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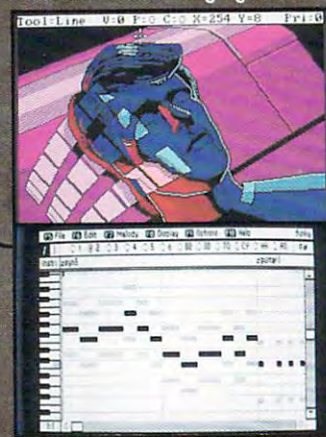
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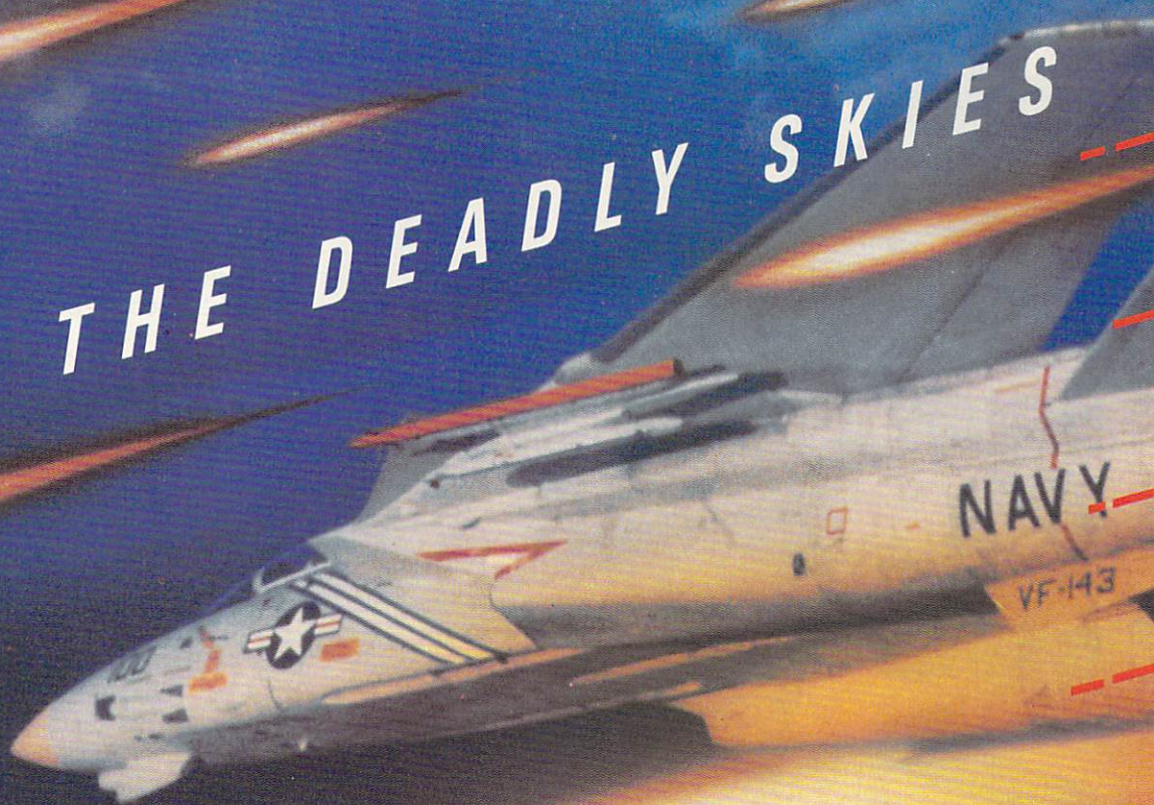


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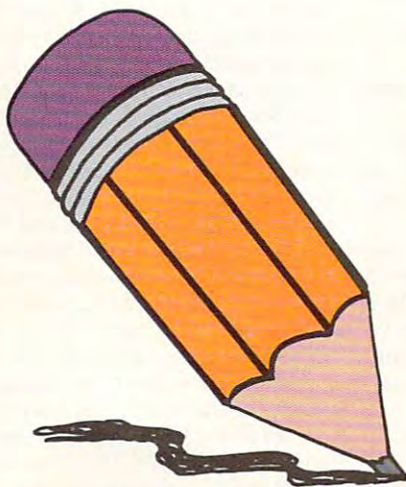
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GREGG KEIZER



You Can Tell a Computer Magazine's Personality by the Software Company It Keeps

Software makes the man. Or woman. The software you own tells a lot about what kind of computer user you are. Show me a shelf full of software, and I can tell the past, present, and maybe even the future of its owner. Much as a weight-and-age guesser at the county fair only glances at your waistline and face, I can tell what kind of computer owner you are by just a look at your software. Think about it for a moment: The software you own tells even more about your computer expectations than the kind of computer you own. After all, it's software that makes a computer something more than an expensive and elaborate desk lamp.

If you have a half-dozen different computer languages, for example, and a collection of compilers, debuggers, and assemblers, you've been a personal computer owner for years. Learning the inner workings of your computer takes time, lots of time, and only with a kind of near-fanatical dedication can you generate creative programs from scratch.

But if you count less than five programs in your software library, you've just bought your machine. You've yet to discover that the more software you own—in the widest range of categories—the more your computer (and you) can do.

If your software shelf shows a propensity toward simple games featuring color, cartoonlike characters, and sound effects, you've got some kid computing going on around you.

More than two word processors on your hard disk tells me that you're a writer, or that you'd like to be one. Only writers in search of the perfect word processor can put up with the split personality needed to keep two different command sets straight.

If I check that pile of boxes beside your computer and find that their covers scream about skateboarders and sorcerers, flying machines and fantastic adventures, then you don't take your computer too seriously. In your mind, it's the best thing for entertainment since the invention of fun.

And if you have six feet of software, and there's no discernible pattern to its makeup—games mixed in with integrated packages, preschool software right next to a telecommunications program—you're right in the middle of the home computer-user spectrum. You're the computer-user equivalent of the Renaissance man.

These characterizations are stereotypes, of course. Not everyone who owns a shelf-creaking collection of game software uses

the computer only for entertainment. In fact, in my forecasting, I'd be right only about as many times as that carnival guesser. Yet stereotypes aside, my point is valid: It's the software that defines what you and your computer can do.

You can also tell a computer magazine's personality by the software company it keeps. If a publication reports solely on high-end business programs, for instance, it's going to appeal only to high-end business computer users. And if you own a Commodore 64, PS/2 Model 30, Tandy 1000 SL, Apple IIc, or another home computer, you can bet there won't be much in that magazine for you.

That's why this issue, in which we debut the COMPUTE! Choice Awards, is so important to us. More than anything else, we've picked the top home computer products and handed out awards to let you know what *COMPUTE!* stands for. *COMPUTE!* remains dedicated to bringing you the best possible coverage of home computer issues, applications, and trends, a trait we think is amply demonstrated by the strength of the COMPUTE! Choice selections. Those 13 products represent the best you can find in their categories. We guarantee it.

As I've said before in this space, *COMPUTE!* speaks to and for *all* home computer users, regardless of which machine is in that home. The COMPUTE! Choice Awards demonstrate this philosophy; we've made a concerted effort to select those home computer products which are available for more than one computer system. We chose *Deluxe Paint II* not only for its excellence, for example, but also because there are versions for three important home computer systems—Amiga, Apple IIGS, and MS-DOS.

We're ready to stand behind our picks, not so much because we're confident in your agreement (though we certainly hope you nod your head a time or two as you read through the list of winners), but because we think that the software we highlight helps to define the magazine. You won't be seeing articles about \$1,000 business-accounting software in *COMPUTE!*. You won't come across reviews of workstation-style computers that cost more than a 1989-model car, either. Instead, you'll continue to read about the computers and computer software that matter in the home, in the classroom, and in the home or small-business office.

If you are what you eat and magazines are what they cover, then *COMPUTE!* is the home computer user's choice. □

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news & notes



What's NeXT?

Three years after his bitter departure from Apple, Steve Jobs unveiled his long-awaited NeXT Computer System in October. Onstage at a packed symphony hall in San Francisco, he hailed the system as the "first computer of the 1990s." With its sleek profile, dazzling array of standard features, and a price less than 50 percent of its closest competitor's, the new computer is destined to make a splash. Whether NeXT can survive the backwash remains to be seen.

The computer's brain (the Motorola 68030 chip, the same used in Apple's Macintosh IIX) is housed in a one-foot black magnesium cube that sits under the desk. Also included are a math coprocessor and a digital signal processor (for electronic music synthesizing), which free the 68030 for graphics and other functions.

The system comes with 8 megabytes of memory; a slim,

black keyboard with matching mouse; a 17-inch high-resolution black-and-white monitor supplied by Sony; the MACH operating system (UNIX compatible); and, last but not least, a 256-megabyte magneto-optical disk drive (no floppies here, folks).

The disk drive is controlled by two integrated circuits that overcome the notoriously slow retrieval speed of most optical storage devices. Each \$50 disk can hold about 100,000 typed pages of information. But users won't have to start with a blank slate. The disk that comes with the NeXT computer includes software galore: the PostScript page- and video display-description language, a text-retrieval program, the *Mathematica* equation-solving program, electronic-mail software, the *WriteNow* word processor, a database program, network-access software, vari-

ous software-development tools, a music kit, a sound kit, a dictionary, a thesaurus, *Oxford's Dictionary of Quotations*, and the *Oxford Complete Works of Shakespeare*.

Jobs is aiming his new computer squarely at the academic market, but he faces stiff competition from IBM, Apple, Sun Microsystems, Hewlett-Packard, Digital Equipment, and Apollo Computer. His big weapon is price: the NeXT system costs educators \$6,500. A similarly equipped Apple Macintosh IIX runs about \$13,800 (that price, however, would likely be lower under Apple's educational-discount policies). Jobs is also offering an optional laser printer for \$2,000.

NeXT will need all the ammo it can muster to break into this market because the major players have been involved for years and continue to give away equipment and

offer incredible discounts to academic customers. Jobs sees the NeXT computer in use by developers, faculty, researchers, and students alike. He said that a student could accumulate, on a single disk, all of the work he or she produced in school, all the pertinent reference materials, and the software needed to use the computer.

Although the multitasking, multi-user UNIX operating system isn't much used outside of engineering and technical applications, Jobs is gambling that his MACH version will make it easier to write programs, accelerating graphics programming tenfold. If he's right, then NeXT could succeed brilliantly in the academic community because of its capabilities and price. From that base, the system could filter into mainstream personal computing.

— Peter Scisco

Virus Hacker Nailed

Hackers who get a kick out of creating viruses had better take heed—the results of their labors are hardly admired for their sophistication, nor are they considered harmless pranks. And in the land of the Texas Rangers, releasing a virus can get you in a heap of trouble.

Just ask computer saboteur Donald Burleson. A Ft. Worth jury convicted Burleson of using a software bomb, called a *worm*, to trash the computer records of his former employer. Apparently disgruntled over his firing, Burleson planted a logic bomb in the mainframe at USPA & IRA, a brokerage and insurance company. When the company ran a particular utility, it triggered

son's former employer won a civil suit against Burleson for \$12,000.

Because Burleson's program wasn't designed to replicate and spread, it wasn't a virus in the strict sense of the word. But several investigations are afoot to locate the origins of some of the more lethal viruses, including an FBI investigation into the Macintosh Scores virus that destroyed some NASA computer records.

Unfortunately, the chances of catching any particular virus designer are slim to none. Because of the way a virus spreads, the trail of evidence is often obscured. Mike Odawa of the Software Development Council in Palo Alto, California, said he was encouraged by the Burleson verdict,



Burleson's nasty surprise and wiped out 168,000 sales-commission records.

The destructive program then cloned, renamed (so it could repeat this nasty bit of business the next time the utility was run), and deleted itself. But that wasn't enough to hide the saboteur's identity. An investigation and trial followed, and Burleson was convicted on third-degree felony charges and sentenced to seven years probation and a \$11,800 fine. Burleson's attorney, Jack Beech, plans to appeal the sentence. In an earlier case, Burle-

and he hoped it would push public officials toward seeing computer sabotage as a real and serious danger (see "Look Out Virus Spreaders!" in last month's "News & Notes").

The developers of viruses, Trojan horses, and worms may not see themselves as criminals, but increasing numbers of computer users do. Now that the Burleson case is complete, those tempted to unleash their own brand of computer anarchy will have to decide whether the challenge is worth the chain gang.

— Peter Scisco

Read to Me, Dad

Stick the suffix *-ware* at the back of almost any noun and you're likely to hit computer pay dirt: *software*, *hardware*, and now, *lapware*.



Courtesy of Peter Reynolds

Tom Snyder Productions, famous for breakthrough educational programs, has launched a new line of software aimed at preschoolers and their parents and, in the process, has coined the term *lapware*.

The series, called Reading Magic Library, offers interactive stories, both originals and variations on classics, to small fry and their folks. Like all titles in the line, *Jack and the Beanstalk* and *Flodd*, the *Bad Guy* (\$34.95 each, for Apple II and MS-DOS systems) are meant to be used by parent and child together, the kid in Mom's or Dad's lap—hence, *lapware*.

A heavy dose of simple graphic illustrations grace each title. Words at the bottom of each screen are read by the parent, and a quick keypress pulls up the next pagelike screen. At various points in the story—when Jack reaches the midpoint in climbing the beanstalk, for instance—you or your preschooler, or the two of you in concert, can choose to take another path in the story.

Taking those alternate paths doesn't change the story's ending, though—only the route you take to get there. In this regard, the Reading Magic Library titles are similar to Tom Snyder Productions' Infocomics, a joint venture with

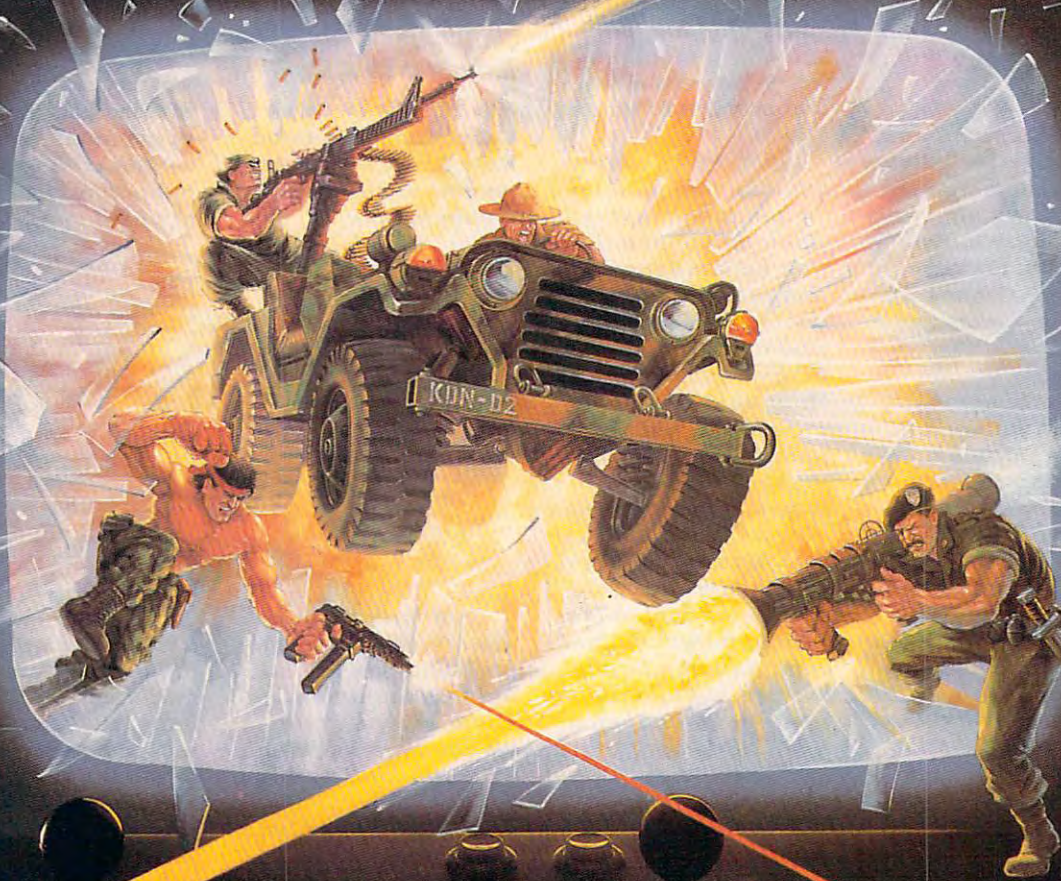
Infocom, the interactive-adventure-game people. (The *lapware* packages' graphics also bear a close resemblance to the look of the Infocomics programs.)

Computerized storybooks aren't a new idea, but the execution of Snyder's titles is a definite departure from the norm. These stories, like ones on paper between two hard covers, are meant to be read and perhaps even discussed by parent and child together, a trait that refuses to turn the computer into an electronic babysitter. Because there are no speech capabilities built into these programs—a deliberate omission, according to Snyder—and because of the 2–6-year-old age group they're aimed at, you're forced to read. Not a bad idea for parents facing short supplies of quality time with their kids.

Snyder obviously believes that, for it was what drove him to create the series. "I designed Reading Magic for my 3-year-old son, Tim, knowing that he would get a kick out of it. What knocks me off my feet is that now reading together has become as important to both of us as eating popsicles on the back steps."

Kids will delight in twisting the tale or investigating new leads into old stories. The thrill in making things change isn't yet passé to preschoolers. My daughter can't wait until "The Three Little Pigs" hits our Apple IIGs; she wants to see the Big Bad Wolf get *exactly* what he deserves.

— Gregg Keizer >



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Personal computer users are feeling the pressure to move from 5¼-inch floppy disks to the 3½-inch format, or to abandon floppy disks altogether for hard disks. The trend is toward more storage space in an ever-smaller size.

Now you may be enticed to move again, this time from magnetic media to laser discs. CD-ROM technology is getting a big boost from Egghead Discount Software of Bothell, Washington. The country's largest software retailer plans to sell CD-ROM readers and titles in all of its 152 outlets.

"This is a coming technology," said Egghead spokeswom-

an Diane Merz. She added that the company's decision to mass-market CD-ROM products sends a signal that laser storage has reached a price comfortable for consumers.



Harry Blair

Egghead will sell the Amdek Laser Deck 2000 for IBM PCs and compatibles, including the PS/2 line. The Amdek reader retails for \$995; Egghead will discount that price to \$699. Coupled with a limited-time manufacturer's rebate of \$100, the price of an Amdek CD-ROM reader could be be-

Who Ya Gonna Call?

You've had a bad day. The boss is breathing down your neck for last month's report (you accidentally erased the file), your furnace is on the fritz (one day after the warranty expired), your neighbor plays loud music till 2 a.m. (the same three songs over and over), and the IRS is auditing your tax return (you tried to claim your collection of computer games as a business expense).

You need help. You need *Stress Busters*, a new MS-DOS, memory-resident program from the Montreal Center for Stress Management. At regular intervals, *Stress Busters* appears on the computer screen, preempting the program in use. Greeting you with a cheery, *Hello, Again! Time to take a breather!*, it guides you through a series of relaxation exercises and stress-management techniques that can be performed inconspicuously at the computer. After completing the exercises, you return to your original application, and

Stress Busters silently waits until its next scheduled appearance.

"Most of the exercises in the *Stress Busters* program can be performed in less than a minute, and the longest takes no more than three minutes," said R. deForrest Shelly, director of the Center.

"It's as easy as taking a breath and as natural as tensing and relaxing isolated muscle groups," he said. "Once people learn how it's done, it becomes second nature. Over a period of time, many people who use the technique discover they are more productive, more creative. They find that they can organize information better and can solve problems with greater ingenuity."

Stress Busters is compatible with almost all software running under MS-DOS 2.0 or higher. The price of the program is \$49.95. For more information, write to The Montreal Center for Stress Management, 1200 McGill College, Suite 1100, Montreal, Quebec Canada H3B 4G7.

— David English

low \$600, Merz said. The company is also negotiating with NEC for a CD-ROM reader to work with the Apple Macintosh, but so far hasn't decided on the exact model or price. Egghead's usual policy is to discount the suggested retail price of products by 10–50 percent.

Among the CD-ROM titles now in stock at Egghead stores are Microsoft's *Programmer's Library* and *Bookshelf*. The company is looking to carry the *Grolier's Encyclopedia*, a \$99 disk of shareware from Alde, an atlas titled *Windows on the World*, and PC-SIG's *Science Helper* for grades K–8. Egghead stores are located in almost every major American city, with downtown stores for business traffic and stores in suburban mini-malls for home and education users.

Egghead expects to see across-the-board interest in the

CD-ROM products, even though half of the company's sales are to business users. Merz anticipates that the education market will especially spur sales. "In the schoolroom, CD-ROM is strong because of its interactive environment and graphic animation," she said.

In addition, CD-ROM technology offers referencing and update capabilities that should appeal to home and business users alike, especially those with a business at home. And although the number of CD-ROM titles is somewhat limited at present, Merz expects that to change as production prices drop and the entry point for consumers follows suit. "It's like the VCR," she said. "When they first came out, nobody could afford one. Now they're everywhere."

— Peter Scisco

continued on page 105

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gameplay

ORSON SCOTT CARD

You've Made Your Game— Now Play in It

Back in 1983, *COMPUTE!* published a piece of mine titled "Constructing the Ideal Computer Game." In those primitive days, back before the computer world was transformed by the PCjr and the Coleco Adam, computer games were pretty confining. Stray from the inevitable pattern and you died with the sneering music from *Pac-Man* in your ears.

You don't play such games—they play *you*, rewarding and punishing you until at last you can move your figure through the gamescape without any variation from the optimum path.

Don't get me wrong. I played those games obsessively. Still do, sometimes. "But surely," thought I, "the computer can do something more." As I thought back to the toys and games I loved best as a child, I remembered the games of *building*.

Building blocks. Legos. A patch of dirt in the back yard where we dug roads and then made time-lapse movies of our Matchbox cars driving along the highways we had built. Forts and treehouses.

So, I asked, where is the computer game that plays like a pile of old lumber, a hammer, a saw, and 50 nails? A game that lets you create. A game in which the game designer hands you a bunch of tools and says *Here—play; you can't break anything, so do what you want*.

Back then, such games didn't exist. Now, more than five years later, they do.

The first one I played with was Brøderbund's *Lode Runner*. Your character is a guy trying to collect a bunch of barrels without getting caught. The graphics are simple but elegant. Each screen is a new and ever-more-difficult puzzle. The game is obsessive, but, once the puzzles are solved, it's over. Right?

Wrong. Because the game's author, Doug Smith, has developed a simple but elegant game-field editor, and Brøderbund, in a fit of wisdom, included it with the game. I played *Lode Runner* until I beat it. Then I designed my own game fields and puzzles, for myself and my kids: game fields that spelled out names or initials, for instance—things you could never find in a commercially produced game.

My kids picked up on it right away. Geoffrey and Emily were soon designing games for *me*. And the more they designed, the better the games got.

Since then, we've found—and overdosed on—a small handful of games offering the same kind of creative play. Geoffrey

spent hours with *Pinball Construction Set*, from Electronic Arts, before I realized he wasn't so much interested in the potential movement of the ball as he was in using the pixel editor to make neat pictures.

That's right: He was using the game as a primitive graphics program, like a kid who spends Christmas day ignoring the toy and playing with the box it came in. I thought it was great—a computer game so versatile you could invent your own use for it!

SSI's *Wargame Construction Set* is a simple, elegant, infinitely variable game. You can design and play at different levels of magnification, from the strategic to the tactical. You can edit the shapes and strengths of all the forces. You can create whatever map you want to play on. Yet the game rules remain in force. The worst that can happen is that you can make the enemy too strong to beat or too feeble to be worth playing against. Then you just go back to the game editor, make a few adjustments, and play again.

Adventure Construction Set (Electronic Arts) is another story. The games it makes are quite playable. Of course they're no match for the superb graphics and subtle play of map-and-dungeon games like the *Ultima* series, but that's the price you pay for being able to create a thousand different games out of the same kit.

My real complaint is that the *ACS* game editor's user interface was designed by the Kludge Monster from the Nethermost Hell. Yet, despite the user-hostile interface, it works. I handed the game to ten-year-old Geoffrey and said, "Try this out."

For the next few weeks, Kristine and I had to fight for computer time. "Son, we need to do our tax return. . . . Son, I have a novel to write or we don't eat." "Just a minute, I'm designing this one-way door—it's a toilet that flushes you down into the dungeon." See, my kid doesn't know from user-friendly. He just knows that as long as he's willing to take the time, he can do *anything he wants*.

Is there any other adventure game, anywhere else in the world, that includes a magic spell called *Summon Duck*? That was one of the options in Geoffrey's latest game. I knew that my ideal computer game existed when I cast *Summon Duck* and the message Geoffrey had programmed flashed onto the screen:

"Boy, could I use a duck."

Folks, Legos could never do that. □

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impact

DAVID D. THORNBURG

Computers Give Us the Power to Dream, the Power to Master New Tasks with New Skills

Looking back over the past year, one might be tempted to say, "The more things change, the more they stay the same." Apple finished their fiscal year in September by announcing the Apple IIc Plus, a high-speed version of the venerable Apple II, the machine that helped start the personal computer era over a decade ago. Newer technologies have long since rendered the original Apple II architecture obsolete. But Apple, by increasing the speed fourfold and building in a high-capacity 3½-inch disk drive, has guaranteed the Apple II line a robust future, even though most pundits pronounced 8-bit computers dead years ago.

IBM chose 1988 to move their PS/2 computer series into the public consciousness. In an attempt to avoid the clones that cost them a tremendous share of the original PC market, IBM is relying on proprietary technology to keep the upgraded MS-DOS market pretty much to themselves. The PS/2s provide the kind of performance that one would expect from IBM. Let's see what Big Blue does for an encore.

Commodore and Atari have also emerged from 1988 intact. While the Atari ST and Commodore Amiga have superb technical characteristics, the marketplace still labors under the mistaken impression that these are game machines. I'm amazed that these computers haven't become more popular. In terms of computational power per dollar, they can't be beat. Several television studios do use the Amiga for titling and other special effects, so at least some businesses recognize this computer's power.

From a hardware standpoint, 1988 was much like any other year. A smattering of new models reached the street with improvements that were largely evolutionary, not revolutionary.

Viewed from the perspective of a decade, however, the story is quite different. In 1978, the personal computer market was largely the domain of hobbyists, educators, and a few forward-thinking business users. Computing was largely an act unto itself. The reward for many users came from their ability to gain mastery over a highly complex piece of technology.

By 1988 this had changed. Today's computer users are very clear about their reasons for using computers. They focus on productivity and on performing tasks that were outside their realm prior to the invention of this technology. The computerized spreadsheet has become nearly indispensable to modern business. And in the field of

desktop publishing, computers allow people to perform tasks that were once reserved for specialized professionals.

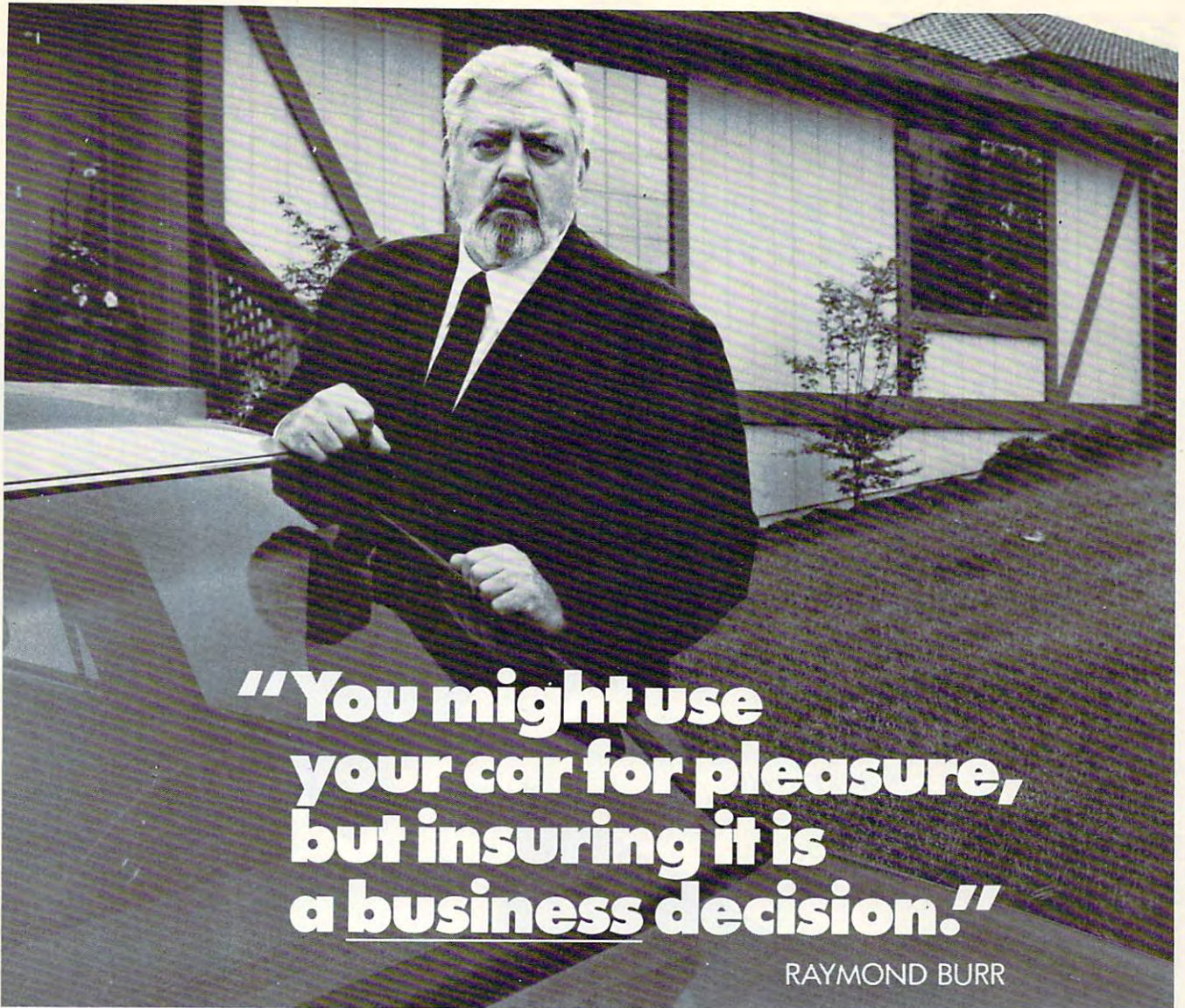
The past ten years have gradually empowered computer users, allowing them to explore new domains. Prior to personal computing, accountants dealt with the numbers, secretaries typed the letters, the art department created flyers; in short, the business world was compartmentalized. With the growth of personal computers, traditionally clear business boundaries have become fuzzy. In many companies, supervisors now have access to financial data that was once reserved for senior management. Local control of department budgets is becoming more commonplace. The ability of all employees to have powerful information technology at their fingertips makes the democratization of business possible.

If the technology has made this shift possible, the marketplace has made it necessary. As we approach the last decade of this century, we see changes in the business world that demand that greater decision-making responsibility rest with people at the bottom of the organization chart. The climate of business is changing so rapidly that employees need the freedom to make informed decisions regarding their jobs.

But computers are not enough. While it's true that the past ten years have provided us with tremendous abilities to access and use information of all types, the skill of human judgment has not undergone similar growth. People who once relied on their supervisors for detailed guidance are now told, "The information is in the computer, figure it out for yourself." As fewer workers produce more work, some employees feel they've fallen through the cracks. They find their responsibility increasing, without receiving the training needed to handle their new tasks. The results are stress, poor work performance, and, ultimately, the potential decline of their company.

In the next decade I believe we will see a continued maturing of computer technology and further growth in helping today's workers develop the thinking skills needed to thrive in the world that technology has made possible. If the past ten years were the decade of the computer, the next ten might be called the decade of the mind. I look forward to this new challenge.

Many philosophers have said that what you can dream, you can do. The computer provides us with the power to do. We need only to develop our capacity to dream. □



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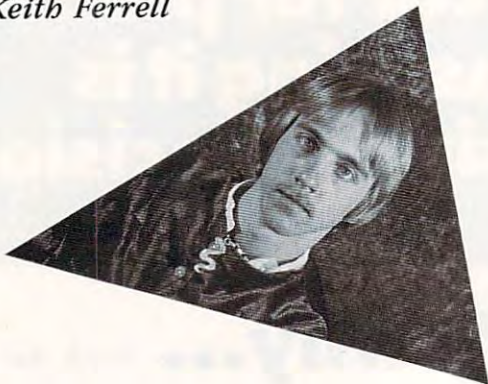
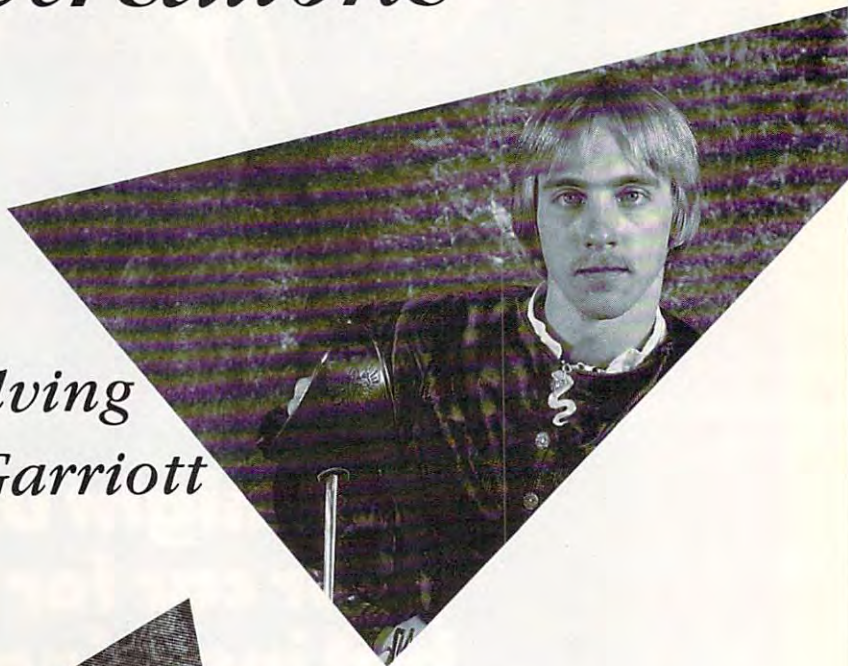


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////// **■** *conversations*

Dungeon Delving with Richard Garriott

Keith Ferrell



Richard Garriott, a.k.a. Lord British, has achieved a large following for his series of Ultima fantasy role-playing games. Set in a dark, heroic, enchanted alternate Britannia, the Ultima games offer players the opportunity to live for a while in another world. Garriott's commitment is to provide players with a true storytelling and role-playing experience. Britannia, to its devotees, is a real world.

Very much of our world, as well as the worlds of his own making, Garriott has been involved with computer game development and design since the earliest days of the industry. His own evolution as a programmer and game designer, the evolution of Origin, the company he and his brother founded, and the evolution of fantasy role-playing on microcomputers are inextricably linked. Recently Garriott shared with COMPUTE! some insights into his own history and, by extension, the history of this dynamic section of the computer gaming market.

Paper-Tape Dungeons

Q. *How did it all start?*

A. My interest in fantasy role-playing started in high school, about the same time I got interested in computers. My freshman year in high school, I took the one computer programming class the school offered. The school had a Teletype tied in with some computer off in never-never land. And that was the same time I was exposed to the game *Dungeons and Dragons*, and also the time when I first read Tolkien's *The Lord of the Rings*.

Shortly thereafter, as a result of my interest in computers and science, the school allowed me and two other students to develop our own computer programming class. We had no teacher—all we had was the project we were working on. At the end of each semester, we received a grade based upon the progress of our efforts.

So during my remaining three years of high school, I taught myself to program by writing fantasy role-playing games in BASIC, using that Teletype with its paper-tape readers.

Q. *When did you begin working with a microcomputer?*

A. That was after high school, when I went to work at a Computerland store. It was 1979, and when I was first exposed to an Apple [II], I was first exposed to something else very important: *graphics*.

Q. You began translating your games to the Apple?

A. Exactly. My high school games had been built around a simple premise. Your character was in a 10 × 10 area. Because I was working on a paper printer, your character was one letter, and the monster was another letter. Every time you made a move, a new 10 × 10 area would print out, showing the results of your actions. I had written quite a few of these games. Once I finished one, I put it aside, and moved on to the next.

So even from the very beginning, back in 1976 on the Teletype, I was writing games that had a lot of the flavor of *Ultima*. I had written 28 of them.

Q. Then you began to add graphics.

A. Yes. I wanted to write a 3-D high-resolution dungeons game.

I took one of my high school games and rewrote it for the Apple. I called the game *Akalabeth*. The store owner said I ought to publish that.

Self-Publishing and Ziplocks

Q. From the beginning, then, you served as your own publisher.

A. In fact, I took what was for me at the time a great deal of money—about \$200—and went to the print shop down the street for the black-and-white cover sheet and stapled-together instruction booklet. State-of-the-art packaging at the time was a Ziplock bag. And that's what I had.

We sold five of them the first week.

Q. Not bad for the first week.

A. Yes, and one of those five I sold to a woman from another state. Who sent it on to a friend of hers in California. The game ended up at a publisher called California Pacific, who was at the time publisher for Bill Budge, who was at the time the computer game author.

California Pacific looked at *Akalabeth*, sent me plane tickets, and gave me a contract. *Akalabeth* was very well received.

It didn't really occur to me until after the game's success that it had never really been intended for the public. It was an exercise. That's when I sat down and started over, with the advantage of a friend who

helped me with machine language, which I was just learning.

Nine months later *Ultima* was published.

Q. This was the early 1980s. The Ziplocks were already in the past.

A. I knew things were changing when I left California Pacific. I put out the word that I was ready to change publishers, and I heard from every publisher in the country.

But I realized that most of the games that were popular at the time were action games, arcade games, or adventure games.

My games were different. They took over a year to develop. I was more personally tied to how I wanted my games presented to the public than most people were.

Q. In what ways?

A. I wanted my games in a box. I wanted a cloth map. I wanted significant quantities of documentation. But when I told the companies that, about half of them immediately dropped out. Sierra On-Line agreed, though, and I moved over to them.

Q. You by now were working on *Ultima III*?

A. And even as I was working on *Ultima III*, a bunch of new computers started coming out. It was the early eighties, and the IBM PC was just on the market, for example.

Quest for Success

Q. For the third game, you launched your own business.

A. Working with my brother, Robert, who has a deep education both in business and electronics.

In 1983, I was fed up with outside publishers. Robert, who had read the business plans of all the software companies, was eager to start his own business. And, for *Ultima III*, that's what we did.

Q. Obviously you've prospered. Just as obviously, you enjoy the control over how your products are presented.

A. We started the company with the premise that, unlike other companies, if a product sells a large number of copies, it's a result of the author's efforts. To that end, we still pay almost twice the market royalty rate. We have in-house author services that are available to our freelance authors. We're a very author-oriented company.

As a result, we've been able to attract quite a number of fine authors to Origin. By the way, I sign exactly the same royalty contract as our other authors.

Q. But you started the company in 1983-1984, during the worst slump the industry has seen.

A. We had the advantage of *Ultima* already being very well known. We were immediately accepted for distribution because the market already existed. Otherwise, we might not have made it.

And we began attracting new writers, broadening our product line. Our growth rate has been over 100 percent a year since 1983. Now we've got 35 employees in our business office in New Hampshire, and 15 employees in Texas, where I work and which is our development office.

Q. How has the increase in computing power affected your games?

A. That's really been the key to the evolution of the *Ultima* series. The early games evolved because I was becoming a better programmer, a better author.

With *Ultima IV*, *V*, and *VI*—which I'm working on now—a different kind of evolution is taking place. With the increase in power and memory capabilities, it's a whole new ball game. *Akalabeth* was a tape-based game. The new games take as much as a megabyte of data across several disks.

There is so much new technology to take advantage of, so many new opportunities to use the technology to enhance the game. What I can do now is work with my staff, draw on their talents, and dramatically improve the games.

The Illusion of Reality

Q. Evolution is more important to you than marketing?

A. Yes. With each game, I try to increase the illusion of reality, to deepen the experience which, in turn, deepens the storytelling qualities. Storytelling is paramount, but I've found that details make the storytelling work more effectively.

In the beginning, this was as simple as adding furniture to rooms. I'd do everything I could to lift the game above two dimensions, to make *Ultima* a real place for its players.

Now, it's getting more complex. To give just one example, in *Ultima V*, there are telescopes. If you look through them you can see eight planets. In *Ultima* there are eight virtues, and each of the planets represents one of these. I happen to be an amateur astronomer, so when I designed the game, I built in actual periods of proper orbital motion. If you look at the sky on different nights, you'll see their relative motions. That's an example of detail. In *Ultima VI*, these planets will continue to move but will also begin to exert an effect on the game and its characters.

Q. With which game do you feel your products began to come of age?

A. Each *Ultima* is written to be effective as a stand-alone game, but it was *Ultima IV* where they really began to grow up. The story became deeper. The world became more realistic.

Q. How far can you go? How long can *Ultima* continue to evolve?

A. I'm not interested in just cranking out product. I want to provide deeper and deeper experiences for players, stretching the technology, heightening the stories. To that end, as long as I can continue to advance my own state of the art, I'll continue to develop *Ultima*. □

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Letters

Bleeps and Blunders

I am writing an anthology of computer mistakes, miscues, flubs, and foul-ups. For example, I have information documenting 70-year-olds receiving military-reenlistment notices, the government notifying living people of their own deaths, and someone receiving a \$4-million electric bill.

Please ask your readers to forward documented stories of any computer errors to me at 159 Griggs Avenue, Teaneck, New Jersey 07666.

Ned Bulmash
Teaneck, NJ

Looking for II's

Your article "Around the World in 80 Columns" in July's *COMPUTE!* was very interesting to me because in June of 1987 I visited Czechoslovakia, bringing my Apple IIc with me.

Before I left, I called the Czech embassy (with some difficulty, as Tom Netsel indicated in his article) to inquire about any ramifications I might experience if I took a computer into the country. I was assured that there would be no problem, and it worked out very well for me, for I had absolutely no problem going in or coming out. In addition, I had a license from the Department of Commerce.

Since I teach children about computers, I thought my cousins who teach in Czechoslovakia would be interested in my work. All of my relatives enjoyed working with the computer—especially the children, because they had no qualms, as many adults have, about trying a computer for the first time.

I was fortunate enough to visit a couple of schools and to speak with about 50 educators. Since I had an assortment of software that I use at my own school, I demonstrated some of the goals of our computer curriculum. The teachers were fascinated and delighted with the presentation.

As a result of my visit, I hope to return next summer and bring an Apple IIc to each of the two schools I visited. I

have talked to people at several software companies who said they would provide me with free, appropriate software for the students to use.

Are there any resources that might help me acquire an Apple IIc to donate to a classroom in Czechoslovakia? I can only afford to donate one computer. Before I went to the country in 1987, I approached Apple Computer and requested an Apple to be donated as a goodwill gesture, but to no avail. I am still trying, but again, to no avail.

Antoinette Votava
South Bend, IN

Digitizer Details

Recently I read your very interesting article, "Closet Computers" (October 1988). I have a question regarding your section titled "Custom T-Shirts," in which you mention using a digitizer with a video camera to put faces on the T-shirts.

What is a digitizer? Is it software, hardware, or both? Where can I get these products? Any help you could give would be greatly appreciated.

C. A. Howell
Moline, IL

A digitizer, usually a hardware and software combination, turns analog images, like artwork or photos, into bit-oriented graphics that you can edit with a paint program. Used with a video source (as suggested in "Closet Computers"), a digitizer works like a camera for your computer. ComputerEyes, one example among many digitizing packages, is available for the MS-DOS, Apple II, Apple IIGs, Atari 8-bit, Atari ST, and Commodore 64/128 formats. You can find a review of this package in the August 1988 issue of COMPUTE!. Digi-View (mentioned in the Amiga section of "COMPUTE! Specific," October 1988) is available for the Amiga, and ProViz (Pixelogic, 800 West Cummings Park, Suite 2900, Woburn, Massachusetts, 01801; 617-938-7711) is available for the Macintosh.

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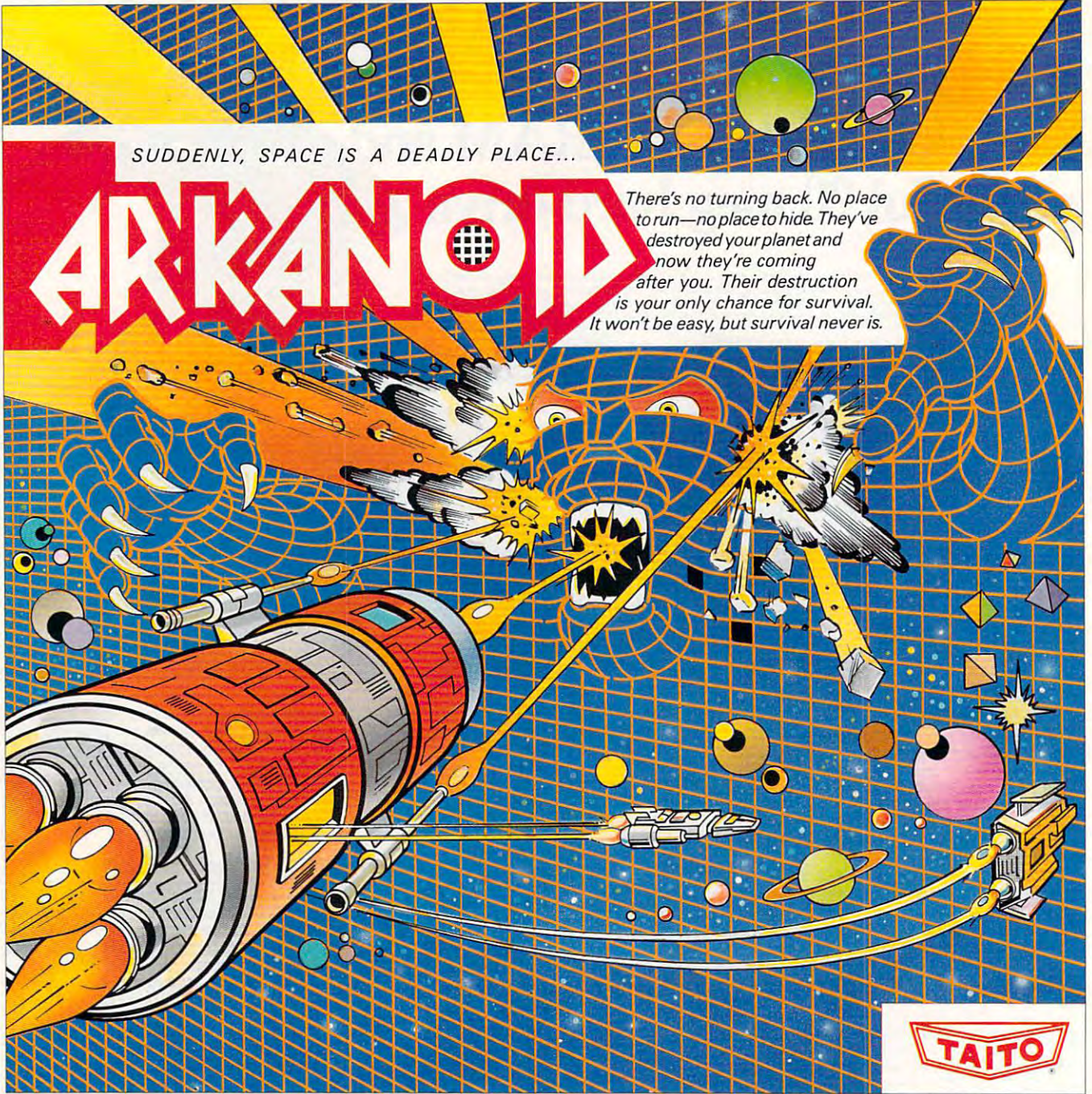
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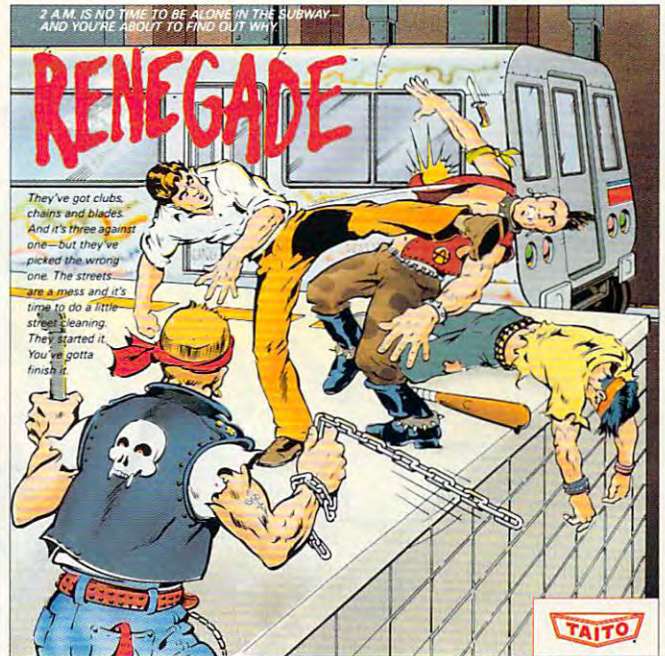
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Don't settle for imitations. Add the arcade classic voted "one of the best home video games ever" by Electronic Game Player Magazine to your video collection.

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THE 1080 COMPUTE! Choice AWARDS

We're not shy about what we want. Software that does its job, for one; software that's easy to use and fun to run, for another. And we're not shy about what we like, either. In the pages of *COMPUTE!* magazine, we regularly let you know what's hot and what's not, what personal computer software and hardware is worth the time and money, and what you'd best steer clear of.

Finding the best software isn't always easy, though, even with the blizzard of packages that inundate the offices of *COMPUTE!* magazine each week. We see more in a day than the average user does in a lifetime, something that gives us a perspective unique in computer publishing, where every other magazine concerns itself with only one computer or only one very specialized kind of computing. Since *COMPUTE!* talks to all computer users and

The
Editors
of
COMPUTE!

Move over Oscar, Emmy, Tony, and Grammy. Make room for the **COMPUTE!** Choice Awards.

plays no favorites among machines or applications, we get to see the entire spectrum of products—software that's topnotch, software that's only so-so, and even software that we wouldn't boot up if our lives depended on it.

Sifting through the flotsam and jetsam of personal computing, especially home computing, is our job and our delight. That's why we're proud to introduce the **COMPUTE!** Choice Awards.

These first annual **COMPUTE!** Choice Awards represent our collective opinion about the current state of home computing, a part of the personal computing community that's healthy and growing. That's amply demonstrated by the **COMPUTE!** Choice Awards, which

illustrate the excellence in home computing, recognize the exceptional, point out the creative, and note the important.



Selected by a panel of editors at COMPUTE! Publications, the Award winners were judged using four criteria. Ideally, winners were to be

- ▶ Of the highest quality
- ▶ Whenever possible, available for more than one kind of home personal computer
- ▶ Important to the home computing market
- ▶ Available—mail-order and discount software stores included—for less than \$250

Not every winner met all the criteria. Some COMPUTE! Choice Award winners are not available for multiple computer formats, for instance. Each winner, however, meets the criteria better than any others nominated in its category.

Because these are the first COMPUTE! Choice Awards, we had the Herculean task of considering any product on the market, no matter

when it was released. That's why, though many are new products, some are old standbys. The 1989 COMPUTE! Choice Awards are, then, our benchmarks, against which all following awards will be compared.

We think we've chosen the very best that home computing has to offer. In fact, we hope that by presenting such awards, *COMPUTE!* magazine can encourage software developers and hardware manufacturers to bring the best applications, games, educational programs, and hardware into the home, the one place where computers can make a difference in everyone's life. We're all home computer users here, too, and we want what you want—the best.

There are more than 13 outstanding home computer products, of course. Other products, lots of other products, deserve mention and attention. We've compiled another list, one larger and more wide-ranging, in this issue. If you don't see your favorite computer product among the COM-

PUTE! Choice Award winners that follow, take a look at the other exceptional products for the home computer user in "The Best of the Rest" (p. 36).

WORD PROCESSOR

Microsoft Word

Microsoft Word combines power, ease of use, and configurability in a standard-setting word processor. In the Macintosh world, *Word* is still the program to beat. Soon after its introduction on the Macintosh, *Word* brought much of that machine's power to the IBM PC.

In addition to the features that we've come to expect in a world-class word processor—spelling checker, thesaurus, macros, and online help—*Word* has glossaries and style sheets that let you customize your word processing to suit your individual needs. What gives *Word* its real character, though, is the seamless way it's driven either by mouse input or by well-designed keyboard commands. *Word's* interface makes the program's power accessible even to novices.

The 1989 COMPUTE! Choice Award for Word Processor goes to *Microsoft Word* for several reasons. The program's outstanding quality and impressive list of features are its most noticeable virtues—it definitely has power to burn. *Word* also get points for its continued evolution. The program was an early what-you-see-is-what-you-get proponent, and rather than rest on its laurels, Microsoft has continued to improve *Word's* performance. *Word* is also innovative. It was one of the first programs to offer IBM PC users a powerful mouse-driven interface, and it has done much to popularize the mouse in the PC community.

Last, and most importantly, *Word* has continually set and surpassed word processing standards on the two most influential computers in the market today—the IBM PC and the Macintosh.

DATABASE

Zoomracks

Zoomracks is a database with a difference. Instead of a more familiar record-oriented interface, *Zoomracks* uses a patented card-and-rack metaphor.

Zoomracks' main screen looks like a rack of cards displayed horizontally, with the top line of each card



visible. You can scan the deck and zoom in on any card to get a look at its contents. And you can zoom out of any card to get an overview.

This simple and revolutionary idea makes *Zoomracks* one of the fastest and easiest databases to navigate. With full text searching, a powerful macro language, and online help, *Zoomracks* offers all the database features most home and small-business users need.

Zoomracks' card metaphor is not only an influential interface ahead of its time, but also what makes this program so exceptional. *Zoomracks* gets high marks for its macro language as well. The macro language gives the program much of its power and makes *Zoomracks* extendable so that third-party vendors can create and sell their own rackware.

And finally, *Zoomracks* is an example of a program that crosses computer boundaries. *Zoomracks* is available for three important micro-computer platforms—IBM PC, Macintosh, and Atari ST—making the most of a uniform interface while exploiting each system's virtues.

Zoomracks wins the 1989 COMPUTE! Choice Award for Database

because of its innovative design, its power, and its multisystem availability.

SPREADSHEET

Multiplan

In 1982, *Multiplan* was Microsoft's answer to *VisiCalc*. But while VisiCorp rose and fell with *VisiCalc*, *Multiplan* was just one of Microsoft's many offerings, and it endured to become the most popular entry-level spreadsheet.

Multiplan is fast and powerful, but it wins the 1989 COMPUTE! Choice Award primarily because it's available on so many systems. Few packages work on as many systems as *Multiplan*, which has versions for the Apple II, CP/M, IBM PC, and Macintosh.

Multiplan's speed is notable; the program recalculates spreadsheets at blistering rates. It's easy to use, too—there's no need to learn cryptic commands when you can use menus to choose functions and operations. The program is especially easy to use on mouse-equipped systems.

Multiplan gets along well with other spreadsheets, too, because you

can convert data from other formats.

Although *Multiplan* is no longer Microsoft's top-of-the-line spreadsheet, it does offer macro capabilities and an iteration option. *Multiplan* is a great bargain for such a powerful spreadsheet: \$99 for the Apple II version and \$195 for the other versions.

INTEGRATED SOFTWARE

Microsoft Works

Works comes from a well-respected software family, so you'd expect it to be good. The package combines a word processor, a spreadsheet, a database, and a telecommunications package. You can find versions for the IBM PC and its compatibles and for the Macintosh.

The word processor is packed full of features, including graphics handling and a spelling checker, and the spreadsheet lets you create business graphics, such as pie charts and bar graphs. If there's a feature missing from any of the applications, you can probably create a macro to accomplish the task.

The nicest feature of *Works* is that it offers the perfect balance between power and price. Many single-application packages pack too much punch for the home user, so *Works'* simplicity helps tremendously. And if you bought the applications separately, you'd spend more than four times the money you'd spend for *Works*.

We chose *Works* for a 1989 COMPUTE! Choice Award because it's easy to use, inexpensive, versatile, and provides just the right amount of power for the home user.

PROGRAMMING LANGUAGE/UTILITY

Turbo Pascal

Borland International made its mark in the computer industry when it released the incredibly popular *Turbo Pascal* programming language. *Turbo Pascal* was the first truly affordable Pascal compiler. It's quick, capable, and, unlike many compilers, it carries no licensing fees. Today, *Turbo Pascal* is available for MS-DOS and CP/M computers as well as the Macintosh.

Turbo Pascal receives a 1989 COMPUTE! Choice Award for its long-standing popularity, its usability, and its ability to change with the marketplace. Consistently, Borland has kept *Turbo Pascal* up-to-date. When

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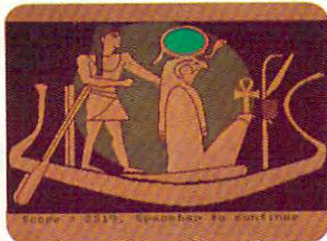
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users requested more features, such as direct support of DOS calls and the ability to use more than 64K of memory for data, Borland responded. When windowing environments became popular, the *Turbo Pascal* editor acquired pull-down menus, requesters, and a resizable editing window.

As a compiler, *Turbo Pascal* is fast—it can compile more than 200 lines per second on a standard 4-MHz MS-DOS machine. As a language, *Turbo Pascal* is complete, offering several predefined functions and procedures. With the use of compiled subprograms called *units*, you can access everything from the disk drive to the graphics screen. For additional support, Borland offers a series of *Toolbox* books which contain sample procedures, functions, and completed programs.

Turbo Pascal has become the standard programming language on MS-DOS computers. Chances are, if a commercial PC program is written in Pascal, it's written in *Turbo Pascal*.

GRAPHICS

Deluxe Paint II

Although it's available for the Apple

IIgs and IBM PC as well, *Deluxe Paint II* started out on the Amiga, a personal computer with no peer when it comes to graphics. To match the capabilities of that graphics computer in a graphics program takes ease of use, reliability, and elegance. *Deluxe Paint II* has all that and more. For these reasons, *Deluxe Paint II* wins the 1989 COMPUTE! Choice Award for Graphics.

Deluxe Paint II took its cue from Macintosh paint programs but added one important element: color. With *Deluxe Paint II*, you paint with light—4096 colors' worth. The program's repertoire includes such advanced features as perspective, custom brushes, resizable standard brushes, and color cycling. You can pick up any part of an image and rotate it, flip it, or create its mirror image. You can easily shrink and expand images. With *Deluxe Paint II*, you can work with two pictures at the same time. When you've finished, you can merge them together.

In all its forms, *Deluxe Paint II* supports the standard and not-so-standard graphics modes on its host computer. Its manual is uniformly excellent and includes everything you need to know and more. Beginners will appreciate the tutorials and the

graphics interface that includes menus and a tool box.

Deluxe Paint is a program you can grow into.

HARDWARE ADD-ON

Hewlett-Packard DeskJet

The Hewlett-Packard DeskJet is an amazing hardware add-on for any IBM PC, PC compatible, or Macintosh personal computer system. An ink-jet printer, the DeskJet nevertheless produces text and graphics almost indistinguishable from laser-printer output.

The under-\$1,000 HP DeskJet sprays characters and pictures onto paper through the nozzles in its disposable printhead. Unlike ink-jet printers of the past, however, it produces a superbly crisp page with a resolution of 300 dots per inch (dpi), the same resolution found in the current generation of laser printers.

The printer comes equipped with a 100-page sheet-feeder tray and uses plain copier paper. Although the DeskJet has but one built-in font (Courier), more than a dozen optional font cartridges are available from HP.

We gave the 1989 COMPUTE! Choice Award for Hardware Add-On to the HP DeskJet for its performance and its price, two equal and vital requirements for home and home-office use.

The DeskJet flawlessly produces the kind of professional-quality text and graphics that, until its arrival, could only have been generated on a far more expensive laser printer. For less than \$1,000 you can print near-typeset-quality reports, newsletters, graphics, and art.

The DeskJet is versatile, too, for although it's easily connected to an IBM PC and PC-compatible computer, it will also produce stunning results with a Macintosh using Orange Micro's Grappler LQ interface.

ARCADE GAME

Tetris

Okay, last time: This is *Tetris* [show red-colored box]. This is your brain [show egg]. This is your brain on *Tetris* [show egg on box, sizzling]. Any questions?

People say this about lots of games, but *Tetris* is, by far, the most

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addictive game ever. We can thank some programmers in the Soviet Union for this treasure.

As you play *Tetris*, you try to direct falling blocks so that they build solid rows. No space wars, no tanks, no guns. If only the geopolitical world we live in were so simple.

You don't shoot; you build. You don't move quickly; you manipulate carefully. You can play as fast or as slow as you like, and the game is still fun. It doesn't take long to learn to play *Tetris* well enough to spend 15 minutes on one game.

You have to see this game to appreciate it. But don't check it out if you've got other things to do.

The 1989 COMPUTE! Choice Award for Arcade Game goes to the unconventional *Tetris* because it's easy to play, but hard to master, because it's deceptively simple, but ingeniously complex—and because *Tetris* is available for almost every personal computer.

SIMULATION SOFTWARE

Flight Simulator

These days you can run a train, command a moon mission, captain a submarine, and drive a racecar, all from

your computer. But in the early 1980s, one software package reigned supreme in the world of personal computer simulations—*Flight Simulator*.

Despite the competition, or perhaps because of it, *Flight Simulator* continues to excite the imagination and retain its standing as the benchmark of computer simulation programs. The program has even spawned add-on scenery disks.

From the cockpit of a Cessna 182, a Learjet, or a World War I-vintage Sopwith Camel, take off and land at airports around the world. Create as many as 30 flight situations that you can save to fly again. You get a view through the windshield and a detailed, accurate, instrumentation panel. Test your flying skills by altering time of day, weather, and seasons.

Flight Simulator garners the COMPUTE! Choice Award for Simulation Software not only because of its depth of design, but also because of its breadth of scope. It operates on almost every personal computer, including the IBM PC and compatibles, Macintosh, Apple II, Atari ST and 8-bit computers, Amiga, and Commodore 64/128. Equally telling are the continuing advancements that have been made with the package. The latest release for the IBM PC, ver-

sion 3.0, builds on a tradition of design excellence.

EDUCATIONAL SOFTWARE

Where in the World Is Carmen Sandiego?

Actually only the first installment in a software series, *Where in the World Is Carmen Sandiego?* succeeds where most other educational software falls flat—not only is it a worthy learning tool, but it's also an entertaining experience in front of the computer.

You play the part of a gumshoe hot on the trail of Carmen Sandiego and her gang of strange-named criminals. The pursuit takes you across the world or, in the sequels, across the U.S.A. or Europe.

As you travel from city to city, you uncover geographical clues about your quarry's new destination. It's up to you to figure out the crook's next tour stop and then beat him or her to that place. The reference materials included with each program are invaluable and make the software as educational as any lesson in looking up facts or delving deep into information. *Where in the World*, for example, contains the *World Almanac*.

The 1989 COMPUTE! Choice Award for Educational Software goes to *Where in the World Is Carmen Sandiego?* and its siblings for several reasons, not the least of which is that the series has set a standard that other educational packages strive for. *Carmen* teaches geography in such an entertaining fashion that learning is nearly painless. Children *want* to play *Carmen*; that's the single most important hallmark of quality educational software.

Carmen also won points for its presence on a variety of home computer systems, with versions for MS-DOS, Apple II, Commodore 64, and Macintosh. Add to that the fact that *Carmen* is a superb game in either the classroom or the home, and you get a clear winner.

HISTORICAL GAME

Pirates!

Computers can open windows on other worlds, both real and not, an ability admirably demonstrated by *Pirates!*

Pirates! is set in an only partially romanticized Caribbean world of the sixteenth and seventeenth centuries. You assume the role of a privateer or

WINNER!

Best Educational Program

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

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

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

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

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*Apple //GS and Amiga versions only

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buccaneer roaming the seas in search of treasure, political alliance, solutions to certain mysteries. You can play the game as a wholly imaginary character or you can simulate a great historical captain.

Either way, you must outfit your craft; hire a crew; and develop seafaring, martial, mercantile, social, and diplomatic skills. While certain aspects of the game evoke an Errol Flynn sensibility, others are more harsh: You can be taken prisoner, you age, and you can lose the loyalty of your crew. Historical reality also figures: Alliances shift, treaties collapse.

Pirates! calls upon a variety of abilities. When voyaging, you must navigate your ship through sometimes-difficult waters and winds. Ship-to-ship combat likewise requires mastery of tight hauls against the wind and carefully aimed cannon fire. No less difficult are negotiations with governors of various ports of call.

We selected *Pirates!* as the 1989 COMPUTE! Choice Award winner in the Historical Game category for its excellent gameplay and its high-quality historical documentation and context. Literate, carefully organized, historically accurate, the manual is an important aspect of *Pirates!*

Pirates! succeeds on several levels, can be played by adults or children, and remains rewarding no matter how many times its adventures have been sampled.

ROLE PLAYING/ ADVENTURE GAME

Hitchhiker's Guide to the Galaxy

Douglas Addams' popular book trilogy/radio show/TV series, *The Hitchhiker's Guide to the Galaxy*, was the perfect medium to integrate into Infocom's computer-adventure format.

Like all good adventure games, the *Hitchhiker* story doesn't follow a linear path; it transcends space and time. And by working closely with Douglas Addams, the program's authors succeeded in keeping the game faithful to the *Hitchhiker* story.

The *Hitchhiker* story is unique. Briefly put, Arthur Dent wakes up to find that his house is in the path of a proposed freeway and is going to be destroyed. Of course, this problem soon loses impact when Arthur discovers that the entire Earth is to be demolished to make way for an intergalactic bypass. More than anything

else, *The Hitchhiker's Guide to the Galaxy* adventure game is humorous. As Arthur Dent, you'll encounter such bizarre characters as Zaphod Beeblebrox, the erstwhile president of the universe; Marvin, a morosely philosophical robot; and the most ravenous creature in the universe, the Bugblatter Beast of Traal. But after surviving the destruction of Earth in the first few minutes of the game, you're prepared for anything.

For bringing lethal Vagon poetry, Babble fish, and the phrase *Don't Panic!* to computer adventure games, Infocom's *The Hitchhiker's Guide to the Galaxy* is the 1989 COMPUTE! Choice Award winner for Role Playing/Adventure Game.

TELECOMMUNICATIONS

Quantum Computer Services

Computer owners who have added modems to their systems have benefited from a world where fellow enthusiasts are but a phone call away. But for others, telecommunications remains the mysterious stranger on the personal computing horizon. Acoustic couplers, baud rates, parity, and phone lines conjure up images of Matthew Broderick playing war games with the Strategic Air Command, or of E.T. phoning long distance.

The 1989 COMPUTE! Choice Award for Telecommunications goes to Quantum Computer Services for shedding light on the murky waters of electronic communications. Either alone or in conjunction with hardware manufacturers, Quantum offers AppleLink for Apple II users, Q-Link for Commodore 64/128 users, and PC-Link for the MS-DOS community.

Quantum subscribers gain access to information specific to their computer brand. They can attend electronic universities and sit in on panel discussions with industry experts. They can read news, search an encyclopedia, shop, or play games. They can share thoughts, hints, and tips on electronic bulletin boards, keep tabs on the newest public domain and shareware software packages, and discuss the latest hardware developments.

Quantum continues to bring computer users into the electronic fold. The recent agreement to bundle its PC-Link software into Tandy's new Deskmate 3.0 integrated productivity and graphics interface software package promises to increase the legions of personal computing enthusiasts who have made telecommunications a stranger no more. □

THE PHENOMENON CONTINUES.

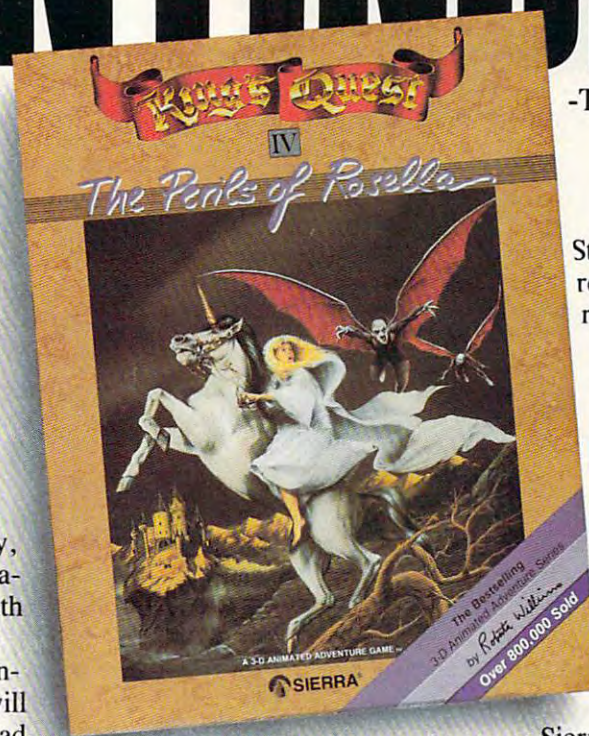
-The Signal Research Report

Breaking the million copy barrier...that's the crowning point of a truly one-of-a-kind computer game. King's Quest, the ultimate graphic adventure series, heralds this upcoming milestone with the triumphant arrival of

King's Quest IV - The Perils of Rosella

Interactive fun for the whole family, King's Quest IV bridges the generation gap between young and old with its classic fantasy themes, vivid characterizations, and dramatic conflicts. Parents and children alike will be delighted as they become the lead character in a dramatic medieval fairy tale.

The crown jewel of computer adventuring, King's Quest IV offers \$500,000 in improvements to a multi-million dollar proprietary software development system, creating an entertainment experience far exceeding everyone's greatest expectations. A team of 13 programmers, developers and artists with over 11 man-years of work have produced the largest computer game in history, a whopping 5.5 megabytes of program code.



Stunning graphics with double the resolution of previous versions, realistic day and night cycles, and enhanced animation offer the closest thing yet to a living motion picture on your computer screen. A theatrical experience for your personal computer, King's Quest IV offers a musical score unprecedented in computer entertainment software, a full 40 minutes of original music as composed by William Goldstein, a well-known Hollywood composer.

Sierra tops it off with the magnum opus in computer game animation, a 10 minute full-length introductory cartoon that sets the stage for a climactic contest between good and evil. Prepare to test the power of your brain and your computer to the hilt with the most phenomenal adventure game in computer entertainment history.

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Suggested Retail Price	\$29.00	\$49.95	\$49.95	\$219.95	\$179.95
Copy Protected	NO	NO	YES	YES	NO
Account Balancer	YES	YES	YES	YES	YES
- Automatic Error Finder	YES	NO	NO	NO	NO
Accounts Balanced					
- Cash	YES	NO	YES	YES	YES
- Checking	YES	YES	YES	YES	YES
- Savings	YES	NO	YES	NO	YES
- Credit Card	YES	NO	YES	YES	YES
Accounts Can Be Added When Entering Transactions (Data)	YES	YES	YES	YES	NO
Budgeting	YES	YES	YES	YES	YES
- Variable Budgeting By Month	YES	NO	YES	YES	YES
Automatic Transactions	YES	YES	YES	YES	YES
Financial Reports					
- Actual Financial Results	YES	YES	NO	NO	YES
- Month and Year to Date	YES	YES	NO	NO	YES
- All Months On One Report	YES	YES	NO	NO	YES
- Budgeted Financial Results	YES	YES	NO	NO	YES
- Actual Compared to Budget	YES	YES	YES	YES	YES
- Actual Compared to Prior Month	YES	NO	NO	NO	NO
- General Ledger Report	YES	YES	NO	NO	NO
- Accountant's Trial Balance	YES	NO	NO	NO	NO
- Net Worth Computation	YES	NO	NO	YES	YES
Inquiry Reports					
- Check and or Deposit Register	YES	YES	YES	YES	YES
- Account Analysis	YES	YES		NO	YES
- All Transactions with Party	YES	YES		NO	YES
- Cash Requirements Forecast	YES	YES	YES	YES	YES
- Aged Invoices Payable	YES	NO	YES	YES	NO
- Invoices Scheduled for Payment	YES	NO	NO	NO	NO
Graphics	YES	NO	YES	YES	YES
Fiscal Year Support	YES	NO	YES	YES	YES
Optional Password Protection	YES	NO	NO	NO	YES
Financial Calculator	YES	NO	YES	YES	YES
- Prints Amortization Schedules	YES	NO	YES	YES	YES
- Prints Accumulation Schedules	YES	NO	YES	YES	YES
Mail List Manager	YES	NO	NO	YES	YES
- Prints Address Labels	YES	NO	NO	YES	YES
- Prints Index Cards	YES	NO	NO	YES	NO
- Prints Telephone Directory	YES	NO	NO	YES	NO
- Mail Merge with Word Processor	YES	NO	NO	YES	YES
Check Writer	YES	YES	YES	YES	YES
- Prints Laser Checks	YES	YES	YES	YES	NO
- Prints Any Pin-Feed Check	YES	NO	YES	YES	YES
Personal Income Tax Estimator	YES	NO	NO	YES	YES
Pop-up Note Pad	YES	NO	NO	YES	YES
Pop-up Math Calculator	YES	NO	YES	YES	YES
Capacity					
- Total Number of Accounts Per File	999	300	*	*	120
- Total Number of Open Transactions	100,000	65,535	2,000	1,500	4,000

*Varies based on RAM memory.

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Best OF THE Rest

The top 10 products for your home computer

It was like a hockey game gone bad. Pack a room full of opinionated computer-magazine editors, demand that they argue about their favorite software, and you're likely to see some verbal high sticking before the day's over.

That was the scene when the editors got together to vote for *COMPUTE!* magazine's first-ever COMPUTE! Choice Awards. Needless to say, there were disappointments—not everyone's pet program garnered a Choice Award. After all, we were talking about a baker's dozen of awards, and an almost infinite number of home and educational computing products to consider.

When it was all done, we'd argued the merits, discussed the failings, and

The
Editors
of
COMPUTE!

brought up the best points of dozens of products available for one or more of the six personal computer systems that *COMPUTE!* magazine covers: MS-DOS, Commodore 64/128, Apple II, Amiga, Macintosh, and Atari ST. But though only a few won a COMPUTE! Choice Award, we couldn't ignore the rest.

We haven't. What follows is a list of descriptions of the outstanding software and hardware for personal computing, products that in many cases you won't want to be without.

These are the home and educational computing products that have impressed us here at *COMPUTE!* magazine: The Best of the Rest. We think they'll impress you, too.

abcde
 abcde
 abcde

WORD PROCESSOR

MS-DOS. The fastest MS-DOS word processor is also among the most powerful, yet *XyWrite* is easy enough for a novice to use. A virtually transparent screen, along with a sensible command structure, makes learning *XyWrite* a breeze; the program's wealth of additional features provide tools for every text-processing application imaginable.

64/128. *PaperClip III* features a system of selection menus that ease the learning curve, but for the most part it's the same excellent program it has been in earlier versions. *PaperClip* comes with a program for the Commodore 64 and one for the 128. All in all, there is no better word processor for the 64 or 128.

Amiga. *WordPerfect* on the Amiga, like *WordPerfect* on the PC, is fast and powerful. But the mouse, menu, and multitasking support show that this is a good Amiga program, not a PC program that just happens to work on an Amiga. *WordPerfect* isn't a halfway house for graphics or fancy fonts either; it's a 100-percent word processor. No serious writer will complain.

Mac. *MacWrite*, the original word processor for the Macintosh, is a classic. Sometimes we forget that many people don't need all the features and speed of high-powered word processors. You won't find an easier writing tool than *MacWrite*, and the price is low. If you don't need to design documents, you'll find almost everything you need in *MacWrite*.

Apple II. *Bank Street Writer* is the model easy-to-use word processor. First created for children, it has been used by thousands of adults just start-

ing to plunge into the computer revolution. Although it has matured into *Bank Street Writer Plus*, a program complete with spelling checker and thesaurus, it's still one of the simplest word processors around.

Atari ST. For getting words down on paper, Timeworks' *Word Writer ST* is one of the best packages around. It's easy and it's fully menu-driven. *Word Writer ST* is packed with features: keyboard shortcuts, function keys, a spelling checker, a thesaurus, a built-in outliner, and print spooling. Using windows, you can open more than one document at a time.

XyWrite (\$445), XYQUEST, 44 Manning Rd., Billerica, MA 01821; (508) 671-0888

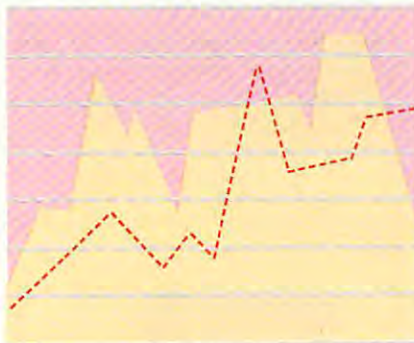
PaperClip III (\$49.95), Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404; (415) 571-7171

WordPerfect (\$329), WordPerfect Corporation, 1555 N. Technology Way Orem, UT 84057; (801) 225-5000

MacWrite (\$125), Claris, 440 Clyde Ave., Mountain View, CA 94043; (415) 960-1500

Bank Street Writer (\$79.95), Brøderbund, 17 Paul Dr., San Rafael, CA 94903; (415) 492-3200

Word Writer ST (\$79.95), Timeworks, 444 Lake Cook Rd., Deerfield, IL 60015; (312) 948-9200



DATABASE/SPREADSHEET

MS-DOS. As its name implies, *Quattro* takes 1-2-3 a step further. With a simplified interface, plenty of calculating power, sophisticated graphics and macros, as well as analytical tools, *Quattro* represents a new generation of spreadsheet. Affordable as well

as elegant, the program is powerful and versatile enough to serve as a small database.

64/128. If you're in the market for a spreadsheet package and you already own GEOS, look no farther than Berkeley Softworks' *geoCalc*. This is an attractive, solid number-cruncher with advanced math features and useful options. You'll have no more excuses for budget or tax miscalculations.

Amiga. Spreadsheets aren't as popular among Amiga users as they are in the PC world, but for those Amigans who want to crunch numbers, *MaxiPlan 500* is up to the job. *MaxiPlan* takes advantage of the Amiga's graphics capabilities by letting you incorporate charts with your spreadsheets; the pie charts and bar charts look especially nice.

Mac. For those who don't want a supercharged database, *QuickDEX* is a real gem. It's a desk accessory that stores any kind of information you can record as text. The search feature is quick and easy to use, and data entry is just as simple. You'll find it easy to import files kept in other programs or to use the clipboard to cut and paste between programs. *QuickDEX* isn't a full-featured database, but it's versatile and handy.

Atari ST. For simplicity, power, and ease of use, Timeworks' *Data Manager ST* fills the bill. You can enter data on custom-designed screens and display your work on a spreadsheetlike grid. You can modify either of these screens at any time. Multiple key sorts and customized printed reports are options.

Quattro (\$247.50), Borland International, 1800 Green Hills Rd., Scotts Valley, CA 95066; (408) 438-5300

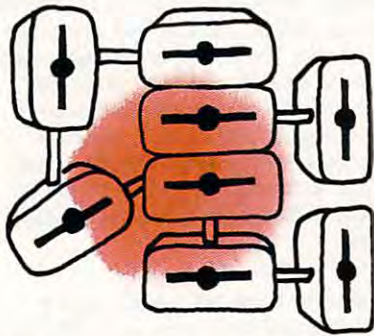
geoCalc (\$49.95), Berkeley Softworks, 2150 Shattuck Ave., Berkeley, CA 94704; (415) 644-0883

MaxiPlan 500 (\$149), Oxxi, P.O. Box 90309, Long Beach, CA 90809; (213) 427-1227

QuickDEX (\$60), Casady & Greene, P.O. Box 223779, Carmel, CA 93922; (408) 624-8716

Data Manager ST (\$79.95), Timeworks, 444 Lake Cook Rd., Deerfield, IL 60015; (312) 948-9200

Best OF THE Rest



HARDWARE ADD-ON

64/128. *ComputerEyes* captures output from a VCR, a video camera, or another computer and stores it in your screen video output. You can save it as a graphics file and manipulate the image with a paint program, titler, or word processor that imports graphics. Digitizing is slow—it takes about 15 seconds—so you couldn't have captured Carl Lewis or Florence Griffith Joyner as they raced in the Olympics. But for creating educational materials, newsletter graphics, or custom postcards, it's ideal.

Amiga. If the Amiga is the best buy for desktop video, *Digi-View* is the reason. The hardware is a small box that connects a standard black-and-white video camera (about \$150) to the parallel port of your Amiga. The software (which was recently updated) lets you capture video images. All Amiga modes are supported. The color filters provided in the package let you create realistic color images. If you've seen an amazing digitized image on the Amiga, odds are that it came from a *Digi-View* user.

Mac. With the Grappler LQ, you can link your Macintosh with dozens of non-Apple printers, including letter-quality, dot-matrix, laser, and ink-jet printers. The interface is particularly impressive when used with the HP DeskJet, an inexpensive ink-jet printer that produces laser printer-like text

and graphics. The Grappler LQ opens up the Macintosh monastery to the outside world.

Apple II. Two computers in one box is truly possible with PC Transporter, the IBM PC compatible-on-a-card. This card-and-cable combination uses a IIe or IIGS slot, Apple disk drives, and Apple peripherals to emulate an IBM PC computer. Ingenious in its design and almost elegant in its execution, the Transporter costs nearly as much as a PC clone, but it conserves desktop real estate and add-on hardware expenses.

Atari ST. The Astra SW2 Switch Box is very handy if you own two monitors. Plug both monitors into the box; then plug the box into the computer. To switch monitors, simply throw a switch on the front. There is also a separate audio jack that can be connected to an amplifier. A switch on the SW2 allows you to choose whether the sound comes from the monitor or the amplifier.

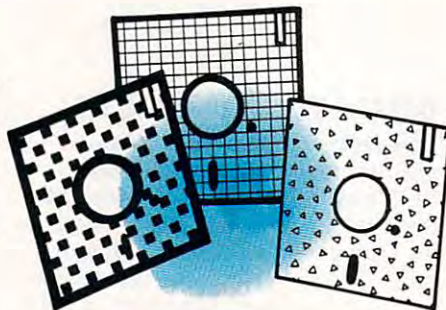
ComputerEyes (\$249.95), Digital Visions, 66 Eastern Ave., Dedham, MA 02026; (617) 329-5400

Digi-View (\$199.95), NewTek, 115 W. Crane St., Topeka, KS 66603; (800) 843-8934

Grappler LQ (\$149), Orange Micro, 1400 North Lakeview Ave., Anaheim, CA 92807; (800) 223-8029

PC Transporter (price varies), Applied Engineering, P.O. Box 798, Carrollton, TX 75006; (214) 241-6060

Astra SW2 Switch Box (\$69.95), Southern California Astra Systems, 2500 S. Fairview, Unit L, Santa Ana, CA 92704-9869; (714) 549-2141



INTEGRATED SOFTWARE

MS-DOS. An integrated environment consisting of word processor, database,

spreadsheet, business graphics, and telecommunications, *PFS: First Choice* delivers surprising power in an easy-to-use format that sports a uniform command structure and screen display. The word processor is solid and well executed, the database can handle files of up to 16,000 records, and the spreadsheet can accommodate 1024 rows and 768 columns. The graphics and telecommunications aspects are equally well planned and thorough.

64/128. If you've been bidding your time before trying GEOS, the time has come. Along with its standard desk accessories, the newest version of GEOS for the 64 offers *geoWrite Workshop*, the full-featured word processor previously sold separately; full support for the 1581 disk drive; and support for the RAM expansion units. *geoPaint*, also part of the package, boasts added control over graphics.

Amiga. Since the Amiga is a multitasking machine, virtually any combination of packages can be integrated. The Disc Company has brought together three fine programs to make *Critic's Choice Productivity Package* an excellent bargain for power users. It includes the Disc Company's *KindWords* word processor, Oxxi's *MaxiPlan* spreadsheet, and Software Visions' *Microfiche Filer* database manager. These packages make for an integrated system to rival those on other computers.

Apple II. Really the only integrated package for the Apple II, *AppleWorks* puts three fast but limited applications into an easy-to-understand file-folder interface. Its word processor, spreadsheet, and database are good applications to get any Apple II owner started, and they're adequate for experienced and power users. This is as close to a "must-have" for every Apple II owner as there is.

PFS: First Choice (\$159), Software Publishing, P.O. Box 7210, 1901 Landings Dr., Mountain View, CA 94039-7210; (415) 962-9002

GEOS (\$59.95; upgrades, \$29.95), Berkeley Softworks, 2150 Shattuck Ave., Berkeley, CA 94704; (415) 644-0883

Critic's Choice Productivity Package (\$249.95), The Disc Company, 3135 S. State St., Ann Arbor, MI 48108; (313) 665-5540

AppleWorks (\$249), Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014; (408) 996-1010

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Best OF THE Rest



PROGRAMMING LANGUAGE/UTILITY

MS-DOS. With *Turbo BASIC*, Borland gave programming power to the people. It's powerful and affordable. Smaller than most previous BASICs, Borland's language nonetheless runs faster while providing more sophisticated programming tools than its predecessors offer. Despite the program's power, the language is not restricted to master programmers. *Turbo BASIC*'s interface and documentation make it a fine, effective programming environment for all skill levels.

Amiga. What makes a great programming environment great? Speed? *Benchmark Modula 2* is blindingly fast. Power? It offers access to all built-in Amiga routines, all standard Modula-2 libraries, and more. Ease of use? You edit, compile, link, and run your programs from within the powerful MicroEMACS-based editor. To help you get started with Modula-2, *Benchmark* includes dozens of sample programs.

Mac. No programming language fits the Macintosh genre better than *HyperTalk*, the language inside *HyperCard*. Its syntax is as conversational as BASIC's, and its program structure is almost object-oriented. What you can't do with *HyperTalk*, you can do with external commands, which you can summon from *HyperCard*. If you want to start programming on the Macintosh, *HyperTalk* is an excellent entrée.

Atari ST. Far and away the most popular language for the ST is *GFA BASIC*, recently released by Michtron in version 3.0. This new version has

400 new commands, many loop structures, and direct access by name to VDI, AES, and OS commands. The built-in editor makes writing and debugging programs straightforward, and a compiler for stand-alone applications is in the works. A useful series of support books and programs have also been released by Michtron.

Turbo BASIC (\$99.95), Borland International, 1800 Green Hills Rd., Scotts Valley, CA 95066; (408) 438-5300

Benchmark Modula 2 (\$199.95), Avant-Garde Software, 2213 Woodburn, Plano, TX 75075; (214) 964-0260

HyperCard (\$40), Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014; (408) 996-1010

GFA BASIC (\$99.95), Michtron, 576 S. Telegraph Rd., Pontiac, MI 48053; (313) 334-5700



ARCADE GAME

MS-DOS. Golf simulations are a dime a dozen, but *Mean 18* feels more lifelike than any other golf game on the market. There's a practice green and a driving range on which you can hone your skills. You can select your own golf clubs for each shot or have a caddy do it. If you master the courses provided on the master disk and the course disks, you can design your own.

64/128. In a delightful pairing of form and content, the Three Stooges make perfect arcade characters. Cinemaware accomplishes a graceful transition from screen to software, framing several arcade-style games with a sentimental Stooze-type story. Character animation and control is smooth and easy to master; difficulty levels ensure replayability.

Amiga. *Arkanoid* is the best adaptation of any arcade game on a computer. The opening screen, gameplay, graphics, and sound bring the arcade

experience home. *Arkanoid* is a souped-up version of Atari's classic *Breakout*. It inherits the rhythm of that game but adds many of its own embellishments. The biggest difference between the arcade game and the Amiga version is the sound—without a doubt, *Arkanoid* sounds even better at home than it does at the arcades.

Mac. *HardBall!* is a great computerized version of America's favorite pastime: baseball. Besides its fine graphics representation, the program has terrific sound, including an umpire who calls strikes and outs with enthusiasm. You'll also find you have a lot of control over the game variables: choosing teams, pitches, batting styles, and where to throw the ball.

Apple II. Before *Tetris*, the game that has come closest to banishment from offices for lowering productivity is *Shanghai*, an equally addictive game that is more like a thought-provoking puzzle than it is like an arcade game. Distantly related to mah-jongg, *Shanghai* pits players against 144 tiles that must be removed one pair at a time. Mentally challenging, games are won infrequently but often enough to reward the required foresight, patience, and luck.

Atari ST. There are many really excellent arcade games, but the vote must go to Brøderbund's *Typhoon Thompson*. You guide a small jet-powered raft over the waves of an ocean planet, battling and capturing sea sprites. Your aim is to recover artifacts and, finally, to save a human hostage. The graphics and animation are the most remarkable we've ever seen. ▶

Mean 18 (\$44.95), Accolade, 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128; (408) 296-8400

The Three Stooges (\$34.95), Cinemaware, 4165 Thousand Oaks Blvd., Westlake Village, CA 91362; (805) 495-6515

Arkanoid (\$29.95), Discovery Software, 163 Conduit St., Annapolis, MD 21401; (800) 342-6442

HardBall! (\$44.95), Accolade, 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128; (408) 296-8400

Shanghai (\$34.95), Mediagenic, 3885 Bohannon Dr., Menlo Park, CA 94025; (415) 329-0500

Typhoon Thompson (\$34.95), Brøderbund, 17 Paul Dr., San Rafael, CA 94903-2101; (415) 492-3200

The only computer games to earn an official **USA** license from the 1988 U.S. Olympic Team.



THE GAMES:TM SUMMER, WINTER, SPRING AND FALL.

SUMMER EDITION:

The heat is on in Seoul.

Relive the heart-pounding excitement experienced by the 1988 U.S. Olympic Team.

Sprint down a track, clearing the high hurdles by a thousandth of an inch. Pole Vault to new heights.

Hold an iron cross on the Rings. Follow up with a triple twist in the Diving event. Then try



for another medal or two in Sprint

Cycling, Hammer Throw, Uneven Parallel Bars or Archery. It's your chance to make history.

WINTER EDITION:

Chilling competition in Calgary.

Rocket off the Ski Jump.

Ski the Downhill, Slalom or Cross-Country courses. Speed Skate, Figure Skate, and Luge.

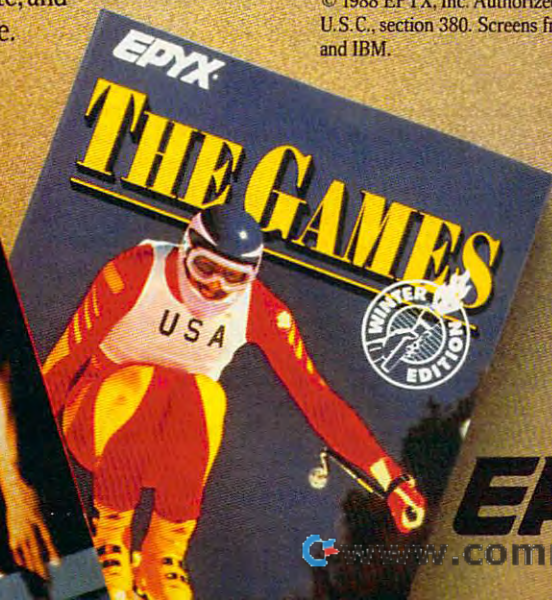
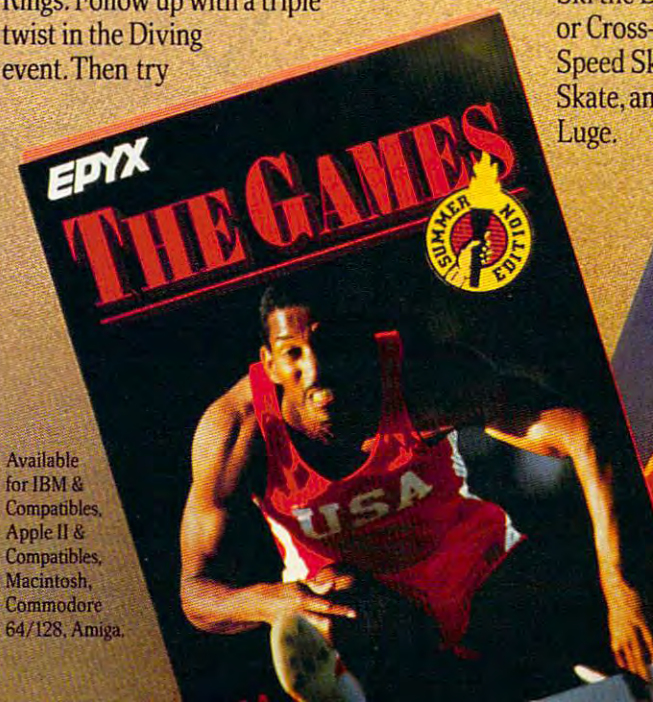


The Games feature dramatic camera angles, first person views, 3-D imagery and exciting sound effects. Plus opening, closing and award ceremonies.

Take on the computer, a country or your friends. (Up to eight can play.) And to make the action even more heated, play with an EPYX high performance joystick.

These Games will keep you on the edge of your seat all year long.

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Available for IBM & Compatibles, Apple II & Compatibles, Macintosh, Commodore 64/128, Amiga.

EPYX
www.commodore.ca

Best OF THE Rest



SIMULATION SOFTWARE

MS-DOS. The combat flight simulator that raised the realism stakes, *Falcon* puts you in a state-of-the-art F-16. Convincing to an astonishing degree, this one pits you against hot MiGs and the forces of gravity—you can black out if you punch a turn too tightly. Superb graphics and animation complete the simulation. *Falcon's* manual is nothing less than a book packed with aerial-combat techniques.

Amiga. *FA/18 Interceptor* is the best flight simulation we've seen on any personal computer. The word for this program is *stunning*. *Interceptor* may be the safest way to fly a military jet—just don't fall out of your chair.

Mac. It sounds impossible, putting the entire world on one disk, but *Balance of Power* is just that: a simulation of the geopolitical modern world. Enhanced in a new 1990 version, the simulation casts players as superpower leaders bent on increasing their influence while keeping the nuclear holocaust at bay. Diplomacy, threats, troops, money, and guns are the tools; national survival, the goal.

Apple II. The perfect graduation from *Flight Simulator*, *Chuck Yeager's Advanced Flight Trainer* offers 14 different aircraft from eight decades. Ground-bound simulation pilots can put each plane through the paces, learn to fly in formation, try out aerobatic maneuvers, race, and follow the man who broke the sound barrier in a

hairy chase around skyscrapers. The simple graphics are purposefully abstract, and the aircraft handling is realistic and responsive.

Atari ST. In MicroProse's *Gunship*, you fly an Apache AH64 attack chopper through a variety of combat theaters of increasing difficulty. Using the weapons provided with the chopper, you battle many enemies. Your arsenal includes missiles, machine guns, and cannons. When you complete a mission, you can earn promotions.

Falcon (\$49.95), Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501; (415) 522-1164

FA/18 Interceptor (\$49.95), Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404; (415) 571-7171

Balance of Power (\$49.95), Mindscape, 3444 Dundee Rd., Northbrook, IL 60062; (312) 480-7667

Chuck Yeager's Advanced Flight Trainer (\$39.95), Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404; (415) 571-7171

Gunship (\$49.95), MicroProse, 180 Lakefront Dr., Hunt Valley, MD 21030; (301) 771-1151



HISTORICAL GAME

MS-DOS. What is it about tanks that brings out the best in computer-game designers? *Kampfgruppe* is a platoon-level recreation of armored warfare in Russia during World War II. An easily learned interface complements an impressive number of weapons and scenarios. Combat calculations are reasonable, command control is sensible, graphics are simple but effective. Strategy and tactics count for a great deal in this historical simulation, which is both convincing and well documented.

64/128. *Decisive Battles of the American Civil War* is a strategy game simulating six battles of the early Civil War years; its menu-based system

keeps play quick and easy. The superb leadership rules reflect the kind of inspirational heroism that was shoved aside to make room for the weapons of modern warfare.

Apple II. War games and computers make a perfect couple, as the classic *Gettysburg: The Turning Point* attests. This historically accurate game pits players against the computer in the most famous battle ever fought on American soil. The player makes the tactical decisions about moving the troops and firing on and charging at units; the computer keeps track of all the numbers.

Kampfgruppe (\$59.95), Strategic Simulations, Inc., 1046 N. Rengstorff Ave., Mountain View, CA 94043; (415) 964-1353

Decisive Battles of the American Civil War (\$39.95), Strategic Studies Group, distributed by Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404; (415) 571-7171

Gettysburg: The Turning Point (\$59.95), Strategic Simulations, Inc., 1046 N. Rengstorff Ave., Mountain View, CA 94043; (415) 964-1353



EDUCATIONAL SOFTWARE

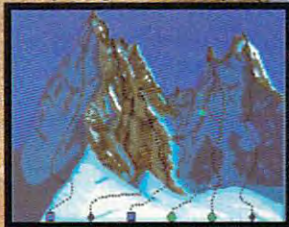
MS-DOS. Dinosaurs offer a perfect chance to combine entertainment with education, and Britannica made the most of the opportunity with *Designasaurus*. The program lets players assume the role of a real prehistoric reptile or one of their own creation. Either way, the program challenges players to survive in a hostile primeval environment. The program supports printers for documenting your dinosaurs.

64/128. As suitable for neophytes as it is for grizzled veterans, *Mavis Beacon Teaches Typing!* combines sound pedagogy and a good sense of fun in one of the best pieces of educational software ever designed. Mavis will

ONE MISTAKE AND IT'S THE BIG PANCAKE.

You're at the foot of one of the world's highest mountains. And you're not snapping pictures. Because this is the FINAL ASSAULT. The only mountain climbing game in the Alps or anywhere else. **IF YOU'RE AFRAID OF HEIGHTS, FORGET IT.**

You'll experience the terror and elation of one of the most grueling sports ever. And you'll be tested every step of the way.



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Commodore 64/128,
Amiga, Apple IIGS,
Atari ST, IBM &
compatibles.
Screens from
Atari ST.



EPYX
**FINAL
ASSAULT**

Did you pick the right course? (There are six treacherous possibilities.)

What about supplies? If you run out of soup, you'll be stuck with snow sandwiches.



Forget your spikes or ice picks? You could end up a permanent part of the scenery.



If you have nerves of steel, even when you're dangling 40 feet off a cliff, you might just be one of the lucky few to plant your flag at the peak.



To make the stakes even higher, play with an EPYX high performance joystick.

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automatically track your progress and suggest exercises and lessons to strengthen your weaknesses.

Mac. Haven't you heard? *HyperCard* is a wonderful authoring system for educational applications. At a simple level, it's a powerful tool for creating flash cards—not just any flash cards, but ones that have several answer cards, hint cards, sounds associated with the cards, and more. At a more complex level, *HyperCard* can create reading assignments that include in-depth references, optional passages related to individual interest, audio cues, and exercises in the text.

Apple II. Drill-and-practice educational software takes its share of knocks, but when a package works right, it's a wonder to behold. *Math and Me* is aimed straight at preschoolers, who enjoy its colorful graphics. Actually a collection of games with various levels of difficulty, the program prods preschoolers into an understanding of numbers and some simple arithmetic.

Atari ST. The *Quiz Master Construction Set* lets you set up your own quizzes, plays those quizzes in random or numbered order, and prints them in four different formats. Scores are based on how quickly you answer, but a random bonus is added to the score so speed isn't everything. Up to four can play.

Designasaurus (\$39.95), Britannica Software, 345 Fourth St., San Francisco, CA 94107; (415) 546-1866

Mavis Beacon Teaches Typing! (\$39.95), The Software ToolWorks, distributed by Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404; (415) 571-7171

HyperCard (\$40), Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014; (408) 252-2775

Math and Me (\$39.95), Davidson & Associates, 3135 Kashiwa St., Torrance, CA 90505; (213) 534-4070

Quiz Master Construction Set (\$9.95), EZUSE Software, 4732 Knollpark Circle, Antioch, CA 94509



GRAPHICS

64/128. *The Newsroom*, from Springboard, stands as the granddaddy of all desktop publishing packages. At first it was just a package competing with Brøderbund's *The Print Shop*, but *The Newsroom*'s particular orientation has given it an audience of its own. You can create newsletters in an environment that simulates the various activities of real newspaper publishers. The realism makes it an excellent educational package, but it's also very good for producing home and club newsletters.

Amiga. *Deluxe Photo Lab* is the latest paint program from Electronic Arts, and it's a marvel. *Deluxe Photo Lab* embraces all graphics modes—even the bizarre Hold-And-Modify and Extra Half-Brite modes. Besides its paint module, *Lab* also has a special-effects module for processing drawn or digitized images and a poster-printer module that lets you create printouts and posters of virtually any size.

Mac. *SuperPaint* has two graphics modes: Draw, which is object-oriented, and Paint, which is bit-oriented. In effect, you get the two graphics programs in one box. Both modes are full-featured; you can even convert graphics from one mode to the other or mix the two modes together. And *SuperPaint* doesn't sacrifice an easy-to-use interface for this versatility.

Apple II. More than a million owners can't be wrong. *The Print Shop*, the first popular print program, lets users design and print greeting cards, signs, and banners. The strict 1-2-3 approach to design doesn't leave much room for creativity, but it lets even children participate in the process. A version specific to the IIGS is even more impressive.

Atari ST. *Publisher ST*, from Time-works, supports all desktop publishing functions, including multiple paper sizes, style sheets, WYSIWYG, GDOS fonts, .IMG graphics (with automatic text flow), linked columns, a full-featured word processor with spelling checker, and direct text import from popular word processors. Some rudimentary graphics tools are built in, too, and six support packages of fonts and graphics are available.

The Newsroom (\$49.95), Springboard Software, 7808 CreekrIDGE Circle, Minneapolis, MN 55435; (612) 944-3915

Deluxe Photo Lab (\$149.95), Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404; (415) 571-7171

SuperPaint (\$99), Silicon Beach Software, 9580 Black Mountain Rd., Suite E, P.O. Box 261430, San Diego, CA 92126; (619) 695-6956

The Print Shop (\$49.95; IIGS version for \$59.95), Brøderbund, 17 Paul Dr., San Rafael, CA 94903-2101; (415) 492-3200

Publisher ST (\$129.95), Timeworks, 444 Lake Cook Rd., Deerfield, IL 60015; (312) 948-9200



ROLE-PLAYING/ ADVENTURE GAME

MS-DOS. One of the first games to treat science fiction as a vehicle for more than just blasting aliens, *Starflight* provides a complete if unstable cosmos through which players must roam. Malevolent aliens are behind the instability, although that is not clear at first. Rather, the game takes shape as a mystery and includes interstellar commerce, alien civilizations, exploration, and communication.

64/128. *Pool of Radiance* is the first computer game licensed to emulate the *Advanced Dungeons and Dragons* game series. The quests are varied and interesting, the AD & D sense of

YOUR BATTLESHIP JUST BIT THE BIG ONE.

Now, you're mad. Really flamed. So assess your losses, aim your guns and turn your enemy into fish food.

ONE OF THE MOST POPULAR GAMES OF ALL TIME COMES TO LIFE ON THE COMPUTER.

As commander of a powerful naval fleet, you'll see destroyers and carriers sinking in a cloud of smoke. Watch planes strafing by so low, you'll practically feel the pilots breathing.



Commodore 64/128, Amiga, Atari ST, IBM PC and compatibles. Battleship is a trademark of Milton Bradley used under license. © Milton Bradley. All rights reserved. Screens from Atari ST

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BATTLESHIP
NOW FOR YOUR COMPUTER™



See shrapnel flying through the air like it's the 4th of July, without a picnic.

If you're still floating when it's all over, you'll be honored in a glorious, well-deserved victory celebration.



Battleship. So real, you'll taste the salt water. Sink your opponent faster and easier using an EPYX high performance joystick.



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adventuring is intact, and the character picture and icon system is a very nice touch. Combat is frequent and time-consuming, but that also reflects the parent game.

Amiga. It's the beautiful graphics screens that make *The Pawn* an unusual adventure. Although *The Pawn* is basically a text game, the pull-down images make every move worthwhile. If you've already tried *The Pawn* and you liked it, try one of the follow-ups—*Guild of Thieves* or *Jinxter*.

Mac. The first point-and-click role-playing game, *Deja Vu* sets you in a grimy world full of fallen women, seedy bars, drugs, blood-thirsty thugs, and even alligators. Your character awakens in the stall of an upstairs restroom; you don't remember who you are or why you're there. Using the mouse, you pick up objects, open doors, look in your pockets, and so on. Unlike other role-playing games, *Deja Vu* doesn't make you remember commands. Great graphics, slick interface, and first-rate story line.

Apple II. *Ultima V* is the latest incarnation of computing's longest-running role-playing game series. The newest installment features its own universe, complete with cities, fortresses, even an underworld. Players ponder the fate of the famous Lord British as they struggle to free Britannia, *Ultima's* setting, from an evil master. Added realism—the population goes about its business routinely, for example, without worry about whether or not you're paying attention—heightens the illusion of an alternate world to explore.

Atari ST. FTL's *Dungeon Master* has taken the ST world by storm. You descend into a dungeon, revive some dead heroes, and make your way toward the final battle with the Wizard of Darkness. Along the way, monsters must be battled and problems solved. The incredible graphics and detail are what sets this game apart. People have been so enchanted by this game that special-interest groups have been established on bulletin boards to share hints and tips.

Starflight (\$49.95), Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404; (415) 571-7171

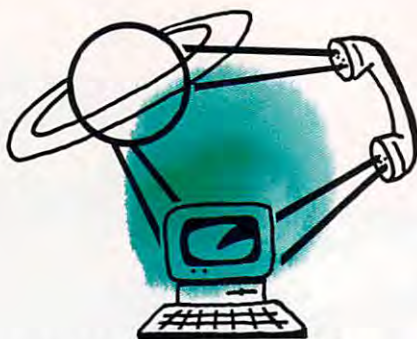
Pool of Radiance (\$39.95), Strategic Simulations, Inc., 1046 N. Rengstorff Ave., Mountain View, CA 94043; (415) 964-1353

The Pawn (\$24.95), Rainbird, distributed by Mediagenic, 3885 Bohannon Dr., Menlo Park, CA 94025; (415) 329-0500

Deja Vu (\$49.95), Mindscape, 3444 Dundee Rd., Northbrook, IL 60062; (312) 480-7667

Ultima V (\$59.95), Origin Systems, 136 Harvey Rd., Building B, Londonderry, NH 03053; (603) 644-3360

Dungeon Master (\$39.95), FTL, 6160 Lusk Blvd., Suite C-206, San Diego, CA 92121; (619) 453-5711



TELECOMMUNICATIONS

MS-DOS. Originally a shareware product, *ProComm* provides function-key-driven telecommunications with admirable thoroughness and simplicity. Addressing all major telecommunications needs, the program handles major modes, dialing, sending, receiving, DOS access, macros, and more in a format that's easy to use. *ProComm* has made telecommunications affordable and manageable.

64/128. General Electric's GENIE stands out for price and friendliness. After a one-time registration charge of \$29.95, the non-prime-time rates for 300- and 1200-bps connections are \$5 per hour. Those are better prices than you'll find on any comparable system, and there are rumors about GENIE lowering its 2400-baud rate as well. Furthermore, it boasts excellent Round Table special-interest groups, a host of good downloadable software, online shopping and airline reservations—all with an easy interface.

Amiga. *Diga!* is easily the best telecommunications program for the Amiga. It excels at run-of-the-mill tasks, but it offers much more. *Diga!*'s

most celebrated feature is its *Double-Talk* mode, which lets Amiga users transfer files to each other and chat with each other—simultaneously.

Mac. *Red Ryder*, one of the most flexible and powerful telecommunications programs, is well worth the time you'll spend learning its intricacies. This program, which started as shareware software, is compatible with almost any modem, emulates the popular terminals, includes a programming language for writing procedures, and follows your actions to write procedures for you.

Apple II. The best source of computer information, the best place to find public domain and shareware software, the best spot to chat with other computer owners is undoubtedly CompuServe, the largest telecommunications service. MAUG, its Apple forum, is the oldest online Apple area, and it has the most members. If you want Apple news, gossip, software, tips, or just conversation, this is the place to go. Modem and telecommunications software are required.

Atari ST. Antic Software's *Flash* has become the standard telecommunications package in the ST world. A huge buffer (with many word processing editing commands), multiple-protocol support, script files, programmable function keys, and background file transfer are all included in the latest version (1.6). □

ProComm (\$50; newest version—**ProComm Plus**—\$75), DataStorm Technologies, P.O. Box 1471, Columbia, MO 65205; (314) 474-8461

GENIE, General Electric, 401 N. Washington St., Rockville, MD 20850; (800) 638-9636

Diga! (\$79.95), Aegis Development, 2115 Pico Blvd., Santa Monica, CA 90405; (213) 392-9972

Red Ryder (\$80), Freesoft, 150 Hickory Dr., Beaver Falls, PA 15010; (412) 846-2700

CompuServe MAUG, CompuServe, 5000 Arlington Centre Blvd., P.O. Box 20212, Columbus, OH 43220; (800) 848-8199; in Ohio, (614) 457-8600

Flash (\$29.95), Antic Software, 544 Second St., San Francisco, CA 94105; (800) 234-7001

Rhett Anderson, Heidi E. H. Aycock, Keith Ferrell, Gregg Keizer, David Plotkin, and Neil Randall contributed to "The Best of the Rest."

JUDGE A GAME BY ITS COVER.

Licensed by The Major League Baseball Players Association.



The action-packed statistically enhanced computer game with all 26 major league teams, and all the stars like Dave Winfield, Ozzie Smith, Jose Canseco, Roger Clemens, George Brett, Alan Trammell and Fernando Valenzuela.

NEW YORK	POS	WBL	NEW YORK	POS	WBL
ANDERSON	RF	291	SVETSKA	CF	283
BARDALPH	2B	385	JOHNSON	3B	285
HATTENGLV	1B	321	NEUMARDIZ	1B	258
WINFIELD	RF	275	STRAUBERY	CF	284
WASHINGTON	OF	279	MCREYNOLDS	CF	270
PANJABULO	2B	234	CARTER	C	235
MACANAN	SS	271	BALKMAN	2B	258
SALAS	C	258	SABTAMA	SS	253
JOHN	P	388	GODLA	P	215

Updated roster/stat disks available every season.

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"If it were any more realistic, you'd need a batting helmet."
Gary Carter



As the pitcher, you can throw the batter a curve, a high hard one. Pitch him inside, outside. Even brush him back if he's crowding the plate. Just remember, he's got great bat control. He might even drag a bunt on you.

Throw it home or hit the cutoff man. Go for the great catch or play it safe. Steal a base? How about a pitching change? Just remember. Anything the pros can do, you can do. If you're good.

Available for Commodore 64/128, Apple II & compatibles, IBM & compatibles

EPYX



buyer's guide

Paint Programs

Do you imagine yourself the next Walt Disney? If Picasso had owned an Amiga, would he have had a Blue Period? Beneath your well-fed exterior, is there a starving artist clamoring to get out? Whether your tastes run to surrealism or stick men, there's a paint program in this buyer's guide that can get you off the canvas and into the world of computer art.

Caroline D. Hanlon

Advanced OCP Art Studio

Rainbird
Atari ST, Commodore 64
Joystick optional
\$29.95

Create color artwork with this paint program. It runs in hi-res mode and offers 16 pens, eight random strays, 16 brushes that can be defined by the user, three levels of magnification, and zoom. Windows can be inverted, cut and pasted, enlarged, reduced, stretched, flipped, and rotated. There is a font editor with nine character sizes. The program accepts input from the keyboard, a KoalaPad, or a Datex mouse.

Aegis Images

Aegis Development
Amiga
\$39.95

This paint program for the Amiga offers 20 different brushes, 16 patterns, and magnify, supermove, and airbrush options. Create pictures in 32 different colors, using the drawing tools or working freehand. Other drawing utilities include grids, transparency, wash (for a watercolor effect), color cycling, gradient fill and dithering, tile drawing for larger patterns, draw under, line constraining to specify angles of degree for lines, and pantograph drawing, which allows the user to duplicate images. *Images* is available separately or in the *Aegis Animator* package.

Art a la Mac, Volume 1

Springboard Software
Macintosh
\$39.95

Art a la Mac contains more than 600 pictures that you can edit in Macintosh paint programs. The clip art shows people engaged in a variety of activities and in places such as the Taj Mahal and the U.S. Capitol. There are also flags and maps of the world.

Art Parts, Volume 1

Electronic Arts
Amiga, Apple IIGS
Deluxe Paint II
\$29.95

This disk contains over 175 examples of color clip art of faces, maps, charts, birds, plants, and imaginative art such as dinosaurs, African landscapes, and alien creatures. It can be used with *Deluxe Paint II*, *Deluxe Video*, or *Deluxe Print*.

Blazing Paddles

Baudville
Apple II, Atari, Commodore 64
DOS 3.3 required for Apple
\$34.95 (Apple)
\$29.95 (Atari, Commodore 64)

The *Blazing Paddles* paint program can be used to draw, paint, and print high-resolution pictures. It features a selection of brush strokes, airbrush, color mixing, and zoom. The program contains five text fonts and ten shape tables. There is also a printer dump for most black-and-white and color printers.

B-Paint

Finally Technologies
Amiga
\$39.95

This paint program works in low, medium, or high resolution. Features include pull-down menus and the ability to read, store, and print IFF files. Pictures from other Amiga drawing programs can be used with *B-Paint*. The screen palette can operate as a sound synthesizer to create a color-coded keyboard. The source code is included so that users can use parts of the program in their own creations.

Brush-Works, Volume I

Associated Computer Services
Amiga
\$29.95

This business-presentation-graphics clip-art collection contains over 100 full-color symbols and images used by business professionals. Each image is hand-drawn in all three Amiga resolution modes.

Canvas 1.01

Deneba Software
Macintosh
\$195.00

Canvas combines bitmapped and object-oriented graphics. It features drawing tools, text tools, and special effects such as distort, skew, and perspective. For painting, the program offers 16 brushes, plus 8 more user-defined brushes, a spray-can tool, and a transfer mode for overlaying objects. Additional features include macros, palette icons, and an objects-specs dialog box.

ClickArt Business Image

T/Maker
Macintosh
\$49.95

This collection of Macintosh clip art includes symbols and logo letters for designing and decorating flow charts and business documents.

ClickArt Personal Graphics

T/Maker
Macintosh
\$49.95

ClickArt Personal Graphics contains contemporary images of people, animals, cars, and symbols.

Clip Art Gallery

Mediagenic
Apple IIGS
\$29.95

Clip Art Gallery includes over 650 graphics to use with *Paintworks Plus*, *Writer's Choice elite*, and other Apple IIGS programs. The collection contains 24 categories such as academic, awards, animals, business, fantasy, holidays, outer space, party, sports, and symbols. *Clip Art Gallery* is also included with the latest versions of *Paintworks Plus*.

ColorMe: The Computer Coloring Kit

Mindscape
Apple II, Commodore 64, IBM PC and compatibles
128K required for Apple; joystick or KoalaPad required; printer recommended
\$29.95

Young children kindergarten through fifth-grade level can draw free-hand or color predrawn pictures with *ColorMe*. The pictures can be printed, and text can be added. A *ColorMe Picture Disk* is included with the program. Additional disks featuring Rainbow Brite, Muppet Babies, Shirt Tales, and other characters are available for \$9.95 each. ▶

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Amiga, Atari ST, Commodore 64/128, IBM & compatibles.
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EPYX

Dazzle Draw

Broderbund
Apple II
128K, extended 80-column card for Apple IIe
required
\$59.95

Dazzle Draw is a paint program for creating graphics, prints, and slides using double-high resolution and a palette of 16 colors. Colors can be mixed to form additional shades, and they can be used to flood-fill or spray-paint pictures. Brushes are available in a variety of widths and shapes. Other tools include textures, patterns, circles, ovals, boxes, lines, and commands such as cut, paste, and edit. KoalaPad, joystick, Apple graphics tablet, and mouse input accepted.

Deluxe Paint 1.0

Electronic Arts
Tandy
\$49.95

This paint program offers ten built-in brushes, three levels of zoom, color cycling, grid settings for precise spacing, gradient fill, and an assortment of tools to draw lines, curves, and shapes. Additional brushes can be created using any art element. Elements can be flipped, rotated, stretched, bent, and repeated with the tile symmetry option.

Deluxe Paint II

Electronic Arts
Amiga, Apple IIGS, IBM PC
Kickstart 1.2 required for Amiga; 768K required for Apple IIGS; color graphics card required for IBM
\$99.95

Deluxe Paint II incorporates a variety of paint tools, including ten built-in brushes; stenciling; four levels of zoom; dotted freehand, continuous freehand, straight line, curve, circle, and polygon tools; over 65 fills; and a palette of 16 colors created from 4096 shades. The brush tool can be flipped, stretched, and rotated, or it can be used like an airbrush. Spaces can be filled with patterns, solid colors, or gradient colors. The fixed background allows you to attach a picture to the background so that it will not be removed when it's painted over. You can rotate elements in three dimensions around a fixed point to create perspective, and cycling through a range of colors creates the illusion of motion. Up to four cycles per picture can be stored. The program supports color printing on the Apple ImageWriter II and other printers. An art disk is included.

Deluxe Print Art Disk, Volume II

Electronic Arts
Amiga
\$29.95

Over 180 images are available on this disk for use with *Deluxe Print*, *Deluxe Paint*, or *Deluxe Video*. Categories include holidays, sports, buildings, people, and vehicles.

Digi-Paint

NewTek
Amiga
\$59.95

Digi-Paint lets you use all 4096 colors on the screen at one time in the Amiga's HAM mode (also called Hold And Modify). This paint program features blending, tinting, and smooth-shading modes; lasso cut and paste; double, half-size, and mirror reverse; and 4096-color dithered gradient fill and softening modes to create a watercolor or oil-painting look. You can create pictures in 320 × 200 resolution or HAM hi-res 320 × 400. The program is compatible with IFF graphics and *Digi-View*.



Use three levels of magnification in *Advanced OCP Art Studio* to zoom in on your artistic creations.

Diskart

Those Designers
Commodore 64
GEOS required
\$8.50 each

Each disk in this series contains a variety of graphics that can be copied onto documents using GEOS. Disk 1 is a collection of holidays and weather graphics plus two pages of tips for using *GeoPaint*. Disk 2 contains little guys, holidays, and musical graphics as well as a U.S. map, work-disk labels, and tips for *GeoPaint*. Disk 3 offers "wheels-and-things"—selected vehicles and aircraft. Disk 4 has little guys, food, tools, ovals, blocks, Commodore 64 and peripherals, and spring and summer graphics.

Doodle

Crystal Rose Software
Commodore 64
Joystick, mouse, or trackball required
\$39.95

With this machine language drawing program, users create and print high-resolution graphics. Features include character styles, a mirror-image tool, negative images, and manipulation tools which duplicate, move, rotate, and distort the picture. Commands include line, fill, zoom, box, and circle. A sketch feature offers nine pen sizes, nine erasers, and nine paintbrush speeds. Users can create graphics in 16 colors.

816/Paint

Baudville
Apple II
512K required for super-hi-res mode on Apple IIGS
\$75.00

Using an icon menu, *816/Paint* works in all Apple hi-res graphics modes, including super-hi-res with 4096 colors. It features many tools for painting and freehand drawing, such as 12 brushes, lines, airbrush, text capabilities, geometric shapes, marquee and lasso functions, and a French-curve tool for plotting smooth curves. Eight separate palettes can be used at one time, and color cycling helps the artist modify colors or create pseudo-animation.

Electric Crayon—ABC's

Polarware
Apple II, IBM PC and compatibles
Color graphics card required for IBM PC and compatibles
\$14.95

This computer coloring book helps children learn the alphabet. They can print pictures in color or black-and-white, and they can include a calendar with the picture.

Electric Crayon— Dinosaurs Are Forever

Polarware
Apple II, IBM PC and compatibles
Color graphics card required for IBM PC and compatibles
\$29.95

This computer coloring book contains pictures of dinosaurs. The pictures can be printed in color or black-and-white along with a description of each dinosaur and a calendar for any month. The program also has banner-making capabilities.



Dazzle Draw's double-high resolution and 16-color palette create dynamic graphics, prints, and slides. ▶

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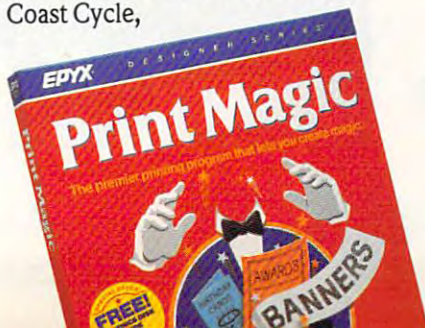
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Electric Crayon— Fun on the Farm

Polarware
Apple II, IBM PC and compatibles
Color graphics card required for IBM PC and
compatibles
\$14.95

Children can color farm scenes in this computer coloring book. Pictures can be printed in color or black-and-white. Children can also print any month's calendar with the picture.

Electric Crayon— Holidays and Seasons

Polarware
Apple II, IBM PC and compatibles
Color graphics card required for IBM PC and
compatibles
\$29.95

This computer coloring book contains pictures representing holidays and the four seasons. Pictures can be printed in color or black-and-white. A description of the holiday's origins and a calendar can be printed with the picture. The program also has banner-making capabilities.

Electric Crayon— This Land Is Your Land

Polarware
Apple II, IBM PC and compatibles
Color graphics card required for IBM PC and
compatibles
\$14.95

Color famous U.S. scenes using this computer coloring book. Pictures can be printed in color or black-and-white. Any month's calendar can be printed with the picture.

Express Paint, Version 2.0

PAR Software
Amiga
Kickstart 1.2 or higher required, one megabyte
recommended
\$99.95

Version 2.0 adds several new features to the original *Express Paint*. It includes a 64-color Extra-Half-Brite mode, support for PAL/NTSC video standards and overscan, and PostScript compatibility for printing. It also contains special-effects tools such as rotating, distorting, stretching, mirroring, double-arc curves, loops, arrowheads, and spray tools. Text can be imported from word processors, and additional fonts can be selected. Version 2.0 retains the paint features of the original version.

Full Paint

Ashton-Tate
Macintosh
External drive or hard disk recommended
\$99.95

This bitmapped paint program allows four windows to be open at once and provides a MouseSpot option, which shows where the mouse is at all times. The ruler uses picas, inches, and centimeters, and the edit menu includes skew, perspective, free rotate, and distort. Standard bitmap tools are contained in the toolbox. *Full Paint* features a full-screen view of the picture and a custom font-size selector.

geoPaint

Berkeley Softworks
Apple II, Commodore 64/128
128K required for the Apple II
\$129.00 (Apple)
\$59.95 (Commodore 64)
\$69.95 (Commodore 128)

Included in Berkeley's GEOS, *geoPaint* is a graphics editing system that generates diagrams and pictures using 16 colors. It offers tools such as an airbrush, a pencil, paint-brushes, and a ruler. Commands include cut, copy, paste, invert, and rotate. There are also modes to preview, zoom, or mirror images. The Commodore 128 version supports the 128's 80-column screen resolution.

The Graphics Galleria

Inkwell Systems
Commodore 64
Flexidraw or Doodle
\$24.95 each

The Graphics Galleria is a collection of clip art that can be used with *Flexidraw* or *Doodle*. Each disk is sold separately and contains graphics on themes such as maps of the world, borders and signs, holidays, and animals.

The Graphics Magician Junior

Polarware Software
Apple II, Commodore 64
48K for high resolution, 128K for double-high resolution required for Apple II
\$19.95

The computer draws items chosen by the user. Users choose from circles, boxes, triangles, straight lines, fill, brushes, and over

continued on page 60

Publishers of Paint Programs

Abacus Software
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180-D



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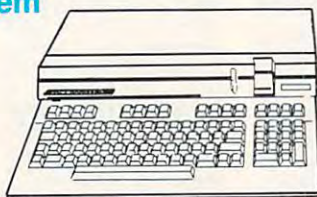
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- 3-CPM: Uses Standard cpm titles



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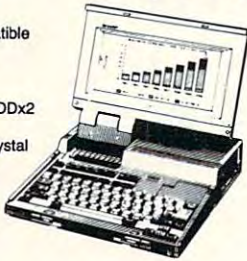
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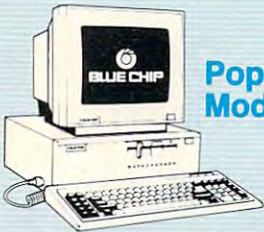


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- 512K Expandable to 640K
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- MS DOS 2.11 in ROM
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by Vindex



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286 AT



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Star's answer to 9 pin dot matrix printers. A soft touch control panel and Star's paper park feature solves your multi-document needs. 144 cps draft and 36 cps NLQ give you high resolution 9 pin performance in an affordable package from Star.

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Star's user friendly 15" wide carriage printer. A soft touch control panel and 120 cps-30 cps NLQ is at your command. Excellent 9 pin performance for you, from Star.

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Superior 24 pin performance is now a luxury you can afford. With 170 cps draft and 57 cps letter quality mode, your document needs are quickly taken care of. Add Star's paper parking feature, variety of print styles and you have unprecedented 24 pin performance at a price you can afford.

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NR-10	\$319.95

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Speed and flexibility for your office or home. Panasonic combines 192 cps draft with 38 cps NLQ for a wide variety of printing needs. Quality support through a 2 year warranty from Panasonic.

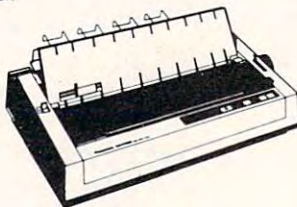
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High resolution letter quality printing at 240 cps draft and 80 cps LQ mode. 24 pin printing and Panasonic's 2 year warranty provide for a superb 15" wide carriage printer.

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KXP4450 Laser Partner



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Move your business in the laser age with panasonic. 512 K memory comes standard. 11 pages per minute print speed makes it the fastest in its class. Panasonic's laser technology and 2 year warranty — commitment to your printing needs.

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- One-Year Limited Warranty



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- Auto Speed Select in Originate/answer Modes
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183	\$239.95
292 w/interface	\$449.95
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391	\$649.95
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321	\$475.95

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LQ500	\$339.95
GQ3500	\$LOW
LQ850	\$525.95
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Brother

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Tribute 224	\$539.95
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MP5420FA



- 420 cps Draft
- 104 cps NLQ
- Friction/tractor Feed
- 2-Year Warranty

\$999⁹⁵

SL-80Ai

\$329⁹⁵

- Letter Quality 54 cps
- 135 cps Draft
- Automatic Paper Loading
- 16 K Buffer



SK3000Ai



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

\$349⁹⁵

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continued from page 53

108 colors and patterns with 48K, or 256 colors and patterns with 128K. Joystick, keyboard, trackball, or Houston Instruments graphics tablet input is accepted.

The Graphics Magician Painter

Polarware Software
Commodore 64
\$24.95

This graphics program uses color, patterns, lines, circles, fills, boxes, and brushes to help you create pictures. The pictures can be edited at any time.

The Graphics Studio

Accolade
Amiga, Apple IIGS
768K required on Apple IIGS
\$49.95

This paint program and graphics editor can be used to create pictures in $8\frac{1}{2} \times 11$ inch format using a palette of 4096 blended colors and an assortment of patterns. Text in a variety of type sizes and styles can be added to any design. The program features a double screen-size drawing area, a full-screen clipboard, a user-programmable color-cycling tool to produce animated pictures, an 8×8 pixel pattern capture, mirror symmetry effects, and user-definable erasers. An image or portion of a drawing can be resized, flipped, or rotated; x and y coordinates can be displayed; and the palette of colors can be changed. Drawing tools include lines, boxes, ellipses, circles, rays, single-color and pattern fills, zoom with four levels of magnification, and copy and move.

GraphicWorks 1.1

Mindscape
Macintosh
\$99.95

Designed primarily for business use, *GraphicWorks* employs a system of easels and panels to combine bitmapped and object-oriented graphics. The program includes standard paint and draw tools and the ability to set the resolution from 72 dpi to 288/300 dpi. Text can be added and positioned around the graphics. The program also contains templates for presentations.

Image Master: Basic Paint

JADA Graphics
Apple IIGS
512K, RGB monitor required
\$44.95

Image Master: Basic Paint offers 64 built-in palettes of color, an unlimited number of user-definable palettes, and a color editing system to create over 8 million color mixtures. The screen can display 136 colors at once. Horizontal, vertical, two-dimensional, angled, and concentric shading can be added with the gradient editor. Standard paint features include full-screen painting, ten levels of zoom, text with graphics, cut, paste, copy, custom brushes, color cycling, flipping, inverting colors, and mirrored painting, plus printout capabilities with ImageWriter and ImageWriter II.

MacPaint

Apple Computer
Macintosh
\$125.00

MacPaint is designed specifically for the Macintosh. It includes a variety of tools and palettes for creating and filling graphics. Drawings can be modified pixel by pixel with the zoom option. The most current version is *MacPaint 2.0*.

NEOchrome

Atari
Atari ST
\$39.95

Now sold as a stand-alone paint program, *NEOchrome* supports the 512 colors of the Atari ST in all three resolutions. Drawing and painting tools include undo, cut, copy, paste, fill and spill, patterns, shadows, color cycling, frames, borders, grids, vanishing-point and 3-D perspectives, and the text tool.

PaintPro

Abacus
Atari ST
\$49.95

PaintPro features three windows for designing and painting artwork. Graphics can be cut and pasted between windows, and pictures can be generated in a double-size format. Tools include lines, circles, ellipses, boxes, fill, copy, move, zoom, spray, paint, undo, help, and free-form sketching. Text can be added to the drawings.

Paintworks Gold

Mediagenic
Apple IIGS
1.25 megabytes, RGB monitor, $3\frac{1}{2}$ -inch drive required
\$99.95

Paintworks Gold offers 80 features that utilize the graphics capabilities of the Apple IIGS. There are two full pages for creating art, so one page can be used as a draft or a fixed background. Up to 16 colors can be selected with the gradient color-blending function, and color masking helps prevent painting over colors or objects. Objects can be created and viewed in a 3-D perspective. Use color cycling to simulate animation, or construct frame-by-frame animation. Users can capture and move colors and objects, or smear colors with the shadow and contour options. Other tools include variable-zoom FatBits, shrink, stretch, bend, distort, and a smooth tool to remove jagged edges. The program can use files created with *Paintworks Plus* and other IIGS graphics programs.

Paintworks Plus

Mediagenic
Apple IIGS
512K
\$69.95

Paintworks Plus contains a *MacPaint*-style interface and Help screens. It provides over 4000 colors and 16 built-in, customizable patterns. Use the lasso tool to pick up a graphic without the surrounding background, and use mirror commands to produce symmetri-

cal shapes. Full-screen animation is available, and the page-preview function displays the whole picture before it is printed. *Clip Art Gallery*, a collection of clip art, is included in the package.

Paint Write Draw

Mediagenic
Apple IIGS
512K required
\$179.95

This three-in-one package includes *Paintworks Plus*, *Draw Plus*, and *Writer's Choice elite*, a color word processor.

PC Paintbrush

Z-Soft
IBM PC and compatibles
512K required
\$95.00

PC Paintbrush includes paint tools and brushes as well as shape-manipulation options such as flip, rotate, shrink, and grow, plus instant shapes and borders and variable-width lines. It supports a range of peripherals. With *PC Paintbrush +*, black-and-white and gray-scale images can be captured with a scanner and then imported to the program for custom designing. A version of *PC Paintbrush* that runs under Microsoft Windows is available for \$84.00; *PC Paintbrush +* retails for \$149.

PC Paint Plus

MSC Technologies
IBM PC and compatibles
Mouse and CGA, EGA, or Hercules graphics card required
\$99.00

PC Paint Plus resembles Macintosh paint programs, with its pull-down menus and icons. CAPTURE saves a screen created by another program, such as *Lotus 1-2-3*, and loads it into *PC Paint Plus* for colorization. The 16C feature changes 16- and 4-color pictures to 2-color pictures and then sends the graphics to the Polaroid Palette slide-making system. A package that contains the program and an optical mouse sells for \$149.

Photon Paint

Microllusions
Amiga, Macintosh II
\$99.95

This HAM paint program allows users to display 4096 colors onscreen at one time. Features include the ability to create a fixed background, a stencil mode, and a choice of a square-box brush or a free-shape brush for irregular shapes. An Add-mode brush acts as a transparency that allows users to paint smoke, fog, and other effects.

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ARCADIA

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Add text in a variety of type sizes and styles to your pictures created with *The Graphics Studio*.

Postcards

Mediagenic
Apple II, Apple IIGS, Commodore 64, IBM PC, Macintosh
\$24.95 (Apple II, Commodore 64)
\$27.95 (IBM PC)
\$29.95 (Apple IIGS, Macintosh)

Postcards is a collection of clip art—warthogs, dogs, rhinos, Mona Lisa, food, aliens, and more—for creating postcards, invitations, memos, and other personal notes. A paint program is included so that users can design their own notes. The IBM PC and compatibles package includes both 3½- and 5¼-inch disks.

Rainbow Painter

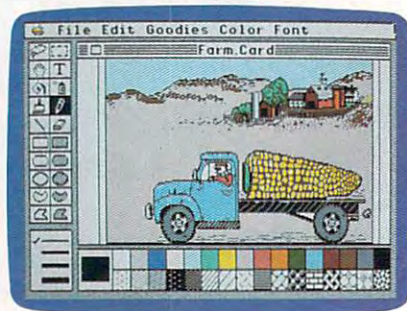
Springboard
Apple II, Commodore 64
\$34.95

A graphics program for children ages 4–10, *Rainbow Painter* contains 50 different brushes and 120 colors and patterns. Children can create their own drawings or color in one of the 50 prepared line drawings in ten categories.

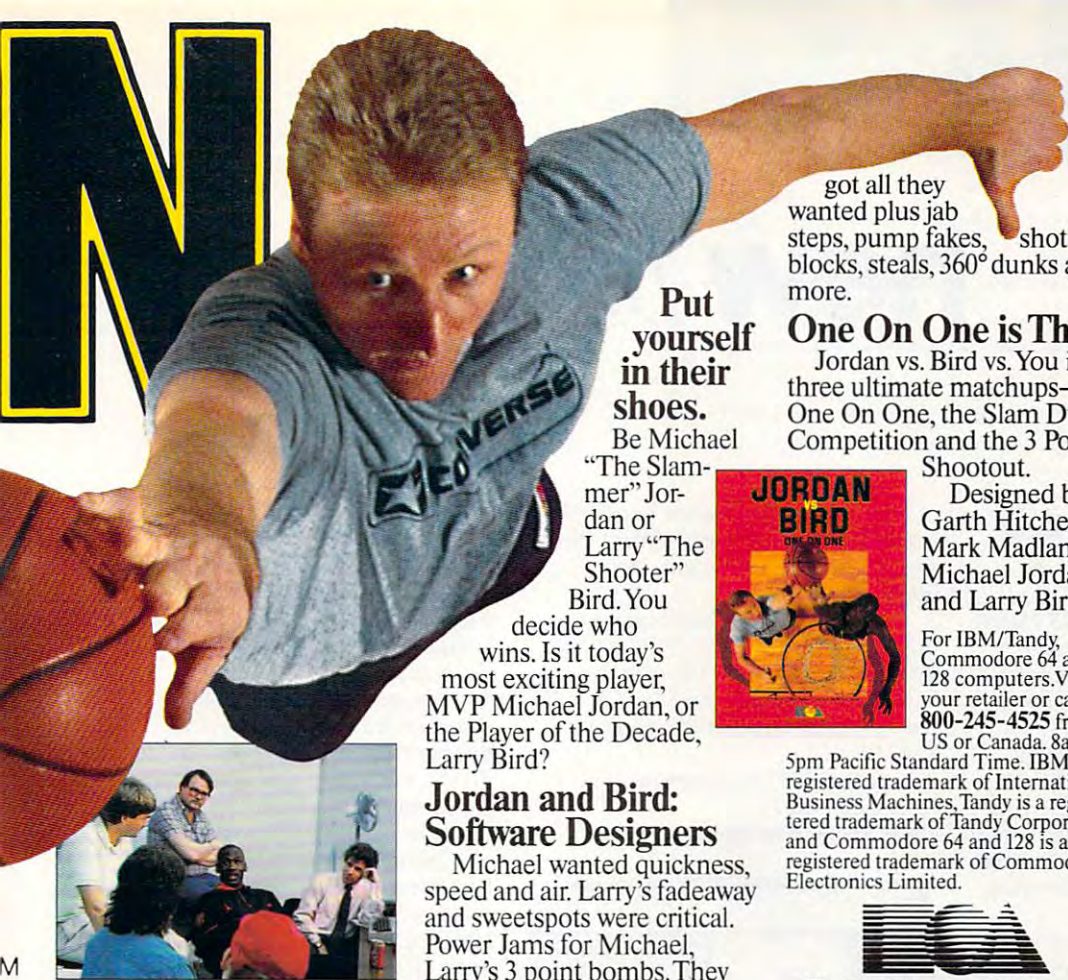
Seasons and Holidays

Electronic Arts
Apple IIGS
Deluxe Paint II, *Deluxe Print*, or *Deluxe Video*
\$29.95

Seasons and Holidays contains over 100 color clip-art images representing holidays and other special occasions. The clip art can be added to *Deluxe Paint II* pictures and *Deluxe Video* productions or used with *Deluxe Print* to print cards, stickers, banners, and certificates.



You can place the *Postcards* collection of clip art against backdrops such as landscapes and beach scenes to create personal messages.



Put yourself in their shoes.

Be Michael "The Slammer" Jordan or Larry "The Shooter" Bird. You decide who wins. Is it today's most exciting player, MVP Michael Jordan, or the Player of the Decade, Larry Bird?

Jordan and Bird: Software Designers

Michael wanted quickness, speed and air. Larry's fadeaway and sweetspots were critical. Power Jams for Michael, Larry's 3 point bombs. They

got all they wanted plus jab steps, pump fakes, shot blocks, steals, 360° dunks and more.

One On One is Three.

Jordan vs. Bird vs. You in three ultimate matchups—One On One, the Slam Dunk Competition and the 3 Point Shootout.

Designed by Garth Hitchens, Mark Madland, Michael Jordan and Larry Bird.

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The Classic Confrontation: One On One. The crowd goes crazy as Michael and Larry unload all their patented moves.



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Long Range Bombing: 3 Point Shootout. 25 shots in 60 seconds from 23' out. Don't blow the money ball. Larry's signature event.



Sesame Street Crayon

Polarware
Apple II, IBM PC and compatibles
128K required for the Apple II
\$14.95 each

Sesame Street Crayon is a series of computer coloring books for children. Each issue contains dozens of pictures. The users can point and click to choose the color, point to the area to color, and then click to fill the area with color. The pictures can also be printed and colored by hand.



Splash! takes advantage of the VGA standard on the IBM PC, the PS/2, and PC compatibles.

Splash!

Spinnaker Software
IBM PC, PS/2, and compatibles
640K, VGA or MCGA, and mouse required
\$39.95

Splash! takes full advantage of IBM's VGA capabilities, offering a 256-color palette, 320 X 200 resolution, fill patterns, and brush shapes. *Splash!* flips images, swaps colors, stretches shapes, and magnifies pictures for special effects. The text editor includes 13 fonts and also allows text to be imported from a word processor.

SuperPaint

Silicon Beach Software
Macintosh
One megabyte recommended
\$99.00

SuperPaint combines a paint program with a draw program. With the LaserBits feature, artists can magnify and edit pictures in 300-dpi resolution and then paste those pictures into word processor or page-layout programs. Paint and draw tools are included as well as text placement, font selection, text patterns, and color and laser-printer support.

TopDraw

StyleWare
Apple IIGS
\$89.95

TopDraw uses pull-down menus to access the 4096 colors and object-oriented graphics features of the Apple IIGs. The drawing size and shape and the view scaling are user-defined. Drawing options include movable palettes, polygon smoothing, and corner radius editing. Colors and patterns can also be edited. This program works with other IIGs graphics programs and supports the LaserWriter and color ImageWriter II.

disk.

The Tandy DeskMate version also offers several informational databases, including a DOS help file, toll-free phone numbers, area codes and time zones, and metric and ASCII conversions.

The suggested retail price for the Tandy DeskMate version is \$59.95.

Broderbund Software, 17 Paul Dr., San Rafael, CA 94903-2101
 Circle Reader Service Number 204.

Look—No Wires!

Cameric has released a wireless joystick for the Commodore 64/128 and the Atari XE. The Freedom Stick utilizes remote-control infrared technology that enables players to move more than 20 feet away from the screen.

The microswitched arcade-style joystick can be played with an automatic rapid-fire switch or manual action. The stick can also be aimed away from the screen and still operate the game. Simultaneous two-player games can be played by using two controllers.

The package comes complete with the Freedom Stick wireless remote control, an infrared receiver, and four suction cups. The suggested retail price is \$69.95.

Cameric, 230 Fifth Ave., Suite 1100, New York, NY 10001
 Circle Reader Service Number 205.



The Microtype Space-Saver Keyboard is 40 percent smaller than the standard 101-key computer keyboard.

Space-Saving Keyboard

Mechanical Enterprises has introduced the Microtype Space-Saver Keyboard, designed as a direct replacement for the standard 101-key units sold with most IBM PC compatibles. It has identical functions to those of the standard units, but occupies only 40 percent of the desk space used by the conventional keyboards.

The Microtype has 100 keys (no second Enter key) and measures 10¾ inches long × 6 inches wide. The number, cursor, and function keys have been rearranged and placed in front of, and elevated from, the normal alphanumeric section. The company has also

eliminated borders and slightly compressed the rows, but not the columns, which saves space. The suggested list price for the Microtype is \$150.

Mechanical Enterprises, 461 Carlisle Dr., Herndon, VA 22070
 Circle Reader Service Number 206. □

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MS-DOS

Sprint has a personality problem.

It tries to act like *Word*, *WordPerfect*, *WordStar*, and untold others, but the truth is, *Sprint* has too much personality to be mistaken for any of them. Depending on your point of view, either you'll be disappointed with *Sprint* for not being more schizophrenic, or you'll marvel at its individuality and power.

The problem starts with Borland's hype. The ad writers say that *Sprint* can mimic any other word processor. That's true in a sense, but not in the way you might expect.

Sprint can give you the keyboard layout of other word processors, but that's not a new trick. Many editors, such as *XyWrite*, let you design your own keyboard command structure. And almost any word processor combined with a keyboard macro program like *SuperKey* can give you this kind of emulation.

Sprint is much easier to reconfigure than its competition. If you want to map any command that appears on a *Sprint* menu to a key, you simply highlight the menu choice you want to assign and press Ctrl-Enter. *Sprint* prompts you for the key or key combination to use for the function. You can interactively redefine the entire program's keyboard structure this way.

With *Sprint*'s macro language, you *can* change many aspects of the program, including its menu structure. You can create, delete, and alter menus, and you can even write your own editing commands.

Programming in *Sprint*'s macro language, which resembles C, isn't for the faint of heart, however. If you have the soul of a programmer and some experience with a structured language (such as C, Pascal, or Modula-2), you'll be right at home. If you've never programmed, your chances of significantly changing the program are slight. To its credit, Borland provides the complete macro source code for the editor's interface.

But no matter how much you change *Sprint*, it still looks and acts like *Sprint*. With Borland's Advanced User Interface—which is what *Sprint* is when it's being itself—the program is fast, powerful, and easy to use.

If you buy *Sprint* because of its speed, power, and customizing features, you'll get a first-class text cruncher. If you see it as a less expensive clone of *WordPerfect* or *Microsoft Word*, you'd be better off spending more for the real thing.

Sprint is available for \$199.95 from Borland International, 1800 Green Hills Road, Scotts Valley, California 95066; 408-438-8400.

Optimize!

When a hard drive is new, it's amazing how fast it is. It zooms through loading and saving with quick, quiet efficiency. As time passes, however, a hard disk gets slower and slower.

You may not notice at first, but sooner or later you'll realize that your once-speedy hard disk is having a hard time finding and loading your files.

To understand why this happens and why you need an optimizer to remedy the problem, you need to know a little about the way DOS stores files.

When you save a file on your disk, DOS stores the information in *sectors*. A sector usually contains 512 bytes (0.5K), which is too small a storage unit for DOS to keep track of; so, the system groups several sectors into a *cluster*. For a garden-variety 20-megabyte hard disk, a cluster consists of four sectors, or 2K of storage. (If you've ever wondered why the smallest file you can have on a hard disk is 2K, this is why.)

When your hard disk is new, DOS can store files in contiguous clusters—that is, clusters that are next to each other on the disk. As your hard disk becomes more crowded, DOS has an increasingly difficult time storing files in contiguous clusters. Soon, DOS is storing files in remote, seemingly random areas—your disk has become *fragmented*.

Since the drive head has to skip around to read all the clusters in a fragmented file, your drive slows down. An optimizer can help by unfragmenting your disk, rewriting your files so that only contiguous clusters are used. The performance boost can be astonishing.

Be warned, however, that optimizing can take a long time—half an hour or more in some cases—and there's a small chance that something could go wrong in the process and your hard disk's data could be lost. But the time you spend optimizing, as well as the related risks, are minimal compared with the rewards.

There are many optimizers on the market, but *Vopt* (Golden Bow Systems, P.O. Box 3039, San Diego, California 92103; 800-284-3269—\$59.95) has one outstanding virtue: It's blazingly fast. Where some optimizers chug



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away for 15 minutes, *Vopt* zips through your hard disk in 15 seconds.

Most optimizers perform several tests and offer several chances to quit the program before they actually begin optimizing. *Vopt* runs a simple CHKDSK test and forges ahead if it doesn't find any errors. If you optimize regularly, *Vopt* will zip through your disk in a flash. On a 10-MHz AT, a weekly optimization of a 20-megabyte hard disk takes less than ten seconds.

The *Vopt* package offers more than just disk optimization. It comes with several other useful utilities, including *Vbench* (for performing system benchmarks), *Vmarkbad* (for finding bad sectors), *VPrtScr* (for accelerating the PC's screen-printing function), *Vrd* (for checking formatted disks for surface defects), *Vseek* (for graphing seek time on hard disks), *Vspeed* (for graphing disk speed and sector spacing), and *Vtstr* (for mapping TSR programs).

Sharewhere?

PC users with modems are probably familiar with the first line of shareware distribution. Local bulletin board systems (BBS) and commercial communications services (like CompuServe and The Source) are the places where most shareware products get their start.

Soon after their debut online, these programs begin appearing in user-group libraries. But if you don't have a modem and you're not a member of a user's group, how do you get shareware?

Luckily, there are other excellent channels of distribution—even better in some ways than user groups and telecommunicating.

If you'd like to sit back, relax, and have the shareware come to you, then *COMPUTE!'s PC Magazine* may be just the thing. Every two months, the magazine presents features, reviews, columns, and industry news. But what makes the magazine unusual is that it comes bundled with a

disk of the best shareware available.

COMPUTE!'s PC Magazine always gets the latest version of its shareware programs directly from the author (so there's no danger of viruses), carefully goes over the documentation, and puts the complete programs (along with all documentation) on a disk that also contains two or three other outstanding programs for the PC.

The magazine/disk combination sells for \$12.95 at the newsstand. If you're looking for a better buy, a year's subscription is \$39.95. Contact *COMPUTE!'s PC Magazine*, P.O. Box 10767, Des Moines, Iowa 50340-0767; 800-727-6937.

Commercial distributors are also excellent shareware sources. Some companies, such as PC-SIG (1030D East Duane Avenue, Sunnyvale, California 94086; 800-245-6717; membership—\$20.00 per year; disks—\$2.00 each) and MicroCom Systems (3673 Enochs Street, Santa Clara, California 95051; 408-737-9000; membership—\$34.95 per year; disks—\$1.99 each) have a clublike atmosphere complete with dues and newsletters. PC-SIG has its own bi-monthly magazine, *Shareware*, which contains updates of its most recent catalog as well as features, columns, and reviews. MicroCom will send you six issues of its *Shareware Review* when you join.

If you're not interested in the extra support the commercial clubs provide, there are many companies that simply distribute shareware for a nominal fee. One such company is California Freeware (1466 Springline Drive, Palmdale, California 93550; 805-273-0300). It boasts an extensive catalog of disks priced at \$2.99 each.

Remember that when you acquire shareware from any of these sources, you're not buying the software. You're paying for the service that the distributor provides and the disk itself. If you find the program useful, support its author and the shareware distribution system by registering your copy of the program.

— Clifton Karnes

64 & 128

Commodore Canada has launched a marketing strategy designed to cut into the projected Christmas sales of the Nintendo and Sega dedicated-game-machine market. Stan Pagonis, director of marketing for Commodore in Toronto, explains, "There's no reason the 64 can't take a good share of those sales. The 64 has more games and better games, and buyers get a fully capable computer besides." Hardly an unusual campaign, but it suggests a commitment from Commodore to keep pushing the 64 for at least another Christmas season. That's good news.

Epyx's Epic Lineup

The month's major game supplier is Epyx (P.O. Box 8020, 600 Galveston Drive, Redwood City, California 94063). The impressive *Sporting News Baseball* (\$39.95) is endorsed by both Major League Baseball and the Mets' Gary Carter.

You can play against the computer or a human opponent, and you can select from the 1987 American or National League teams, spicing them up if you like by selecting from over 100 Hall of Famers.

The display is effective, but unusual. The bottom center of the screen shows the view from the catcher's position, while the rest of the display shows, individually, the three bases. This means that you can watch base runners without sacrificing the pitching

game.

Pitchers have four possible pitches, with joystick control over location. Batters can swing high, low, inside, or outside, and they can fake a bunt. As in almost all computer baseball games, hitting the ball is a problem, but the base-running game is smooth. Fielders throw to any base, or to the key cutoff position. As manager, you can reposition fielders (somewhat clumsily), bring in pinch hitters, and send in relief pitchers. Unfortunately, however, the game offers neither season statistics nor league formation.

Get off the beaten track with *4 × 4 Off-Road Racing* (\$39.95). You have a choice of four terrains: Baja (varied), Death Valley (desert), Georgia (mud), or Michigan (snow and ice). Each terrain has a series of obstacles, ranging from rock to ice to mud, and a competitive field of up to 16 other rigs. You have three chances to be first at the finish line.

The game offers four trucks to choose from, which you must outfit at the custom shop.

Once equipped, head out onto the road. The perspective here is that of many racing games; you watch your vehicle as if you were behind and above it. Avoid rocks, ice, mud bogs, and other obstacles—and don't get bumped off the road by the Doom-buggy—and you'll do fine. Of course, you'll run out of gas, and get stuck (you can rock your way out of a bog), and suffer vehicle damage, but that's all part of an enjoyable drive.

Another Epyx offering is *The Games: Summer Edition* (\$39.95), which features eight Summer Olympic events. As with all of the company's games series, each event is well designed and fairly easy to play (although not always easy to master).

Archery is probably the simplest of the lot, with a draw stage and an aim stage. You have 90 seconds to shoot six arrows across a 90-meter range. Your biggest obstacle is the wind. Pay strict attention to the wind sock, which shows the strength and direction of the gusts. >

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Velodrome cycling is as fascinating here as it is in real-life competition. You play cat-and-mouse with your opponent, jockeying for position through the first two laps, and then, at the sound of the bell, racing full-out for the final lap. The best approach is to "draft" the opponent: follow directly behind, letting the airstream help you along. But even with this tactic, beating the computer is tough.

Diving offers several dive types. Forward dives include the swan, normal forward, forward somersault, front pike, forward twist, normal reverse, reverse somersault, and reverse pike. Your backward-dive arsenal includes the back layout, outside dive, inside dive, back somersault, inward back pike, outside back pike, back twist, and inward somersault. You can even combine dives by moving the joystick to start one dive immediately after the first.

The other events are the hammer throw, hurdles, pole vault, rings, and uneven parallel bars. About the only detail this game doesn't have is testing for steroids.

Finally from Epyx comes some whimsical sci-fi action called *Tower Toppler* (\$39.95). Your goal in this game is to topple towers—eight towers, to be precise, all of them rotating and each guarded by mean beasts. All you have to do is get to the top and set off the automatic destruction sequence and then move on to the next tower.

Naturally, it's not as easy as it sounds. There are all kinds of ways of getting yourself pushed off the tower and into the poison water below, the tower's rotations are often disorienting, and each tower is more challenging than the one before. It's good arcade action, with well-executed graphics.

Your History

From SSG come a pair of new historical simulations. *Decisive Battles of the American Civil War, Volume Two* (\$39.95), expands on the popular and acclaimed first volume of Civil

War battles. Scenarios include Gaines Mill (June 1862), Stones River (also known as Murfreesboro, December 1862), Chattanooga (November 1863), and two more famous encounters, Chickamauga (September 1863) and Gettysburg (July 1863). Like the first game, this volume includes *Warplan* and *Warpaint*, SSG's scenario-design program. A third *Decisive Battles* is in the works.

SSG's second offering is *Rommel: Battles for North Africa* (\$39.95). Another extension of the Battlefront game system, *Rommel* is instantly playable by anyone familiar with the earlier games. This is an especially rich game, with eight scenarios covering Syria (June 1941), Sidi Rezegh (November 1941), the hypothetical Malta invasion, Cauldron (June 1942), Alam El Halfa (August 1942), Kasserine Pass (February 1943), Maknassy (March 1943), and Teboura Gap (March 1943). For war gamers, North Africa has always been a popular campaign, and the Battlefront system is well suited to it. Both games are distributed by Electronic Arts (1820 Gateway Drive, San Mateo, California 94404; 415-571-7171).

Mavis Makes It Easy

New to the 64 is *Mavis Beacon Teaches Typing* (\$39.95), a superb typing tutor distributed by Electronic Arts. Designed by the Software Toolworks (One Toolworks Plaza, 13557 Ventura Boulevard, Sherman Oaks, California 91423), the company that also gave us *Chessmaster 2000*, *Mavis Beacon* lets you work through a series of lessons, according to your own ability, with the goal of becoming a touch-typist. With the keyboard still the input device of many computer programs, typing skills are more important now than they've ever been.

One of the package's best features is that it can be used by both children and adults. For the under-8 crowd, the lessons are shorter, a feature that minimizes frustration. For

adults, lessons are longer and more is expected. There is no requirement for completing a lesson, and if you go over the time limit you set, Mavis gives you the option of continuing.

Experienced typists will find the graphs and drills useful. In addition, they might want to learn the Dvorak keyboard, which Mavis happily teaches. Designed in 1936, the Dvorak keyboard works by allowing 70 percent of the words in the English language to be typed from the home row.

The *New York Times* gave *Mavis Beacon* a glowing review earlier this year. Most computer magazines have followed suit. Consider this column a further recommendation.

— Neil Randall

APPLE II

Twice a year, the Apple community's best and brightest get together to strut their stuff in front of thousands of computer users. AppleFest keeps bringing in more exhibitors and more attendees each time it's held.

In San Francisco's Brooks Hall in mid-September, the latest AppleFest debuted a new computer, a new operating system, and new prices.

More than 28,000 people walked the aisles over the three days, taking in the new-product introductions and demonstrations. Some of those thousands sat on panels on everything from starting your home business to publishing great-looking documents on an Apple II.

Kids and the II

Apple would have us believe that the Apple II is the only intelligent choice for the classroom and, by inference, for any home with children. Although that's primarily marketing hustle, it's still a fact that on classroom desks you'll find more Apple II's than any other personal computer.

Software follows hardware, of course, a rule amply demonstrated at AppleFest by a quick walk through Brooks Hall. A lot of the software on display, whether ready for release or far from it, was slated for the educational arena.

The Learning Company (6493 Kaiser Drive, Fremont, California 94555; 415-792-2101) showed its new *Children's Writing and Publishing Center*, a combination word processor, graphics, and simple page-layout program that's going to show up on a lot of Apple II screens at school. Extremely simple to use, the \$59.95 *Center* allows for one- or two-column layout, imports *Print Shop*-compatible pictures as well as graphics from the package's clip art, and can print in color.

Davidson and Associates (3135 Kashiwa Street, Torrance, California 90505; 213-534-4070), another Apple II educational-software developer, introduced talking versions of *Math and Me* and *Reading and Me* for the IIGs (\$49.95 each). Both programs have been available in Apple II versions for some time, but the addition of the crisp graphics and the superior sound possible on the IIGs made them, in effect, brand-new software. One feature of note with both programs is the choice between two voices: One sounds childlike; the other, like an adult.

Scholastic (P.O. Box 7502, 2931 East McCarty Street, Jefferson City, Missouri 65102; 800-541-5513; in Missouri, 800-392-2179) showed *Slide Shop*, its new presentation program for kids and adults alike. Although it will see a lot of use in the classroom—kids putting together animated slide shows for reports and teachers making up computerized announcements—the \$69.95

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Slide Shop can also be used in the home to generate animated greeting cards, for instance, or to create introductions for videotapes (since you can record to a VCR whatever appears on the Apple II screen).

Programming is still an important part of educational computing; Logo is probably the most widely used programming language in schools. That fact was reflected at AppleFest, where such companies as Terrapin (376 Washington Street, Malden, Massachusetts 02148; 617-322-4800) and Lego Systems (555 Taylor Road, Enfield, Connecticut 06082) showed classroom-specific packages, *Terrapin Logo* (\$119) and *Lego Logo* (price varies), respectively.

Desktop Publishing 2.0

The second round of Apple II desktop publishing programs is just beginning. Springboard Software's *Springboard Publisher* is now in version 2.0; it promises to work three times faster than the previous version and includes a considerable amount of software which once was optional, the LaserWriter printer driver and a set of newsletter templates being the most important (Springboard Software, 7808 Creekridge Circle, Minneapolis, Minnesota 55435; 612-944-3915).

Berkeley Softworks, maker of GEOS, now has *geoPublisher* ready. *geoPublisher* works under the GEOS graphics-interface shell, and it also includes laser printer capabilities (Berkeley Softworks, 2150 Shattuck Avenue, Berkeley, California 94704; 415-644-0883).

But while both *Springboard Publisher* and *geoPublisher* work on all 128K Apple II's, Milliken's *Melody* is an Apple IIGS-only package (Milliken, 1100 Research Boulevard, St. Louis, Missouri 63132; 314-991-4220). Using the familiar IIGS interface, *Melody* puts page layout on the most powerful Apple II. In development for more than a year, the \$195 *Melody* was released at AppleFest. Like other sophisticated IIGS software,

Melody runs slowly because of the paucity of processing power on the machine. One place where *Melody* did run quickly, however, was over at the Applied Engineering booth, where the program was used to demonstrate AE's Transwarp GS, an accelerator board for the IIGS.

Prices Not Popular

Even before AppleFest opened, the talk of higher prices for the Apple IIGS dominated conversations among software developers. In a general price hike that was primarily aimed at its Macintosh line, Apple raised the price of the IIGS system by \$150 and that of its accompanying RGB monitor by \$100. Dramatic upswings in the price of DRAM chips were the culprit, Apple said, although that didn't explain the rise in the chipless monitor.

Software developers specializing in IIGS software were particularly concerned about the machine's higher cost. Already the most expensive Apple II computer, the IIGS will certainly find it even more difficult to get out of the dealer's doorway and onto users' desks. Fewer IIGS computers means fewer opportunities for software developers to make a sale. For some software publishers who do not specialize in the IIGS but who put out software for a variety of computers—from MS-DOS machines to Commodore 64s—that could mean a scaling down of IIGS software development.

Users aren't happy that the IIGS price has gone up, either. For as long as anyone can remember, computer prices have been coming down as memory has gotten less expensive and production more efficient. The price hike was as much a shock as anything else. The end result? Look for fewer Apple IIGS computers under the tree this Christmas.

The other Apple II computer heavily marketed in the retail channel is the new Apple IIc Plus. Priced at \$1,095 with a color monitor, the IIc Plus system is actually less expen-

sive than the 1984-vintage IIc it's replacing. But that price isn't as low as it could have been. Only days before the introduction of the new computer at AppleFest, Apple was still considering a price tag set \$100 lower.

AppleWorks Moves Up

Claris, the publisher of *AppleWorks*, brought out its new big gun, *AppleWorks GS*. Acquired in the purchase of Styleware, *AppleWorks GS* is an integrated package complete with word processor, spreadsheet, database, graphics, telecommunications, and page-layout modules.

As it announced the impending release of *AppleWorks GS*, however, Claris bumped up the price from \$249 to \$299. Upgrades to the new package will soften the blow a bit; Claris said that users can move up to *AppleWorks GS* from *AppleWorks 2.1* for only \$99. Upgrading from older versions—including 2.0, the first *AppleWorks* that could run on a IIGS—costs \$169. Contact Claris (440 Clyde Avenue, Mountain View, California 94043; 415-960-1500) for details.

Although *AppleWorks GS* has considerable power, it suffers from the speed (or, better said, the lack-of-speed) problem endemic to Apple IIGS productivity software.

Claris is going all-out in marketing the program, including brightening its standard gray-and-blue packaging and making the box "Egghead-compatible," a term used by Bill Campbell, president of Claris. Making something Egghead-compatible takes into account the way that particular chain software seller racks packages with the lower half of a package most prominent.

One interesting rumor at AppleFest was that Apple is planning to bundle a copy of *AppleWorks GS* with every IIGS sold. If that turns out to be true, it could sell a lot of IIGS computers and even make the price increase (noted above) palatable.

—Gregg Keizer

AMIGA

The Amiga is well known for its video capabilities, but is its output suitable for broadcast-TV applications? Television New Zealand thinks so.

Magni Systems' 4005 Genlock/Encoder (\$1,865) is the broadcast-quality plug-in card being used by TVNZ. This powerful plug-in board, which is compatible with Amiga 2000s and IBM PCs, is capable of producing fading and keying effects.

For more information on the Magni 4005, contact Magni Systems, 9500 SW Gemini Drive, Beaverton, Oregon 97005; (800) 237-5964.

Can we expect to see the Amiga used in commercial television in the United States? Maybe, in small markets, but the Amiga will need better resolution or more colors—or both—before it becomes a genuinely useful tool for your local television station.

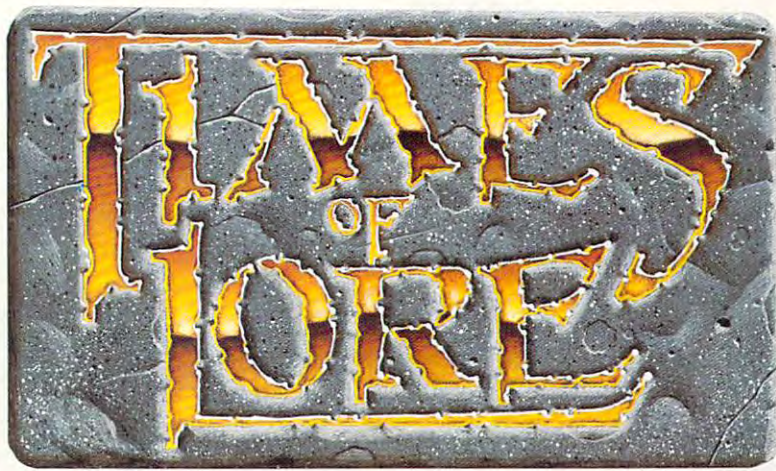
The upcoming Video Toaster from NewTek may be just the tool. NewTek has been showing the Toaster at computer shows for about a year. At the time of this writing, NewTek would not commit to a release date for the board, although it is expected by the end of 1988.

NewTek says that the Toaster will work on all three Amigas. It will include a genlock, a framegrabber, and real-time video effects. Expected options include an NTSC (the U.S. television standard) paint program.

For more information on the Video Toaster, contact NewTek, 115 West Crane Street, Topeka, Kansas 66603; (800) 843-8934. ▶

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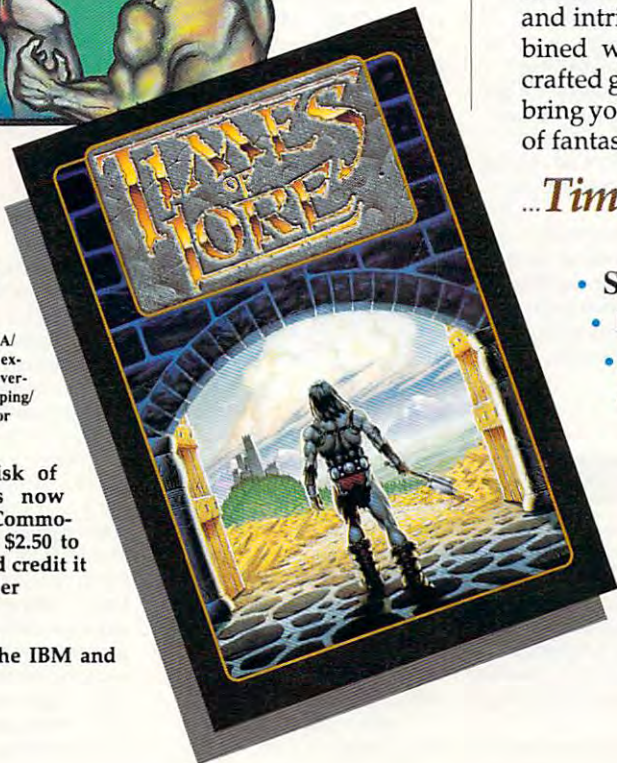
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Spy Hunting

Microdeal has converted its Atari ST game *Major Motion* to the Amiga, and the arcade-like challenge is just as good on the Amiga as it was on the ST.

Major Motion is based on the arcade game *Spy Hunter*. You race down a foreign roadway, blasting enemy cars as you go. Shooting innocent bystanders is strictly forbidden, and if you do away with two of them, you'll be shot down by a jet.

There are two types of enemy cars: One simply tries to bump you off the road, and you can bump it back; the other type has a secret weapon—drive by one of these and your tires may be slashed.

There are other hazards: icy roads, bridges, and a helicopter that drops bombs.

You have your own secret weapons, like the rapid-fire gun that you have at the beginning of the game. By pulling into your weapons truck periodically, you can pick up oil (to make oil slicks), smoke (for smoke screens), and an anti-aircraft gun to use against the enemy helicopters.

One of the best things about this game is that it never goes to disk for its excellent graphics and sound effects; once the game gets going, it's action all the way.

Major Motion is available for \$39.95 from Microdeal, 576 South Telegraph Road, Pontiac, Michigan 48053; (313) 288-6060.

Commodore Megabytes

Eager to please corporate buyers looking for fully configured systems, Commodore has made two significant hardware introductions for the Amiga 2000.

Its A2058 memory expansion card comes with two megabytes of memory. Users can add up to six megabytes to accumulate a total of nine megabytes of RAM—the Amiga's current limit. The price for the board is \$799.

The A2090A is a hard disk controller that supports both SCSI and ST-506 hard drives, and it can accommo-

date up to two ST-506 and seven SCSI devices simultaneously. The price for the A2090A is \$399.

The Commodore hardware announcements won't please third-party hardware developers who have had the market all to themselves until now. Most hurt will be those companies who have concentrated on cards for the Amiga 2000. Commodore is unlikely to produce hard drives or RAM expansion cards for the Amiga 500 or 1000.

In related Commodore news, rumors continue to spread about an updated Amiga 500—one in a case similar to the 1000's, with separate keyboard and system units. Many people have criticized the 500's Atari ST-like all-in-one-unit configuration, but Commodore is likely to continue with the current design to keep prices down. Producing two units means an extra case, extra wiring, and so on.

Another rumor has it that Commodore will soon introduce an Amiga 2000 without the PC slots, a machine that would appeal to Amiga users who aren't interested in PC compatibility. There was great interest in such a machine when *AmigaWorld* editor Guy Wright discussed it in his keynote speech at the Chicago AmiEXPO. There's no official word from Commodore on this subject yet.

For more information on Commodore products, contact Commodore Business Machines, 1200 Wilson Drive, West Chester, Pennsylvania 19380; (215) 431-9100.

It's Flipper

Mindware International's *PageFlipper Plus/FX* is a great program that lets you take existing IFF pictures and put them together into compressed animations. The program is fast and powerful, and it works in Amigas that have as little as 512K of RAM.

The program features several special effects and transitions that you can add to your animations, and you can even program your own special ef-

fects. The *PageFlipper* manual is clear and complete, and it includes many tutorials.

PageFlipper does not use the standard ANIM format. Instead, it uses its own high-speed animation format. If you have animations in ANIM format, you can use a utility included with *PageFlipper* to convert the animation to IFF screens.

Included in the package is a player program that you can distribute along with your animations so people who don't have *PageFlipper* can still enjoy your efforts.

PageFlipper Plus F/X is available for \$159.95 from Mindware International, 110 Dunlop Street West, Box 22158, Barrie, Ontario, Canada L4N4Y8; (705) 737-5998.

Happy Holidays

For people who just can't get enough of the holiday spirit, Free Spirit Software has released *Christmas Classics*, a disk of 12 songs, including tunes such as "Jingle Bells," "Silent Night," and "Frosty the Snowman." As the songs are played, the words are displayed along with Christmas scenes.

If you're giving an Amiga for Christmas, *Christmas Classics* makes a nice stocking stuffer. *Christmas Classics* costs \$14.95. It's available from Free Spirit Software, 58 Noble Street, Kutztown, Pennsylvania 19530; (215) 683-5699.

More Kind Words

The Disc Company has released an upgrade of its popular word processor, *KindWords*, with many improvements, like a 100,000-word spelling checker, a 40,000-word thesaurus, and new fonts. *KindWords 2.0* adds support for Workbench 1.3's new printer drivers. Its retail price is \$99.95.

The Disc Company has been marketing *KindWords* along with *Microfiche Filer* and *MaxiPlan*. This trio

(called *Critics' Choice Productivity Package*) is billed as an integrated package—it's the analog of *Microsoft Works* on the PC and the Macintosh. It retails for \$249.95.

The Disc Company has just introduced a similar package called *Publishers' Choice Desktop Presentation Package*. This system includes *KindWords*, *Pagesetter*, *CaleFonts*, and *Artists' Choice Artpack*. The suggested retail price of the package is \$199.95.

For more information, contact The Disc Company, 3135 South State Street, Ann Arbor, Michigan 48108; (313) 665-5540.

— Rhett Anderson

MAC

We waited quite a while for the System 6.0 set (System 6.0 and Finder 6.1); I updated immediately, contrary to my usual wait-and-see method, because I had some software that wouldn't run on earlier versions of the set.

Many people have complained about the buggy system, but I had no major problems. Then Apple sent me the 6.0.1 System; I installed it right away, just to feel safe. By the time I realized that a whole string of crashes and other problems were probably because of the new system software, Apple announced that 6.0.2 was on its way to fix the 6.0.1 problems.

My advice: If you can wait, you should. Wait two or three months after a System release before you bother using

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— **PC Magazine**

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it. Let everyone else find and work out the bugs. If your software is running on your current System, leave it alone for a while. In other words, if it ain't broke, don't fix it.

Virus Victory

This isn't really about a virus, but a recent conviction of computer chicanery should set some legal precedents for virus creators.

Donald Burleson, convicted in Fort Worth, Texas, for "harmful access to a computer," faces up to \$5,000 in fines and ten years in prison. He planted what's actually known as a *worm* in his former employer's computer system. A worm is a destructive program that does its dirty deeds and then erases itself; the dirty deed in this case was the deletion of more than 150,000 sales records.

It's good to see a crack-down on computer crimes, which are as destructive as fires started by tossing matches into file-cabinet drawers. Just because the information is stored electronically doesn't mean the crime is trivial.

Computer Counterfeit

Just a few years ago, I needed to submit a photocopy of an official-type document to an organization that had requested some of my credentials. I couldn't find the documents (I'm a wimp at paperwork), so I made them. I scanned in a friend's paperwork using an Abaton scanner, erased her information and typed in my own, printed it out, and presented it as a photocopy. Actually, the first copy looked too good to be a photocopy, and I had to go back and dim a few lines; the second copy came out looking like a real photocopy. Really, it was all legitimate information; I just couldn't find the right document in time for the deadline. Our joke at the time was "Just think what someone could do with MasterCard receipts!"

Well, someone did something recently, only not just with MasterCard receipts. Using his desktop publishing power, a man going by a number of aliases passed a string of self-published cashier's checks up and down the East Coast at various computer dealers. Unfortunately for him, he tried to palm one off at the Microcomputer Publishing Center in New York, whose president's experienced eye identified it immediately as a phony. The perpetrator was arrested shortly thereafter in Boston, where he was in the middle of another scam at the Bank of Boston.

Faster and Higher

Apple's early autumn Macintosh IIx introduction was low-key, in keeping with its attitude that this is merely an upgrade of an existing machine, not a new product. The Mac IIx has a 68030 processor, a math coprocessor, a SuperDrive that uses 1.2-megabyte floppy disks (a 50-percent increase over the current 800K disks), and 4 megabytes of memory. Fully configured, with an 80-megabyte hard drive, it runs about \$10,000.

Don't run out and buy it yet. The 10- to 15-percent speed increase isn't worth the price. Wait until there's some software that takes advantage of the coprocessor, the speed, and the memory; then run out and buy it. Of course, by then the price might be even higher, considering. . . .

Considering this: Apple used to start out the pre-Christmas sales season with rebate offers, leading to a price drop right after the holidays. But last September an almost unheard-of event occurred—price hikes on almost everything. The Macintosh II, already out of reach for so many, is out of reach by 30 percent more. Other prices increased by 5-20 percent.

The trusty old Mac Plus is a real bargain these days. Sometimes the benefits of the SE over the Plus are not enough to justify the price difference. Some of the benefits: extra speed (but not that much

extra), the Apple DeskTop Bus connections for things like mouse and keyboard (you can live without that), an internal slot which many people won't use, and an internal hard drive (you can get an external one). Depending on your specific needs, the Plus can be a really good buy.

What's New?

Aldus has released *FreeHand* 2.0, but don't be fooled by the number; this is a relatively minor upgrade, not a major one, as is usually indicated by a new version number.

The improved, if not new, version includes an AutoTrace feature to turn bitmaps into line art, improved text handling, multilevel Undo commands, and support for Pantone colors.

Ashton-Tate, purveyors of *FullWrite Professional*, *dBase Mac*, and *Full Impact*, has scored a coup. Randy Wigginton, an original Macintosh team member and author of *MacWrite*, is now on-board at Ashton-Tate, in charge of Mac products.

At this writing, we're still holding our editorial breath for some major upgrades to some major products: Microsoft's *Word 4.0* and *Works 2.0*, and Symantec's *More 2.0*. They were shown at the Boston Expo in August, but they haven't yet achieved reality.

New Draw Too

Claris' latest recycled product is *MacDraw II*, another hand-me-down from Apple. This time, Claris has definitely developed a significantly improved program that deserves the Roman numeral after its name, unlike the *MacPaint* and *MacDraw* rehashes. It is, in fact, so different from the old *MacDraw* that Claris is marketing both products. *MacDraw* is still being sold and supported, but you can step up to the \$395 *MacDraw II* if you need something between a basic graphics program and a

CAD program.

MacDraw II offers more of everything in comparison to the original. Improved text handling includes an unlimited number of fonts, custom line spacing, sizes to 127 points, multiple fonts and styles in a single text block, and fully justifiable text. You can rotate text and objects in increments of one-tenth of a degree, and zoom in and out from a 3-percent reduced view to a 3200-percent magnified view.

The nicest thing about *MacDraw II* is its speed, which Claris claims is 3-10 times faster than the original. It certainly is significantly faster, even on a Mac Plus. I opened an old *MacDraw* document in the new one, and while the complicated image didn't scroll at anywhere near blinding speed, it at least didn't go through the tedious object-by-object redrawing of the window as it did in the old *MacDraw*.

I was specifically looking for two things in this upgrade: hairline widths and proportional scaling for bitmapped objects. Although it's not immediately apparent that hairline capability is available, not in the menu or in the manual's index, you can define the width of a line even down to fractions of a pixel.

As for the scaling, though, I was disappointed. You can't select an object and just scale it to, say, 75 percent of its original size. There's a work-around using two documents and the Paste with Rescaling option, but you must set the rulers in each document to the same exact ratio. That's too much effort to imitate a feature that's been in *SuperPaint* for two years.

All in all, though, *MacDraw II* is an excellent program. Its manual, like all Claris documentation, is clear and helpful. Claris's phone technical support is knowledgeable and friendly. Of course, the price is a little steep, but so are all other prices of Macintosh software and hardware these days.

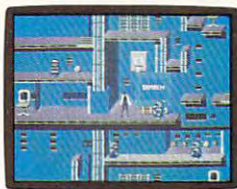
Contact Claris at 440 Clyde Avenue, Mountain View, California 94043; (415) 962-8946.

— Sharon Zardetto Aker >

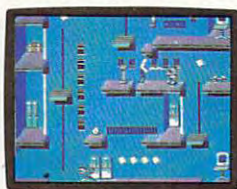


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secret code numbers that will ultimately allow you to access Elvin's stronghold. And waste him before he wastes the world.

There are over 50 rooms to search for codes. Careful. The floors and catwalks in this place end a little abruptly. And of course, they're guarded by those pesky bots. But you've got an MIA9366B pocket

computer to help you crack the security code. A working tape player to play music clues. And a map to show which towers you have or have not searched.

Go then. Elvin is preparing to launch his missile attack in less than ten hours. You must stop him. Or the world will be terminally late for dinner tonight.

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VOID Productions (911 East Pike, Suite 325, Seattle, Washington 98122; 206-324-6809) has introduced the Brain Storm, a hard drive system for the ST. The capacity of the hard drives ranges from 20 megabytes (\$745 with a 3½- or 5¼-inch floppy drive built in) to 60 megabytes (\$1,145 with the same floppy drive choice). There are four surge-protected AC outlets on the back of each unit, and four switches on the front to control those outlets. Each unit comes with all the necessary cables. Additional features that can be ordered include internal 1200- (\$95) or 2400- (\$195) bits-per-second modems, and an A/B monitor or drive switch (\$65).

The attractive and rugged system box matches the color of the ST. The box is quite large (19 inches wide × 15 inches deep × 3½ inches high), so you'll need to set aside quite a bit of space. It does come with legs, however, so you can elevate it off your desk. If you order the Brain Storm with the 5¼-inch floppy drive, it comes with the special head-stepping software needed to make the floppy work with the ST. Format, boot, and utilities software is also included. Custom configurations are available by calling VOID.

Not to be outdone, Astra Systems (2500 South Fairview, Unit L, Santa Ana, California 92704; 714-549-2141) has introduced the Expander. Available in 20- (\$1,150), 30- (\$1,250) and 40-megabyte (\$1,590) configurations, the Expander can be ordered with a 3½-inch floppy drive built in. The unit is named Expander

because the rugged steel box has room for up to three drive units: three hard drives, or two hard drives and a 3½-inch floppy. The controller and power supply can support the additional drives; extra drive kits can be purchased from Astra.

Installing the additional drives is simply a matter of plugging in some cables. This unit has four surge-suppressed AC outlets on the back into which you can plug other peripherals. There are two switches on the front. One turns on the hard drive and three of the four outlets. The other switch (labeled CPU) turns on the fourth outlet, which is where the ST should be plugged in. The Expander will fit comfortably under a MEGA ST or serve as a monitor stand. Software includes format, boot, and backup programs.

The Super Floppy

Supra (1133 Commercial Way, Albany, Oregon 97321; 503-967-9075) has brought its FD-10 "super floppy" (\$995) to market. This 5¼-inch floppy drive stores ten megabytes on a single special disk (\$40). Since the disks can be removed from the drive, this drive provides unlimited storage capability. The FD-10 can plug into your system in a variety of ways. If you don't have a hard drive, you can plug the FD-10 into the hard drive port on your ST. Otherwise, you can plug it into the hard drive's expansion port (if there is one), or plug the hard drive into the FD-10's expansion port, with the FD-10 plugged into the ST's hard drive port. The FD-10 isn't as fast as a hard drive, but it's much faster than a floppy drive. The special floppy disks themselves cost \$40—but you won't need many.

You can handle the FD-10 as you would a hard drive. Supra includes its standard hard drive software, including format, boot, and utility software. Supra also packs its standard hard drive manual with an excellent FD-10 addendum. The format program

will format the ten-megabyte floppies. You do need *Supra-boot* 3.0 or later to handle the portability of the FD-10 media. Because GEM assumes that any drive with a letter higher than B is nonremovable, data on the special disk can be lost (possibly requiring a reformat) if the disk is removed and replaced with another floppy. Even with the proper software, however, I had difficulty getting the system to recognize and read the directory on the new disk.

This unit works quite well as a hard drive (it's a lot quieter), but problems crop up if you use the FD-10 to back up large amounts of data from a hard drive. I used a File Copy (click and drag) in attempting to back up a hard drive with about nine megabytes of data on it. Part of the way through the copy operation, I got system error messages—"Not enough memory to run this application," for example—and phantom folders appeared on the FD-10 floppy that could not be deleted without rebooting the system—all symptoms of the 40-folder bug.

Fortunately, I had access to a public domain utility called SLDERSXXX.PRG. This little beauty exterminates the 40-folder bug by allowing you to define the number of folders you want access to (just change the three X's to the number of folders; all it costs you is memory). You can find your own copy on your favorite ST bulletin board. After this fix, using the FD-10 to back up a complete hard drive in small batches was far faster and more convenient than using standard-size floppies.

The Better Spread

LDW (780 Montague Expressway, Suite 403, San Jose, California 95131; 408-435-1445) has introduced *Power*, a spreadsheet with two user interfaces: the standard "/" command, and full GEM mouse and menu commands. *Power* (\$149.95), which is compatible with *Lotus 1-2-3* (version 2.0), not only duplicates virtually every feature in *1-2-3* but also

allows for specification of blocks of cells with the mouse, additional data operations, macros (compatible with *1-2-3*), a macro recorder (records your keystrokes and builds the macro for you), sideways printing, custom number formats, condensed display (29 rows on a monochrome monitor), notes attached to each cell, four windows, frequency analysis, and more than 80 mathematical functions. The built-in graphing functions mean you don't have to exit *Power* to view or print the five graph styles (with seven sets of data plotted) it offers. You can save or print your graphs once you've created them, although you must name the graph before saving.

This spreadsheet is by far the fastest one available in the ST world. Unlike some of the other spreadsheets that have painfully slow scrolling speeds, *Power* moves the screen smoothly and very quickly. In fact, its scrolling speed is 2½ times faster than *VIP Professional's*, and about 3½ times swifter than *SwiftCalc's*. It also uses sparse-matrix memory management so that only cells with data use memory. Last but not least, the manual is exceptional and informative; the writing style is friendly and without condescension.

The Fix Is In

Many people purchased version 2.0 of *Personal Pascal* from OSS just before ICD bought the OSS product line. Those people may have been disappointed because that earlier version has some bugs, including an editor that doesn't work with MEGA STs.

There are also errors in *AUXSUBS.PAS* (an include file) and *GEMSUBS.PAS*. In addition, the "create desk accessory" switch for the compiler doesn't work.

The latest version of *Personal Pascal* from ICD fixes these bugs. To get the update, send both your *Personal Pascal* disks and \$10.00 to ICD, 1220 Rock Street, Rockford, Illinois 61101; 815-968-2228.

— David Plotkin □

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Each month, "Fast Looks" offers up snapshots of some of the most interesting, unusual, or important new software and hardware for the Amiga, Apple II, Atari ST, Commodore 64/128, IBM PC, and Macintosh lines of personal computers. We think you'll want to know about them *now*, not next month.

Empire

Some games are hypnotic: They'll one-more-turn you to death.

Empire, now elegantly translated for the PC, is one of those games. The premise is simple: You're faced with a screen that's all black, with the exception of one illuminated city. From that base, you must map and conquer the world. There's an enemy out in the darkness doing the same thing.

As the world's shape emerges, more cities are exposed. A captured city can produce tanks, fighter planes, and various ships. Use fighting forces to expose more of the world and capture more cities, as well as face the enemy. You can adjust production and combat rates at the beginning of the game.

Control of the units is simple, whether by keyboard or mouse. Early on, turns fly by, but control sequences become engagingly complex as more of the world is exposed, areas of enemy control are revealed, more property is captured, and larger sequences of orders and strategy are called for. It takes 5 turns, for example, to produce an army, and more than 40 turns to manufacture some of the larger vessels. The game gives you the feeling of being a true

global commander, fighting on several fronts at once. Games can take hundreds of turns and quite a few hours. Pull-down menus make saving files and getting a variety of reports quick and routine.

Interstel has packaged the program as a part of its Starfleet series of us-vs.-the Krellans games. *Empire*, however, stands out well on its own. Just make sure you have plenty of time.

— KF

Amiga—\$49.95
Atari ST—\$49.95
IBM PC and compatibles—\$49.95

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Balance of Power: The 1990 Edition

If you haven't heard of *Balance of Power*, you've probably spent the last two years on a tiny, windswept South Sea island. The game, one of the most innovative packages ever, puts you in the shoes of the president of the United States (or secretary general of the U.S.S.R.) for eight years of holding the lid on international relations.

The second edition updates the database, adds 18 countries, and speeds up the game. Most importantly, though, it offers a new level, called Multipolar. *Balance of Power* was criticized for its bipolar outlook—only the U.S. and the U.S.S.R. were real players at the table of military might and diplomacy. Everyone else was simply a pawn of the big guys.

The Multipolar level is mind-boggling in its complexity, but it's far more realistic. Other countries often start bush-league wars, destabilizing regions and possibly leading to a nuclear confrontation with the Soviets. Nothing makes your palms sweat so much as hearing that the Israelis want to invade Jordan and that your other ally, Egypt, wants to send troops to support Jordan.

All the rest of the original is in *The 1990 Edition*, so if you missed the first version, snap this up. And if you've

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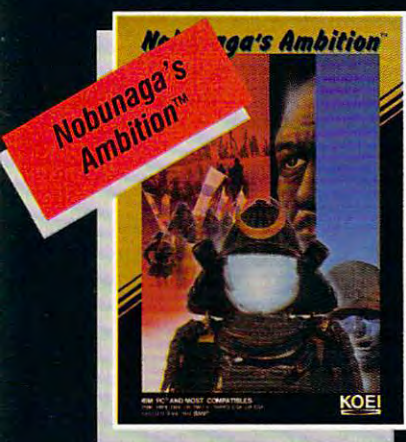
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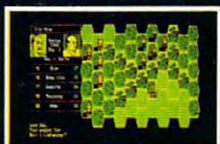
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After you've responded to all of the adjectives, you can use pull-down menus to invoke commands. You can save the current file, load a file previously saved, delete a file, open a new file, display or print a report, configure print options, get help, or quit the program.

MindViewer's reports can be illuminating, ridiculous, funny, embarrassing, right on target, or way off base. The report explains your public self, your private self, your likes and dislikes, how you can be influenced, and even your sex fantasies—this last one carrying a warning label for those easily offended.

MindViewer won't replace group therapy or encounter sessions—and it won't bring Freud back to life—but it's almost guaranteed to break the ice at any party. It's diverting, provocative, and easy to use. It gives a whole new meaning to the phrase *couch potato*.

— PS

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Contributing to "Fast Looks" this month were Keith Ferrell, Gregg Keizer, and Peter Scisco.

Zak McKracken and the Alien Mindbenders

With last year's *Maniac Mansion*, Lucasfilm raised the animated story to a new level. Employing a lean and sensible interface, a story universe filled with literally hundreds of working objects and tactile opportunities, teamwork among a cast of characters, cinematic cutaways, and multiple puzzles, *Maniac Mansion* engaged players with a goofy story of teenagers in peril. This year's *Zak McKracken and the Alien Mindbenders* honorably enhances that accomplishment, but doesn't extend it.

Using the same clever, flexible, point-and-click interface, *Zak's* designers drop players into a crazy-quilt universe of sleazy supermarket scandal sheets, global and interplanetary travel, conquest-hungry aliens, silly nose/moustache glasses, and a stupidity epidemic that threatens the world. *Zak* takes the high humor and outrageous contexts of *Maniac Mansion* and shifts them into hyperdrive. Imagine putting Robin Williams on disk, and you'll have a good idea of *Zak's* humor.

Central to the story is Zak himself. Not necessarily the best reporter ever to grace a tabloid rag with enticing prose, he nonetheless wants more out of life than chasing down man-eating squirrels or pursuing rumors of Elvis's resurrection for his employer, the *National Inquisitor*. He wants a real story, something of substance; he wants to write a novel. Zak McKracken has dreams.

But dreams also bring troubles. Asleep, Zak sees Martian faces, silly glasses, humans, and aliens. Surely his dream—which accompanies the game's title credits—is a portent of adventures to come.

Those adventures begin in Zak's apartment, which he must leave in order to proceed with his latest *Inquisitor* assignment. Like the rooms in *Maniac Mansion*, Zak's apartment is crowded with working devices and useful, usable objects. The game's interface combines verbs—*take*, *put*, *walk*—with objects—*door*, *television*, and so on—via keyboard, joystick, or mouse control. Once you get the hang of the interface, the temptation is to try *everything*.

Give in to the temptation: You never know what you're going to find or need and, even if devices aren't useful, it's fun to watch them work. (This is, incidentally, a game whose elements should be *watched* as well as played.

Clues appear in dreams, cut scenes, and elsewhere; like any good reporter, you must stay alert.) Materials can be purchased as well as picked, and some objects must be brought into proximity with others in order for them to function.



Let Zak McKracken and the Alien Mindbenders take you on a wild and wacky adventure.

Once you leave Zak's flat, you'll find yourself in the sort of world where all those supermarket headlines are true. Silliness is rampant, and stupidity is on the increase. Gathering tools and allies, Zak must work his way to the heart of the most important story of his career.

It's a rich, wacky universe out there for Zak, and exploring it will take time. This is not a quick, one-sitting game. You will need to save your progress to disk between sessions. It's also wise—and entertaining—to read the hardcopy version of the *National Inquisitor* that accompanies the game. Because of the number of puzzles and their sophistication, the game can be frustrating. To alleviate this, Lucasfilm has produced a hint book, which is sold separately.

Players familiar with *Maniac Mansion* will recognize Zak's "look." Graphics and animation are oversized and chunky, strategies that serve the story's humorous approach well. The childlike expressions on characters' faces remind us constantly that this adventure isn't meant to be taken too seriously.

Lucasfilm does take its role in interactive entertainment seriously, though. The programs are obviously labors of love, and every punch line represents a lot of talent and hard work.

But I would like to see Lucasfilm's designers and programmers apply their abilities to stories less dependent upon jokes or hardware for success. The same interface and interactive environment that distinguish both *Maniac Mansion*

continued on page 86



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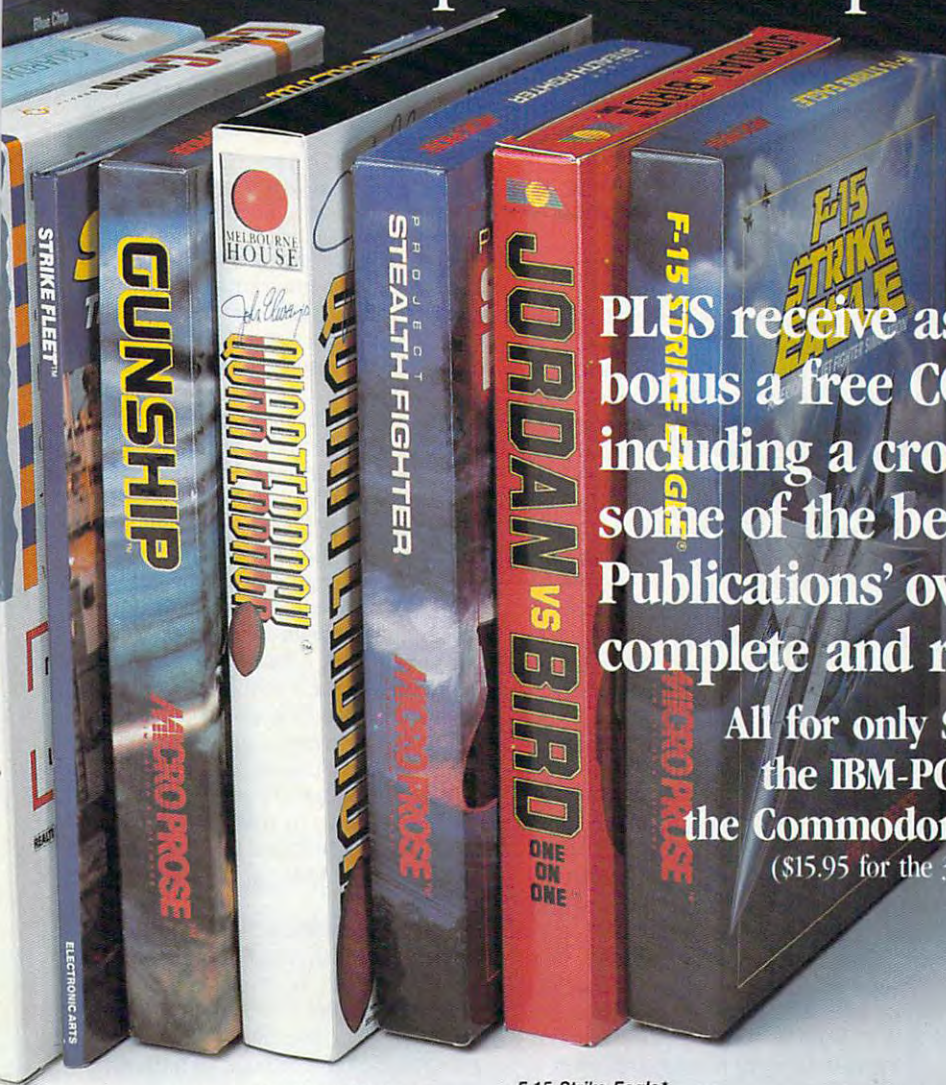
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continued from page 82

and *Zak McKracken*, if linked to smaller and more smoothly animated characters, would provide a perfect platform for straight storytelling. Instead of pratfalls, plot; rather than silliness, suspense. Lucasfilm's software tools, with only a little tweaking, could serve as serious storytelling media for the company's own Luke Skywalker or Indiana Jones.

Considering the amount of fun I've had, and continue to have, with *Zak*, such a request is probably unseemly. This clever, witty, and often charming game delivers a lot of entertainment. Certainly I'll never look at a checkout-line tabloid in the same way again. At the same time, *Zak's* narrative rests on a bed of puzzles, riddles, and problem solving that outweighs the storytelling. Lucasfilm does a good deal with *Zak*, but, considering the tools and talents at its disposal, I hope next time it does more.

— Keith Ferrell

Zak McKracken and the Alien Mindbenders

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DOS 4.0

It has a shell, but it's no armadillo. It has new commands, but it's no drill sergeant. It has pull-down menus and action bars, but it's no Finder. Say hello to IBM DOS 4.0, and kiss that command line goodbye (almost).

Getting to know this latest incarnation of Big Blue's favorite operating system is fairly painless, with enough surprises to interest the uninitiated and impress the experts. It supports memory beyond 640K and takes you past the 32-megabyte DOS partition limit. With prices so low, more users are opting for 40-megabyte hard disks; now they can create a primary DOS partition as large as their hard disk.

You can install DOS 4.0 to 3½-inch disks, 5¼-inch disks, or a hard disk. The process is simple, with ample

directions and help available. During installation, you may customize your operating system to take full advantage of your computer. If your computer has 256K, for example, or if you work mostly with spreadsheets or databases, you can request that DOS 4.0 be given minimum function and so retain the greatest amount of memory for your applications. You can also balance the DOS functions with program workspace (good for 512K-memory computers) or give DOS its maximum space and minimize the program workspace (for computers with more than 512K of memory).

A feature that isn't so attractive is the inability of the new operating system to recognize some hard disks that have been formatted with MS-DOS. This isn't a bug, but merely the incompatibility among the DOS versions different manufacturers use. The retail version of DOS 4.0 is the PC-DOS version, designed specifically for the IBM PC and PS/2 computer lines. Microsoft has said that it won't be selling its version of the program through retail channels. In short, if you own an IBM PC compatible with a hard disk and you want to upgrade from whatever version of MS-DOS you're using now to DOS 4.0, you may have to reformat your hard disk with the DOS 4.0 program (be sure to back up the disk before you reformat, of course).

Once it's installed, you can get to the meat of DOS 4.0—the DOS Shell. Even if you currently use a shell, this one is extremely versatile, for it drops all but 3K of its memory requirements when you load a program.

The Shell's graphics interface is comprised of two sections: the Start Programs screen and the File System screen. Both include an action bar along the top, pull-down menus, and other features designed to insulate users from the command line.

Although an interface like the DOS Shell is intended for use with a mouse or other pointing device, it's possible to get around the screen using just a few keys. Accustomed to using Tandy's Deskmate without a mouse, I had little difficulty navigating the Shell with just a keyboard. Still, I have the nagging feeling that I'm missing the point—the Shell is supposed to protect me from the command line, and the mouse is supposed to free me from the keyboard. Myself, I'm holding out for voice command.

The DOS Shell opens with the Start Programs screen, which lists what it calls the Main Group of programs in the Shell. The Main Group is the first



The Shell in DOS 4.0 presents a graphics interface that insulates the user from the command line.

level of the Shell's two-level structure and can include programs and subgroups. To add a group to the Main Group menu (for example, a group called *Finance*, under which you could install check-writing and spreadsheet programs for your household budget), move the cursor to the action bar and pull down the Group menu. From here you may Add, Delete, Change, and Reorder the group. Select Add; then press Enter. At the Add Group screen, type the name of the group the way you want it to appear in the Main Group list, and then create a Filename. You can also include a Password and Help Text, but neither is required. Save your entries with the F2 key and then return to the Start Programs screen. You'll see your Finance group as part of the original list. You can run a program listed in the Main Group by using the arrow keys to highlight it and then pressing Enter, or by double-clicking on it with a mouse.

If the Start Programs screen is the heart of the Shell, the File System is its nervous system. Included as part of the Main Group, the File System is the second half of the interface, where you manage files and directories and can even start programs.

The File System screen resembles the Start Programs screen, with an action bar at the top of the screen, a display of the available storage devices, and a display of the drive you are presently working from, represented as a directory prompt (A: \, for example, or C: \).

Most of the File System screen is occupied by the directory display, which is split vertically into two halves. On the left is a tree structure that outlines the directories and subdirectories found on the active drive. On the right side is a list of the files contained in the selected directory or subdirectory. You can display two separate directories by using the Multiple File List command under the Arrange menu to split the

screen horizontally.

The File System's directory display is such an improvement over the Dir command used in past versions of DOS that it alone makes upgrading worthwhile. All the information you need to inspect and manage your directories is presented clearly, with the relationships between root directories, subdirectories, and files laid out right in front of your eyes. It's a welcome sight.

Beyond the directory display, the File System allows you to perform a number of actions on programs and files while you are in the Shell. At the action bar, the File menu allows you to Open (start a program or open a file), Print, Associate, Move, Copy, Delete, Rename, Change Attributes, View, Create Directories, Select All, and Deselect All. Simply highlight the file or program you want to take action on and then select the appropriate command from the menu. There's no typing of DOS commands—just a few keystrokes and you're on your way.

Many of these commands are self-explanatory, but some deserve special notice. The Associate command, for example, lets you tie a file extension to a specific program. The Shell will then

start that program each time you open the file. Instead of starting your word processor and retrieving a file called LETTER.DOC, you could associate the extension .DOC with your word processing program so that the program would load automatically when you opened any file with that extension. Or you could link your .BAT extensions to an editor for writing/revising batch files. I like the way this feature makes me think of extensions: Now they're more than identifiers; they're links in a logical chain.

Beyond the Shell, DOS 4.0 has enhanced previously featured commands and offers some of its own. New commands include Install, for loading some select Terminate and Stay Resident (TSR) programs as device drivers, and Mem, which displays the amount of used and unused memory, allocated and open memory areas, and all programs active in the system. DOS 4.0 also offers support for expanded memory.

Although this operating system answers the wishes of many DOS users, I do wish there were a simpler means of cutting and pasting whole directories and subdirectories. But I must admit

that having the directory's contents spread out before me makes even that chore more bearable.

Other quirks, like incompatibility with some TSRs, are sure to be ironed out as users put DOS 4.0 through its paces. Already, IBM has quietly released version 4.01, which addresses some areas of incompatibility. Upgrading to the new DOS makes sense for those wanting increased functionality in a single-user, single-tasking operating system. IBM DOS 4.0 isn't OS/2, and its shell may not be Presentation Manager, but it's a step in the right direction.

— Peter Scisco

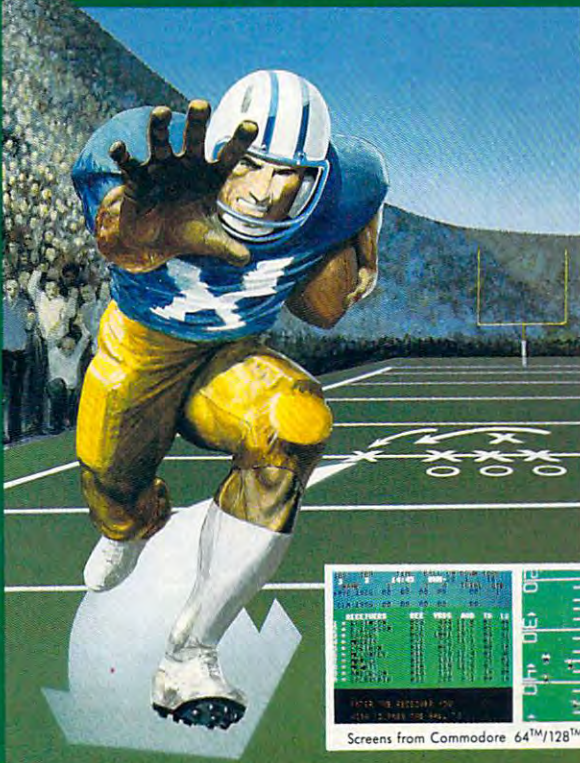
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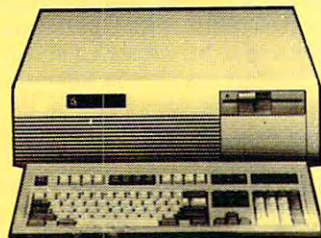
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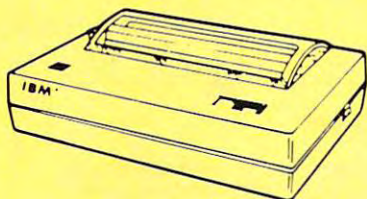
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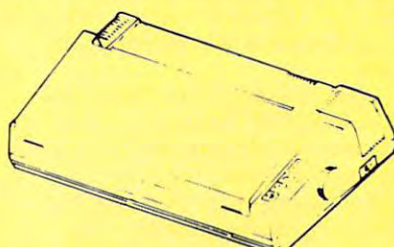


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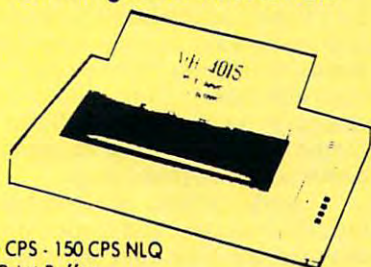
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Splash!

It's no wonder computer artists using the IBM PC or a PC compatible feel slighted. With few exceptions, their tools are unimaginative copies of paint programs first made famous on other systems. But with the advent of the Video Graphics Array (VGA) standard, computer painters have the foundation necessary for using flashy programs that give real paint power to the IBM PC and compatibles. One such program is *Splash!*, a package that exploits the PC environment to great effect.

I installed *Splash!* on the hard disk of a 10-MHz AST Premium 286 AT clone equipped with a Genoa Super-VGA card, a Magnavox Professional VGA monitor, and a Microsoft Mouse. Make sure you use mouse driver software that's compatible with Microsoft Mouse version 6.1 or later. I found it impossible to draw curves and to make selections from the lower menu with an earlier version mouse driver. You'll also need a VGA card; *Splash!* works with the MCGA used in the IBM PS/2 Model 25 and Model 30, as well.

Splash! loads unusually fast—you'll see a menu at the top and another along the bottom of the screen. The painting area—called the *canvas*—sits in the middle. Along the top of the screen run 32 color icons and four text buttons, some with drop-down menus listing further options. At first, you may have trouble remembering what some of the icons stand for—the wrench icon means "accessories," for example. The icons don't always correspond to changes in the cursor, either. If you choose the brush icon, for example, the cursor takes on a pencil shape.

Together with the standard brush, line, fill, erase, text, and shape tools, there are tools for cutting and pasting, flipping and rotating selected areas, and grid and mirror drawing, as well as some sophisticated color-mixing controls. Operations in *Splash!* generally are rapid and smooth, with the exception of color fills.

One nice feature, the transparency modes, allows you to paint under as well as over any area. You can create an image, for example, and then paint a pattern behind it. An alternate canvas is available as a scratch pad; a special painting mode lets you burn through any part of the main picture and let the alternate canvas show through. And, unique to paint programs on any system, *Splash!* provides a complete online help system keyed to the manual. First-time users can probably get by without referring to the manual at all.



Take advantage of the VGA standard when you paint with *Splash!* on the IBM PC and compatibles.

The menu running along the bottom of the screen contains the 256-color palette. The wide range of onscreen colors is *Splash!*'s greatest strength. Finally, PC artists can create realistic images with smooth color shading. Palette controls available from the top menu let you set spreads and ranges of related colors, change the red, green, and blue components, and change the hue, saturation, and luminosity of any individual color. The 256-color palette is also ideal for rendering digitized images with good fidelity.

To see menus for brush shapes—called *tips*—and built-in color patterns, click on one of three boxes at the left of the color palette. You can paint in any color with any tip and fill any shape with a pattern. You can also grab a small (8 × 8 pixel) area of the current picture and use it as a custom tip or pattern.

Splash! is exceptional, but it has some faults. The Magnify tool lacks some necessary features, such as adjustable zoom levels and the ability to scroll within the magnified area. For such an impressive program, it's a shame that there are no tools for smearing colors, for creating areas filled with color gradients, for color cycling, for creating canvases bigger than screen size, or for providing numerical readouts for colors you mix—a necessity when you want to recreate one specific color out of more than 262,000. Other paint programs offer advanced features like automatic perspective and the ability to add translucent overlays of color; these are missing from *Splash!*.

Limiting *Splash!* to the 320 × 200, 256-color mode means users without VGA/MCGA capability can't use the program. It also weakens *Splash!*'s standing among professional graphic artists because the resolution is too low for any image that includes text, like advertising comps and packaging designs.

On the other hand, the program

does produce spectacularly shaded pictures that hardly look like computer graphics. If color is your concern, and you want an easy way to manipulate digitized color pictures for desktop publishing or desktop video, *Splash!* gives you the right tools at the right level of expertise.

—Steven Anzovin

Splash!

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This game's subject matter—sixteenth-century Japan—is off the well-worn path. In my book, any historical game that deviates from modern or futuristic warfare demands attention. In this case, *Nobunaga's Ambition* does more than just demand attention—it's one of the best strategic war games ever designed for a personal computer. ▸

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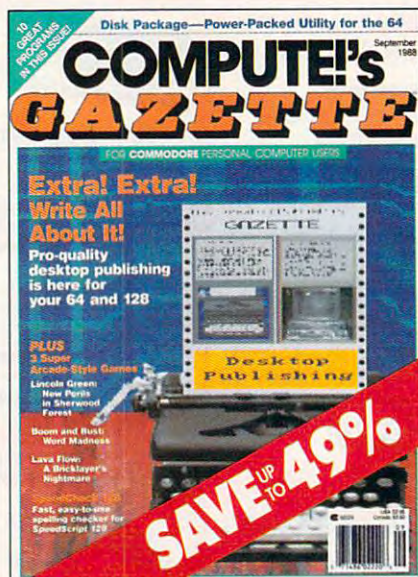
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Nobunaga's Ambition succeeds because it's richly detailed, a good teacher, and very challenging. The detail stems from the wealth of options available to you; the teaching comes from the game's demand that you think as a sixteenth-century daimyo. As for challenge, just remember that every other daimyo wants to see you fail—even computer-controlled ones.

The game plays quickly. You issue only one command each turn for each fief you control. Even games with more than one player don't take much time. Besides, until you become competent, the game will be over quickly anyway. It's extraordinarily merciless to beginners.

You'll pick up the game's interface quickly, too. You can operate *Nobunaga's Ambition* almost exclusively with the numeric keypad or the row of number keys. Simply hit the Enter key to produce a menu and then type the appropriate number to issue commands.

To begin, choose one of two scenarios. The smaller scenario features 17 fiefs clustered around central Japan; the larger one features 50 fiefs. Next, choose which daimyo you'll role-play. You can select any one of the fiefs, but three offer particular advantages. Selecting Nobunaga gives you 100 units of gold to start the game (as opposed to an average of 40 units); choosing Yamashiro places your fief in Kyoto, a city practically immune to invasion. Another fief includes the town of Honganji, a place free of uprisings.

After you've selected a scenario and fief, you establish your daimyo's personality traits. Health, Ambition, Luck, Charm, and IQ ratings are selected randomly by hitting the space bar. Each trait is important, and you can "reroll" with the space bar any number of times. During the game, your actions affect the traits. Luck, for example, diminishes when marriage negotiations fail; marriage increases Luck, but saps Ambition.

With preparations out of the way, the game begins. The upper left portion of the screen displays a map, either in very readable monochrome shades or in color for EGA-equipped computers. Along the left side is a graphic of the daimyo you represent and his ratings. The daimyo's Age, Health, Ambition, Luck, Charm, and IQ ratings are displayed first (daimyo grow older as you play), and then come the amounts of Gold and Rice available. You can use gold to raise troops, go to war, improve productivity, control floods, and pay spies. Use rice to feed the army; you can also give it to peasants and soldiers

to increase their loyalty ratings. Other ratings include Productivity, Flood Control, Peasant Loyalty, Peasant Wealth, and the size, loyalty, training, and arms level of your army.

Your goal is to expand from your fief. You enact your strategy through a series of 21 possible menu items. With Move, you send soldiers to fiefs you control; with War, you invade neighboring fiefs; Tax lets you change the taxation rate (with possible peasant unrest), while Send allows you to ship gold or rice to your other fiefs. Other commands let you improve flood control, raise your fief's cultivation level, train your army, and give away rice or gold to the peasants or to the army.

Battles are easy to perform and deadly. Your goal is to destroy the opposing army's command unit before it destroys yours. Lose the command post and you lose the fief.

Half of the 124-page manual accompanying *Nobunaga's Ambition* is given over to historical notes and references. Included are short biographies of all 50 daimyo of the period, a chronological table of Nobunaga's accomplishments from 1534 to 1590, and an essay describing the great daimyo's methods. This kind of detail captures the flavor of the era without becoming unwieldy—no small achievement.

I do question the random means for selecting the daimyo's personality. Since I can reroll, why can't I simply assign trait values based on some kind of overall value? Restricting a daimyo's activities to one command per season is frustrating also. I would prefer a more complex system.

Overall, though, *Nobunaga's Ambition* is an excellent game with a sound basis in Oriental history. Historical gaming has dealt almost exclusively with twentieth-century European warfare, with some excursions to the Civil War. Koei's ambition to create a feudal simulation of the Orient is a fabulous and welcome addition to the genre.

— Neil Randall



Reports

With *HyperCard*, you get, among other things, a flexible database that performs swift searches. But *HyperCard* isn't the best implementation of a database. Not by itself, anyway. *Reports* is a good companion for Apple's latest wonder package because it strengthens *HyperCard*'s file management capabilities.

Reports is a two-pronged application. It's a layout tool for producing attractive printouts of *HyperCard* stacks, and it's a selection and sorting tool for manipulating information in stacks. As part of *Reports*' printing capabilities, you get a tool called Preview which shows you, on screen, what your report will look like.

After installing a Report Card in the stack you want to print, you can move to the layout editor—an application external to *HyperCard*—and back to the stack. From the Report Card, you navigate between *HyperCard* and *Reports*.

The layout editor works like most Macintosh graphics packages. You have tools that draw squares, circles, and straight lines, and you can bring more complex graphics in through the Clipboard. If your *HyperCard* stack stores different graphics on each card, you can bring them in through the graphics field. The graphics field is a nice tool, but you must write a HyperTalk script to make it work. That can be intimidating for some people, but the manual explains the process well.

You also have two tools that include text. One works like a text tool you'd find in any paint package. The other creates an Information Field that will hold the data you're extracting from the *HyperCard* stack. An Information Field works just like the fields or placeholders you may have seen in mail merges with some word processors.

The layout editor is very easy to use. If you know how to use a graphics package like *MacPaint*, you've won half the battle. The other half, linking the layout to a stack and the layout fields to the card fields, is a process of prompts that *Reports* generates through dialog boxes.

You perform selections and sorts in much the same way, choosing field names, comparison operators, and values from dialog boxes. Selections and sorts allow you to print part of the stack when you want only certain cards. For example, if you're looking for a printout of people who owe you more than \$10, you would select cards in which the field called AmountOwed is greater than \$10.

Nobunaga's Ambition

For . . .
IBM PC and compatibles with monochrome or EGA graphics card—\$59.95

From . . .
Koei
20000 Mariner
Suite 100
Torrance CA 90503
(213) 542-6444

And . . .
Atari and Apple II versions expected in early 1989

REVIEWS

One deficiency with *Reports* is that you can't easily compare the contents of one field to the contents of another. You must write a script to perform this kind of selection. At this level, however, scripting isn't difficult. The Script Editor even suggests some commands and message handlers in a menu. When you get comfortable with scripting, you can even get the benefits of a relational database which allows you to include data from a separate stack using a key field.

You can build several layouts for the same stack. Each layout might look different or have different selection and sorting criteria. True to the Macintosh philosophy, *Reports* doesn't require you to remember much of anything for creating layouts and developing selection criteria. It's very easy.

Printing is simple and efficient, because you can print to the screen using Preview, a special printer driver. Unfortunately, Preview doesn't work as easily as something like Page Preview in Microsoft's *Word*. You have to select the driver from the Chooser and then go through the whole print procedure. The payoff for this nuisance is that you can use Preview in programs other than



Reports lets you print sophisticated database reports from HyperCard stacks.

Reports. You're really getting a special utility as a bonus with *Reports*.

The printing process is as fast as, if not faster than, it is in many other applications. Whether you're using Preview or your trusty ImageWriter, you won't be tapping your fingers waiting for output.

If you use *Reports*, check its version number; then use the same version of *HyperCard*. The update documentation tells you, pointblank, that you might have printing irregularities if you use *Reports* with *HyperCard* 1.0.1. You could also have some trouble moving between the Layout Editor

and *HyperCard*.

Technical support assured me that these problems have been fixed in *Reports* version 1.2, the version compatible with *HyperCard* 1.2. Registered owners of *Reports* 1.1 will get a free upgrade to 1.2, and technical support said a copy of *HyperCard* 1.2 would be included with the upgrade.

I've seen the new version, and HyperWare has indeed fixed the compatibility problems that I found. I highly recommend the improved package for anyone who wants to use *HyperCard* as a full-featured database. *Reports* is easy to learn and easy to use. It produces good reports from stacks and is powerful enough to do almost any task a home or small-business user would want.

— Heidi E. H. Aycock

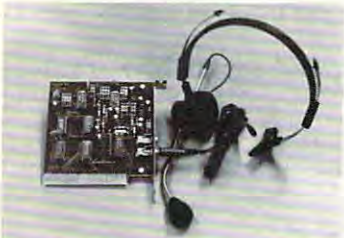
Reports

For . . .
Macintosh with *HyperCard*—\$99.95

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HyperWare from Activision
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Sky Travel

If the night sky fascinates you, you probably already know that learning your way around that sky isn't easy. Available star charts display only a limited amount of information and are often complicated to use. What portion of the chart you can actually see in the sky depends on your location, the time of the year, and the time of day. It's difficult for one chart to include all of these variables.

Sky Travel makes sky watching easier. This award-winning program was originally released in 1984 but has recently been updated and repackaged. Designed for use by all age groups, *Sky Travel* is extremely user-friendly. All you do is enter the time, date, and your location; your computer makes all the calculations and then displays an exact image of the sky as it would appear in your backyard. Just think—your own personal planetarium!

Once the program boots, you're shown the night sky over Washington on New Year's Day, 1988. A couple of quick keystrokes bring you to the Map display. Here you can set your date and time to reflect the current time or any time 10,000 years into the future or the past. (Daylight saving time is *not* factored in, so don't let that confuse you as it did me.) You can enter your location in one of two ways. If you know the longitude and latitude of your town (doesn't everyone?), you can enter it directly; or you can look it up in the back of the manual and then enter it. If you don't want to deal with coordinates, just use the joystick or cursor keys to position the cursor over your location on the map.

After several seconds, the night sky for the time and area you've selected will be displayed. Called Sky Mode, this is the heart of the program. The field of view is 72 degrees at this point, but you can reduce it to 36, 18, or 9 degrees to increase the resolution. This is helpful if, for instance, you are looking at a double star and want to increase the separation between the stars.

Moving around the sky to view different areas is also easy. You can use a joystick or the cursor-control keys. As the cursor moves to the edge of the screen, the computer displays the location of new objects as they come into view. You can also move quickly to the points of the compass by hitting the N, S, E, or W key.

The horizon is displayed to help you judge how high in the sky to look for the object you seek. The horizon is translucent, so you get a preview of ob-



Sky Travel displays overlays to help you identify constellations in the night sky.

jects that are about to rise, or you can see objects that have just set. If you look directly down at your feet, you can see what the sky looks like on the other side of the globe!

You can view more than 1200 stars, the sun, the moon and its phases, the planets, Halley's comet, and over 250 deep-sky objects such as spiral galaxies and globular star clusters. The 88 major constellations are shown with optional line-drawing overlays. Those lines are a big help in locating specific constellations. Once you have the formation's shape in mind, you can turn off the lines and see how the constellation actually appears in the sky.

Another nifty feature in Sky Mode is the Inform function. Place the cursor over any item on the screen, press the fire button on the joystick, and the computer will tell you all about the object.

The program's ability to locate objects in the sky, print out star charts, show solar and lunar eclipses (forward or backward in high speed), track planetary movements and Halley's comet with the special Track feature, and display planetary transits and occultations makes *Sky Travel* a superb educational/entertainment package.

The program's manual is excellent. You can go as deeply into the subject matter as you feel comfortable going and still use and enjoy all of the various features. Excellent examples are given to illustrate the use of several features, including sections on the Star of Bethlehem, Cheops' Pyramid, and navigation.

I have only two complaints about this program. My first problem involves the Print function, which can be used to print charts of the sky from the screen. The Commodore 64 version's manual says that only a Commodore MPS-801 or a VIC 1521 printer can be used. I tried to use my Seikosha 1000VC without success—the program wouldn't even boot with the printer turned on. While this might have been satisfactory

in 1984, it's certainly unacceptable today. I contacted MicroIllusions, but the company couldn't help me.

I was also disappointed to learn that Halley's was the only comet included. I would have enjoyed learning about other comet appearances.

Those complaints aside, I really enjoy *Sky Travel*. It's easy to operate, graphically appealing, and sophisticated enough for all but expert use. For the first several nights after I received the program, clouds frustrated me by preventing my viewing the stars and putting my newfound knowledge to work. That's the mark of a good educational software package. *Sky Travel* doesn't just teach you about the night sky—it pulls you out from behind your computer screen and puts you out under the stars.

— Richard Sheffield

Sky Travel

For . . .

Apple II—\$52.95
Commodore 64/128—\$49.95
Macintosh—\$69.95

From . . .

MicroIllusions
17408 Chatsworth St.
Granada Hills, CA 91344



Drug Alert!

Your drug-dependent friend is trapped in the sub-sub-sub-basement of a flea-bag hotel. Too dazed and strung out to get out alone, Pat needs your help to escape this crummy hangout for pushers and users.

This isn't just another adventure game. Mindscape's *Drug Alert!* is an interactive study tool designed to teach children ages 10 and up about the dangers of 45 different drugs. The challenging simulation presents valuable information without heavy-handed value judgments.

The message to children is clear: If you take illegal or unprescribed drugs, chances are you'll be hurt. This is as true for drugs like caffeine (found in coffee, tea, and chocolate) and codeine (found in cough medicines) as it is for cigarettes, alcohol, and cocaine. Children need to hear that message, and *Drug Alert!* gives it to them in a way they can easily understand.

To get your friend out of the hotel, you have to go up four floors. Each floor has several rooms and hallways

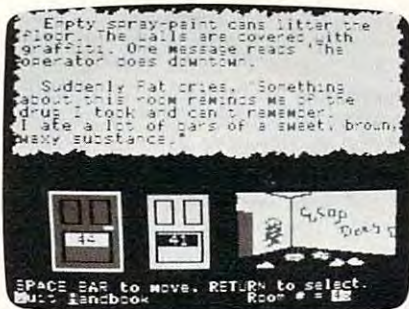
REVIEWS

through which you travel. You might want to draw a map as you proceed. Along the way, Pat offers clues about the drug he or she (the game doesn't specify gender) has taken. Pat describes its effects, what form it came in, how it was taken, and what it looked like. You must piece together these clues and refer to the information presented in the Drug Alert Handbook in order to identify the drug. Although the handbook is incomplete, you can find more pages as you make your way out of the hotel.

Two drugs are hidden on each floor. One belongs to the elevator operator. You must find the drugs and then drop them into the incinerator before you can get to the next floor. It's important to destroy the operator's stash first or he'll hide it. If he does that, it's a lot tougher to find.

All along, seedy-looking, spaced-out characters block your way. To get past them, you must answer a drug-related question—for example, *If the elevator operator's skin is turning yellow, the drugs must have damaged his . . . ?* The right answer is a clue to the identity of the operator's stash. You can get more help from the online glossary.

When you reach ground level, the



In *Drug Alert!*, help your friend Pat escape the trap of drug abuse while you learn about the dangers of illegal drugs.

desk clerk asks you the name of Pat's drug. You must respond correctly to leave. If you're successful, you'll be given the password for the Drug Handbook. With the password in hand, you'll be able to use the complete handbook at any time.

A save-game option lets you quit at any time. Whenever play resumes, it will be at the same spot where you left off. Since it may take more than one class period to proceed from the third sub-basement up to ground level, the save-game option is especially handy

for teachers using *Drug Alert!* at school.

A set of utilities keeps records on the game progress of up to 40 players. Progress reports show how many times a child has played the game and where the player is in the current game.

Teachers and parents may print out a hardcopy of this information.

The utilities can also be used to turn the sound on or off, to enable students to receive playing hints, and to enter the name and telephone number of a local drug help center. The drug center information that's entered appears on the front page of the Drug Alert Handbook and on the computer screen when a player wins or quits the game. The handbook classifies 45 drugs according to type (narcotics/painkillers, stimulants, depressants, or hallucinogens), appearance, common names, similar substances, how taken, dosages, and several other categories. Parents and teachers can use the handbook as a reference tool.

Drug Alert!'s manual contains the names and addresses of several institutions that offer information about drugs and drug abuse. The user's manual also contains game instructions. In addition, teachers can use the eight lesson plans

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provided along with 11 activity sheets, and a drug-identification sheet that can be duplicated to help players collect clues. The lessons focus on what drugs do and what their side effects are while giving some rules to follow when taking medicine. Students learn the differences between over-the-counter and prescription drugs and the importance of reading and following the label's instructions. They also learn facts about drug abuse and how to deal effectively with peer pressure.

Both teachers and parents will find *Drug Alert!* useful in teaching children about drugs. My only concern is that having Pat trapped in a ratty old hotel in the city suggests that substance abuse doesn't occur in clean city apartments, in well-groomed suburban homes, or down on the farm. Any newspaper will tell you different.

Also, in the first game I played, Pat was strung out on caffeine, apparently from having eaten too much chocolate and drinking too much coffee. While caffeine is a stimulant with a potential for abuse, it may not be the best example for teaching children about the dangers of drug abuse. That aside, *Drug Alert!* does offer to children solid information about drugs. For their teachers and parents, it can be an effective and welcome weapon in the war on drugs.

— Carol S. Holzberg

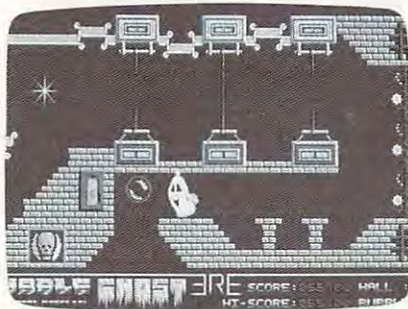
Drug Alert!

For...
Apple II; color monitor recommended—
\$39.95

From...
Mindscape
3444 Dundee Rd.
Northbrook, IL 60062
(312) 480-7667

screen. The only problem you're likely to have at the beginning is getting control of your little "puffergeist." He must float at just the right level for his puffs to affect the bubble—and the distance the bubble moves depends on the distance between it and the ghost.

Use the fire button on your joystick to blow, but don't hold it down too long—if the ghost's face turns red, you lose out on bonus points. Score other points by completing a level before the expiration of bonus time,



Help an adorable "puffergeist" blow his bubble through 35 rooms of a haunted mansion in *Bubble Ghost*.

which is shown on a bar at the bottom of the screen. You also get points by completing a level with one bubble, but you lose points if you use more than one bubble.

By holding down the fire button and moving the joystick to the left or right, you can make your friendly phantom somersault; this helps to get him at the right angle for puffing the bubble around tight spots. Believe me, there are plenty of those.

Once you master the gentle art of moving your little spook, you can move a little faster and aim your puffs more accurately. Each level of the game becomes more difficult. Along the way you must keep your bubble free of candles, sharp corners, exploding stars, moving pitchforks, and a host of other ingenious devices that threaten to take the pop out of your puff. If that happens, the little ghost will give you a mean look and shake his fist—that'll show you.

The ghost itself is invincible. It can pass through walls, glide over beating blades, and slide by any prickly situation. You'll find this extremely useful, as succeeding in this game is largely a matter of waiting for the bubble to catch up with your ghost so you can give it another puff. After you've completed a game, you can record your score and initials for all to see on a spe-

cial screen, just as you'd do at the arcade. The playing screen displays the high score at the bottom, just above the current score, and it shows you what level you're on and how many bubbles you have left.

I really liked using the practice levels in this game. On the main selection screen, you can choose to play a practice round, which lets you play at any level of the game except the last. If, like me, you haven't passed level 7 after an hour, it's a lot of fun to shoot as high as level 19 or even 34. You can't practice the last level, though—I guess Accolade wants to keep some secrets.

Secret passageways let you skip levels, although I never successfully uncovered any. You can use a number of tactics during the course of the game to protect your bubble, and all of them involve blowing on one thing or another. You won't find any secret stash of weapons or shields or any of that. Just put those lips together and blow—that's all you've got.

My biggest complaint concerns moving from the left side of the screen to the right. On some of the levels, you move from right to left, and those are difficult but possible. When you need to go the other way, though, you must play with your ghost upside down because he only faces one way. That's really unsettling, and it's hard to maintain your perspective.

The trick to *Bubble Ghost* is to anticipate where the bubble will go after you blow it, and then to move there and get set up at the right angle to blow it again. Mastering this little trick is something else. Many times I stared in horror as my bubble approached a needle and my spook turned cartwheels, hopelessly out of position.

Graphics for *Bubble Ghost* are simple; the way the bubble moves is absolutely graceful. I can just imagine a group of physicists gathered around a table at Accolade, discussing what a bubble looks like when something blows on it and how it travels in flight. They sure got it right: You'll think that you blew the bubbles yourself, right out of a soap bottle.

I wouldn't exactly call *Bubble Ghost*'s musical theme pop music (I'm sorry, I couldn't help it); it's more like a circus calliope gone mad. Once you're playing, the sound is limited to an eerie whistle.

I have a feeling that *Bubble Ghost* is aimed toward the younger set, who will enjoy the little ghost's face, the colorful animation, and all the crazy gadgets—but I wonder if the tricky control of the ghost might be too difficult. Par-

Bubble Ghost

Accolade's *Bubble Ghost* will have you huffing and puffing through hours of arcade-style action.

Actually, *action* might not be the right word. You don't race in this game as much as you drift. The point is to blow a bubble through 35 levels of Heinrich Von Schtinker's empty castle. Cute name, eh? The little ghost is a charmer, too. And all the gadgets waiting to burst your bubble have been designed to appeal to the eight-year-old in all of us.

Bubble Ghost starts easy enough. Level 1 is a straight shot across the

ents will enjoy the overall lack of violence. *Bubble Ghost* is an airy little trip through a kooky little castle—a simple way to blow an afternoon.

— Peter Scisco

Bubble Ghost

For . . .

- Amiga—\$34.95
- Apple IIGS—\$34.95
- Atari ST—\$34.95
- Commodore 64/128; joystick required—\$29.95
- IBM PC and compatibles—\$34.95

From . . .

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MyBASE

If you need a program to keep track of address-book information, you're in luck—there are hundreds. But if you need to be able to take the information with you somewhere, your luck has just run out.

You have two choices: You can print out the information on inelegant, hard-to-manage, embarrassing-looking 8½ × 11 inch computer paper, or you can lug your computer around with you. Either way, you'll get heartburn.

Plop! Plop! Fizz! Fizz! Relief is on the way from *MyBASE*, a database program that prints its information in attractive, easy-to-manage, checkbook-sized (approximately 6½ × 3½ inch) notebooks.

With *MyBASE*, you can store and print address-book information and quick-reference guides. The address book uses a predefined form with fields for a company name, three individual names, five phone numbers, and fax numbers. Each entry can include two addresses and personal notes.

Quick-reference information—the works of Mozart, your favorite recipes, your own personal *Lotus 1-2-3* tip sheets—is stored in a more flexible format.

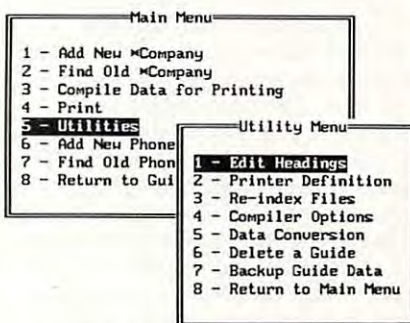
In addition to an address book and quick-reference notebooks, *MyBASE* offers label printing, mail merge, and the ability to import and export database information to and from formats such as Cygnet's *Little Black Book*, Borland's *Traveling SideKick* or regular *SideKick*, Avery's *List and Mail*, Rolodex's *Label Express*, or a simple ASCII-

delimited format.

Installing this program is something of an event. *MyBASE* wants to know every intimate detail of your printer, and it asks you quite a few printer-specific questions. Between questions, you must get up and look at what the installation program has printed and respond to the program's questions about the printout.

After installation, you're presented with *MyBASE*'s creation menu. From there you can create an address book, a quick guide, or both; or you can exit to DOS. Your guides and address books appear on the main menu along with an option to exit to DOS.

Creating an address book is easy, but the strict format may confuse many people. The manual helps, with some explanation, but it still may take a while to get the feel of it. It's easy to get in the *MyBASE* groove, however, if you realize that the address format is geared toward a salesperson's client list.



MyBASE lets you print address books and quick-reference files in convenient formats.

The next time you run *MyBASE*, you'll be presented with *MyBASE*'s guide selector menu. This menu contains the names of your address books and guides and an option to exit to DOS. To select a guide, simply move the cursor over the appropriate name and press Enter. At this point, you'll find yourself at *MyBASE*'s main menu.

The selections on the main menu allow you to add records to your database, search, compile your data for printing, print, access various utilities, and, finally, return to the guide selector menu and choose another database or exit to DOS.

The program's easy search options include searching by I.D., company name, or last name. From the search menu, you can also move to the last record you've added or go to the top of the file. This is all fine, but it's not all that special. ▸

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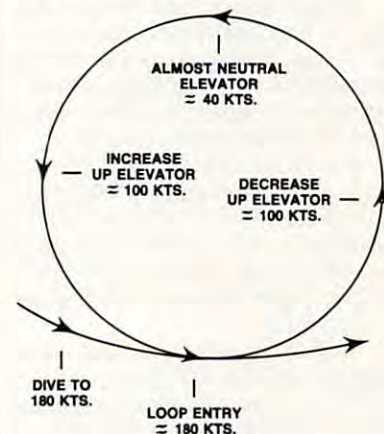
Flight notes



3A

✦ **Better Loops with Flight Simulator** - While the "Flight Physics" manual description is adequate for most, we get enough calls from frustrated computer pilots unable to perform a loop to warrant the following additional instructions. For those already successful at looping the aircraft, these instructions should help make your loops rounder and more satisfying.

After diving to the suggested looping airspeed (180 knots will do), add as much up elevator as possible without stalling the aircraft. As you pitch up and airspeed slows you will have to reduce some of this elevator pressure. Many people leave the elevator setting on high and become frustrated when the aircraft stalls before pointing straight up. In a perfectly round loop your elevator should be almost all the way back to neutral by the time you're upside down. Since airspeed is very slow at the top of the loop (and the portion of the circle traveled is small), your pitch attitude change should be gracefully slow as well. Start adding up elevator pressure again as airspeed increases. By the time you get to the bottom of the loop, the up elevator setting should be where it was when you began the maneuver and your airspeed should be adequate to begin another loop.



In summary, up elevator setting varies throughout the loop. The faster your airspeed, the greater the up elevator pressure. Flight Simulator is the only simulation on the market that accurately portrays the flight characteristics of a light aircraft when performing this maneuver. In reality there's little room for error in the amount of up elevator you can use, and meeting the challenge of performing a perfectly round loop can be a very satisfying experience. You may even find yourself more knowledgeable about loops than many non-aerobatic pilots who fly real airplanes. Happy trails!

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Where *MyBASE* really shines, however, is in printing your address book. The package includes two notebook covers and enough tractor-feed paper for two moderate-sized books. (Additional book covers and paper are available from Useful Software.)

Printing a notebook involves three steps: setting compiler options, compiling your information, and, finally, printing your guide. Setting the compiler options is the most time-consuming and complicated of these processes. The menu has 38 options. Luckily, the first time you go through this procedure is the most difficult; subsequent passes are much easier. Compiling the guide simply involves choosing its organization. Then you can print your guide and assemble the notebook.

Although printed address books are valuable, *MyBASE*'s most interesting feature is its ability to catalog and generate quick-reference information. The program comes with several quick-reference formats already set up—a film library, a recipe log, a travel itinerary, and a classical music library. If you don't like these, you can create your own.

While designing your own quick-reference form isn't exactly rocket science, it does require some time with the manual and a little forethought. Your time will be rewarded, however, when your customized guide is printed.

In addition to notebooks, *MyBASE* can print information in a variety of useful formats, including billfold (credit card-sized fanfold), standard 8½ × 11 inch report, Rolodex-style card, and Day-Timer formats (several styles are supported).

MyBASE is an unusual and useful program. It fills a niche by solving a problem that most database programs ignore—the need to carry your data with you—and it offers its solution at a reasonable price.

— Clifton Karnes

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Hyundai Super-16T

How does one PC compatible distinguish itself from others? It's hard to say. Anyone can tell what makes a bad clone: incomplete compatibility, slow processing speeds, obscure software, and poor documentation are among the criteria for an unacceptable clone. But what makes a *good* PC compatible?

The Hyundai Super-16T is an example of a good PC-XT compatible, though not because of any spectacular performance. For the most part, the Hyundai just plain works well. You'll find a smoothly running machine, competitive speeds, versatile software, and useful documentation.

The computer comes in three parts: the system unit, which houses the 8088-2 microprocessor and 640K of RAM; a monochrome monitor (which you can exchange for a color monitor); and a keyboard with numeric entry pad. The machine I tested had a 20-megabyte internal hard disk and a 5¼-inch floppy disk drive. Software bundled with the package included MS-DOS, an integrated package called *Electric Desk*, a utility package called *Keywords*, and GW-BASIC.

To go with the hardware and software, you get a stack of documentation: manuals for DOS, GW-BASIC, *Electric Desk*, *Keywords*, and the machine and its peripherals. The hardware manuals give enough information to keep you on top of installation and operation, but they're poorly written.

Electric Desk offers helpful, online tutorials, so anyone could be up and running quickly. One warning, though: If you're going to use the tutorial, make sure you understand the lessons. After an instruction to press the Tab key, I pressed Q by accident. The tutorial didn't know the difference and continued as though I hadn't made a mistake!

Electric Desk offers a word processor, database, spreadsheet, and telecommunications package under one roof. Like many other integrated packages, *Electric Desk* isn't a superpower in any one of its applications, but put together, they're sufficiently useful. One command even dials phone numbers listed in the database.

Keywords is a utility that lets you set up macros, encrypt files for confidentiality, and create personalized pop-up windows. Using this program, you can customize computer applications to your liking. It's a nice addition to the Hyundai package.

If you're already familiar with PCs, the tutorials and documentation won't



The Hyundai Super-16T is a good, solid PC compatible that comes bundled with useful software.

be as important as the Hyundai itself. Remove the system unit's casing and you'll see wires neatly tucked away, DIP switches in easy-to-reach locations, and six slots for expansion cards. Two of these slots are already occupied. Despite all this order, it looks as if there's no way to add another internal disk drive.

For people who want fast processor speeds, the Hyundai can switch from 4.77 MHz to 8 MHz with a simple key-stroke. In DOS, you can tell the machine's speed by looking at the cursor: A horizontal line indicates the slower speed; a block indicates the faster speed.

Physically, the Hyundai has a fairly small footprint, 15½ inches deep by 15 inches across. It fits snugly on my shallow desk. The monitor, which sits on the system unit, comes on a pedestal that swivels and tilts, adjusting to eye level. The keyboard is lightweight and about 7½ inches deep by 18¼ inches across.

The keyboard is laid out much the same as any other PC or clone keyboard, although it has two drawbacks. First, there isn't a small raised dot on the K and D keys to let your fingers know they've returned to the proper home keys. That's a deficiency of many keyboards I've used. Second, the backspace key is far off in right field. If you're a touch typist, you'll find you've typed five or six slashes every time you try to hit backspace. You just can't reach a key that far away without lifting the rest of your fingers off the home keys. I've found problems with the backspace key on other keyboards, too, but Hyundai's seems to be worse than usual.

Aside from those two problems, the keyboard was very comfortable.

The keys weren't too sensitive or too stiff. They were quiet even when I typed quickly, and I have a reputation for tapping loudly. The main part of the keyboard is arranged well, with plenty of room for your fingers.

The monochrome monitor I used displays amber characters and is comfortable for your eyes. The monitor's resolution provides a sharp, clear picture. I compared the Hyundai monitor to others, using the same game program, and found the Hyundai's measured up. The monitor is accompanied by a Hercules graphics card.

The Hyundai isn't a remarkable computer—not remarkably good or remarkably bad. Most of my complaints aren't even problems peculiar to the Hyundai. The retail price is competitive and the computer's 18-month warranty is better than average. The fan's a bit noisy, but it fades into background noises after a while.

What makes the Hyundai Super-16T a good choice is that it's comparable to most other reputable clones. It may not stand out, but it doesn't disappoint, either.

—Heidi E. H. Aycock

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With future models, the top speed of the Super-16T will increase to 10 MHz.

Genoa SuperVGA

Green-faced PC-compatible users once envied the fantastic color graphics of computers like the Amiga, the Apple II, and the Atari ST—but no more. IBM's Video Graphics Array (VGA) graphics standard has brought rollicking color to PCs and compatibles. To capitalize on this capability, the first generation of VGA adapters copied the IBM standard, but fell short of full compatibility.

Now comes the new wave, products like the Genoa SuperVGA, from

Genoa Systems, a VGA board that extends your computer's capabilities beyond IBM's parameters while claiming full compatibility with VGA and other graphics formats.

I tested the Genoa SuperVGA in a 10-MHz AST Premium 286 AT clone equipped with a Magnavox Professional VGA monitor and a Microsoft Mouse. The well-constructed SuperVGA installs snugly in a spare slot of any PC compatible or PS/2 model 25 or 30. To get the card up and running, you must set four DIP switches on the back of the card to match the type of display you plan to use. For analog VGA displays, like that of the Magnavox, all the switches must be set to Off. (To get all the benefits of VGA, you'll have to invest in a VGA-compatible color monitor; retail price starts at \$500.)

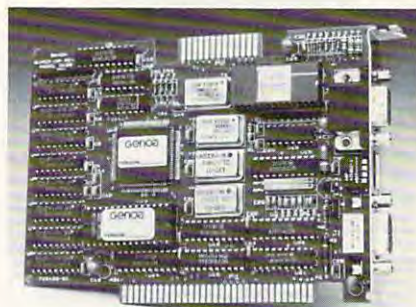
Normally, there are no jumpers to set on the card, although you will have to set one if you plan to use any game or communications software that uses IRQ 2 (interrupt 2). The board will co-reside with a monochrome or CGA card, but not with another EGA or VGA card.

The SuperVGA is plug-compatible with nearly all TTL, multifrequency, and analog monitors. It sports two plugs, one standard IBM 9-pin DB for TTL displays, and one mini 15-pin DB for VGA and some multifrequency analog displays. You can drive a TTL and an analog display at the same time from the SuperVGA.

After you've inserted the card, you must install a VGA software driver for your particular applications. Genoa supplies drivers for several programs; the brief, clearly written manual gives instructions on how to install each. Because many other programs come with their own VGA drivers, most recently updated software will run in VGA mode.

Graphics programs really come into their own with VGA. The 640 × 480 pixel mode with 16 colors onscreen is particularly impressive—after you've tried it, you'll never want to go back to EGA, much less to CGA or monochrome. You'll find smooth, sharp curves and text, plus complete freedom from the old EGA 64-color strait jacket.

I ran two VGA paint programs, *Deluxe Paint II* and *Splash!*, with no compatibility problems. Switching between screen modes was smooth and trouble-free. A utility program supplied with the card allows you to test all the possible screen modes, including a variety of 80-, 90-, and 132-column text modes for spreadsheets and other text-based programs. Before you buy any



The Genoa SuperVGA Model 5100 card brings superb graphics to IBM compatibles.

VGA adapter, of course, test it with the software you plan to use.

The acid test of any third-party graphics adapter is hardware compatibility. Genoa claims complete downward compatibility for its board, and I found this to be true in my tests. SuperVGA provided a steady signal for all the more popular monochrome, CGA, MCGA, EGA, and VGA modes. Support for CGA, MDA, and Hercules modes is at the BIOS level; EGA- and VGA-mode support occurs at the register level. Register-level support means faster performance, coupled with the possibility of some software incompatibility. Hardware zooming, scrolling, and panning are provided for those few applications, such as *AutoCAD*, that can take advantage of them.

Don't assume that all of the SuperVGA's scores of display modes will work with your monitor. The interlaced, 256-color, and very-high-resolution 16-color modes sent my Magnavox monitor into display spasms. Genoa says the SuperVGA supports IBM's Video Feature Connector, an anticipated plug standard for display peripherals.

Solid construction, excellent downward compatibility, and planned future compatibility make the Genoa SuperVGA a good choice among VGA boards. It may not be inexpensive, but it's certainly versatile.

—Steven Anzovin

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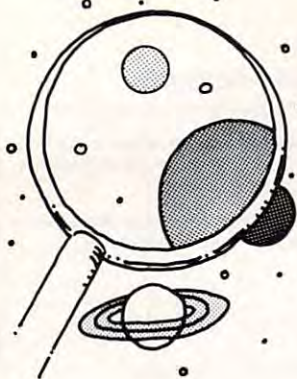
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Cheapware— Instant Relief for an Empty Pocket

Somehow it seems almost un-American to have pocket money in January. If you really loved your spouse, you'd have bought the best—whether the best was a Porsche or a one-carat diamond ring. The holidays are no time to cut corners on children's gifts, either. Imagine the psychological damage that would surely befall any teen forced to wear generic sneakers! "Buy now. Pay later," the ads entreat. And most of us do.

For those who read last month's column, I must share a bit of the blame. I did, after all, suggest taking the opportunity to buy a new computer system or upgrade current equipment. I did promise untold benefits—education and fun rolled into one. But now the ugly truth threatens to spoil your enjoyment and put me out of work. Hardware without software is a car without gas, on without *off*, Bartles without Jaymes.

So, now what? How does a new enthusiast or hopeless software addict acquire the programs he or she so desperately needs without risking a heavy jail term? For that matter, how can schools satisfy their insatiable demand for multiple copies of word processors, databases, spreadsheets, and the like without commandeering the entire annual budget? The answer is something I call *cheapware*—public domain, freeware, and shareware software.

In a perfect world, we all could afford the best commercial products available. In January, though, for families struggling to repay last year's debts and for schools already pinching pennies for next week's supply of paper, cheapware can look quite good.

It's inexpensive. It comes without legalistic shrink-wrap licenses. It makes moot such questions as Can we multiple-boot? and Is it OK to use backups and originals simultaneously? Learn to recognize and understand the rules associated with each cheapware category, and the rest is hassle-free.

Public domain programs, the most widespread form of cheapware, bear no copyright notice and cost nothing (except a nominal copying fee charged by some user groups and distributors). True, many consider owning public domain software only slightly less embarrassing than accidentally wearing socks with holes to a Japanese restaurant. Yes, many public domain programs do fall short of adequate. Nevertheless, if you're willing to exert a little effort, you can find excellent programs here.

Freeware is perhaps the best thing that's happened to computer users since integrated

circuits. Freeware software authors protect their work with a copyright statement but specifically grant permission to copy and distribute it. Make as many copies as you need. Give them away to friends. As the name implies, freeware costs nothing. In exchange for hours of meticulous programming effort, authors ask only that you appreciate their contribution to computing.

Shareware lies somewhere in the murky area between freeware and commercial software. Authors encourage users to copy and distribute their work. Relying on the honor system, however, they do request a small payment from those who find it useful. Usually \$20 or less buys a disk worth much more, and paying the fee encourages programmers to keep at it.

As you might have guessed, there is a catch. Finding good cheapware takes time and patience. No single person can sift through the thousands of programs available and discover the best. No single individual can test each product on every possible system configuration to be sure that it performs perfectly.

Fortunately, though, help is available. User groups often maintain collections of excellent cheapware. Local and national bulletin boards offer such software for downloading. And there are many repackagers from which you can order cheapware disks.

Now for the best part. Here's the first installment of my official "Educator's Survival Pack," especially compiled for those suffering from January's empty pockets. This time the software is all for the Apple II.

FreeWriter is a time-tested word processor that's served many people well. *FreeTerm GS* will delight Apple II GS fans who own a modem. *Talk Is Cheap* is an excellent shareware terminal emulator for the IIe, IIc, and IIgs. For organizing your book library, *The Librarian* (shareware) may be just the ticket. While you're saving up money for a full-featured commercial paint program, why not try *CheapPaint 1.2* (shareware)?

Do you know of other outstanding educational cheapware that we all should hear about? Tell me about it, and we'll update this list and present new ones for other machines in future columns. Please be sure to include titles, author names, cheapware category (public domain, freeware, shareware), a brief description, and at least one place where the program can be found. □

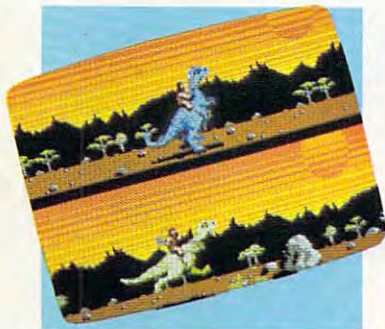
David Stanton can be contacted via CompuServe (72407,102) or by mail at P.O. Box 494, Bolivar, New York 14715.

continued from page 10

Ugh!

In case you haven't heard, archaeologists funded by Electronic Arts recently discovered evidence of a prehistoric precursor to the modern Olympics. A strange yet decipherable script found on some pottery shards has revealed that long before a bunch of Greeks got together to party and put the shot, cavemen and cavewomen gathered to compete. The events may have been different, but the competitive spirit was already part of the process.

Electronic Arts has brought those games to light with its new package, *Caveman Ugh-lympics*. This hilarious game features characters you'd swear were neighbors of Fred Flintstone and Barney Rubble, skin-wearing Neanderthals whose idea of a good sport is someone who *hesitates* before whacking an opponent over the head with a stout club.



Definitely leaning toward the slapstick, *Caveman Ugh-lympics* features events like the Mate Toss: Instead of swinging a hammer in a dizzying circle, you grab your prehistoric mate, swing him or her around, and then let go. Your mate even gives you an instant critique, showing thumbs up or down after the undignified flight through the air. Another event that's sure to be popular is Fire Starting, in which you try to light a fire before your competitor does. Sound simple? It's not, since you have to furiously slam your joystick back and forth to make your

character rub two sticks together fast enough to show some smoke. To add excitement, you can bop your opponent on the noggin with one of your sticks to slow him or her down a little. The action is Three Stooges-like rib-splitting fun.

Caveman Ugh-lympics is available now for the Commodore 64; an MS-DOS version is scheduled for next summer.

— Gregg Keizer

Videogame Market Steady but Tight

Rising from the ashes of its near demise in the early 1980s, the videogame market has a firm grip on its audience. But now isn't the time for any new entries into the race, according to Bruce Davis, president and CEO of Mediagenic.

"The market is full of challenges," Davis said.

"Wherever the demand is great, the supply isn't, and wherever the supply is great, the demand isn't."

What was once an explosive market controlled by companies that could cheaply produce videogame cartridges has now become a mature market, slowed by competition and diffused interest. Davis described the process as a cycle represented by a curve that peaks while innovation is high and flattens when the newness wears off.

What made a company successful in 1986 and 1987 was the ability to produce a lot of creative games in a little bit of time. Now, according to Davis, a company needs sophisticated marketing and selling strategies.

Davis and Epyx president David Morse addressed the prospects of the videogame market during a panel discussion at a recent meeting of the Software Publishers Association. Morse's perspective is a little more optimistic.

"Right now, the Nintendo game market, and to some extent Atari and Sega, is absolutely booming," Morse said.

"You can sell every piece of every kind of software you can get out of the door," he said. "But it's constrained by the shortage of chips. There's a limit to how well anyone can do because you can't get all the cartridges you want."

Game cartridges are limited by Nintendo's chip allocations to software companies. The allocations are, in turn, limited by the chip shortage.

Nintendo is still the market leader, experiencing much higher demand than the company has been able to supply. It controls more than 70 percent of the videogame market.

pany will be able to meet its obligations, said Patti Lewis, Sega's vice president of marketing and product development. Sega, which had produced all games compatible with its system, has started operating like Nintendo—producing cartridges, but also allocating a limited number of game chips to licensed third-party companies.

With an eye to this supply-and-demand imbalance as well as to the declining sense of novelty around videogames, Davis and some other market executives are advising against new companies entering the competition.

"We're just trying to say, Don't take the easy successes of companies in 1986 and



"The game market is a good, healthy market," said a Nintendo spokesperson. "We have a good leadership position in this market and we intend to keep it."

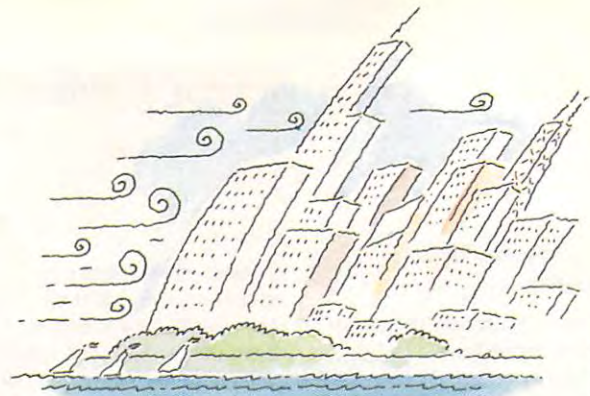
The spokesperson attributed the market's continued well-being to the expandability of the hardware and an audience made up of a broader portion of the consumer population.

For Sega, too, demand is exceeding supply, but the com-

1987 as indicative of the successes those companies would have if they got into the market now," Davis said. "It's now become a big-stakes game with higher risks."

To Davis, the rumored 16-bit game machines don't appear ready to rejuvenate the market, returning it to days of glory. The technology won't be a dramatic enough change to attract new buyers to the arena.

— Heidi E. H. Aycock □



Harry Blair

Showing PCs in the Windy City

PC Expo in Chicago traditionally offers corporate movers and shakers a chance to come face to face with the latest and hottest high-end hardware and software. But this year's edition of the show had some surprises for home users, too.

Which computer do you imagine IBM employees most want on their desks at work? If you guessed the muscle-bound PS/2 Model 80, you're in for a surprise. The Model 80 may be the Schwarzenegger of the PS/2 line, but according to a PC Expo IBM exhibitor, the biggest hit with Big Blue's own—and with many of PC Expo's attendees—is the company's newly improved, sleek yet unassuming Model 25. Dazzling 256-color graphics, a 3½-inch floppy drive, an optional 20-megabyte hard drive,

a custom-designed lockable keyboard, and a one-piece Macintosh-like monitor and system unit combo make the Model 25 both an ideal office machine and a home user's dream computer. Rumor is that IBM will significantly cut the \$1,695 price of the Model 25 color system in the next few months. If it does, the computer could become the home machine of the 1990s.

For those who want to experiment with desktop publishing but don't want to commit megabucks to the effort, Timeworks was showing its new *Publish-It Lite*. This slimmed-down version of the company's popular *Publish-It* gets users started in desktop publishing for a low-end price of \$79.95. The package packs most of the punch of its higher-priced product, with two limitations. First, you're restricted to four pages of text

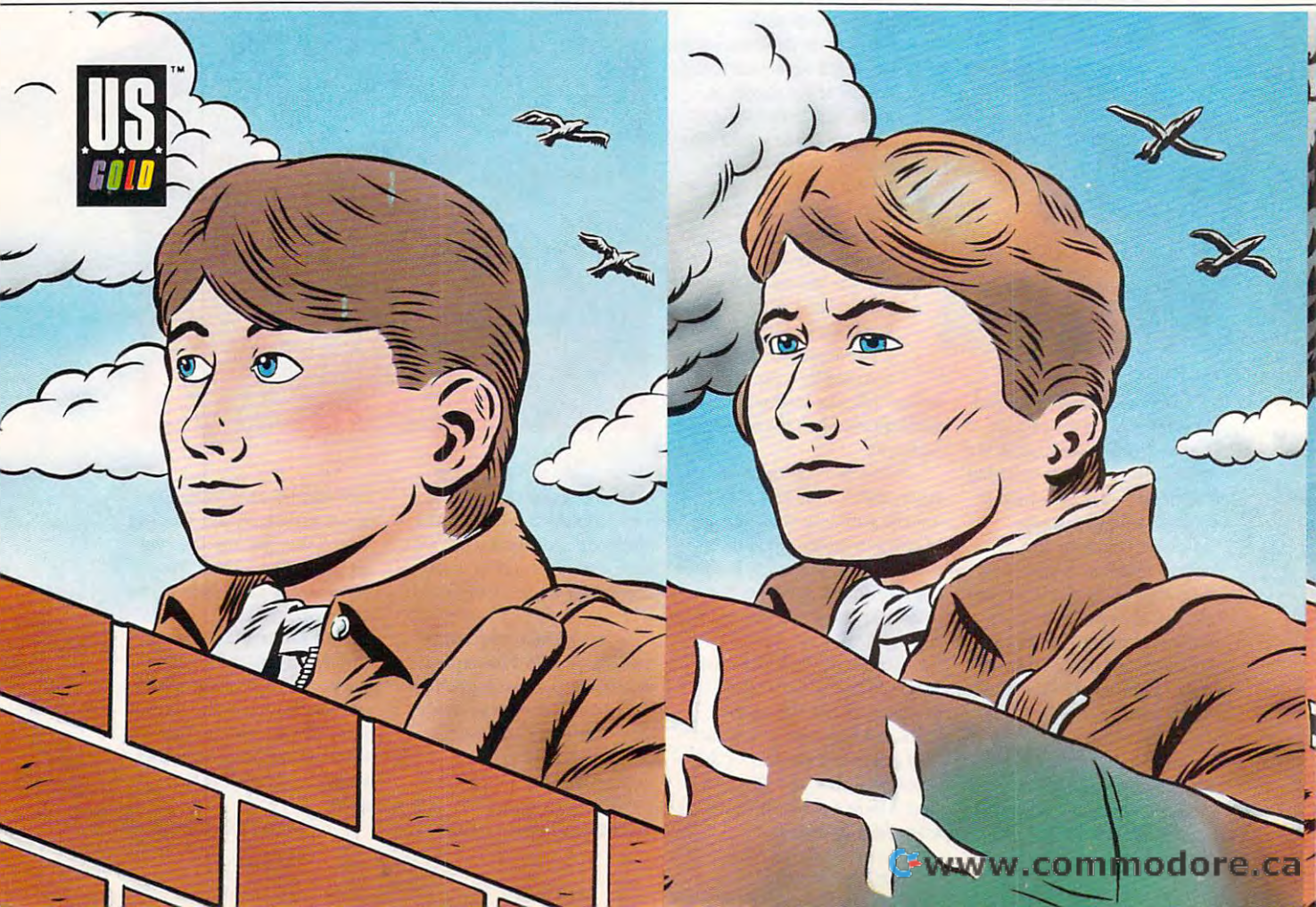
per document. Second, printer support is limited to 9- and 24-pin dot-matrix printers. Your copy of *Publish-It Lite* is also good for a \$100 credit toward the purchase of *Publish-It*.

If you're afraid that technology has passed your 8088-based PC by, don't give up hope. According to Powerboard, the makers of a thoughtfully engineered 80286 replacement motherboard, the rumors of the PC's death have been greatly exaggerated. To make the company's "It's not dead yet" point, Powerboard's booth was dominated by a big blue coffin jammed full of vintage IBM PCs. The atmosphere at the booth, however, was anything but funereal.

Powerboard vowed to supply unblemished new souls for the tired, weak, and huddled masses of 8088-based PCs—for \$1,145 apiece.

Although hope did not spring eternal at the Lotus booth, another delay of *Lotus 1-2-3* version 3.0 gave PC Expo attendees a feel for what eternity might be like. To keep Lotus users in the flock, Funk Software, a company famous for Lotus add-ins, was showing *Allways*. In a nutshell, *Allways* allows *1-2-3* to produce output that looks like *Excel's*. As a stopgap, Lotus is bundling *Allways* with current shipments of *Lotus* version 2.

— Clifton Karnes





Harry Blair

This Way to the Egress

Have you ever wondered why the hot-dog concession at the carnival is never next to the "Screaming Train of Pain" ride? Well, it's because carnival promoters are constantly searching for the right mix of rides and concessions to promote big ticket sales.

For many years, such analysis was done on the fly with paper, pencil, and the company ledger. Most independent carnivals still use that approach—but not all. Out there among the carny lights and the calliope, personal computers are whirring along.

Conklin Shows, headquartered in Brantford, Ontario, Canada, puts three separate carnivals on the road every year. From May 1 through mid-October, the shows roll across Canada and parts of the United States, supplying enter-

tainment to more than 70 fairs, including the Canadian National Exposition and Miami's Dade County Youth Fair.

Ross Curry, manager of financial operations, keeps an eye on the fiscal health of the traveling Conklin carnivals with the help of several IBM PC compatibles. From three traveling trailers outfitted as offices, complete with copiers and coffee machines, he tracks inventories and generates general ledger reports that he can use to keep the show on the road.

Conklin Shows, like many carnivals, contracts with independent ride operators to supply entertainment on the midway. Curry's half-dozen IBM PCs and compatibles track ticket sales for each ride. At the end of every night, the tickets are weighed and revenue is allocated according to the number of tickets sold per ride.

"Certain rides do better in certain areas," Curry said. For example, children's rides always go together, and rides with music usually stand at midway intersections. Placing a ride isn't necessarily the task of a computer, however, and so far there's no danger of a computer replacing the carnival barker. "That's more a knowledge of carnivals than computer technology," he said.

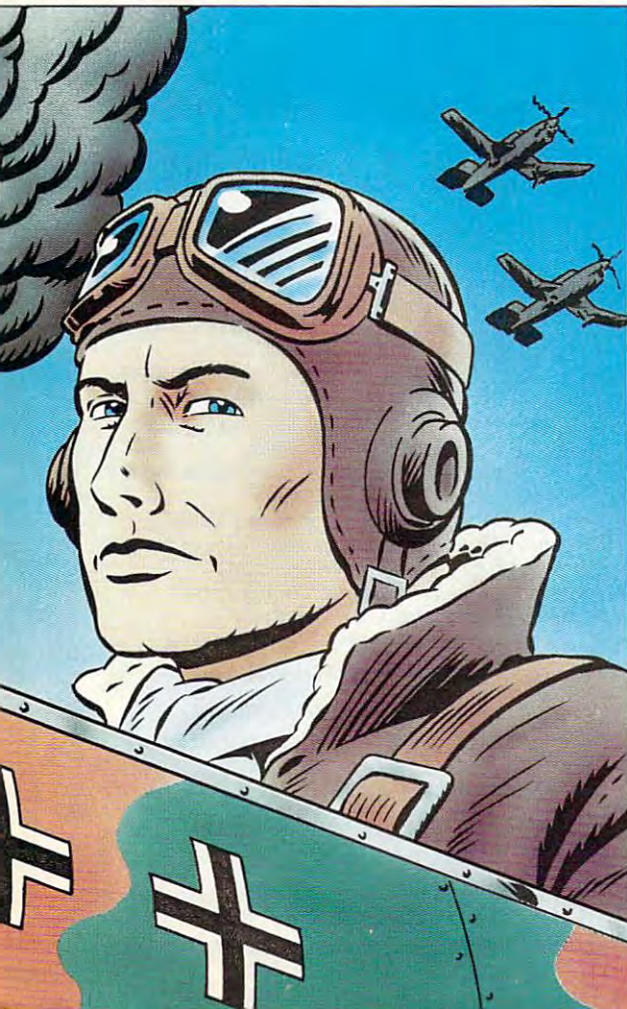
Using computers at a carnival poses special challenges. For instance, the office trailers are often plagued by power problems because the carnival generates its own electricity, which isn't as clean as the volts coming through your wall sockets at home. "We get surges and spikes, and we have the equipment to handle them," said Curry. Another problem is the itinerant nature of the business—the constant transport of people and equipment from site to site. The

computers must be packed carefully to avoid damage.

Carnivals, especially ones as large as Conklin, must sometimes make radical decisions to get the most out of their midway offerings. They may have to move a food concession or a ticket booth, sometimes (but not often) even a ride. Having computers analyzing the daily intake helps Curry make those choices quickly. "If I have a problem at 3:00 a.m., I need it fixed by 4:00," he said.

Times have changed since 1982, when Conklin's first computer system ran on IBM model 23 computers complete with eight-inch disk drives. Conklin still uses those machines, but personal computers do the bulk of the work out on the road. Technology may change, but for carnivals like Conklin Shows, the show still goes on.

— Peter Scisco □



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continued from page 112

tell ya, though—that Micro Channel Architecture even had me going for a while.” All PS/2 owners will receive a letter signed by Herman and thanking them for their personal contribution toward furthering the present-day understanding of aberrant behavior. Corporate executives who committed their firms to IBM’s \$800 OS/2 operating system will receive free remedial therapy in DOS reeducation centers. Those who took advantage of IBM’s trade-in policy, whereby users gave up their XT’s or AT’s for a PS/2, will receive their weight in PCjr computers. According to internal IBM sources, all costs associated with manufacturing and promoting PS/2s will cumulatively qualify as a tax-deductible research grant.

July 4, 1989—Ann Arbor, Michigan. The University of Michigan student body was treated to a spectacular, unscheduled display of fireworks when an electrical surge arced through the wiring of the North Quad Computing Center, simultaneously igniting the magnesium cases of 48 NeXT computers located throughout the building. While the multimillion-dollar complex was completely destroyed, university staff expressed characteristic academic optimism. “We’re far from disappointed,” said university ombudsman Sergé Zupressor. “We’ve come to expect technical pyrotechnics from guys like Steve Jobs.” The NeXT legal staff was apparently unaware of the incident, being more concerned with finalizing their courtroom defense against an Apple lawsuit claiming full rights of ownership to all “gnarly and rad icon-based, mouse-driven user interfaces in the known universe.”

October 31, 1989—Marin County, California. Apple cofounder S. Wozniak has announced the opening of a nationwide chain of New Age Computing centers dedicated to holistic microcomputing. NAC will offer a variety of programs to assuage both the physical and mental wounds of personal computing in the 1990s and beyond. New members will be taught to deal with minor physical trauma such as laptop elbow, hacker slouch, and mouse wrist. Intermediate-level users will concentrate on more strenuous physical training, such as power walking with dual Compaq Portable IIs and hand-to-hand laptop combat techniques. According to Wozniak, “Today’s 3½-inch floppy disk not only holds almost two megabytes of data, but with the proper concentration, velocity, and wrist technique, it can

pierce most modern tank armor.” Graduates of the combat program will be able to break a dozen four-layer motherboards at a time with their bare hands. Postgraduate instruction will include Terminate and Stay Resident Astral Projection and DMA channeling techniques. The latter will allow exploration of your computer’s former incarnations. Who can say that your Amiga 500 or lowly PC clone was not a Cray Supercomputer, ENIAC, or even Babbage’s original inference engine in a former revision?

November 30, 1989—Wow, California. Faced with an increasing number of defections to competing products and the prospect of a full-scale user revolt, Lotus Development today shipped the long-delayed version 3.0 of *Lotus 1-2-3*. According to the company’s press release, “Version 3.0 breaks new ground by tightly integrating software and hardware. It may be a bit pricey, but its standard features are guaranteed to make a power user out of anyone.” Current owners of *1-2-3* version 2.0 reacted coolly to the \$9,495 list price of the package, which includes the required 25-MHz 80386-equipped IBM PC-compatible computer with eight megabytes of memory. A development-team member commented wryly, “We decided we had better things to do with our time than trying to make the thing boot on a 640K machine.” Lotus is also instituting a unique upgrade policy that offers “an unprecedented degree of flexibility.” Lotus will allow owners of previous releases of *1-2-3* to sell their current hardware and software for “whatever the market will bear” and will allow “all funds realized by that transaction to be applied to the purchase of version 3.0.”

December 11, 1989—Greensboro, North Carolina. The entire senior editorial staff of *COMPUTE!* magazine was hospitalized for severe shock trauma after the discovery that contributing editor Arlan Levitan had turned in the March 1990 “Levitations” column on time. The rest of the staff was given the week off to recover. Ex-editor G. Keizer, contacted just minutes after his acceptance of the 1989 Hugo Award for Best Science Fiction Novella, commented, “I can’t believe he was capable of such an act. . . . Arlan just wasn’t that kind of person. This is obviously some kind of elaborate hoax.” □

Send “Late” Levitan your news of the computer industry (preferably *before* it happens) in care of *COMPUTE!* or via electronic mail on CompuServe (70675,463), Delphi (ARLANL), or GENie (XMG15546).

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ARLAN LEVITAN

**To Get My
Columns In on
Time, I'm
Going to Start
Covering the
News BEFORE
It Happens**

By now most of you are aware of the fact that I'm terminally tardy in getting these columns into the *COMPUTE!* mill. I even suspect that someone has instituted a "How late will 'Levitations' be this month?" betting pool at the magazine's offices [not yet, but it's a great idea—Editor]. The problem is that after five years, the standard "my system and/or hard drive and/or modem crashed" excuse doesn't wash. As time goes on, I've been forced to come up with more and more bizarre pretexts for being overdue.

The last one was terrific: "Alien beings materialized in my computer room and informed me that the data patterns contained in the column I had almost finished would trigger a cataclysmic supernova that would destroy billions of sentient beings in the M39 system of Andromeda. I had to erase the file and start over or they would have turned the Earth into a long-term parking lot for holocamera-toting extraterrestrials." Am I overly sensitive, or is that stretching things a bit?

As with most monthly publications, there's usually a two- to three-month lag between the time this stuff gets pounded out and the day *COMPUTE!* hits the newsstands and mailboxes. For instance, right now the leaves in my neighborhood are turning yellow and orange, and my kids are busy trying to get their Atari 800 to display a flashing jack-o'-lantern for Halloween.

This delay often makes it difficult to provide timely coverage of the microcomputing scene and lends itself well to one of my favorite excuses for being late. "I'm just waiting for all of the facts about (*insert your favorite current story here*) to come in." Unfortunately, that excuse and the remaining stomach lining preventing my editor from developing an ulcer are both wearing a little thin. The obvious solution to my timeliness problem is to cover the major events of 1989 *before* they happen. To wit:

January 7, 1989—Las Vegas, Nevada.

Faced with a dwindling dealer-distribution network and mounting losses in both computer and noncomputer operations, Atari announced a massive corporate restructuring at the Winter Consumer Electronics Show. According to marketing director B. Tramiel, Atari will divest itself of all holdings in the Federated department store chain in exchange for a controlling interest in the Jack-in-the-Box food franchise. Quipped the spokesperson, "Fast computers and fast food are a match made in heaven.

We expect our latest acquisition to really grease the market for the ST line and provide us with a virtually unlimited supply of chips." The chain's familiar jack-in-the-box will be replaced with lifelike Disney-developed animatronic Jack Tramiels that will regale drive-through shoppers with a variety of tempting system packages, all of which include a lifetime supply of tacos.

April 1, 1989—Cupertino, California. Apple Computer today raised the prices of virtually all of its products by 50 percent, citing soaring manufacturing and marketing costs related to the unprecedented worldwide shortage of antifreeze. J. Louie-Louie, vice president in charge of price increases, sighed, "Wouldn't you know it . . . just as the RAM market starts to calm down, this antifreeze thing hits us right between the icons. We had no other choice but to pass on the additional cost to our dealers. . . . We held the line as long as we could." While Louie-Louie declined to comment on the specific antifreeze content of various Apple products, he was quick to point out that almost all Apple employees use significant amounts of antifreeze in their personal automobiles and that "the funds required to purchase that antifreeze are indirectly provided by Apple."

In a related story, Macintosh IIx futures became the first microcomputer-associated commodities to be traded on the Chicago Mercantile Exchange floor.

April 10, 1989—Chicago, Illinois. Today at Spring COMDEX, International Business Machines unveiled a completely new line of micros based on the "industry standard" PC AT bus and announced the immediate withdrawal of its entire PS/2 line of computers. During a Monday morning press breakfast hosted by IBM, over a thousand representatives of the computing press were shocked to hear newly hired Entry Systems Division president P. W. Herman declare that the firm's PS/2 computer systems and its associated products were part of an elaborate psychological study undertaken at the behest of the National Institute of Mental Health. "I sure am glad the American people haven't lost their sense of humor. It's good to know that in these times everybody still appreciates a good joke." According to Herman, the study was intended to quantify the limits of the operational parameters associated with Abraham Lincoln's most famous aphorism. Said Herman, "Golly, I guess you really can't fool all of the people all of the time. I'll

continued on page 110

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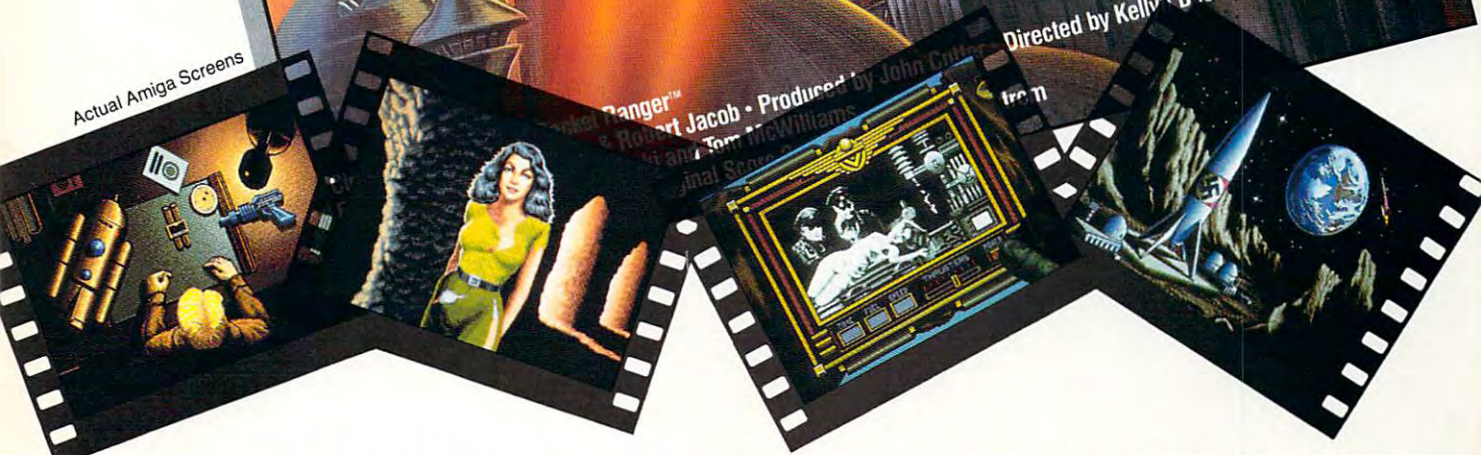
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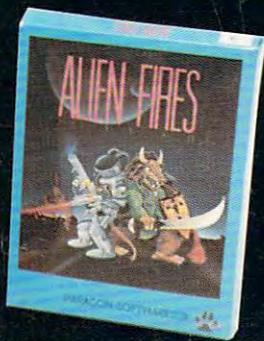
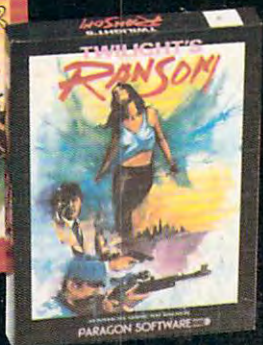
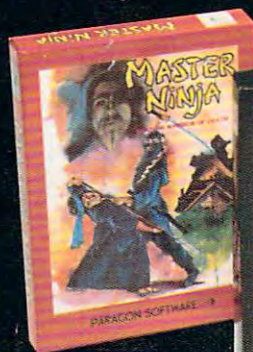
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