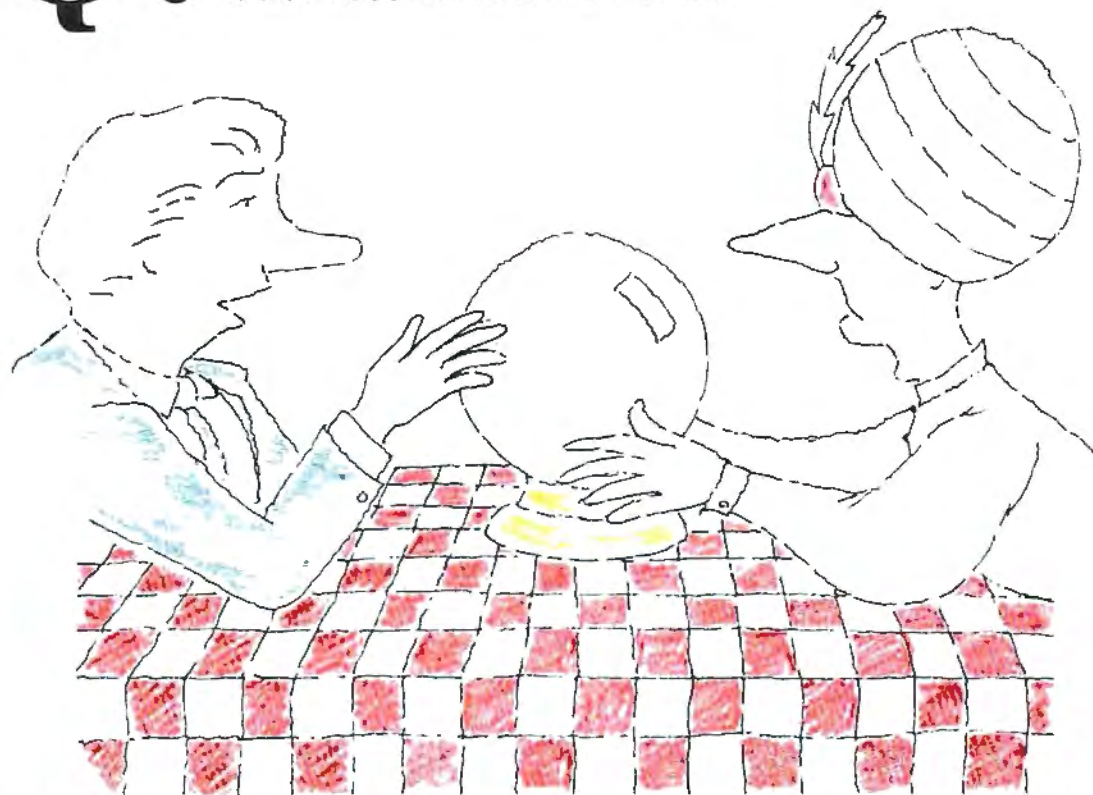
Roll up your characters and see their portraits and characteristics. (C-64/128 screen display.)



Every single monster type is individually drawn by superb computer graphics. (IBM PC screen display.)

STRATEGIC SIMULATIONS, INC.
1046 N. Rengstorff Avenue
Mountain View, CA 94043
(415) 964-1353

Q ● “Will I have to take a third job in order to put
● the triplets through law, medical, and
● business schools in 1988?”



A: Andrew Tobias' Financial Calculator™. It Figures.



Andrew Tobias' Financial Calculator™ from the best selling software 'Managing Your Money' answers questions on:

- College and retirement planning
- Effects of new tax laws
- Mortgage refinancing
- Investment analysis
- Buy vs. rent vs. lease
- Internal rate of return
- Rental property analysis
- Compound interest calculations
- Loans and annuities
- And more!

At dealers for **only \$44.95!** Order your copy today by calling (203) 222-9150 (\$2.00 refund for toll calls).
Mention this ad and receive an additional discount!

meca

We help you make the decisions that make a difference.
355 Riverside Avenue • Westport, CT 06880