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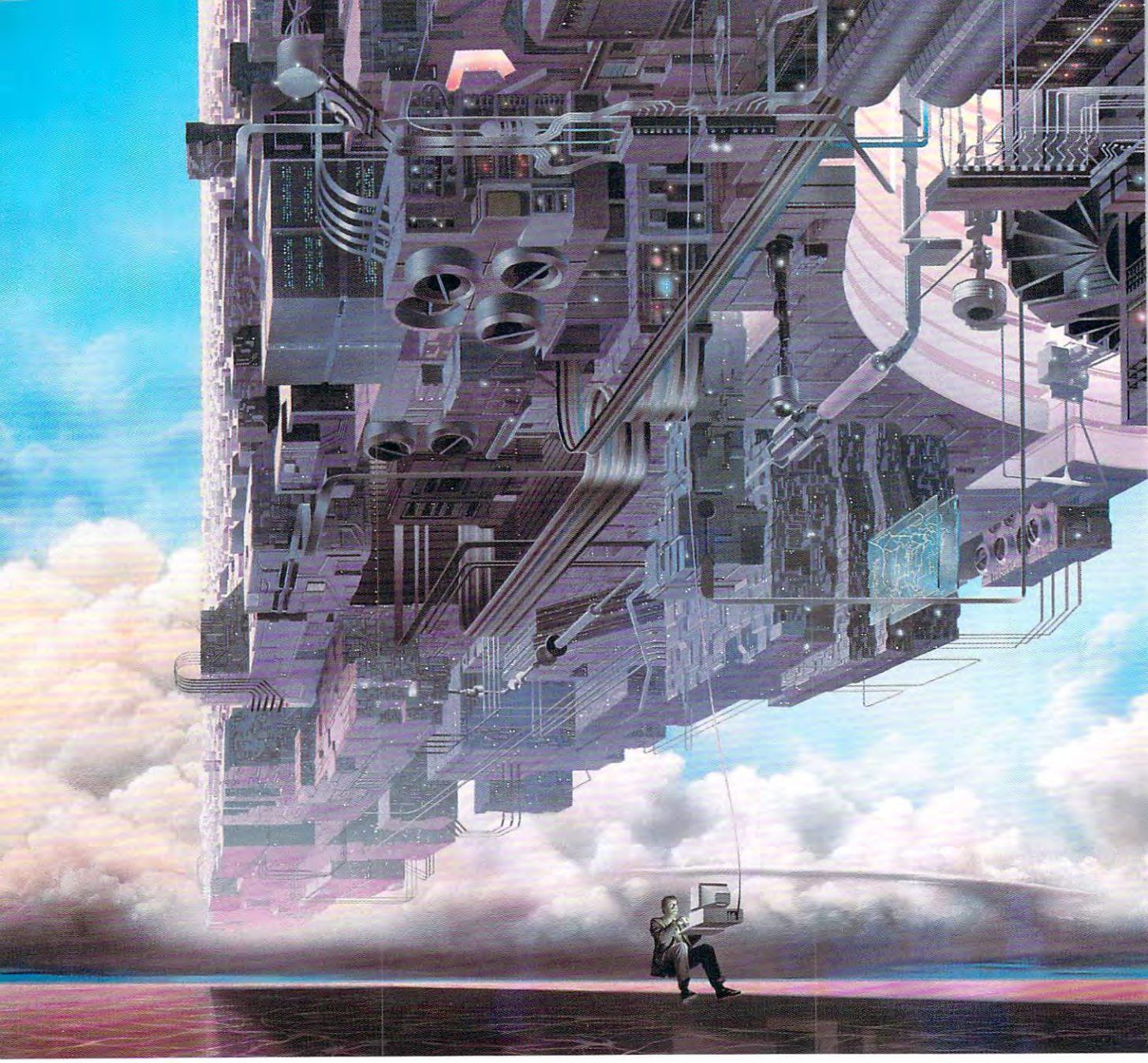

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COMPUTE!

SEPTEMBER 1988

VOLUME 10
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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**

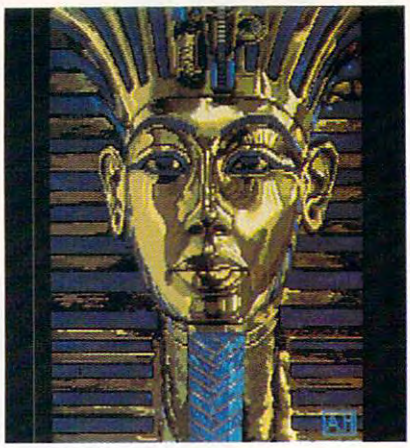
Ultima V
Shay Addams ____ **68**

Wordbench
Heidi E. H. Aycock ____ **72**

Stealth Mission
Tom Netsel ____ **73**

Twilight's Ransom
Brian Summy ____ **75**

Read 'n Roll
Carol S. Holzberg ____ **77**



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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**

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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. ◻

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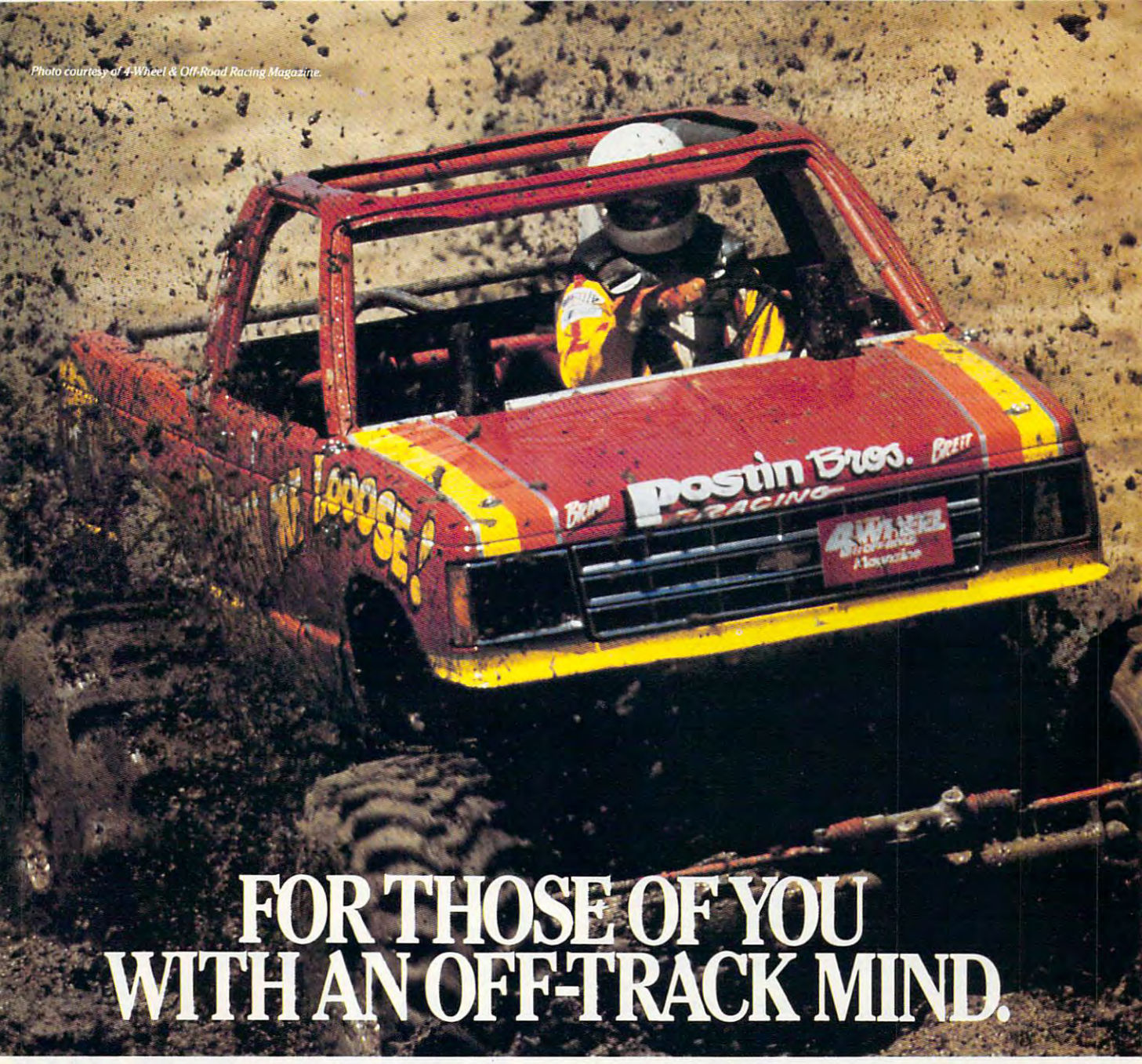

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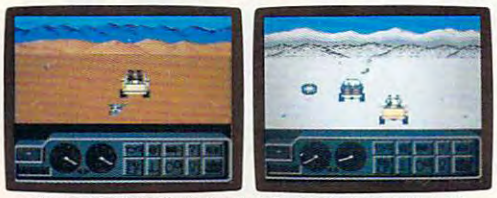
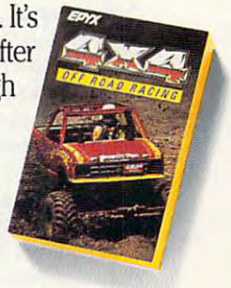


Plenty of thrills guaranteed on the following grounds: gumbo mud, packed snow, skid-sand, and the scrubbiest terrain south of the border.

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? 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.

Start with pre-race strategy. Select and customize your personal vehicle. Your supplies. Your repair equipment. Believe us. You'll need everything. 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.)

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.



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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

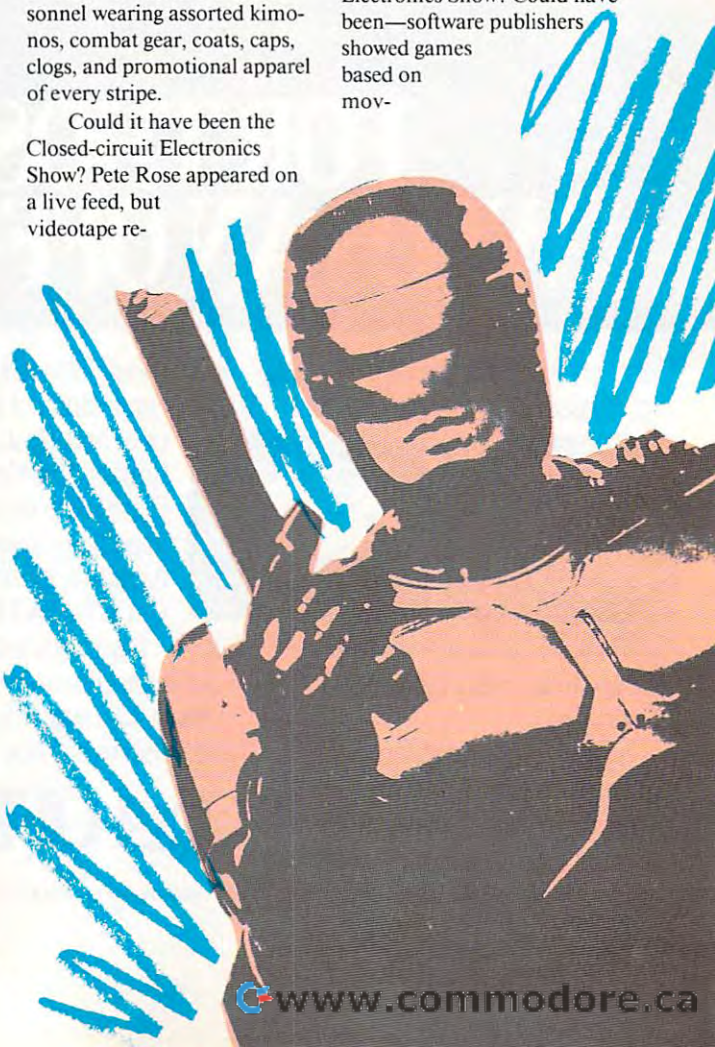
Or was it the Celebrity Electronics Show?

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 remained 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-



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ies and television programs, including *The Three Stooges* and *Rocket Ranger* (Cinemaware), *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 Cinemaware. *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.) ▷

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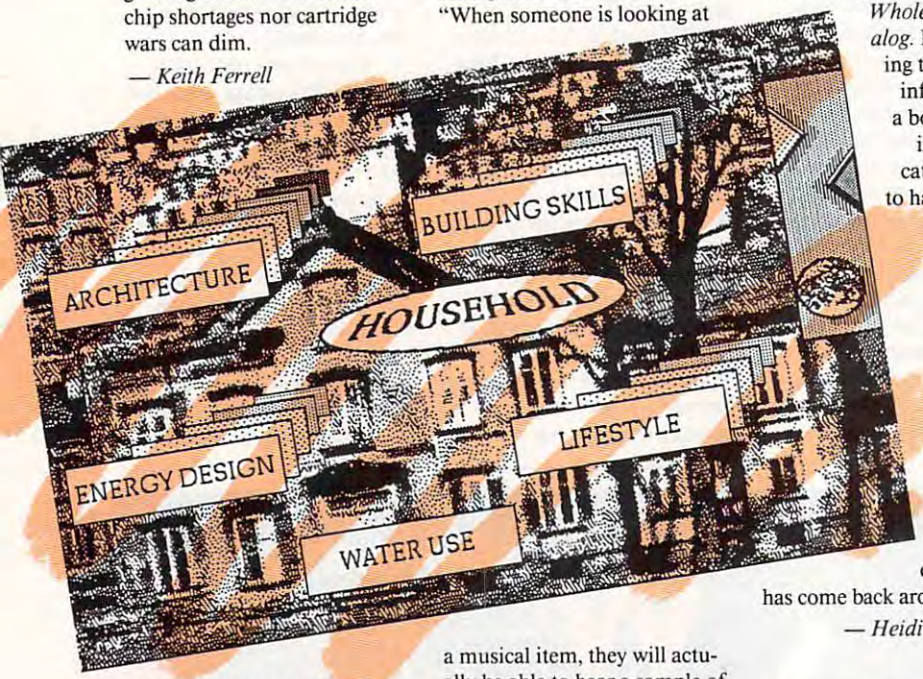
For all of Nintendo, Sega, and Taito's cartridge emphasis, not to mention the chip shortage, CES was good for software publishers—perhaps the best software CES in recent years. There was a sense throughout the show that software was back as a major force in consumer electronics, with a growing market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

— Keith Ferrell



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 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 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 more graphics and more varied indexing to give people more flexible ways to get at the information," Jordan said. "We're aiming for user serendipity, 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

Games Hot, but Cartridges Cool

If the recent Summer Consumer Electronics Show in Chicago was any indication, dedicated game-system sales have yet to peak. The Nintendo exhibit sprawled over a major portion of the floor dedicated to computer software; under its umbrella were more than a score of game-system–cartridge publishers, including familiar computer software names like Brøderbund, Activision, and Data East. The Sega and Atari displays weren't as large, but they added to the combined game-system square footage, which easily dwarfed that of the computer-oriented companies.

Nintendo expects to sell seven million of its game systems in the U.S.A. this year; Sega and Atari, second and 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

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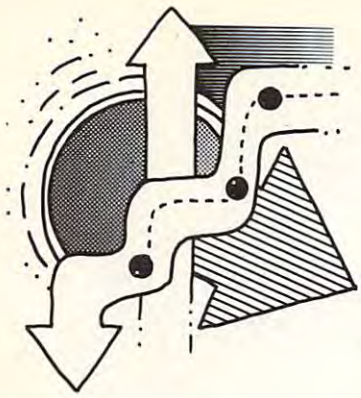

gameplay

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 Blubbermen is a Buck Rogers–type space adventure. It begins with rays from Jupiter that cause normal animals to grow into humongous monsters that destroy cities. When Lane Mastodon is sent to Jupiter to stop the ray, the Blubbermen 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. ⊡

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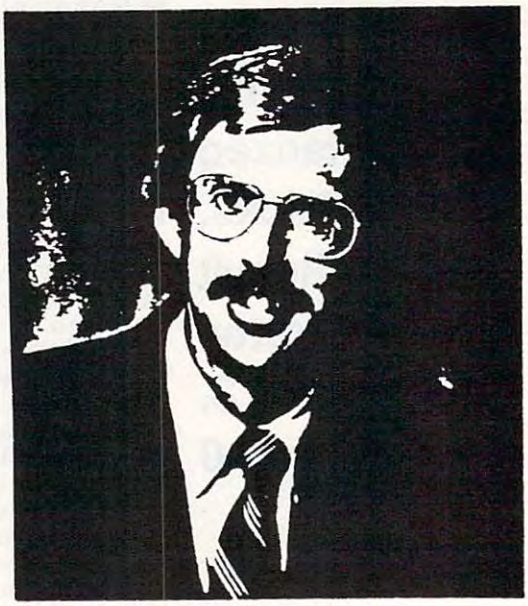
conversations

Epyx Grows with David Morse

Keith Ferrell and Gregg Keizer



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.

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.

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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 playing 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. ⊡

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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. ⊡

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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. ▷

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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 mentions 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 extended graphics capability is BASIC 8.0, *by Walrus Software, available from Patech 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. ⊡

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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 × 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.

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hints & tips

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. ⊡

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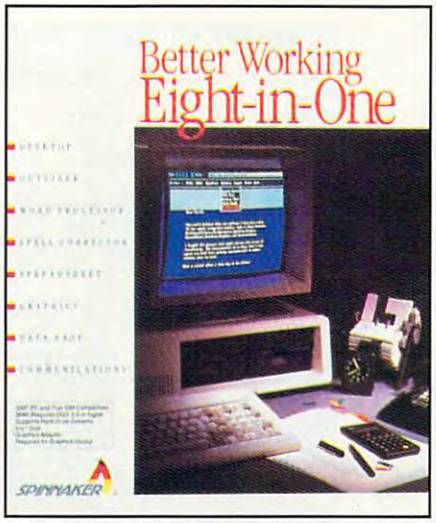

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YEARS gone by

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.

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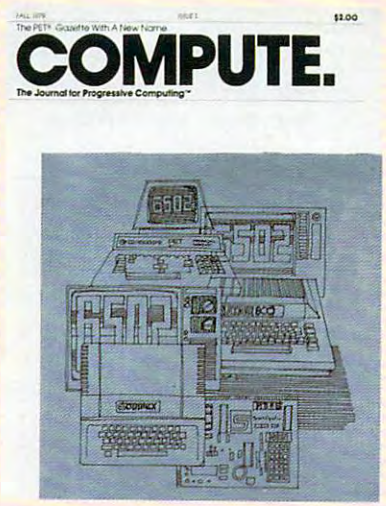
1979



Fall 1979
Issue #1
104 pages

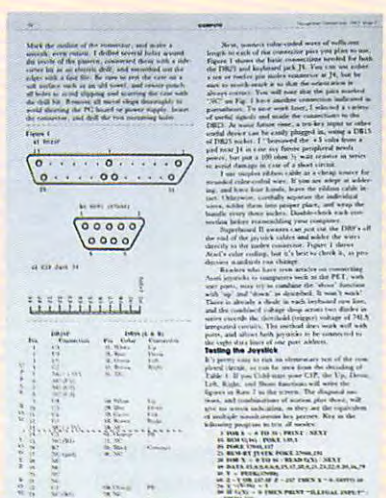
The first issue of *COMPUTE* magazine (note that the exclamation point had not yet made an appearance) hit readers' hands in the fall of 1979. Only a quarterly at this point, it billed itself as *The Journal for Progressive Computing,* a label it would keep on the cover for three years. Still on unknown 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.

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

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.



Many of the articles in the early issues of *COMPUTE!* looked like this. Titled "Atari Joysticks on the OSI C1P," 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. ▷

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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). ▷

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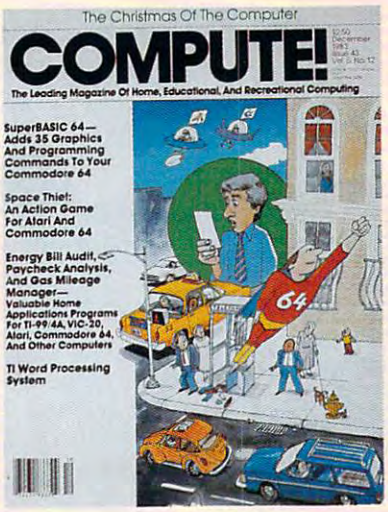
1983



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 Instructions. "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

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 IIc 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 IIc. See the price? The IIc 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.

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1985

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 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

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.

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. ▷

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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.

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. ⊡

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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. . . . "

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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."

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.

"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."

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 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."

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

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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 foundered, 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."

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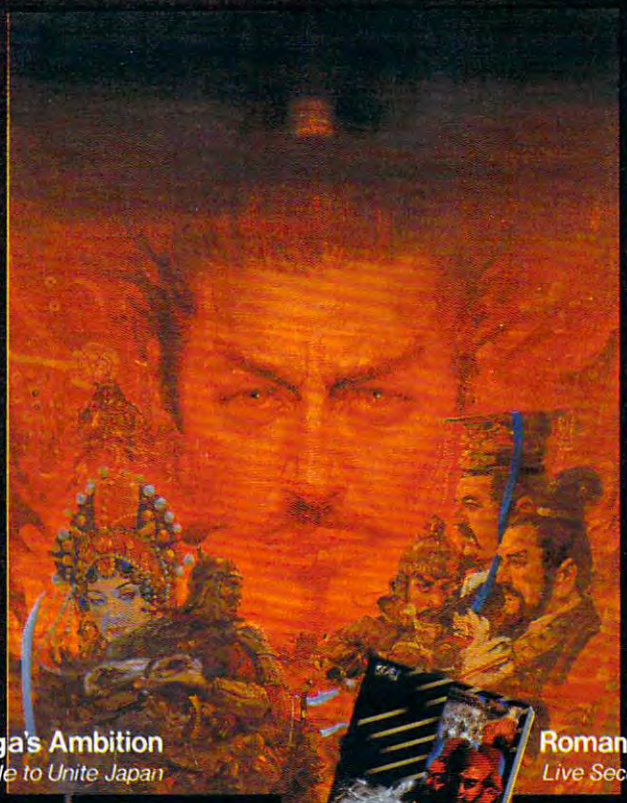

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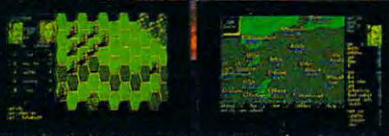

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The Japan most people don't know about. The Warring States period of the sixteenth century. Central government was weak and ineffective as feudal lords called daimyos gained power. Each daimyo ruled a single fief, each wanted to rule the nation. One 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 ninja.

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:

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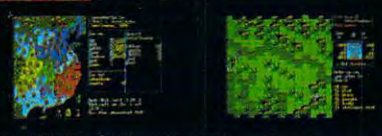

For the IBM PC and most compatibles

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:

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May, 1987

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August, 1986

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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".
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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 better 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

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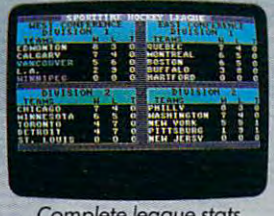

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you could do that on the Apple II, you'd really have something.'"

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.

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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).

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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 microprocessor 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 × 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 temperatures 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.

Compiled by Mickey McLean

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

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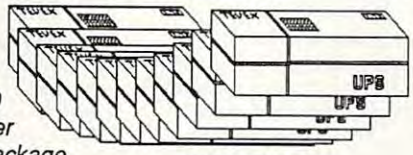

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saved. With the generic game feature, you can establish your own rules. A construction set allows you to create a bumper pool table. The game is available for the 64 and 128 for $29.95 and for the IBM PC, Tandy, and compatibles for $39.95.

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 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. ⊡

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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 Brøderbund, 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-

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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 ANSI.SYS 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 interrupts; 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 machines, 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* ▷

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64 & 128

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 CompuServe, 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; DSAVEL 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

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from one place to the next. Clichés, 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 recall 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

Brøderbund, 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 Brøderbund, *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. Brøderbund 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 spokespeople 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.

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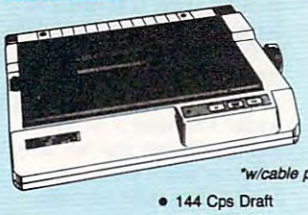

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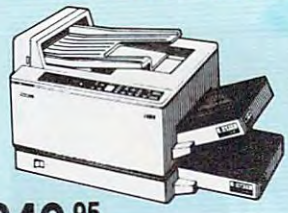

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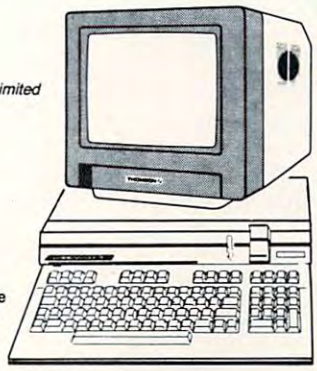

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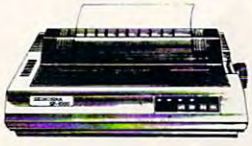

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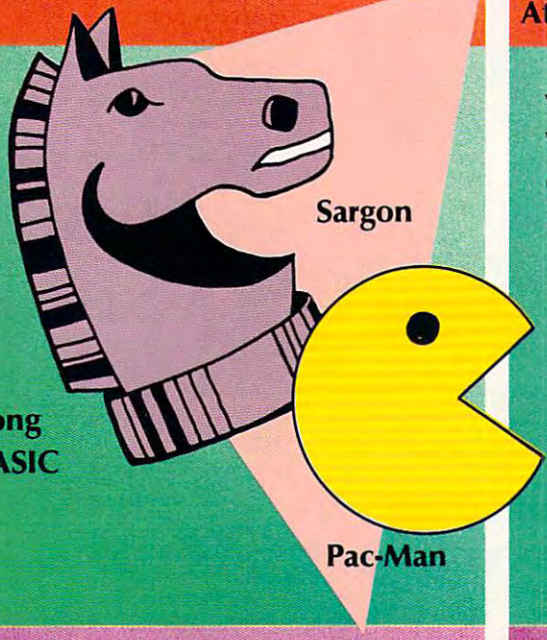

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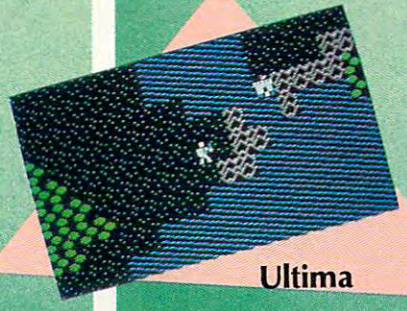

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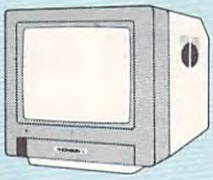

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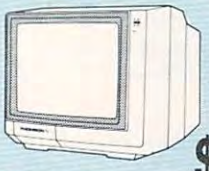

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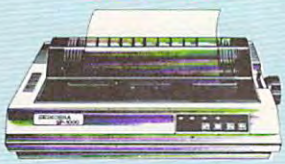

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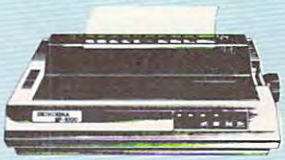

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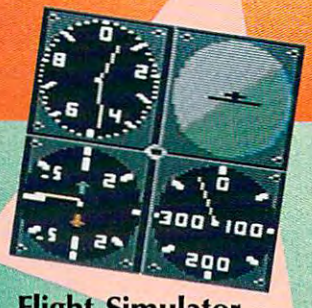

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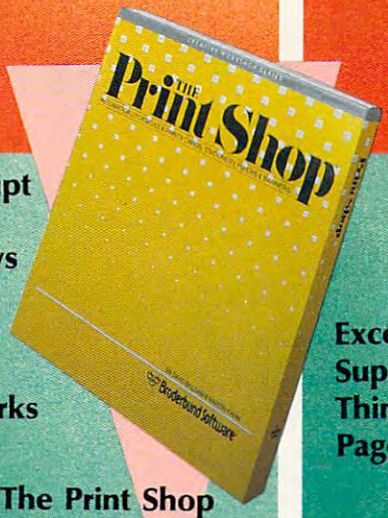

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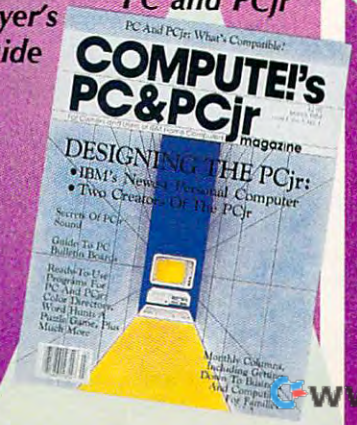

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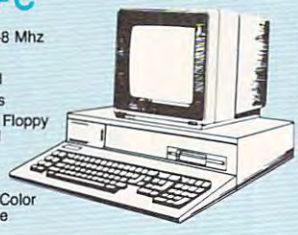

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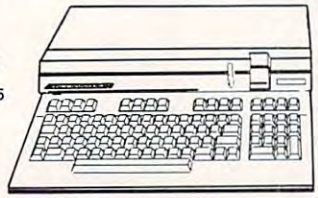

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ries of Apple II hard disk drives), you could find a CD-ROM drive for the Apple II and Macintosh lines. When would it be available? Shrugs all around. Who makes the drive? More shrugs. How much would it cost? Around $800, $900—somewhere in there. Talk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

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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, Torrence, 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 knockdown, 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

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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

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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 rate 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 program 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 autoboot, 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* ⊡

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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
Claris
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
Brøderbund
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.

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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

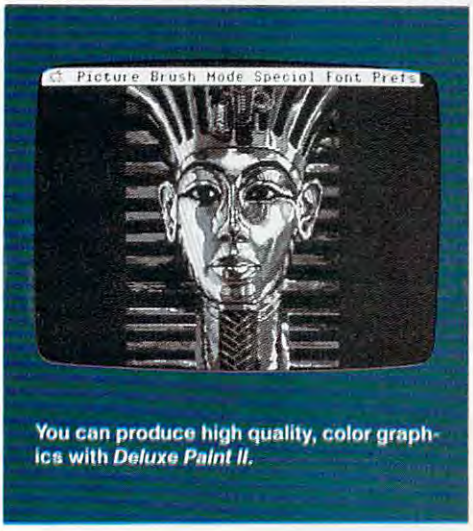
This paint program incorporates a variety of tools, including ten built-in brushes; stenciling; four levels of zoom; dotted freehand; continuous freehand; straight line, curve, circle, and polygon tools; an overscan mode that eliminates the Amiga borders; more than 65 fills; and a palette of 16 colors 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.



You can produce high quality, color graphics with *Deluxe Paint II*.

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.

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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 Daventry 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
Brøderbund
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.

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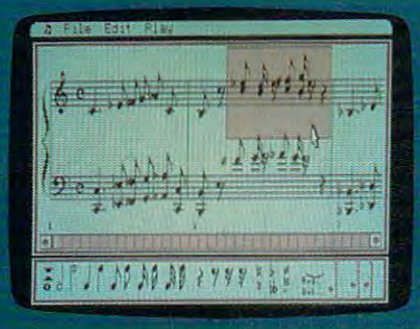
Microsoft Windows

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 formatted 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.

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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

Brøderbund
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 improving the industry and environment and by building warships. There are four classes of warships, transports, and explorers. Game options include novas, 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 flippy 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-hexidecimal-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.

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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

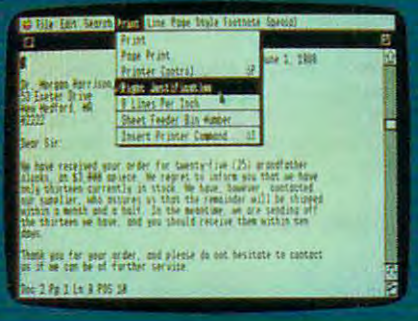
An outline processor, *ThinkTank* integrates word processing and graphics capabilities to organize thoughts and ideas. The ideas can be listed as headings and subheadings or in paragraph format.

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.



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.

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?
Brøderbund
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.

*Although this program is not available from the manufacturer, you may be able to find it through other sources.

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Publishers of Classic Software

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Atari
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Berkeley Softworks
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Mediagenic
(formerly known as Activision)
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Menlo Park, CA 94025

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San Rafael, CA 94903

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16011 N.E. 36th Wy.
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Cupertino, CA 95014

White Crane Systems
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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.

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REVIEWS

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

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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

Ēng•Lān'

Gentry Software calls its **Ēng•Lān'** 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 **Ēng•Lān'** types the command for you.

For example, you choose an IF-THEN statement by hitting the I key. **Ēng•Lān'** 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, **Ēng•Lān'** 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. **Ēng•Lān'** 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 **Ēng•Lān'** takes care of some of the more tedious tasks.

Ēng•Lān' 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 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.

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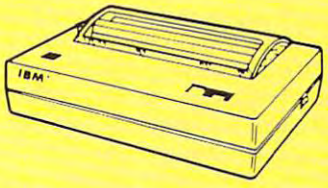

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have—dot-matrix or laser—including all Epson-compatibles and the Apple LaserWriter series, or any other *PostScript*-compatible printer.

Timeworks has a solid product here. If you do desktop publishing on the ST, you won't find a more appealing package.

— *DF*

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Timeworks
444 Lake Cook Rd.
Deerfield, IL 60015
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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 Aycock, 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. Fleecem.

Ma, the widowed orphanage owner, weeps helplessly. Her charges are going to be cast into the streets of Stoogeville. No true Stooge 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 Stoogeville 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 Stooge 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 flying 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 Stooge. (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

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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 from a computer was entertaining 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! Whoo! Whoo! Whoo!"

— Keith Ferrell

The Three Stooges

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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

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Overall, *Graphics Studio* rates a mixed review. It is inexpensive, simple to use, and contains features that other Amiga paint programs don't. But it is slow, doesn't fully use the Amiga interface, and has some annoying design flaws. Still, if you are in the market for a low-cost paint program, you should take a good look at *Graphics Studio.*

— Steven Anzovin

The Graphics Studio

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Ultima V: Warriors of Destiny

Return to Britannia and explore a new underworld in *Ultima V: Warriors of Destiny* as you search for the missing Lord British.

Unlike previous installments in the Ultima series, *Ultima V* doesn't introduce an entirely new fantasy world. The adventure unfolds in Brittania, the site of *Ultima IV,* and picks up where you may have thought that quest ended. Volcanic activity has opened labyrinthine passages to an Underworld as big as the surface terrain.

Lord British, who was your benefactor in earlier quests, took a band of knights and delved into the uncharted territory, where he was captured by the forces of evil. Iolo and Shamino, characters from previous *Ultimas,* have summoned you to rescue Lord British.

While the King is missing, Blackthorn is running the realm like a tyrant. Corrupted by his newfound power, Blackthorn has declared Shamino and other sidekicks to be outlaws, forcing them to hide out in the tradition of Robin Hood and his Merry Band. The outlaws and other characters will join your party. You can have six characters in your party, which is more manageable than the eight required to complete *Ultima IV.*

The game assumes you've already attained Avatar status. An Avatar is someone who has earned a high status by embodying the virtues required in *Ultima IV.* The same eight virtues you mastered in *Ultima IV* must be adhered to here, but there are also Shards of Cowardice, Falsehood, and other unvirtuous qualities to round up. You're allowed to use an Avatar from that game. It's not necessary to have played *Ultima IV,* though, and you can create a new character with this program. However, you'll enjoy this pair of *Ultimas* much more if you play them in order.

Scattered across the sprawling aerial view, the same cities, towns, and castles are situated in identical locations as in *Ultima IV.* For this reason, people who played that game won't have to spend as much time drawing maps until they reach the Underworld. Don't count on finding a lot to do in the Underworld, though, because there's only one town to visit. But many of the artifacts needed to complete the game are hidden there.

By chatting with people in Brittania, you can learn the exact location of these items before entering the Underworld. As in *Ultima IV,* you may engage townspeople in conversation by typing single words that often elicit clues. Sometimes they'll send you to find a character in another part of town or across the ocean. Sailboats, horses, and Moon Gates for teleportation are again the main transportation modes. There aren't as many people to talk to as there were in *Ultima IV,* and they don't have as much to say, probably because some of the new features took up a lot of disk space.

While the location of the towns, castles and other areas is unchanged, their interiors have been dramatically enhanced. Empath Abbey, for example, is three stories tall, and you can walk around on top of the buildings. The indoor and outdoor areas showcase a myriad of new graphics elements, all sharply detailed and many bolstered by charming sound effects: flickering torches, a gurgling waterfall, harpsichords you can actually play, candelabras, ticking clocks that accurately tell time, and more. The program supports six sound boards, including one that lets you play through a MIDI synthesizer; without a board you'll get less sophisticated sounds. A new style of tile

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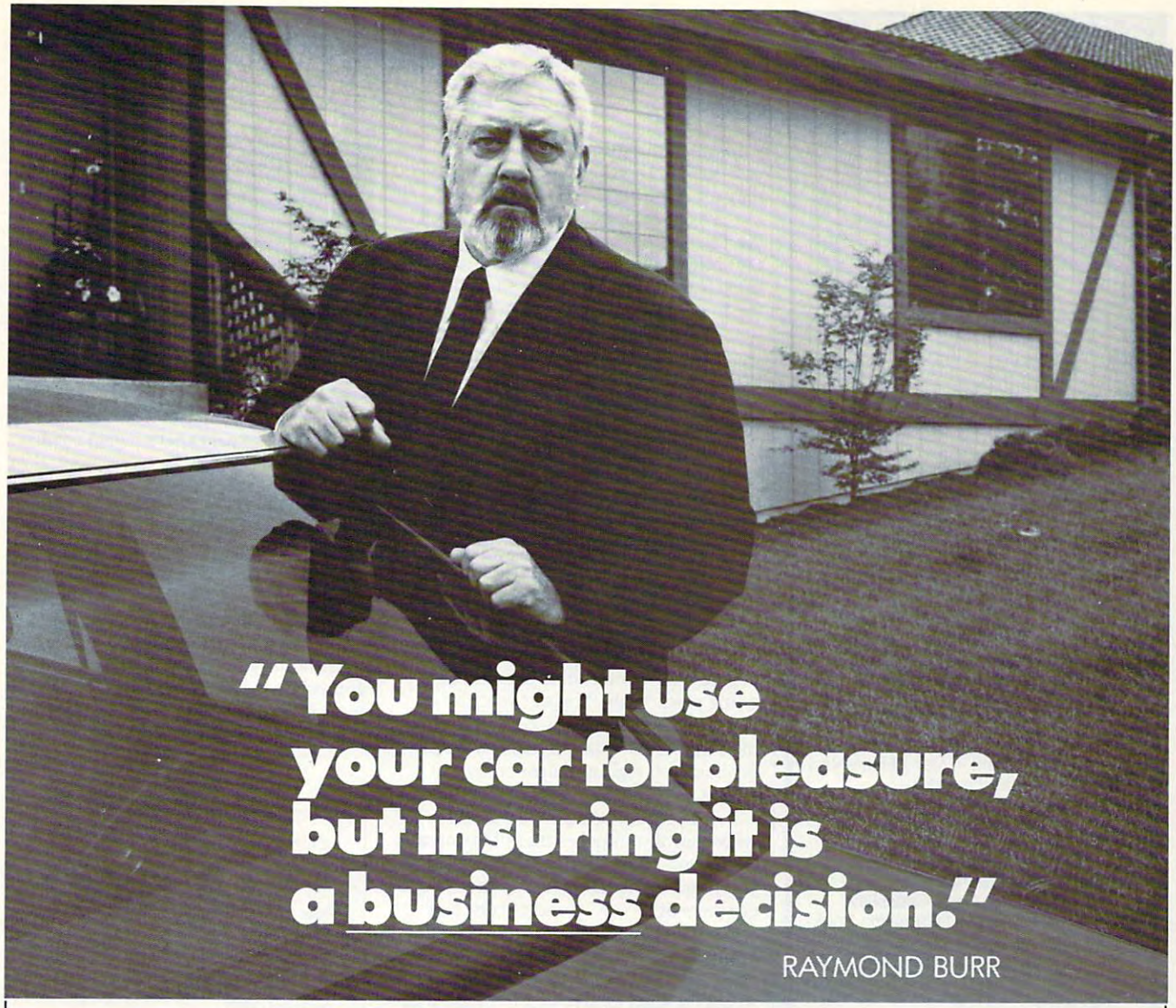

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REVIEWS

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 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

Characters can cast spells during combat in *Ultima V.*

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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 hurtle, *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. ▷

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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

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The program comes on both 5¼- and 3½-inch disks.

Stealth Mission

The people who brought us the excitment 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 sweptwing 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

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102 Britannica Software	1
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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 Lyco	40–42
116 Lyco	47–49
117 Marathon Software	77
118 Meca	BC
119 MicroProse Simulation Software	25
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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

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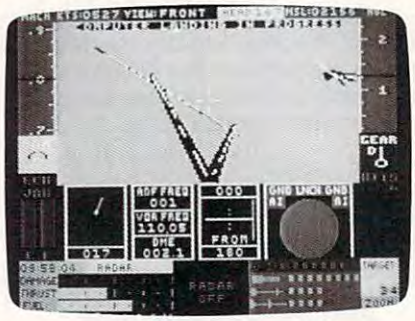
simulation controls.

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 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* is packed with so many features, you'll learn something new every time you fly it.**

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

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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

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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

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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 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.

Kidnappers hold your girlfriend for ransom in *Twilight's Ransom*.

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 someone 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

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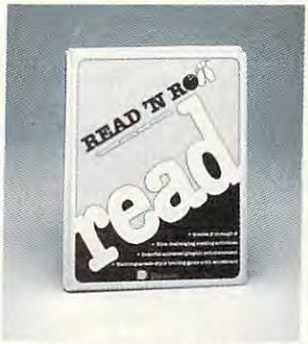
Read 'n Roll

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 become 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

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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 deserving 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

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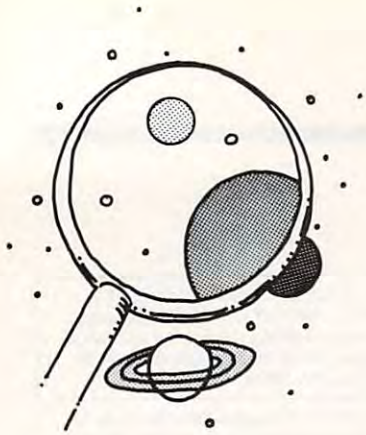

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Questions of literary talent aside, quill pens and their modern-day counterparts don't stand a chance against today's powerful word processors. No other applications software has achieved such universal acceptance in business. When was the last time 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. ⊡

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continued from pg. 8

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 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 processor and a graphics package.

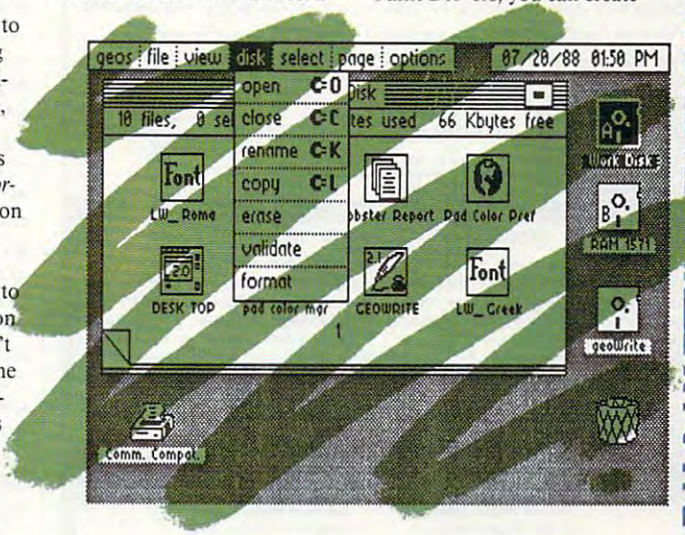
"We've taken a lot of customer feedback and put that into improving our package," Lee Llevano said. Llevano is vice president of marketing at Berkeley Softworks.

"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 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-



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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. Eypx'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 Eypx 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 ⊡

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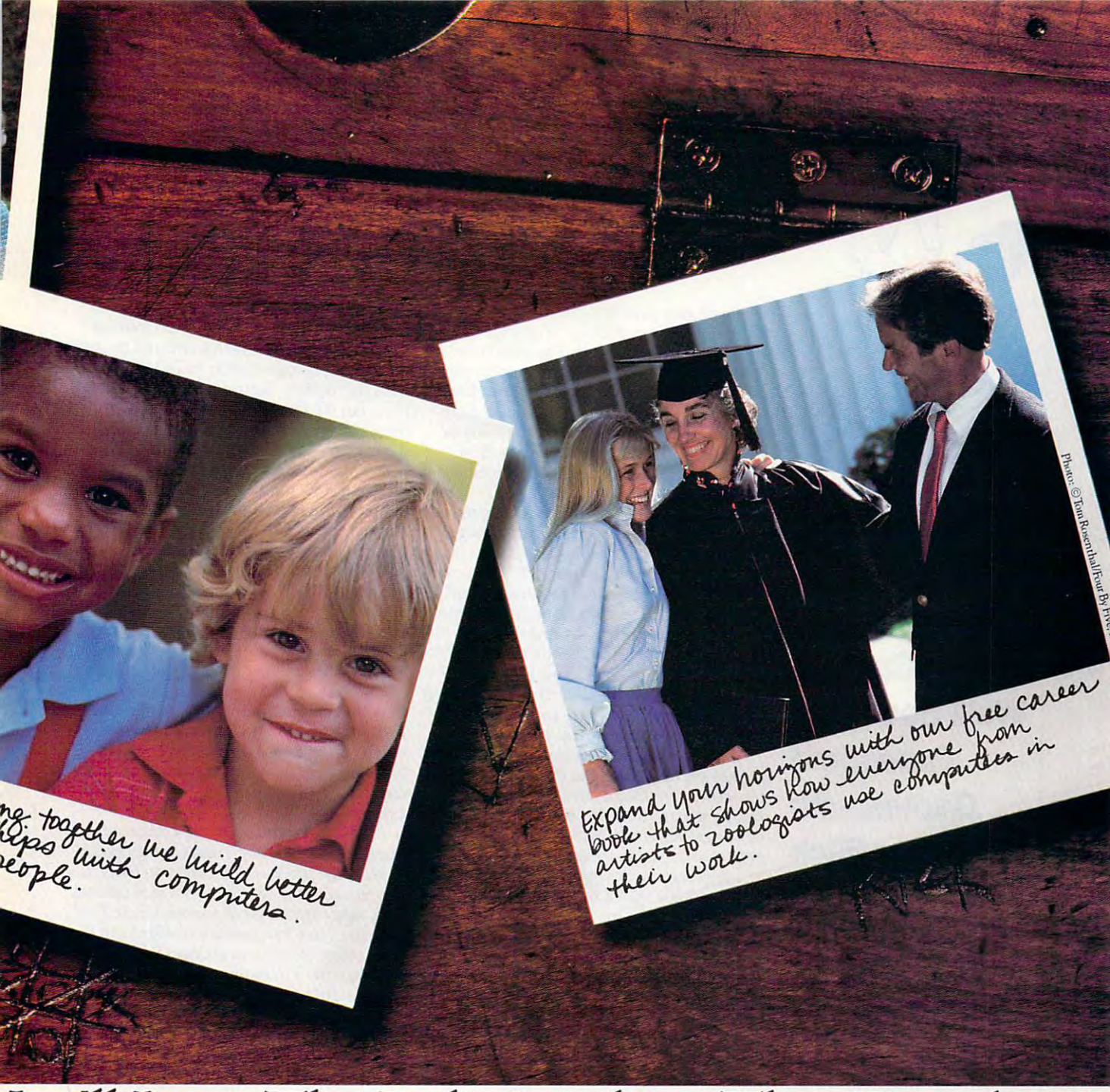

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levitations

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 Lottronic'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. ⊡

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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 antitrust 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

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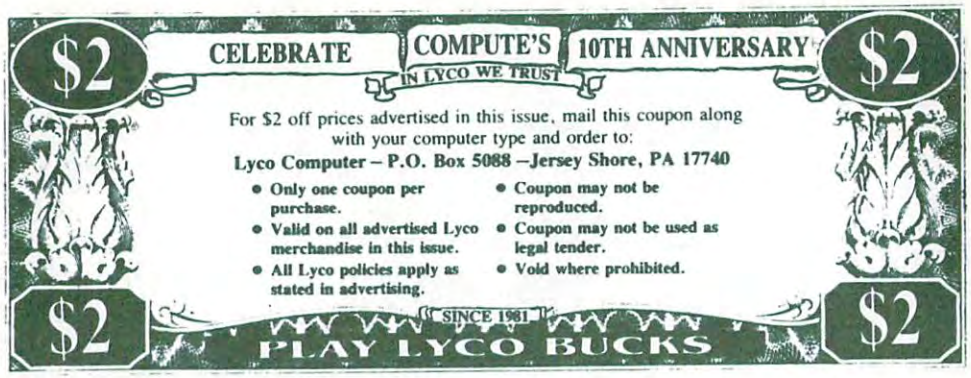

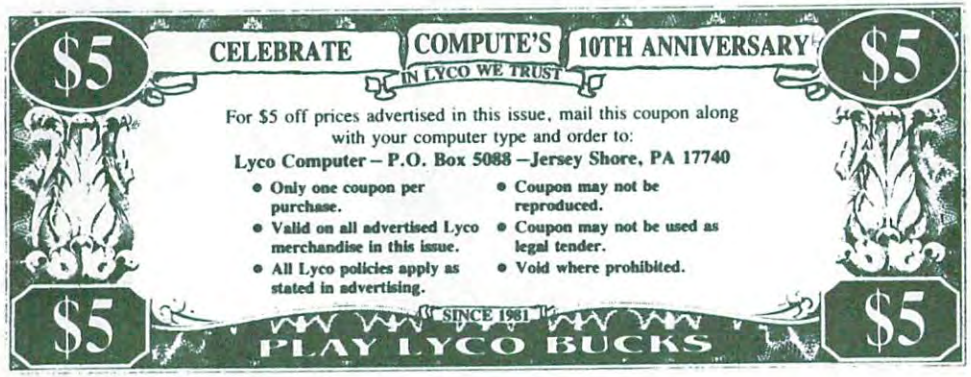

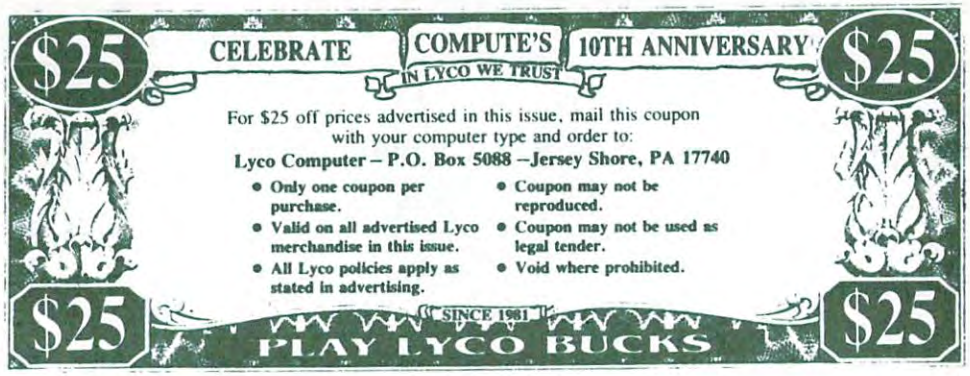

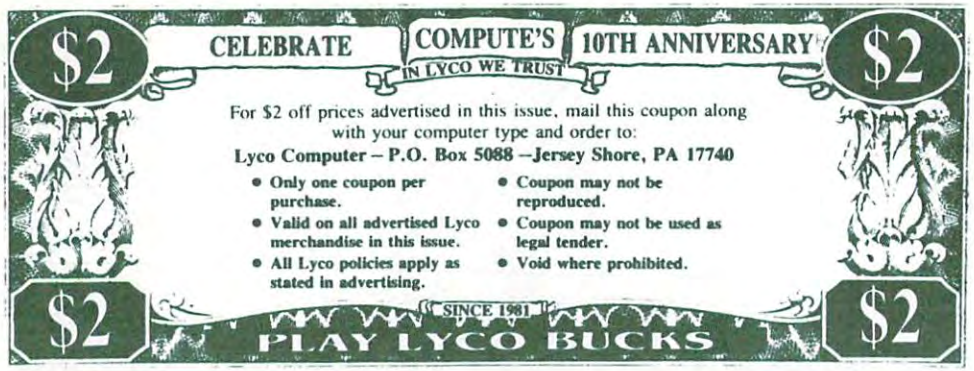

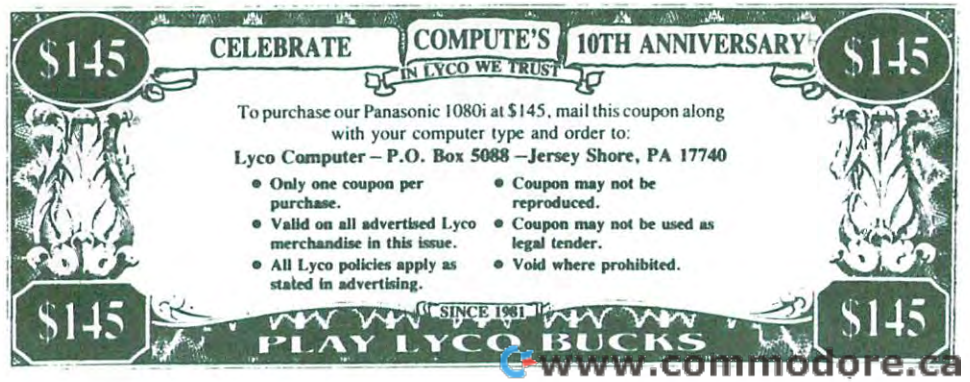

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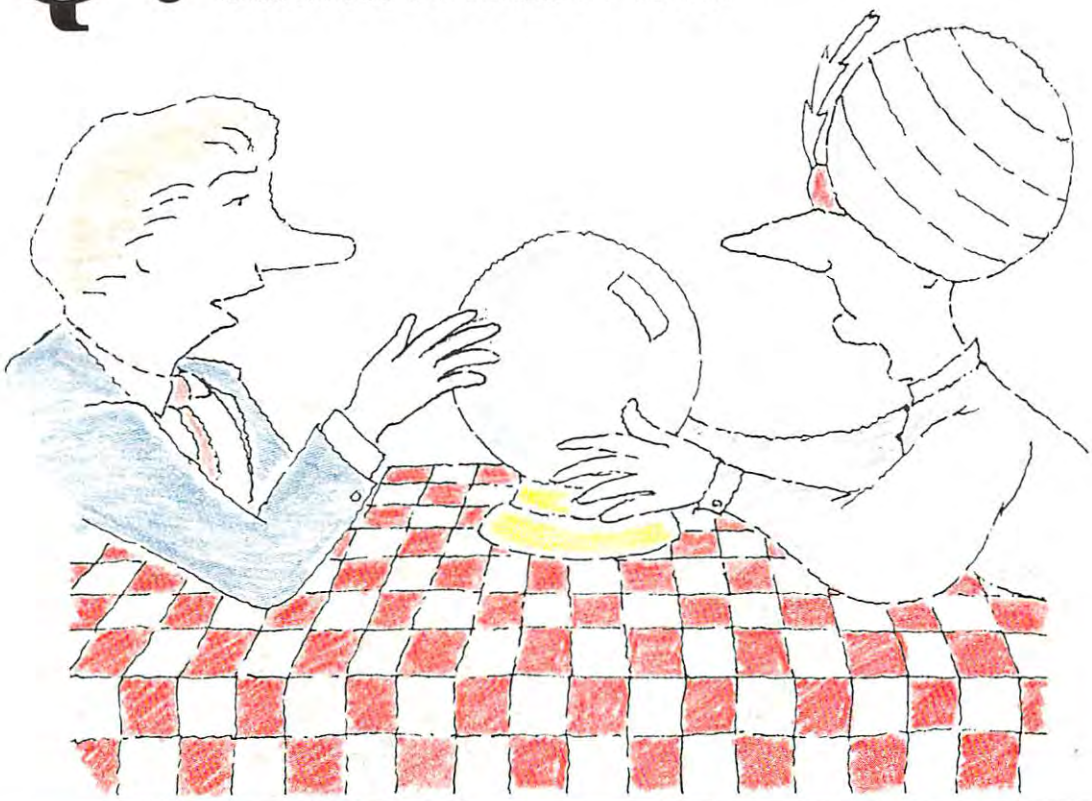

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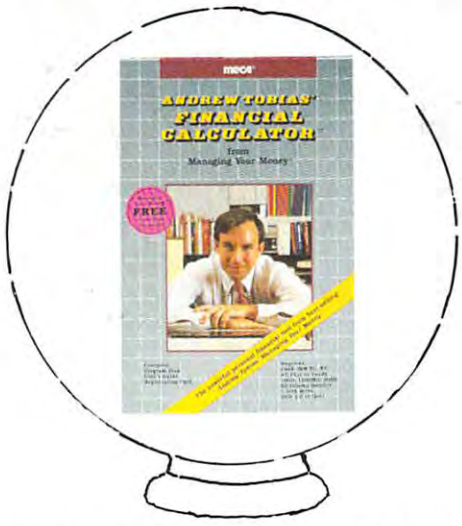

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