SUPER GAMES Disk Offer! (see page 52)

PC PRESENTS! 26 YULETIDE IDEAS

December 1989

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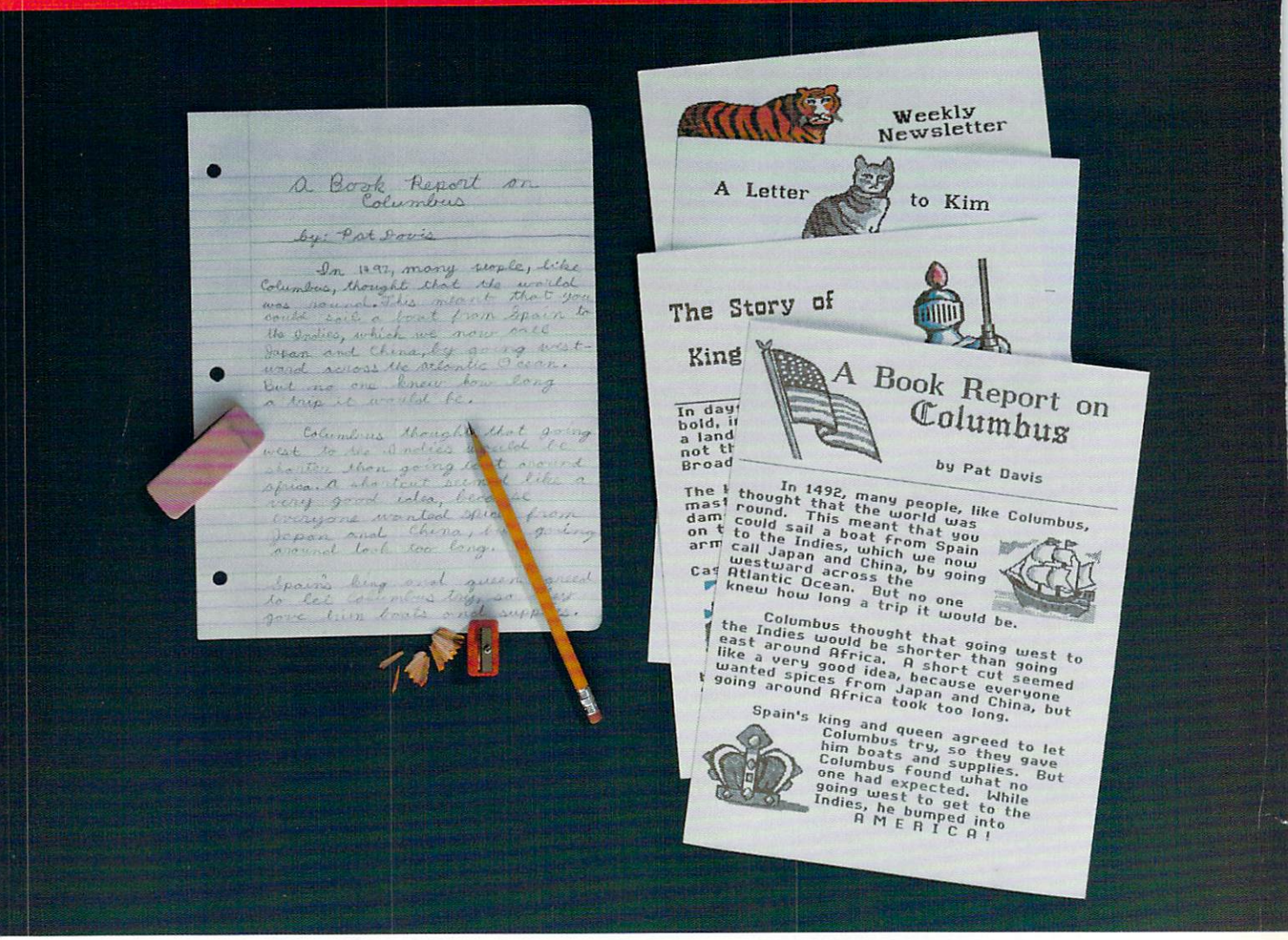

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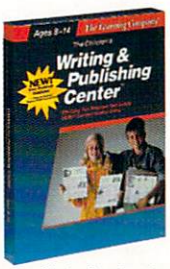

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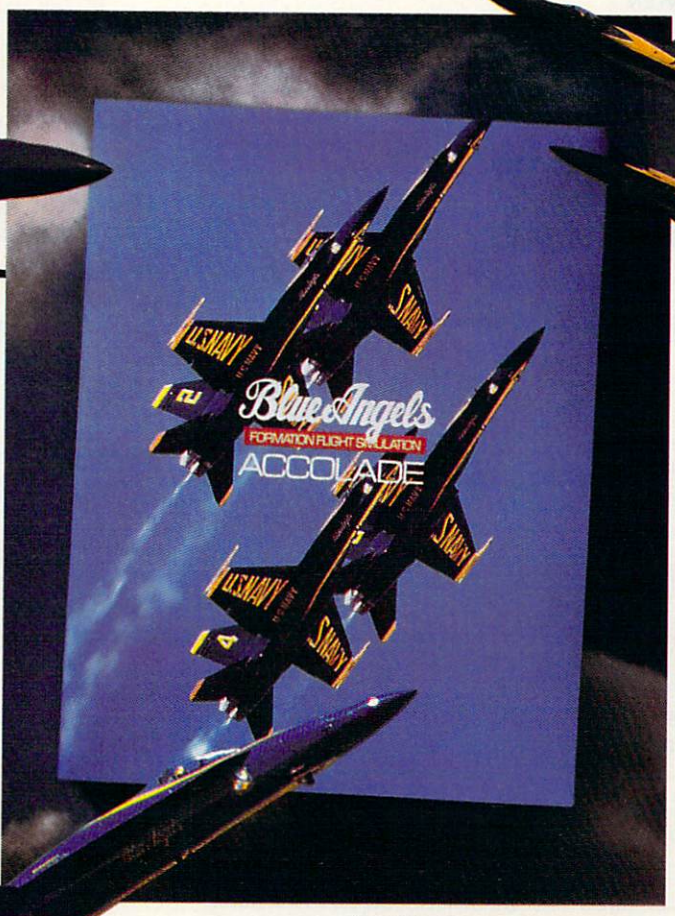

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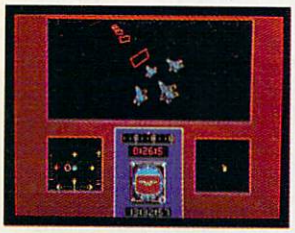
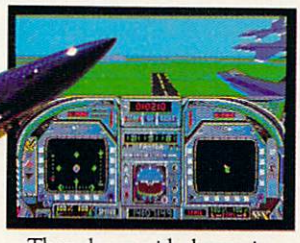


Train with the Blue Angels in a wire-frame flight simulator. Plot the path you've flown in 3-D against the ideal path of the maneuver.



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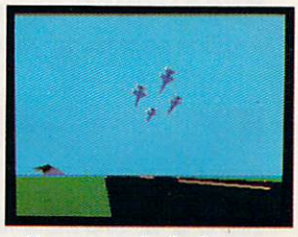

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COMPUTE!

THE CHOICE OF HOME PC ENTHUSIASTS SINCE 1979

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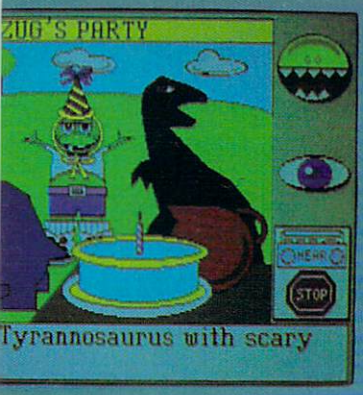

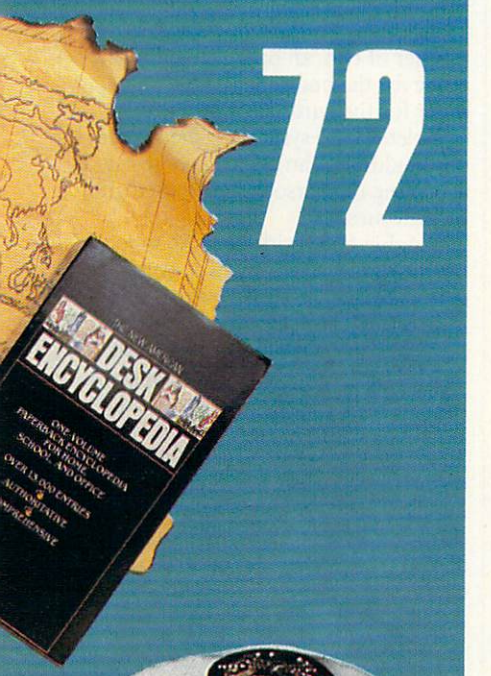

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EDITORIAL LICENSE

PETER SCISCO

You know the type: "I didn't buy my computer to have fun. I bought it so I could work more efficiently." Right. This is the same person who buys a Mazda Miata to drive to the grocery store and back. No Sunday spins down tree-lined mountain roads, no wide-open bursts on deserted highways, no slow cruises past coveting neighbors.

Well, that's all right. It takes all kinds to fill the computing world. I also bought my computer to become more productive. The funny thing is, I soon discovered that operating a computer meant more than working faster—it also meant having fun. And I'm not talking about games. I mean the sheer exhilaration of writing almost as fast as my mind can produce ideas. It's my personal Freedom of Information Act. Writing is still hard work, but I enjoy it more than ever.

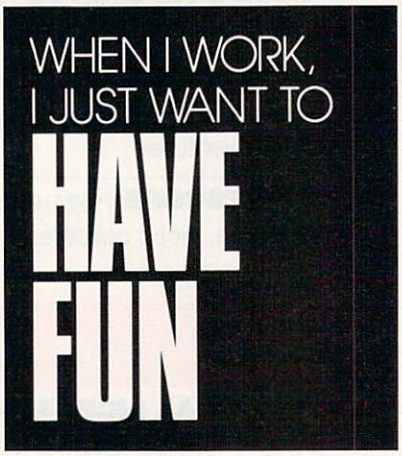
Sure, it was romantic when I hacked out stories on that 1927 Royal that my mother had discovered at a garage sale. And it was terribly inspiring years later when I wrote drafts in longhand on yellow legal pads at the kitchen table because I was afraid that typing would wake my newborn son. But fun? You've got to be kidding.

Home computers get a bum rap from some high-powered types who see them as a waste of technology. If a computer isn't planning a waste-treatment facility or producing Technicolor profit-and-loss statements, then it's just an overpriced calculator/typewriter, goes the logic.

I don't buy it. We may be endowed with a need for useful activity, but our mental and physical health is equally dependent on pleasurable pursuits. If we're lucky, we live balanced on this fulcrum between responsibility and relaxation. Sometimes, we want to have fun.

Researchers have come to recognize the ways that different kinds of mental activities can lead to breakthroughs in creative thinking. In my own experience, I know that a short run or a walk can free me from the writer's frustration of missing the connection between ideas that comprises a finished piece. Away from the desk I am open to new perspectives, any of which may supply the vital link that can close an argument or open a speculation.

The point to this digression is that home computer users, or especially people who are considering buying their first computer, shouldn't fall for the argument that owning one is a waste of time. (Some people think napping is a waste of time, but Samuel Coleridge woke from such a slumber to write *Kubla Khan*.)



I would rather see personal computers become more "friendly" than see their horsepower boosted another notch. Granted, it takes a ton of money and a lot of dedication to write software that maximizes the current state of computer hardware; likewise, it's no picnic to build the hardware that will see personal computing into the next century. But if computer makers and software developers want a real challenge, I suggest they figure out how to increase home computer ownership. Quit selling to the same people and start opening home market channels—it's good business.

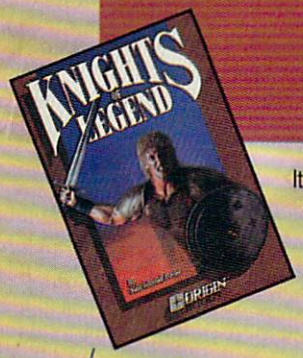
They can start by making personal computers fun to use—for everyone. Not just faster action for the arcade junkie, and not just more tangled webs for the dungeon dreamers. What we want is an immediately approachable computer for the working mother of two, an open-armed machine for the budding artist, a computer for the curious grandfather, a complete home system for the modern-day Luddites who so far have resisted accepting the personal computer into their homes.

Aside from widening the scope of the home computer market, software companies might look toward softening the look of computers in the business world. Instead of racing pell-mell toward the next performance plateau, perhaps computer makers could devise new metaphors, new ways for businesspeople to see their world—and thus encourage the creative thinking that was once the heart of the American dream. Everybody talks about being competitive, but you can't get there from here unless you're able and willing to free your imagination from the workaday grind.

We're making some progress. The graphics interface employed so successfully on the Macintosh has migrated across the board to other systems. Even business power users are looking to products like *Windows* to ease the transition into high-octane DOS computing. Joysticks have recently become available for the PS/2 Micro Channel Architecture systems, and an agreement between Sierra and IBM to bundle select games with Model 25 and 30 PS/2 systems makes two points: A home market for PCs exists, and even Big Blue takes off the power tie sometimes.

The personal computer can go down in history as the millstone of the late twentieth century or as the single most liberating technology since movable type. But that's the interesting thing about history: When you were a kid reading about the past from a schoolbook, it all seemed terribly dull; but to those people living then it was undoubtedly the most exciting era humankind had ever known. I bet it was a lot of fun, too. ⊡

KNIGHTS OF LEGEND™



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Can't find KNIGHTS OF LEGEND at your local retailer? **Call 1-800-999-4939 (8am to 5pm EST) for Visa/MC orders; or mail check or money order (U.S.$) to ORIGIN. All versions $49.95; shipping is FREE via UPS. Allow 1-2 weeks for delivery. ORIGIN, P.O. Box 161750, Austin, Texas 78716.**

NEWS & NOTES

EPYX GOES DISKLESS

Epyx, once among the largest producers of entertainment software for personal computers, announced major layoffs in late September. Besides reducing staff, Epyx switched its focus from disk-based software to cartridges for dedicated videogame machines. Future Epyx products will be licensed to and distributed by other publishers.

For more than a decade, Epyx received high marks for publishing colorful, action-oriented software. Perhaps the company's best-known titles were those in its Games series, including *Summer Games* and *California Games*.

In recent years, much of Epyx's attention had been aimed at new media, including a hand-held color videogame machine. Created and developed at Epyx, that product proved too expensive for the company to market, so Epyx sold it to Atari earlier this year.

Current Epyx titles will remain on sale through the end of 1989.

—KEITH FERRELL

Miniscribe Must Rebuild

An internal investigation at Miniscribe has concluded that senior administrators at the Colorado-based disk drive manufacturer committed massive fraud on the company, its directors, its outside auditors, and its shareholders during 1986, 1987, and 1988.

According to the investigation, company officials altered inventory reports, reshipped defective drives, and even shipped bricks to distributors so that Miniscribe would appear in better financial health than its competitors.

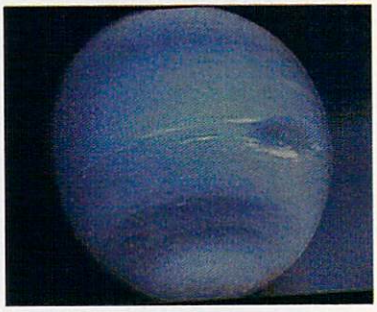
Miniscribe chairperson Q. T. Wiles has resigned, and some top officials were dismissed. The company is trying to reconstruct accurate financial reports as it develops new control and planning systems, said Director of Strategy and Planning Gerard Hallaren.

"We are doing a lot in the area of corporate governance and ethics," he said. "And we're working on a new financial structure."

A year from now, Hallaren said, the company will have recovered from the blow. "We'll have some pretty hot products, but I think we'll face a lot of tough challenges in the meantime, and I think we'll win."

—HEIDI E. H. AYCOCK

VIKING AND VOYAGER AT HOME



This 64-color Amiga image of Neptune is just one of many Voyager pictures posted to online services.

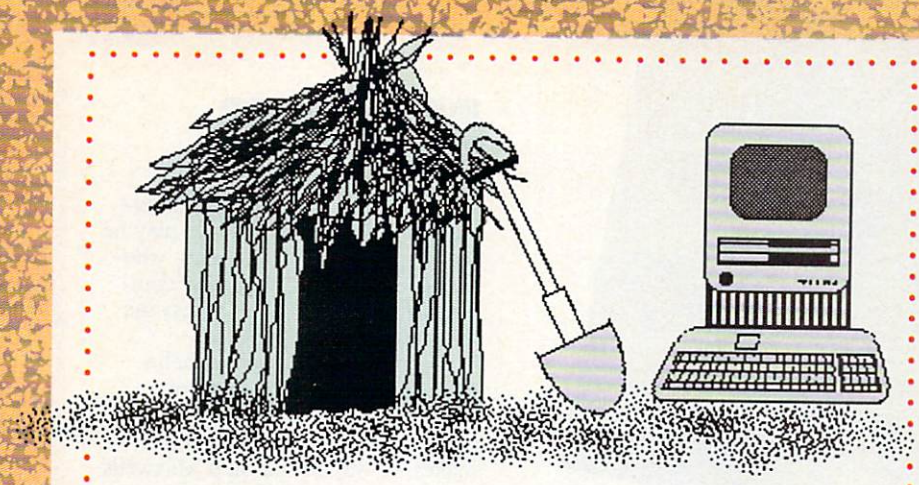
If you're anxious to see more of Neptune, you don't need to plan a field trip to the Jet Propulsion Laboratory (JPL). With a home computer and a modem or a CD-ROM player, you can do your own interstellar image-processing.

Within days of *Voyager's* flyby, pictures of Neptune and Triton were posted on American People/Link, BIX, CompuServe, and local bulletin boards. Most of these are gray-scale pictures in GIF format, which is supported by most personal computers.

If these simple, unenhanced pictures whet your appetite, check out the *free* GRIPS CD-ROM produced by Meridian Data and JPL. This ISO-standard disc contains hundreds of images from 15 years of *Voyager* and *Viking* missions. Some of these files are as large as 1.2 megabytes. You can see these pictures on Macintoshes or PCs with a standard CD-ROM player.

The GRIPS CD-ROM is available for free, but you must pay $9 to cover shipping and handling. For information, contact Meridian Data, 5615 Scotts Valley Drive, Scotts Valley, California 95066; Attention: Monica Meyer.

—DENNY ATKIN



Volunteer Macintoshes

The computer age has joined the Peace Corps, and the expected result is a bumper crop of information.

"The computers give the volunteers a chance to move into the electronic age," said James Flanigan, press officer for the United States Peace Corps.

Using Macintoshes donated by Apple and software donated by Microsoft and Claris, volunteers can store and revise their field notes electronically. They can also share information with other workers more easily. Recordkeeping and data tracking will be more streamlined, said Flanigan.

The Peace Corps has placed computers in 35 of the 66 countries it deals with.

—HEIDI E. H. AYCOCK

SOFT SOFTWARE SALES

Software sales increased by 8.8 percent in the second quarter of 1989, but that's far less than last year's 32-percent increase.

These figures, from the Software Publisher's Association (SPA), showed that word processors, graphics, and spreadsheets boasted healthy increases. But integrated software, desktop publishing, and entertainment sales dropped when compared with 1988 figures. There was also a wide variation between different machine formats. Macintosh software enjoyed the greatest increase with MS-DOS not far behind. Apple II and Commodore 64/128 sales were sharply down.

—RICHARD C. LEINECKER

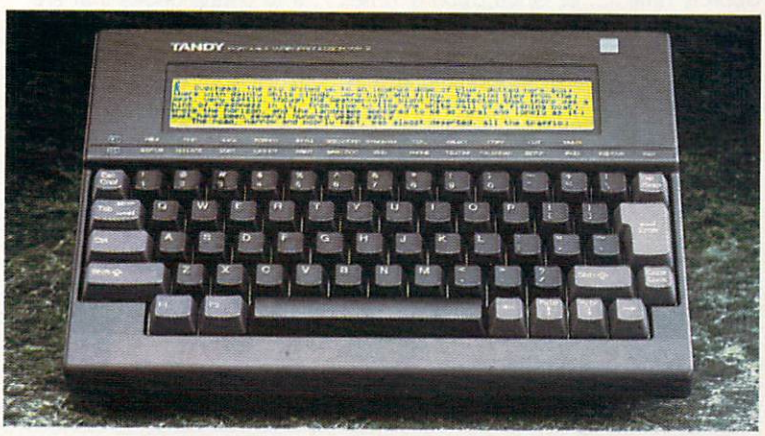
Courts Get Tough on Hackers

In July, Kevin Mitnick received the stiffest sentence ever imposed for hacking: 1 year in prison, six months in psychological counseling, and 2½ years probation.

Mitnick, 25, of Panorama City, California, was convicted of illegally obtaining a software program from Digital Equipment, breaking into the University of Southern California's computer system, and possessing 16 unauthorized MCI long-distance numbers.

While the Mitnick case was ending, the case against Robert Tappan Morris was just beginning. On August 2, the graduate student pleaded not guilty to a felony charge of creating a computer virus that paralyzed as many as 6000 military and university computers last fall. If convicted, Morris could face a five-year sentence and a $250,000 fine. He could also be forced to provide restitution to victims of the virus.

—RICHARD KELLEY



PORTABLE WORDS

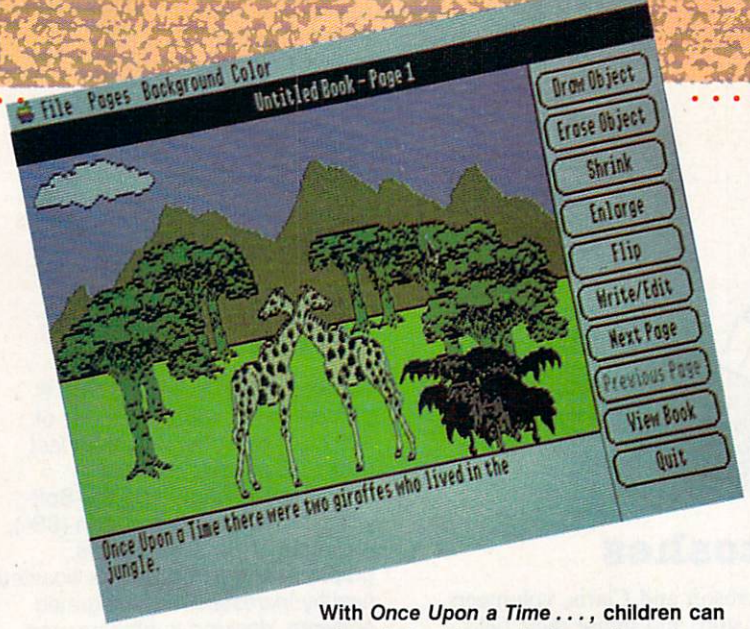
Some of us don't need a $7,000 80386 laptop just to take notes on the road, so Tandy has come to the rescue with the WP-2, an inexpensive portable word processor.

The jet-black WP-2 retails for $349.95, and it has an 80-character × 8-line LCD screen. Built-in software includes a word processor, a 100,000-word spelling checker, a 200,000-word thesaurus, and a calendar.

If you need to transfer files to other computers, you can use the laptop's RS-232 port and built-in XMODEM communications software with a modem or direct connection. You can hook the computer to a printer through its parallel printer port.

The WP-2 comes with 32K of memory (10K is taken up by the built-in software), and it's powered by four AA batteries. A 32K internal memory-expansion module retails for $49.95, and removable 32K IC Cards, which store more text, are available for $119.95. For more information, contact Tandy, One Tandy Center, Fort Worth, Texas 76102; (817) 390-2129. ▷

—DENNY ATKIN



With *Once Upon a Time . . .*, children can win scholarships and other prizes.

ENERGETIC CONTEST

If you can write a story about how energy builds a better America, you can win a $5,000 scholarship from Compu-Teach.

To enter Compu-Teach's second annual creative writing contest, youngsters between 6 and 13 years old must use the company's *Once Upon a Time . . .* or *Once Upon a Time . . . II* to create books that are 6–10 pages long.

Children choose from seven categories: electricity, coal, natural gas, oil, renewable energy resources, energy conservation, and nuclear energy.

Besides the $5,000 grand-prize scholarship, Compu-Teach will award savings bonds, software, and National Energy Foundation educational materials.

You can get contest materials by calling Compu-Teach at (800) 448-3224. All entries must be received by February 28, 1990.

—RICHARD C. LEINECKER

AMIGA Ph.D.

Commodore has bulked up its marketing muscle in the higher-education arena by hiring Dr. John H. Harrison IV to fill the new position of manager of Higher Education Markets.

"We're pushing the Amiga 2500," Harrison said. "Because of its graphics and sound capabilities, it's a natural for doing the things that higher-education people are doing—classroom presentation and desktop publishing, for example."

One of Harrison's first moves was to head for EDUCOM's yearly conference, a gathering of academic computing czars. In a hospitality suite, the education team planned to demonstrate X Windows and UNIX for the Amiga, as well as multimedia applications.

Improved communication is another goal for Harrison. "My major concern was the lack of information from campus to campus about what people are doing," he said.

"One thing I've learned is that if you put computers out there, the students will figure out what to do with them," Harrison said. Possible academic discounts and the Amiga's low price should help link students with Commodore's computers. "We think the price point is in our favor," he said. "And everybody's still talking about how students can afford their own microcomputers."

—HEIDI E. H. AYCOCK

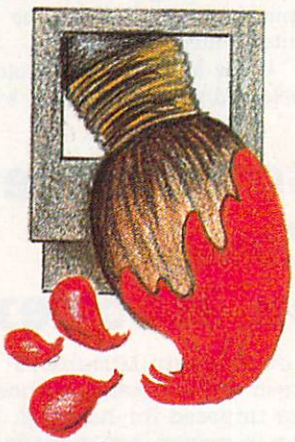
PC PUNTS

Hut 1. Hut 2. What's the quarterback going to do? Whatever play he makes, whichever down it is, whoever fumbles the ball, a new computer system will help process the information more quickly.

The SuperStat system helps team statisticians create reports after each quarter and after the game. Some of this information makes its way to the Slap Maxwells in the press box, and other bits head off for the NFL official files.

The system, produced by ABC Development Systems in Minneapolis, uses a PC AT compatible, a 20-megabyte hard disk, and two high-speed Okidata printers.

—HEIDI E. H. AYCOCK



Fine Art—Computer Style

If you've created a masterpiece of fine art from a screenful of bits and brushes, consider submitting your work for publication. The Abaci Gallery of Computer Art, in association with Machlan Enterprises, is soliciting entries for a series of books about fine art created on computers.

People who work with Macintoshes should send submissions by December 31, 1989. Art created on PC compatibles should be sent between January 1, 1990, and June 30, 1990. For more information and submission guidelines, contact ABACI Gallery of Computer Art at 312 NW 10th, Portland, Oregon; (503) 228-8642.

—HEIDI E. H. AYCOCK

LETTERS

FCC Alert?

Your September review of the HeadStart III computer in the "Buying Your First Computer" feature neglected to say that the FCC has not rated it acceptable for use in the home. The last thing a "beginner" needs is a toy that interferes with family TV or radio!

H. W. PLOHR
ANGOLA, IN

We contacted HeadStart Technologies and a spokesperson assured us that the HeadStart III does indeed have an FCC Class B rating, which makes it suitable for home use. There has been some confusion because a PC magazine that reviewed the HeadStart III stated that the computer had only a Class A rating, based on its preliminary review unit.

Misdirected Technology

The September "Editorial License" makes a very telling commentary on where we're headed: "Both Nintendo and Atari plan to market portable videogame systems this year. . . . An LCD screen can't compete with the view from Mount Washington in New Hampshire or Hanging Rock here in North Carolina. (Some kids might think otherwise.) . . . If you're hooked on arcade entertainment, you never have to leave home without it."

A more damning indictment of misdirected technology could not have been written. Our lust for surrogate murder and destruction on the video screen is such that we forsake everything for a shot at more computerized killing, and our kids would rather indulge in mindless mayhem than in the awesome spectacles of nature.

BOB RENAUD
WASHINGTON, MA

Videos Not All Bad

I currently own two Nintendo entertainment systems and an Atari 7800 system, as well as a Commodore 64C. I owned the game systems first and then moved up to the computer as these systems helped me to overcome my fear of computers. If I had not gotten hooked on videogames, Commodore might have lost a customer. In some cases, these game machines are generating sales for the computer companies, as two other friends of mine have bought computers just because they love games and wanted to own a more sophisticated system with greater memory.

Having the game systems, I bought the Commodore for writing, but I, too, became lured on by the siren song of *Pirates!* from MicroProse, which has caused me to spend, in some cases, more money than I can afford, buying more games for the computer. In my case, Nintendo has created a market for computer software rather than destroyed it.

I love *COMPUTE!*, and I will continue reading the stories and the articles. It is a wonderful combination of enjoyment and information which I believe is unrivaled anywhere.

MARY EDWARDS
TORRANCE, CA

Format Error

In the October issue, Peter Scisco instructs a beginner to use the FORMAT command with the /S option and then to copy COMMAND.COM to this this newly formatted disk.

Doesn't the FORMAT command put the COMMAND.COM file on the disk as part of the formatting process?

ALFRED J. BRUEY
JACKSON, MI

You're absolutely right. The section about copying COMMAND.COM was the result of an editing error. Although Peter's tip will still work as printed, issuing the FORMAT /S command does copy COMMAND.COM to the floppy automatically.

Mistaken ID

We misidentified the author of November's article on Willow Peripherals' VGA-TV card. Ed Ferrell, a freelance film and video worker in New York, penned that piece. ⊡

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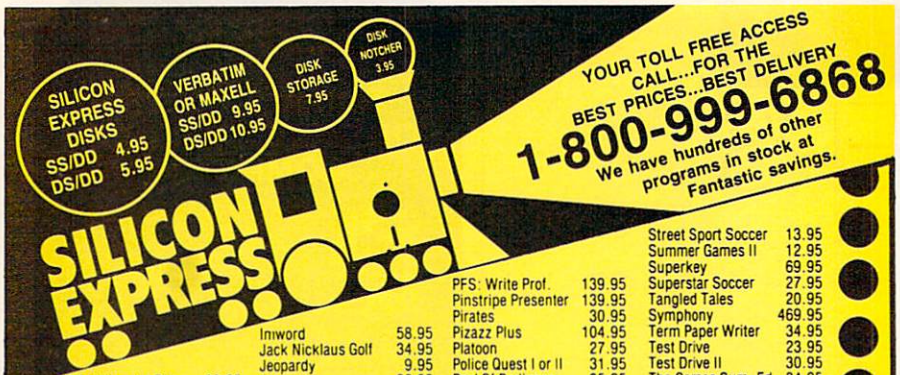

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MS-DOS

POWER UP

Microsoft Word has had an interesting history. Its early releases revealed a program that was magnificent in conception, but a little clunky in execution. Microsoft steadily improved *Word,* adding new features and tuning up existing ones, until finally, about a year and a half ago, *Word* 4.0's reality and its original conception merged to form an undeniably world-class word processor.

Now, Microsoft has delivered *Word* 5.0 (Microsoft, 16011 NE 36th Way, Box 97017, Redmond, Washington 98073-9717; 206-882-8080; $450), an upgrade with some heavy-duty new features and an array of small, but welcome, enhancements.

The biggest news with version 5.0 is its integration of text and graphics. When coupled with the program's onboard page preview, *Word* is a solid engine for basic desktop publishing.

Word can incorporate graphics in a wide range of formats, including PCX, PCC, TIFF, HPGL, PostScript, encapsulated PostScript, and *Lotus* PIC files. And the package includes *Capture,* a graphics screen-grabbing program.

Incorporating a graphic in a document is easy, even if you're a beginner. First, you place your cursor in the text where you want the graphic to be, and you tell *Word* the name of the graphics file and the size you want to make it. That's all you have to do.

The program puts a line of text in your file that contains the graphic's filename and size, and then precedes this with a hidden code (you can see the hidden code by turning on Show Hidden Text). If you want, you can use Page Preview to see how your graphic looks on the page, or use Show Layout for a less-precise, but fully editable, version of your layout.

Adjusting a graphic's position is easy, too. You can move the graphic just as easily as you'd move a paragraph of text. And flowing text around a graphic is automatic. Just center the graphic on a page and make its frame—the space around the graphic—the same size as the graphic; *Word* automatically flows text around it.

Word has always been primarily a graphics-mode word processor. Each version has offered a text-mode option, but it has been something of a poor relation. The mouse had about half of its power in nonbordered text mode, and formats (italic, bold, underline, and so on) were shown as bold on the screen.

This newest version of *Word* gives text mode so much power that you may find you actually prefer it to graphics mode. In text mode, you now have a selection of colors for formats, and changing colors is simply a matter of a few keypresses or mouse clicks. You can use the mouse to page, thumb, and open and close windows, just the way you can in graphics mode.

As a high-octane word processor, *Word* is definitely worth a look. If you have *any* previous version of the program, you can upgrade for just $75, the deal of the decade.

Switch-It

Context switching on the PC is nothing new. Many programs allow you to keep multiple applications active and move from one to another, but they all have problems. They're often unstable (an occupational hazard for *any* PC software that attempts multitasking or context switching), and they usually require large amounts of memory (as much as 170K in some cases).

Switch-It from Better Software Technology (55 New York Avenue, Framingham, Massachusetts 01701; 508-879-0744; $79.95) is like a breath of fresh air. The program is solid and requires a mere 24K to run.

When you first install the program, it searches your hard disk for applications with which it's familiar and automatically places these on its menu. You can use these programs or delete them, and you can install your own. Installing a program is as simple as telling *Switch-It* the program name, where it is, and how much memory you want to allocate for it (smaller memory allocations make for faster switching).

You can install TSRs, and you can use batch files to install an application *with* TSRs.

You can switch between programs in one of three ways. Press the Alt-Home hot key (this key combination is the default; you can change it if you'd like) to call *Switch-It*'s main menu, use Alt–right arrow and Alt–left arrow to move between programs, or assign specific hot keys to individual programs (Ctrl-Alt-F1 through F12 work well).

If you use a mouse, you'll have to be careful. Moving the mouse while a program is switching can be fatal: There's a good chance you'll crash your system. (Just bumping against the mouse pad can trigger a crash.) The safest thing for you to do is wait until you see your mouse pointer appear before you move the mouse. If you do that, you shouldn't have any problems. Better Software is aware of this problem, and it's working on a solution.

When it comes to swapping your applications out of memory, *Switch-It* can use a disk, expanded memory, or a ramdisk for its temporary storage. If you switch to disk, the speed of your hard disk determines the program's performance. With a 40-ms access time, it takes about six seconds to switch out one 640K program and switch in another 640K program. This is a worst-case time. If you use programs that use less than 640K or use faster media,

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you'll have significantly better switch times.

Switch-It also has the ability to cut and paste between applications. You simply press Alt-Delete to cut or Alt-Insert to paste, and then follow directions.

In the short time I've used *Switch-It,* it has become indispensable. Every time I think of going through the save-exit-run-load cycle for each program I use, I'm glad I have *Switch-It*.

Xtree Revisited

If you're interested in *Xtree*'s software-amnesty program ("Power Up," October 1989), you can call or write Xtree, 4330 Santa Fe Road, San Luis Obispo, California 93401; (805) 541-0604.

Card Game

Since the prices of 2400-baud internal modems have dropped below $100, many users aren't buying more-expensive external modems. There's something to be said for external communicators, however.

First, an external modem can be used with any computer. You may think now that you'll never use anything but a PC, but someday you may stray from the fold and buy a Mac or an Amiga. An internal modem won't work with your new machine, but an external one will.

And even if you don't buy another type of computer, your internal modem may not work if you buy a new PC. You can't fit an internal modem in a laptop, for example, and you can't squeeze one into a PS/2 with an MCA bus.

So, there are some merits to an external modem, but which one should you buy? That's a tough question, but one good answer is the Supra Modem 2400 external modem (Supra, 1133 Commercial Way, Albany, Oregon 97321; 800-727-8772; $149.95). It's Hayes-compatible and a reliable performer. My only beef with the Supra is that it doesn't support the Hayes S11 register, the register that controls how fast the modem dials.

That aside, I've used the Supra Modem 2400 nonstop for months, and it has never given anything but excellent performance. You pay a little more for an external modem like the Supra Modem 2400, but it's worth it.

— Clifton Karnes

DOS PROMPT

Don't look now, but Microsoft *Windows,* the DOS-based graphics operating environment, is suddenly flirting with widespread acceptance and "overnight" success—five years after its initial release. The 286 version retails for $99; the 386 version goes for $195. Both are from Microsoft, 16011 NE 36th Way, Redmond, Washington 98073; (206)-882-8080.

Windows is a potentially useful program that, like a pane of glass with a paint stain on it, exhibits just enough minor flaws to interfere with its primary function. As a result, I could never get excited about it. True, it embellishes DOS with colorful display screens and mouse support. But calling *Windows* a *graphics interface* is like calling a can of chicken gumbo soup authentic Cajun cookin'.

By itself, *Windows* presents the same unadorned listing of cryptic filenames generated by the standard DIR command. The onus is still on you to figure out what each filename represents. Is BUD.LET the text of a letter summarizing next year's budget projections or a personal note to an old high-school chum, whose name just happens to be Bud? Ideally, a graphics interface would provide visual clues to help you figure this out. *Windows* doesn't.

A second advantage of a true graphics interface is that it incorporates a pictorial language that can be universally understood. Thanks to the emergence of the so-called International Symbol Set (ISS), for example, people the world over now recognize a stylized wheelchair as indicating a facility adapted to the special needs of disabled individuals. From this perspective, at least, the ISS is an effective graphics interface. Using *Windows* requires knowing a specific language (English) well enough to click on the View option if you want to change the order in which filenames are listed by that program's MS-DOS Executive. While this is certainly more convenient than having to remember, and then correctly combine, the DOS SORT pipe with a DIR command, *Windows'* approach falls short of a true graphics interface.

Despite these shortcomings, however, *Windows* is beginning to emerge as a logical alternative to Microsoft's "next-generation" operating system, the much-ballyhooed but anemic (in both performance and market acceptance) OS/2. For millions of users who can't justify the additional investment in hardware and software that an upgrade to OS/2 demands (an AT system or better, at least 3.5 megabytes of RAM, and programs specifically designed to access that operating system's advanced features), *Windows* offers a practical method for bridging the gap between today's PC environment and tomorrow's PC "standard." Adding to *Windows'* short-term appeal is the recent speculation that IBM may incorporate a facelift based on *Windows* 3.0 into its next major DOS upgrade. Such a move would only enhance *Windows'* position in the PC marketplace.

Do these factors make *Windows* worth looking into? And will that, in turn, force you to accept *Windows* as is, with all its inherent flaws and weaknesses? Well, yes and no.

Yes, you might want to investigate *Windows.* A graphics operating environment is almost certainly in the cards for your future, and *Windows* provides a logical stepping stone to get from here to there. But, no, you need not accept *Windows* as is. There's a program specifically created to move *Windows* a little closer to what it was originally meant to be: a true graphics interface.

Windows Dressing

Windows Express (hDC Computer, 15379 NE 9th Street, Redmond, Washington, 98052; 206-885-5550; $79.95) is a nifty program that superimposes a logical structure over the *Windows* environment. In the process, it also complements your PC operations with some critical capabilities Microsoft overlooked when it initially designed *Windows*.

Using *Windows Express,* you can replace those cryptic DOS filenames with icons (the foundation of a true graphics interface) and/or a meaningful file description. You could, for example, create a menu that displays a representative icon accompanied by the description *Introductory letter for the 1990 budget projections,* rather than the ambiguous DOS filename BUD.LET. *Windows Express* also lets you take all the data files relating to a given project—say, your budget projections—and assemble them under a single, unique icon, regardless of where they reside on your hard disk. Furthermore, you can tell *Windows Express* to link individual files with their corresponding application programs so that clicking on the icon or description associated with a given data file opens the appropriate application program (again, regardless of where it resides on your hard disk) and then automatically loads that data file.

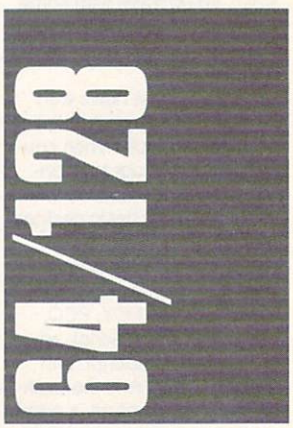
Windows Express makes *Windows* especially accessible if your PC system lacks a mouse. It allows you to associate single keystroke commands with the individual items that comprise your various project menus. So, rather than having to use the arrow keys to highlight a particular filename, as *Windows* requires, you can start a program from *Windows Express* by simply pressing the appropriate letter or number command.

As icing on its electronic cake, *Windows Express* can assign password protection to individual menu selections. The program's Editor even allows you to create customized dialog boxes and context-sensitive help screens to assist neophyte users in navigating even the most convoluted application's menu structure. If you're thinking about heading down the *Windows* road, you should consider the *Express* route. For my money (and not much of it, at that), this is the most useful *Windows* utility currently on the market.

Wrong Number

My CompuServe number was listed incorrectly in my first column. My real number is 73047,1122.

— Jack Nimersheim



One of the best games of the year is SSI's recent *Storm Across Europe* (distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, California 94404; 415-571-7171), re-

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Circle Reader Service Number 148

leased to coincide with the 50th anniversary of the start of World War II. This game attempts nothing less than a strategic-level simulation of the entire European theater of operations.

Essentially, *SAE* is a three-player game. One player controls Germany, one commands the Western Allies, the third takes the Soviet Union. In a one-player game, you must control Germany and assign the other two commands to the computer. In a two-player version, one player takes Germany while the second player chooses between the Allies and the Soviets.

Turns are seasonal, four to a year. You can begin the game in Autumn 1939, with Germany ready to invade Poland, or in Spring 1940, preparing for the invasion of France. The final scenario begins with the Summer of 1944, with the Soviets reclaiming their lost territory and the Allies about to land in Europe.

Everything about this game is on the strategic level, which is its strength. You move entire armies, attacking with them or transferring troops. You command navies abstractly, assigning submarines against shipping lanes and assigning transports to specific missions. Air forces are also at your command, allowing you to bomb production sites or military bases and to assign escorts.

Basically, you worry about grand strategy, reinforcing armies and putting the right people in the right places. Much of the rest is left to the computer. There is a great deal to do, but nothing is overly difficult. For those who enjoy this level of strategy, who are interested in the course of World War II in Europe, and who want to see if they can do better than their real-life counterparts did, *Storm Across Europe* is indispensable.

Spidey Lives!

New from Paragon Software (600 Rugh Street, Greensburg, Pennsylvania 15601) is *Dr. Doom's Revenge.* This game, licensed from Marvel Comics, pits Spider-Man and Captain America against Electro, The Hobgoblin, Machete, Rhino, and, of course, evil ol' Doc Doom himself. The game is presented in comic-book format on the screen, and you move from panel to panel to get where you want to go.

Dr. Doom's Revenge is a perfect example of a great idea that just doesn't cut it. Moving through the panels requires little decision making, and the many arcade-style battles are disappointing. Strangely enough, what downs this game is the fact that the comics are more complex and thus more interesting.

Still, the panels look great, and Paragon has the start of a very winning idea. Next time, it should be better.

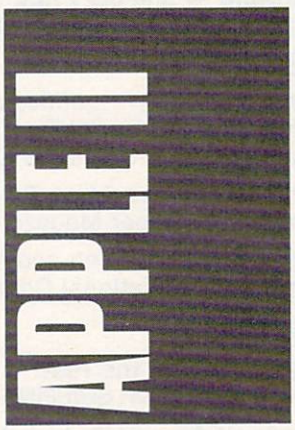
The Last Crusade

If you're a fan of climbing and jumping games, you're sure to like *Indiana Jones and the Last Crusade* (Lucasfilm Games, distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, California 94404; 415-571-7171).

The graphics are good. Indy looks as if he's walking, and the various enemies look fine, too. Joystick control is easy, and within minutes you'll master the way the game plays. More important than all these things is the fact that the game is quite addicting.

Since you can't save the game, you must work your way through each level every time you play. The only other problem is that, unlike *Lode Runner* or *Ultimate Wizard,* this jumping game has a definite life span. Once you've gone through all four levels, you won't load it again, and you'll get through all four levels within only 20–30 hours of play.

— Neil Randall



One of last year's hottest games on the Apple IIgs (or for that matter, on any other computer) was Taito's *Arkanoid.* Ported from the stand-up arcade machine, *Arkanoid* on the IIgs had crisp graphics and even crisper gameplay. More a grown-up version of *Breakout* than anything, Arkanoid was the perfect mouse-movement arcade game.

Now comes *Arkanoid II, Revenge of DoH.* The premise is as goofy as the original: You're supposedly saving lives by batting balls against bricks. Don't believe a word of it. Just keep the ball from getting past you. Bat it back up to remove bricks, set power pills in motion, and eventually (really) clear the screen so that you can move on to the next level.

Thirty-three levels try your patience (there are actually 67 different screens, though, since most levels have two separate patterns). Reach the end and you face DoH.

One welcome addition to this version is a Construction Set, which you use to create your own game screens.

Arkanoid II retails for $34.95. For more information, contact Taito at 267 West Esplanade, North Vancouver, British Columbia, Canada V7M 1A5; (604) 984-3344.

Congo Bongo

One school subject that rarely raises a grin is geography. But MECC, long a prolific publisher of educational software, has managed to turn map-making into something both fascinating and fun.

World GeoGraph is an Apple IIgs–specific program that makes good use of the computer's graphics abilities. The package's highly detailed maps offer up views of the world, its continents, and even regions within those continents. Color is splashed across the maps to designate everything from climate to population density; you choose what to display.

Want to see how Zaire (in a former life, known as the Belgian Congo) compares to the rest of Africa in television ownership, infant mortality, or projected population? All it takes is a few clicks of the mouse button and some menu selections.

World GeoGraph also contains an extraordinary amount of information in its database, information which you can arrange and view in any number of ways. Each country's facts and figures are available and, if you want, can be compared to other nations' statistics. Informative and illustrative graphs can be created with this data, something that more than pays for the price of the program.

World GeoGraph can teach you more about geography in a few sittings than you ever remembered from a text book. If you're serious about using your IIgs as a learning tool, *World GeoGraph* is a must addition to your software library.

For more information about the program, contact MECC at 3490 Lexington Avenue North, St. Paul, Minnesota 55126; (612) 481-3500. *World GeoGraph* requires an Apple IIgs with at least 768K of RAM and has a suggested retail price of $139.

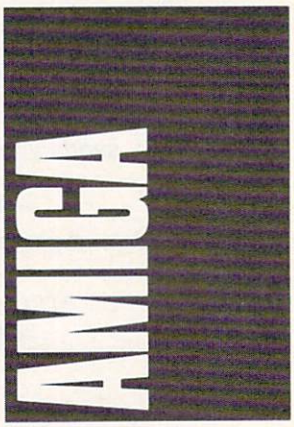
Club Apple

If you're a teacher using Apple computers, you have a friend in Apple Computer Clubs.

Apple has sponsored the ACC every year since 1983. Aimed primarily at schools, it has also been welcomed in community computer programs. Essentially, ACC is a resource for educators wanting to further student interest in computer use. For a nominal fee, Apple Computer Clubs provides an idea-filled handbook, an activity-based planning book (complete with monthly activities to spark interest in computers), and a year's subscription to advisor and student newsletters.

Contact Dee Anne Dougherty at Apple Computer, 20525 Mariani Avenue, MS: 36A, Cupertino, California 95014 for more details on the Apple Computer Clubs program.

— Gregg Keizer



It's a new era of détente. America has an almost friendly relationship with the Soviet Union, Solidarity controls part of the Polish government, and Commodore Amigas are reading and writing MS-DOS disks.

Consultron's *CrossDOS* package lets you use MS-DOS and Atari ST disks in standard Amiga disk drives.

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Performs required calculations to construct a natal chart. (256K Ram, CGA required).

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Customize your own program to prepare bills and keep complete records.(hard disk required).

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For those businesses with standard inventory and restocking requirements.

BHM135 Payroll USA System (2)
This one does all the calculations for up to 2,000 employees.(640k required).

BHM140 The Winning Bid (1) V. 3.1
For both amateur and professional auctions. (2 floppies required).

BHM143 PC Tickle (1) V. 1.0
No need to forget an appointment with Buttonware's finest scheduler.

BHM145 Mr. Bill (2) V. 3.29
Let Mr. Bill prepare your invoices—also prints audit trails. (2 floppies required).

BHM149 PC Loans (1) V. 4.07
Perform any calculation for business or personal loan.

BHM152 Form Master (1)
A powerful program for generating many types of forms.

BHM132 The Business Contacts Manager (2)
Keep track of all your business contacts as well as friends and relatives with this program. (512k required).

Math/Calculators

MC102 Turbo Calculator (1)
The on-screen calculator with 7 memory and 9 scientific functions.

MC103 Calcplus (1)
Put a scientific calculator in your computer with this program.

Communications

C101 Procomm (1) V. 2.4.3
The shareware version of the popular Procomm communications program.

C104 Boyan (1) V. 03
Features of all the top communications programs wrapped into one.

Databases/Cataloging

DB101 Video Library (1) V. 3.01
The ultimate choice to organize your video tape collection. Stores up to 1,000 titles.

DB110 For Baseball Cards (1) V. 1.02
Baseball fans love it!

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DB113 PC File Plus (3) V. 2.0
30 new and enhanced features to Buttonware's popular PC File

DB115 Wampum (1) V. 3.35
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Designed to keep track of important customers and contacts. (Hard disk recommended).

Desktop Organizers

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Increase office productivity with this desktop tool.

BHM153 My Desk (1) V. 2.1
The perfect place for all your information (up to 40 text files).

Educational

E104 The World (1) V. 2.09
Better than any globe you can buy (CGA, or EGA required).

E107 Amy's First Primer (1) V. 1.7
The perfect program for pre-schoolers. (CGA, EGA, or VGA required).

E109 PC Fastype (1) V. 3.01
A program that includes typing tutor and many drills for different skill levels. (CGA required).

E110 Whizquiz (1)
The ultimate elementary math tutor. (CGA required).

E111 Brandon's Lunchbox (1)
Kids 3-7 will benefit greatly from this tutorial. (CGA required).

E119 High School Math (2)
Prepare your high school student for college now.

E120 Vocabulary Builder (5)
Help with SAT and ACT scores. these 7,500 words will help.

E121 Japanese for Business And Travel (1)
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Educational/Teachers

E122 Grade Guide (1) V. 3.00b
Easy way to store, retrieve, and analyze students grades.

E125 PC Quizzer (1) V. 2.1
CAI lessons can be created by any class. Can include questions and answers, multiple choice, and graphics. (CGA required).

E126 Teachers Tools 11 (1)
Handles 100 students per class (spread sheet fashion).

Artificial Intelligence & CAI

E129 PC CAI (1)
Allows you to create your own tutorials, tests, and demo's.

Food & Nutrition

HP101 The Nutritionist (1) V. 3.0
The program for total fitness. (Hard drive recommended).

Games/Cards

G103 Vegas Pro Video Poker (1) V. 1.0
Time to play poker with the best. (EGA or VGA required).

G106 Lotto Number Generator (1) V. 3.00
Can be tailored to your states Lotto.

G110 PC Lotto (1) V. 2.1
Now you can pick the "surethings, longshots and blind picks."

G117 Wall Street (1)
This will show you how the market really works from the bull to the bears. (BASIC required).

G119 Chess (1)
Great for the beginner with six levels for improvement. (CGA required).

G121 Star Trek (1)
One of the classics that has been updated.

G127 Dream Team Baseball (1)
You pick 'em and play the computer. (CGA required).

G135 Willy The Worm (1)
Everyone wants to help Willy make it to the top. (CGA required).

G136 Monopoly 11 (1)
Hard to improve...but this one has.

G140 Captain Comic (1)
Top game of 1989, you will not be able to put it down. (CGA required).

G141 Striker (1)
You're the pilot of this helicopter, gunships, and missions. (CGA required).

Genealogy

HP107 EZ Tree (1) V. 1.26
handles up to 90 families at one time.

Real Estate

RE101 Princeton Real Quick (1) V. 3.02
Real estate listing database that analyses all the data.

RE105 Property Manager V. 1.0
Tracks data on rent and maintenance records.

RE102 Loan Warrior (1)
Uses both fixed and variable rate mortgages.

Sports

S101 Running (1)
Part time jogger or distance runner

S103 Football Pool (1)
Wonderful organizer for running the local pools.

Stocks/Tax

ST104 Stock Market Analyzer (1)
A great way to analyze stocks in graph form.

ST108 PC Chart (2) V. 1.01
This menu driven tool helps you buy and sell stocks and commodities.

ST112 PC Tax 88 (1)
Ready to do your 1988 taxes, with all schedules.

ST115 The Sage Trader (1)
One of the all time classic investment tools. (CGA required).

CAD/Paint

CAD101 PC Draft II (1) V. 3.52
The most complete CAD program, too many functions to list.

CAD103 PC Finger Paint (1)
Most sought after graphic program of the year. (CGA required)

CAD106 Flow Charting (1)
Designed just for flow and organizational charts. (CGA required).

CAD107 Word Perfect 5.0 Clip Art (5)
Largest Word Perfect clip art collection

Word Processing/Tools

WP101 PC Write (3) V. 3.02
Almost as good as Word Perfect with spell check. (384K Ram required).

WP105 Word Perfect 5.0 Tools (1) V. 2.0
Eleven programs to teach you everything you'll need to know.

WP113 Word Processing For Kids (1)
Children from 4 to 9 years of age enjoy this introduction (CGA required).

WP114 PC Style (1)
A Buttonware program with real style.

Utilities

UT102 Auto Menu (1)
For everyone with a hard disk who wants to make it easy.

UT105 The Daily Dozen (1)
You can do all sorts of things...change names, back up, screen saver, and more.

UT107 Data Defenders (1)
Make recovery as easy as a snap with this one.

UT108 Laptop Bridge (1)
File transfer between 3 1/2 and 5 1/4 via ports.

UT110 Epson Master (1)
For all Epson owners who want the custom touch.

UT112 Banner Maker (1)
Makes mega-length signs.

UT114 File Squeeze (1)
Squeezes files by 50%, great for backup.

UT115 Professional Master Key (1)
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Circle Reader Service Number 117

DOS is that it's *not* just a file-transfer program. You can read and write MS-DOS disks from within any Amiga program—you don't have to copy the files to Amiga-format disks first. For instance, if you're running MSS's *Analyze!* spreadsheet, you can read *Lotus 1-2-3* files directly from a disk you created on your PS/2 at work.

CrossDOS lets you address your disk drives normally if they contain Amiga-format disks, or as DI0: through DI3: if they contain PC disks. Most AmigaDOS commands, such as Copy, Dir, and Info, work fine on MS-DOS disks. Also, *CrossDOS* supports 360K and 720K disks and works with the Amiga 1020 5¼-inch drive.

If you need to share data with PCs, *CrossDOS* is a must-have. It's available for $30, plus $3 shipping and handling, from Consultron, 11280 Parkview, Plymouth, Michigan 48170; (313) 459-7271.

Easy Words & Pictures

Pen Pal ($149.95) proves that a word processor doesn't have to be stripped down to be easy to use. Along with multiple fonts, IFF graphics import, a spelling checker, and full color support, *Pen Pal* has line- and box-drawing tools, a "forms fill-in" feature for creating invoices, and an integrated database.

Unlike many graphics word processors, you aren't forced to use bitmapped fonts if you want to print graphics on a page. *Pen Pal* lets you combine graphics and your printer's built-in fonts on the same page, allowing faster and cleaner printouts.

An intuitive user interface and comprehensive online help facility make learning *Pen Pal* a snap. Writers will appreciate the ability to turn off the rulers and scroll bars to get the maximum amount of text on the screen.

The built-in database is fairly sophisticated, with report capabilities and total fields. Its integration makes *Pen Pal* a perfect word processor for creating form letters.

To get your own *Pen Pal,* contact 16795 Lark Avenue, Suite 210, Los Gatos, California 95030; (408) 395-3838.

Turbo Fun

MicroIllusions has finally released *Turbo,* the third game in its One-to-One Series. *Turbo* puts you in the driver's seat of a James Bond–ish sports car for a race to the death. You have to beat your opponent to the finish line while avoiding other vehicles that are determined to bump you off the road.

If you hit a pedestrian, you hear a bloodcurdling scream and see a red splotch on the pavement. This isn't a game for the squeamish.

Unlike the other games in the series, *Turbo* doesn't support modem play. Strangely, the modem option can still be selected, but it doesn't work reliably. MicroIllusions should have taken the time to remove it from the menu.

You can turbocharge your Amiga for $24.95. Contact MicroIllusions, 17408 Chatsworth Street, Granada Hills, California 91344; (800) 522-2041.

Hard Drivin'

Tired of doing the floppy shuffle? Check out Xetec's Amiga hard drive controllers. The Amiga 500 ($249.95) and 1000 ($274.95) interfaces feature a slot for adding up to eight megabytes of expansion memory. Just attach a hard drive in an external case and you're ready to go. The A2000 FastCard ($199.95) lets you mount a 3½-inch hard drive directly on the controller card. All three models autoboot under KickStart 1.3.

Although they don't do DMA, the Xetec interfaces are very fast. *DeluxePaint III,* a 280K program, loads in under two seconds using the FastCard in my A1000 expansion chassis.

For more information, contact Xetec at 2804 Arnold Road, Salina, Kansas 67401; (913) 827-0685.

— Denny Atkin

Picture a serene setting, trees, and a brook perhaps. In your lap you hold a playing board divided into a grid. To your right lies a pouch of tiles. You place each tile on the grid so that the pattern or shape on the tile matches any adjacent tiles. The best match you can make draws together four tiles around a fifth. After making such a Four-Way Match, stars glimmer on the board.

Ishido, which should be available by early winter, effectively creates an intriguing challenge and a fascinating environment. The manual tells the legend of how *Ishido* began. The story tells how the intricately crafted stones were used for different purposes, from meditation to war.

Even though its roots don't truly delve into the depths of antiquity, *Ishido*'s designers have constructed a good myth around the package. Besides the legend, there's the look of the tiles and the quiet concentration involved in winning. Taken as a whole, these elements weave a feeling of meditation around the game. It's addictive; I can't stop trying to figure out a new way to win.

It's a different pace from sports simulations and arcade action, so don't expect cheering crowds or laser torpedoes. Do expect a peaceful encounter with an Oriental flavor.

The program retails for $49.95. For more information, contact Epyx at 600 Galveston Drive, Redwood City, California 94063; (415) 368-3200. (Although Epyx switched its focus from microcomputer software to game cartridges, the company will still sell Ishido through the end of 1989. But be quick about it because there may not be many copies.)

Dueling Banshees

You don't find many arcade games in the Macintosh section of the software store—*Arkanoid, Loderunner*—but Mindscape has tossed in a new contender. *Gauntlet* dresses you up like an elf, a barbarian, a wizard, or a Valkyrie and gives you someplace to go.

You explore level after level of mazes, each filled with ghouls and monsters as well as treasure, keys, magic, and food. Collect the good objects to keep up your strength and boost your score. Slaughter the bad creatures to survive each level.

The graphics are fine and the interface is good. You can play with the mouse or any of three key combinations. Best of all, the sound injects grunts and snorts and burps into the gaming world.

Gauntlet retails for $49.95. For more information, contact Mindscape at 3444 Dundee Road, Northbrook, Illinois 60062; (312) 480-7667.

Puzzling Problems

The latest batch of puzzles from Miles Computing is called *The Puzzle Gallery: At the Carnival.* It's filled with riddles, word searches, picture puzzles, and the best mazes you'll ever see on the Mac.

The atmosphere is lively and the puzzles are challenging. Even when your eyes get tired, you'll find it hard to stop.

In the future, Miles Computing will release other puzzle collections with new themes. As long as you have *The Puzzle Gallery,* you'll be able to run each new batch of riddles.

The program retails for $39.95, and it supports color if you have a Macintosh II. For more information, contact Electronic Arts (1820 Gateway Drive, San Mateo, California 94404; 415-571-7171), which distributes Miles Computing's products.

Also Debuting

Accolade has released *Fast Break* for the Macintosh. The game faithfully reproduces a three-on-three game of basketball. For those of us who know very little about dribbling and jump shots, *Fast Break* may be a little daunting. But in its versions for other machines, Accolade's game has won some awards, so it may be worth a try. It retails for $49.95, and you can get more information from Accolade at 550 South Winchester Boulevard, Suite 200, San Jose, California 95128; (408) 296-8400.

If you leave your Macintosh on for long hours, try *After Dark,* a new package from Berkeley Systems. You can choose from supplied animated graphics—lightning bolts, a meteor shower, a shift into warp speed—but you can also design your own screens using bouncing logos and other art. Of particular interest is the Anti-snoop feature which locks your screen with a password so no one else can see your work while you're away from your Macintosh. *After Dark* retails for $39.95. Contact Berkeley Systems at 1700 Shattuck Avenue, Berkeley, California 94709; (415) 540-5535.

— Heidi E. H. Aycock ⊡

Disk Drives.

Circle Reader Service Number 124

Accolade's hot racing simulations take you from the hairpins of Monaco to the breakers off Miami to give you a true taste of life in the fast lane.

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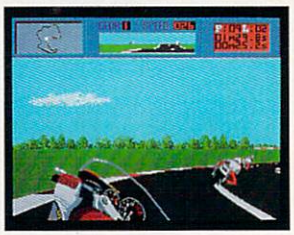

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A SYSTEM SIMULATION FROM MAXIS

BUILD ROME IN A DAY DESTROY IT IN AN HOUR!

MAXIS

IBM EGA screen

Confront Disasters-floods, earthquakes, tornados, meltdowns and monsters

Enter SimCity, the City Simulator, and take charge of an evolving, growing city. Become mayor of a dynamic real-time urban simulation. Your city is populated by Sims—simulated citizens. Sims live, work, play, drive—and complain about taxes, traffic, taxes, crime and taxes—just like us. You control the fate of the city. You zone land, balance budgets, control crime, traffic and pollution.

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(These comments are from the correspondence from real SimCity users. ***Honest!***)

DESIGN AND BUILD THE CITY OF YOUR DREAMS.

Collect taxes. Build homes, stores and factories—even nuclear power plants. Design mass transit. Hire police. Build a football stadium. Create an urban utopia.

OR TURN CITY LIFE INTO A NIGHTMARE.

Raise taxes. Bulldoze entire neighborhoods. Manipulate property values. Cause tornados, earthquakes, floods, fires and other disasters at your whim.

SIMCITY TAKES ON A LIFE OF ITS OWN.

Build roads—cars appear. Lay track—trains go. Build an airport—planes fly. Helicopters report on traffic. Factories cause pollution. Neighborhoods go condo. Areas deteriorate into slums. Lead a thriving metropolis or be left broke, mayor of a ghost town.

SIMCITY GIVES YOU THE KEY TO THE CITY. THE REST IS UP TO YOU.

- **Simple to play—all icons and graphics, no text commands.**
- **Loaded with animation and detailed sound effects.**
- **An endless number of possible cities—all different.**
- **Exceptional depth of play.**

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IN FOCUS

THE WRAPPING PAPER SIZZLES IN THE FIREPLACE. YOUR CHILDREN HAVE TIED THE RIBBONS IN THEIR HAIR, WRAPPED THEM AROUND THE DOG, AND STRUNG THEM ON THE BANNISTER. EVERYONE HAS INSPECTED EVERYONE ELSE'S TOYS. WHAT NOW? GATHER THE FAMILY AROUND THE COMPUTER FOR A GROUP ASSAULT ON SOME GHOULS IN A MAZE. TAKE TURNS AT YOUR HOME MINIATURE GOLF COURSE. PLAY TOGETHER. MORE AND MORE GAMES ARE COMING OUT FOR GROUPS, SO PICK UP A FEW EXTRA JOYSTICKS AND SET UP SOME MORE CHAIRS BY THE COMPUTER. WE'LL TELL YOU ABOUT SOFTWARE FOR THE FAMILY THAT WANTS TO PLAY TOGETHER IN "THE MORE THE MERRIER" ON PAGE 22. ■ WHEN YOU WENT OUT IN SEARCH OF THE GAME TO LIGHT UP YOUR FAMILY'S EYES, DID YOU KNOW WHAT TO LOOK FOR? THERE'S A LOT OF SMALL PRINT ON A SOFTWARE BOX. FIND OUT WHAT IT MEANS IN "BIG GAME HUNTER" ON PAGE 38. ■ GROUP GAMES AREN'T A NEW TREND, BUT THEIR SUCCESS WILL BE HARD-EARNED. READ WHAT A MULTIPLAYER GAME DESIGNER HAS TO SAY IN "MY VIEW" ON PAGE 34. FIND THE PERFECT GIFT FOR ANYONE IN OUR HOLIDAY GIFT GUIDE ON PAGE 46. ■ ON OUR DISK YOU'LL FIND GAMES YOUR FAMILY WILL STAND IN LINE TO PLAY. READ ABOUT THEM ON PAGE 56. ■ "RESOURCES," ON PAGE 54, WILL HELP YOU FIND MORE FUN TO OCCUPY YOUR FAVORITE GROUP ALL YEAR. IN DECEMBER, *COMPUTE!* IS YOUR EXPERT ON

FAMILY FUN & GIFTS

THE MORE THE MERRIER

TOM NETSEL

LOAD UP ON THE JOYSTICKS—
COMPUTER FUN IS A FAMILY AFFAIR

A giant lizard named Lizzy scaled a high-rise and devoured a SWAT officer whom she plucked from an open window. Then she turned her attention to George, a huge gorilla busy punching holes in a nearby building. Lizzy took a swipe at him, nearly knocking him to the ground.

"Hey! What did you do that for?" the teenage girl asked the woman sitting next to her at the computer.

Her mother didn't answer. She just smiled and concentrated on the giant lizard she controlled with her joystick. (The girl controlled George.) After Lizzy reduced one building to rubble, she turned to help George pound another high-rise into dust. Despite machine-gun fire from attacking helicopters and heavily-armed police SWAT teams, Jackie Bean and her daughter, Ashley—with a little help from Lizzy and George—destroyed Peoria, then set their sights on Chicago.

This North Carolina family was spending an evening with *Rampage,* an arcade-style game from Activision that permits as many as three players simultaneously to lay waste to 147 different cities. The Windy City was saved from destruction when Ashley suddenly remembered a biology paper that was due the next day.

Changes in the Environment

"We always look at the two-player option when we are designing because we like to play the games with each other in the office," says Kelly Flock, product development manager at Activision. "For example, most of our games have allowed two-player participation, but usually sequentially as opposed to

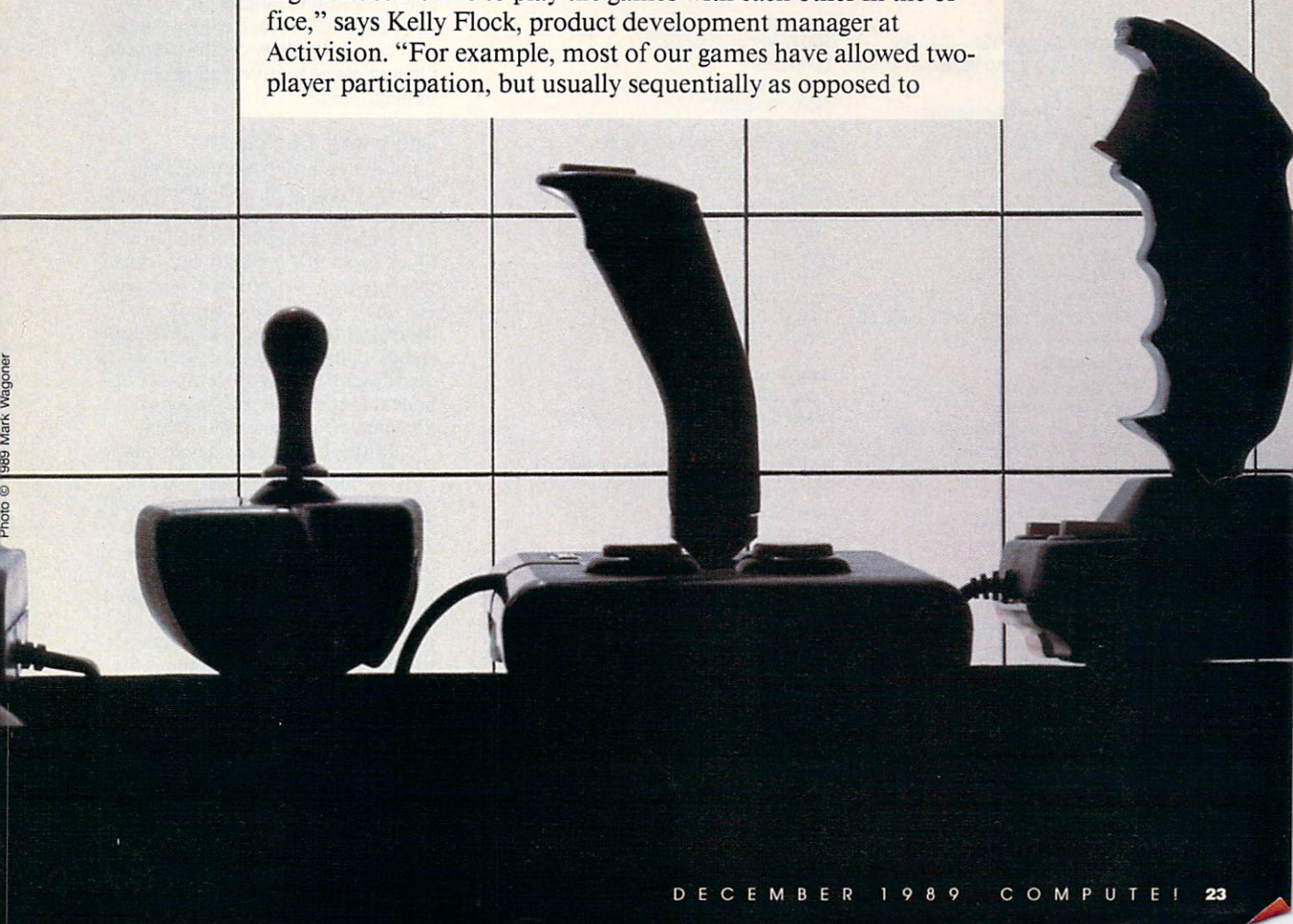

Photo © 1989 Mark Wagoner

THE MORE THE MERRIER

two players on the keyboard or joystick at the same time. Some of that comes from the MS-DOS environment where you don't typically have two joysticks."

Early multiplayer games tended to be the you-beat-my-high-score variety. What is interesting now, especially in games like *Rampage,* is that players work together. Up to three players can take the role of a huge gorilla, lizard, or wolf whose objective is to demolish cities Godzilla-style while avoiding helicopters and snipers.

"The objective was not to beat up the other guy," Flock says, "but to share the tasks. You go over and get that building, I get this building, but watch out for that helicopter, and then go down and get that police car." The game awards points for punching buildings, cars, helicopters, and for making between-meal snacks of the police. One person can play alone, but when two or more players get together, it makes it that much more fun.

"Despite its trash-and-smash theme," Flock says, "*Rampage* was created in an environment that was much more social, because you compete and cooperate with other live players."

The Human Touch

Traditional games are a form of entertainment played and enjoyed by several people, but, with a computer, you don't need a human opponent. Social interaction is still important, though. "People still prefer to play with other people," says Activision's Kelly Flock, "but there's a difficulty in getting them together, what with the timing or where the computer's located."

Shelly Safir, manager of product development at Accolade, echoes Flock's sentiment. "Computing can be a relatively isolating experience. The difficulty that we've found as an industry is that the computer is not normally in a place where the family gathers. It's a little difficult for people to get together unless they cram into one room."

As the personal computer moves out of an isolated corner and into the home's entertainment area, there's more opportunity for the family to gather around it—especially as the graphics capabilities pick up and the computer becomes more familiar. "Initially, there were members of the family who were afraid to touch it," Safir says. "As computers become more of an everyday item in the home, people are getting more accustomed to them and feel much more comfortable about playing with them."

A computer's input device also influences participation. A joystick or mouse is much more appealing than a keyboard for many game players. Two joysticks make it easier to attract two players. "I think I saw a lot more multiplayer gaming in the Commodore environment initially," Flock says, "but now I'm seeing players make that same transition in the MS-DOS market. Now people are starting to buy the joysticks, the sound boards, and the graphics boards that are allowing games to reach a level where they can really show off the machine. Owners want to invite people over to play."

Designers' Choice

If computer owners want to share their electronic fun with other people, software developers are all for it. "Two-player games are ideal for us," Flock says. "If everybody played two-player games, we could do away with the whole concept of computer A/I [Artificial Intelligence]. In developing games, that's often the hardest part to do. It's hard to make a computer opponent that's fun to play when you don't have a set of rules to follow."

Multiplayer games haven't done well financially. "But they are the kinds of games that all our developers like to do and we like to play," Flock says, "and that's why you continue to see them coming out. Around the office we have a bunch of game players who want to take on each other. Multiplayer games are the games of the future, but how soon they come is the big question."

Teamwork Counts

Activision's new release, *Tongue of the FatMan,* emphasizes competition. Mondu-the-Fat is the undefeated champion and host of the intergalactic Fight Palace. You and a friend control

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VIRUS!

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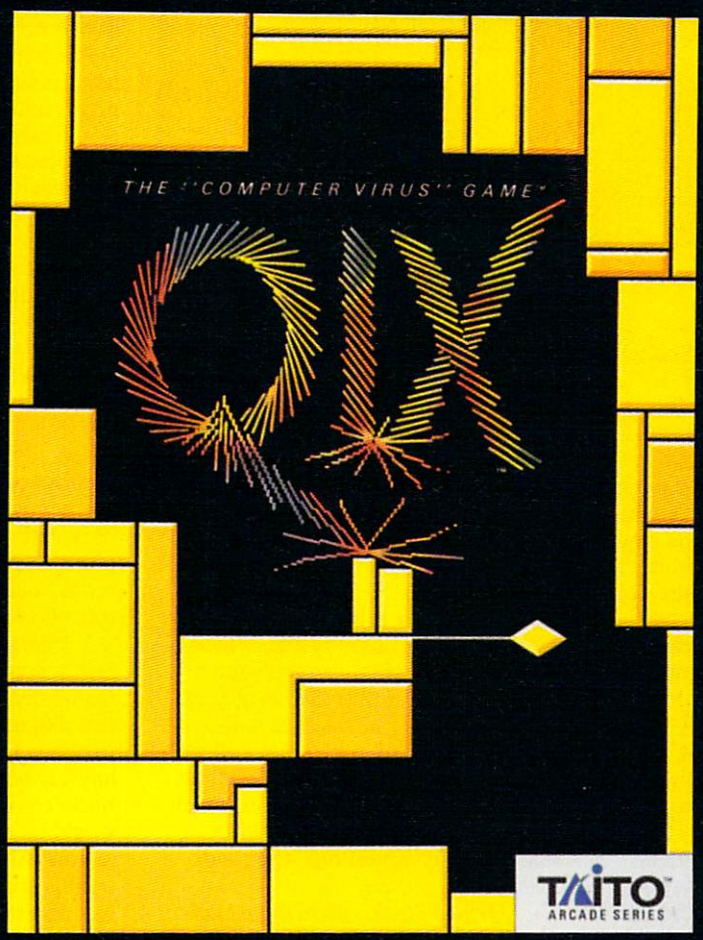

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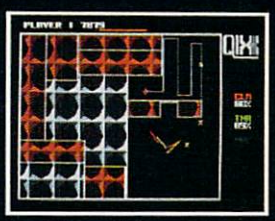
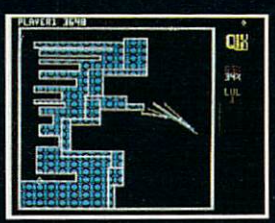
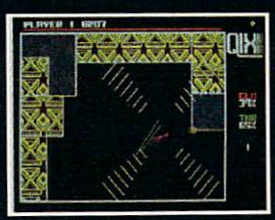


Actual Atari screen.



Actual C/64 screen.



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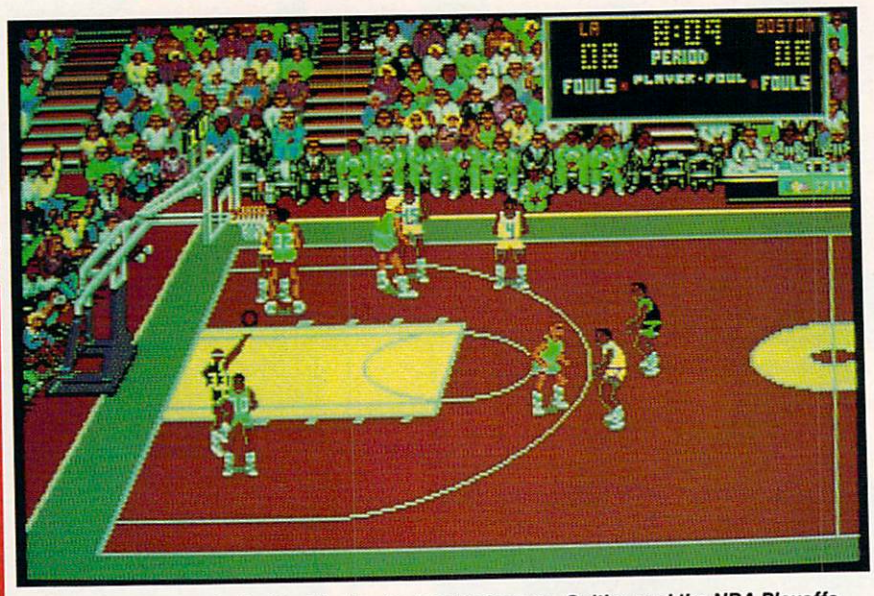


Play five-on-five basketball in Electronic Arts' *Lakers vs. Celtics and the NBA Playoffs.*

bizarre creatures who pit their skills and weapons against each other. If you feel lucky, take on the FatMan himself. Just watch out for Mondu's special weapon; in this arena, *tongue-lashing* takes on a whole new meaning.

If you're looking for more down-to-earth action, sports games and simulations frequently allow two or more players to compete simultaneously. In GameStar's hockey game, *Face Off,* two players can play against each other in a league game or in an arcade version. It also lets two players team up against the computer. "That should be an interesting feature," Flock says, "because I don't know of any product that allows users to do that."

Baseball fans may want to consider Accolade's *Hardball II.* It provides an enhanced two-player option that lets you manage your team and make tactical decisions. Players can manage two teams in head-to-head competition.

Electronic Arts has several new sports releases designed for multiple players as well as the conventional human-vs.-computer mode. *John Madden Football* lets two players control full 11-men teams for each kickoff, return, scrimmage, pass, punt, touchdown, and point-after attempt. The game designers modeled player performance after real-life ratings on as many as 11 key variables, including speed, durability, coverage, and rushing.

Lakers vs. Celtics and the NBA Playoffs is five-on-five basketball action from Electronic Arts. Players can select any of ten NBA playoff teams from the 1988–89 season, complete with stats. You can recognize the computer players. Different heights, hair styles, colors, numbers, and moves add up to realistic on-court action. Check out Kareem's skyhook, Bird's three-pointer, and Jordan's double-pump reverse-slam.

Brainteasers

Accolade's Safir produced *Jack Nicholas' Greatest 18 Holes in Major Championship Golf,* a popular golf game with an option for up to four players, but this summer he released a different kind of multiplayer game, called *Mental Blocks.* "It's the type of game, even in its single-player option, where people will stand around behind you and give you suggestions what to do," he says.

Mental Blocks offers three challenges in one package, and two of them have two-player options. Players compete against each other and the clock. "It provides a competitive mode that I think increases game enjoyment for a longer term," Safir says. "I also think that aspect encourages a lot more communication between the people playing, whether it be competitive or cooperative."

In *MB*'s Mental Detector, the problem is the same for both players. The top and two sides of a cube are shown, and each side has a color and perhaps an arrow pointing in a particular direction. Below the cube are four panels that may or may not represent the unfolded cube. The first player to identify which panel is the unfolded cube wins that round.

Shapes Happen is *Mental Blocks'* other two-player game, and it's similar to some IQ tests. You look at three figures that have some relationship, and then you select the fourth figure in the series from four choices. *Mental Blocks* also offers a game that can best be described as a three-dimensional version of *Tetris.* You rotate falling shapes so that they fit into the pieces that had tumbled down before. Instead of completing a line, you fill in a two-dimensional surface.

Invite a Friend into the Dungeon

Take a party of warriors, thieves, or magicians into monster-infested mazes and dungeons in search of riches and adventure. Instead of juggling each character's actions yourself in a role-playing adventure, consider the fun of having friends controlling each team member. It can produce some unexpected results.

"With everybody yelling commands at each other, it's really kind of funny. It's a totally different kind of gaming when you're playing at a computer with a whole bunch of people," says Joe Sislow, a teenage game tester for Mindscape. Sislow and several friends got together to test *Gauntlet II.* Thor, Thyra, Questor, and Merlin are back with more than 100 mazes to explore. Old enemies, ghosts, grunts, demons, lobbers, and sorcerers return, too, plus some new villains.

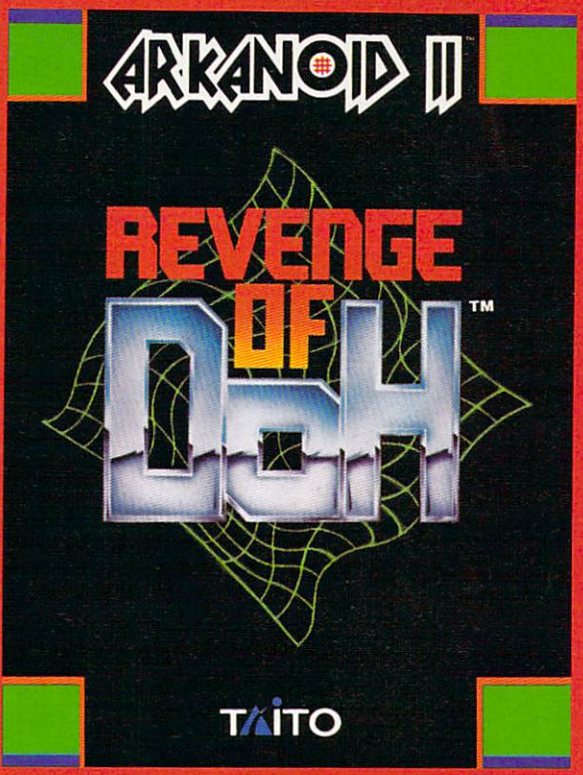
"We sometimes do nutty things," Sislow confesses. "One time on *Gauntlet,* we decided to rush four guys on this dragon that you are not supposed to attack hand-to-hand. We decided to anyway because we watch a lot of hack-'em-up movies, and we figured it would be a silly thing to do. The actual funny thing was, it worked. My friends and I were laughing hysterically. I don't think it would have been nearly as much fun had just one of us done it. It expanded the game so much by having people there to share it."

On certain levels of *Gauntlet,* your weapons can hurt other members of your party. Friends have been known to take mischievous shots at each other during lulls in the action. "That can turn into a silly romp," Sislow says, "but it's kind of fun. People go around shooting each other, getting off one shot just to irritate the other person, and they end up chasing each other."

Multiplayer games once employed split screens with players isolated from one another, but now the computer sets the stage and lets players interact any way they wish. Four human players can control four characters, doing whatever they want. ▷

RAGE!

DOH RAGES ON IN ARKANOID® II!



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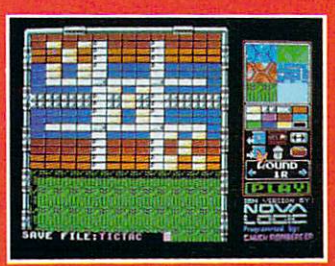

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They can work together or work against each other. "It sets up some interesting scenarios for being able to do some things that you can't do in a normal game," Sislow says. "Cooperating can make it a lot easier to finish a game, and competition can make it more fun."

Quality Time

There are times, however, when competition is not of prime importance and completing the game is only a secondary consideration. There are occasions when it's enough for family members to spend time together, sharing an activity.

Steve Hudson lives with his wife and daughter in Alpharetta, Georgia. He was playing DigiTek's *Hole-in-One Miniature Golf* one evening when his daughter, Kathryn, 6, took an interest in the game. "Kathryn watched me for a while and then she wanted to try it," Hudson said. She climbed into her father's lap and, after a few lessons on how to putt with the mouse, the two started to play. It wasn't long before Kathryn was doing better than her father. "It would take me four or five shots to get into the hole," Hudson says, "and she would have a sense for lining up shots to drop them in, one hole-in-one after another."

Cooperation is the key to success and survival in the dungeons of Mindscape's *Gauntlet II*.

When Hudson returned from work each day, Kathryn would ask to play. If he already had the game run-

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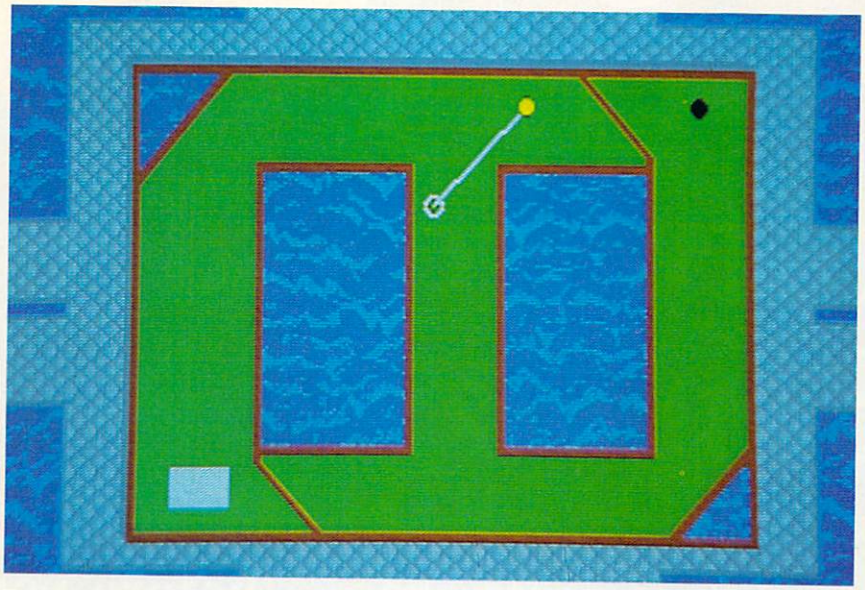


Remember your billiards skills when trying bank putts in *Hole-in-One Miniature Golf.*

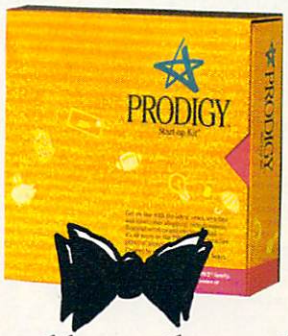
ning, she'd want to be included. "As she was crawling into my lap she'd say, 'Daddy, can I play?' I don't know what it was about the game that grabbed her so much, maybe it was the color or the sound or the interaction with the mouse, but she loved it. And she always beat me."

Kathryn is starting to share her father's enthusiasm for computers. Often when the two of them start a computer game or activity, Kathryn gets so involved with it she takes over. Hudson doesn't mind. He enjoys the time spent with his daughter. "It pulls us together in a world that's tending to pull us apart," he says. "As she grows and her interests change, she'd often rather do things with her friends. I took her to a concert the other night. She liked that, but I could already see her when she's 15, at a concert, not even thinking about Daddy."

Despite all the activities competing for a child's attention, at the age of 6 Kathryn still sees her dad as a computer whiz, and Hudson appreciates the opportunities computer games provide for bringing his daughter and him closer. "When the two of us are playing, my wife, Anne, will just let us do it. She maybe sees what's going on.

"It's kind of neat," he says of the togetherness brought about by the computer. "It's a very unexpected result." ⊡

Tom Netsel is an assistant features editor with COMPUTE! Publications. He can never find anyone to play with him, he says, because he cheats.



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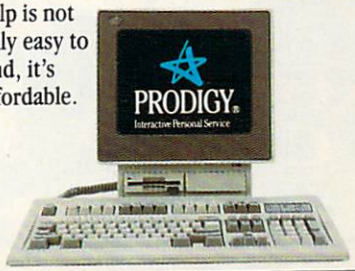

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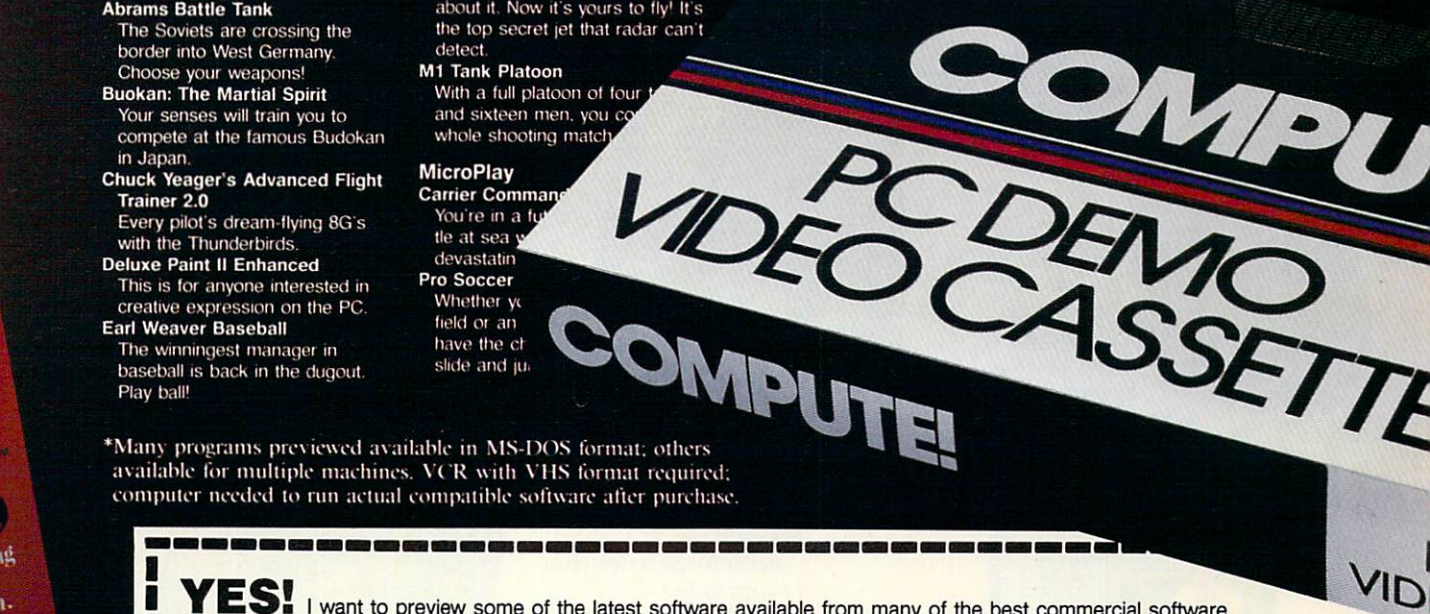

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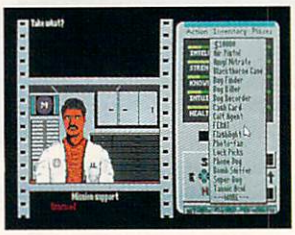

Your mission? Track down the Third Courier—a ruthless assassin hiding out in modern-day Berlin with hijacked NATO defense plans. He murdered two couriers to get them. Now he'll stop at nothing to sell these critical documents to the highest bidder.

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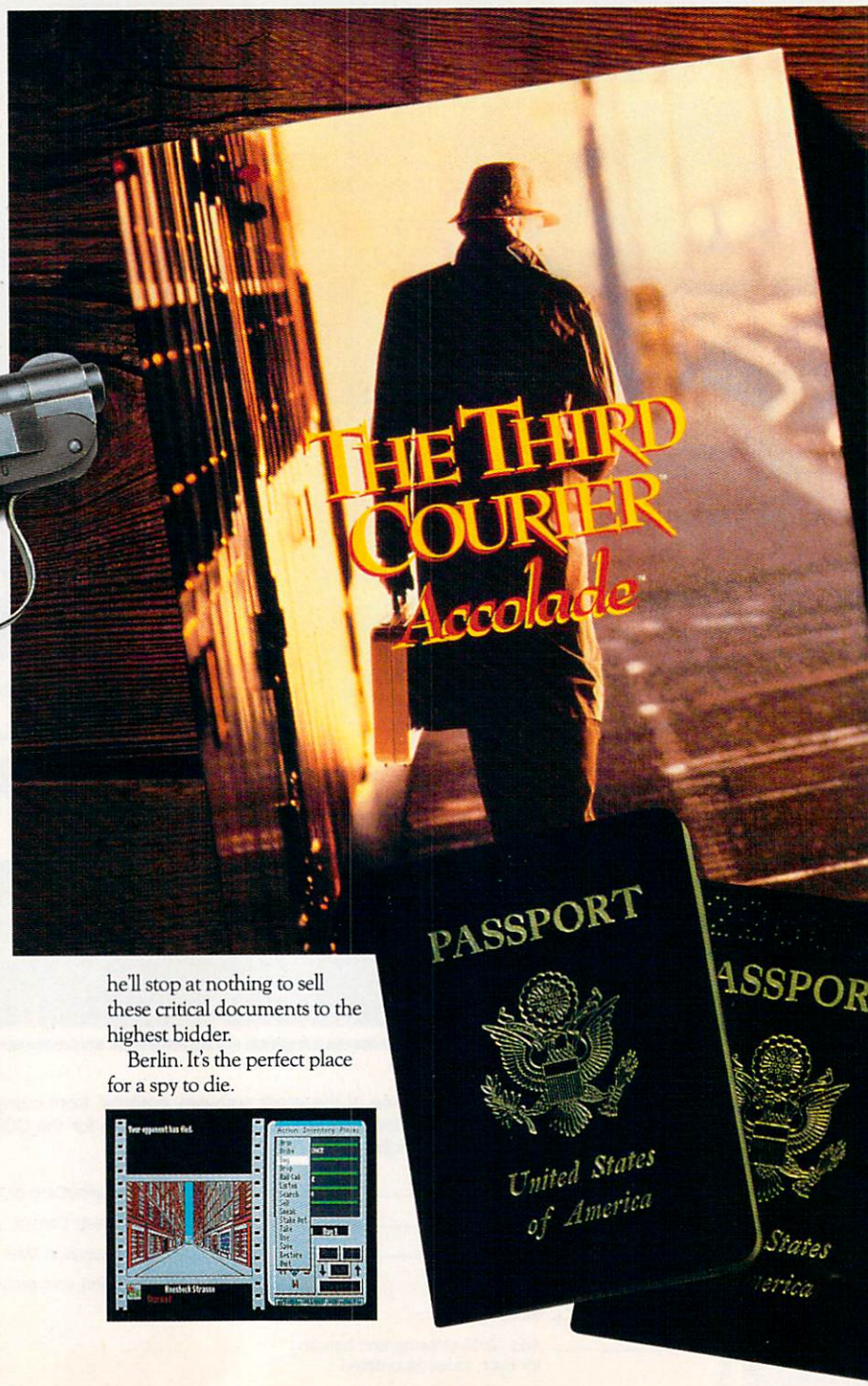

Actual game screens from IBM PC EGA version of the game. Other versions may vary.

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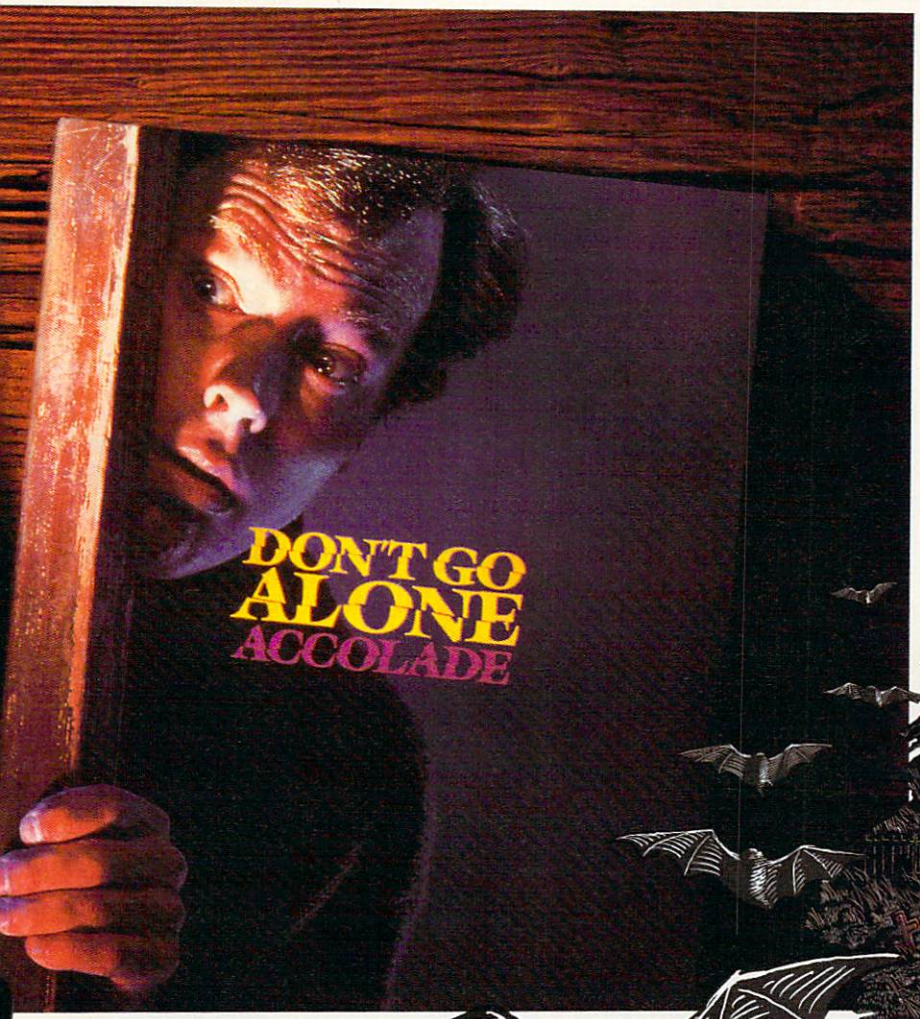

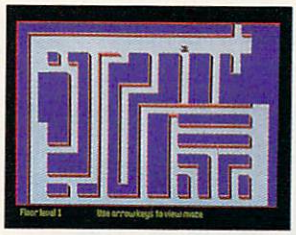

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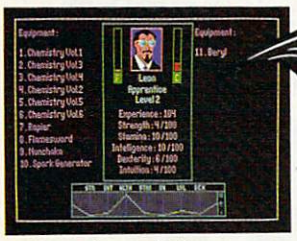

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MY VIEW

DAN BUNTEN

COMPUTER PLAYERS DON'T FLY SOLO ANYMORE

Back before computers, there wasn't but one type of game—the multiplayer game. We grew up with Monopoly, Clue, and Risk. However, in the computer world, single-player games are the rule, and multiplayer games haven't been very welcome. Of the 20 or so mass-market games designed for multiple players, my partners and I at Ozark Softscape developed 6. All 6, taken together, sold fewer than one moderate, single-player hit.

Despite the dismal history of multiplayer games, I believe they represent the major growth field of the future. And I believe that all the previous difficulties with multiplayer games can be explained away.

First, until just the last couple of years, computers were owned primarily by nerds. I'm a nerd (or a geek, as my 15-year-old daughter corrects me), so I should know. Nerds, as a group, are more comfortable interacting with things than with people. Solo games aren't just a more convenient way to play a game, they are a desirable way to socialize: without people.

Second, computers in most homes were hidden away in some inaccessible nook. Frequently, only one person in the household was the computer user. (Is it ironic that the only other group referred to as *users* are doing something illegal?)

The final reason is probably the most significant factor in why multiplayer games failed previously. They just weren't very good games. We designers were learning what could and couldn't be done.

It shouldn't be surprising that the first group of multiplayer games were derived from standard board games. But, by comparison, board games on computers were generally hard to play, not very pretty, and more expensive.

Thus, multiplayer games failed in the past because most of those games were trash. The few that were good didn't appeal to the nerds that owned computers, and the few nerds who were interested in playing social games didn't care to rearrange furniture just to play.

Today, with everybody getting a computer, our market has changed to reflect society. In this larger realm, the people-oriented people vastly outnumber the nerds. It's also quite common to find whole families using computers and installing those computers in more accessible spaces. Even the most physically isolated computer is electronically connected through a modem. However, the biggest reason for optimism about multiplayer games is that the games themselves have become a lot better.

Most multiplayer-game designers exploit the computer's best characteristics: interaction, animation, and dynamic processes. Varying game environments have replaced most static game boards. The way you interact with a game has greatly improved, too. Most games use a mouse or joystick to offer sophisticated interaction in a friendly way. You seldom have to learn arcane lists of commands and keys to play anymore. In most games, designers have replaced the concept of *turns* with realtime action. Even the subjects of multiplayer games have shifted from the cerebral and abstract to the visceral and realistic. Some multiplayer games even approach the action and intensity of arcade games.

There are even more options. You can "telegame" with either a single opponent or a bunch of people on a network by playing through a modem connection. Telecommunications services that offer multiplayer games with graphics and sound see major increases in connect time. GEnie has a realtime air-combat game that's so popular that some people run up bills of over $1,000 per month.

And, closer to home, there are still more options for groups playing on one computer. You can play competitively (as in *Double Dragon*) or cooperatively (as in *Ikari Warrior*), or sequentially (as in any number of sports games). You can even face each other with the computer in a supporting role (as in *Star Saga II*).

In wilder moments, I've predicted that people will look back incredulously on the eighties and say, *Can you believe we used to play those games by ourselves?* Every genre of computer games will improve when more people can play together. Imagine adventure games where players can form their own parties and encounter hundreds of other players roaming the world. Or a space battle where one group commands a fleet of spaceships, trying to free the galaxy from their evil opponents' fleet. Even the sky isn't the limit on what kind of social interaction computer games will offer in the future. ⊡

Dan Bunten and Ozark Softscape have created nine games since 1979, including M.U.L.E. *and* Modem Wars.

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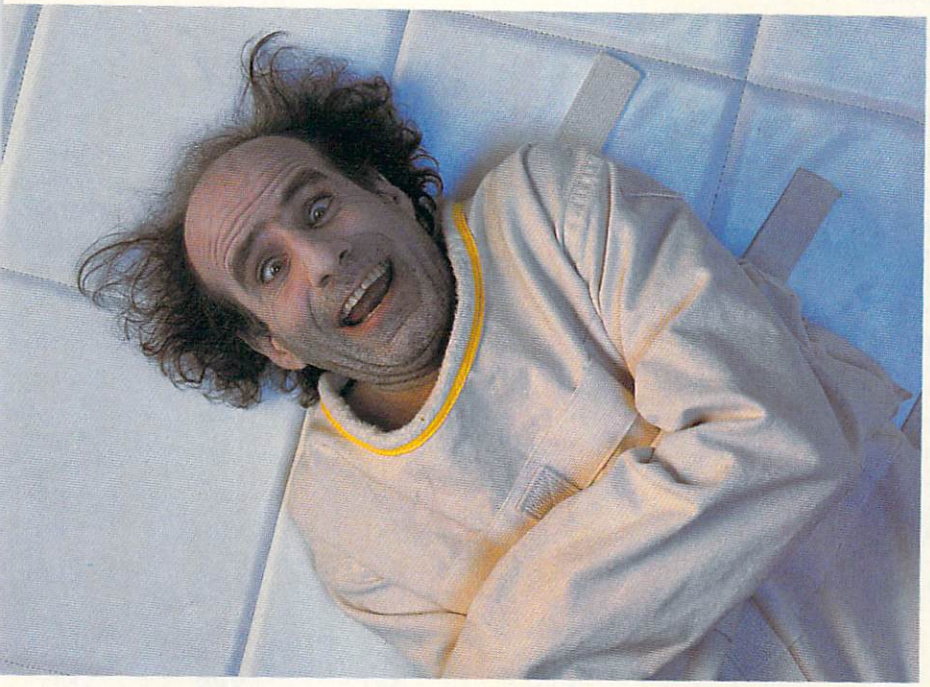

Fortunately, it's not necessary to physically restrain *everyone* who contracts *Pipe Dream* fever. But frankly, we're surprised that the Surgeon General hasn't ordered us to put a warning on the box.

Pipe Dream is Lucasfilm's fast-flowing new computer game of skill, strategy, and plumbing. And while the devilishly simple concept makes *Pipe Dream* easy to learn, it's maddeningly tough to master.

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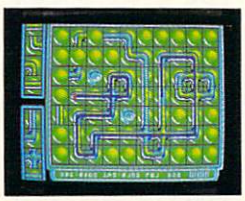

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Choose a *Pipe Dream* play mode to suit your skill: basic, expert, or two-plumber challenge. And when no one's looking, use the training mode to glimpse advanced level screens that you might otherwise never see.

Test your plumbing skills before you buy.

For a sample version of *Pipe Dream* look for specially marked boxes of Kao diskettes, or send $2.00 for postage and handling to: Pipe Dream Offer, Kao Infosystems Company, 41444 Christy St., Fremont, CA 94538. State diskette size (3½″ or 5¼″) and system type (PC or Macintosh only).

Once you've contracted *Pipe Dream* fever, move up to the full-blown version and really test your pipe-fitting prowess. If you're lucky, the only thing they'll have to restrain will be your enthusiasm.

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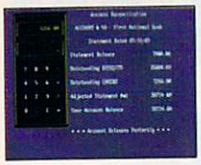

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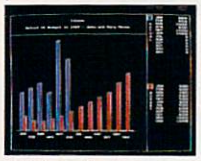

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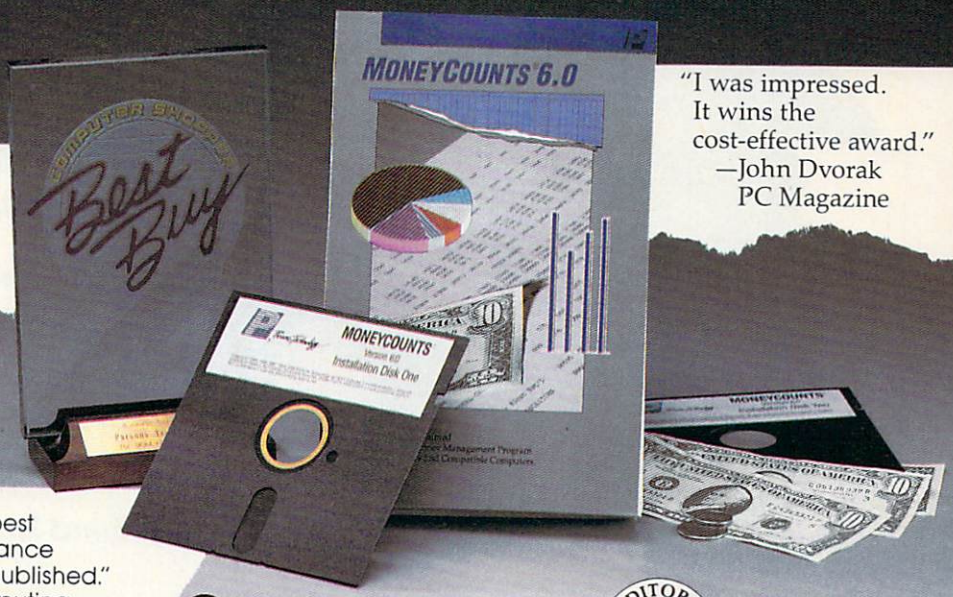

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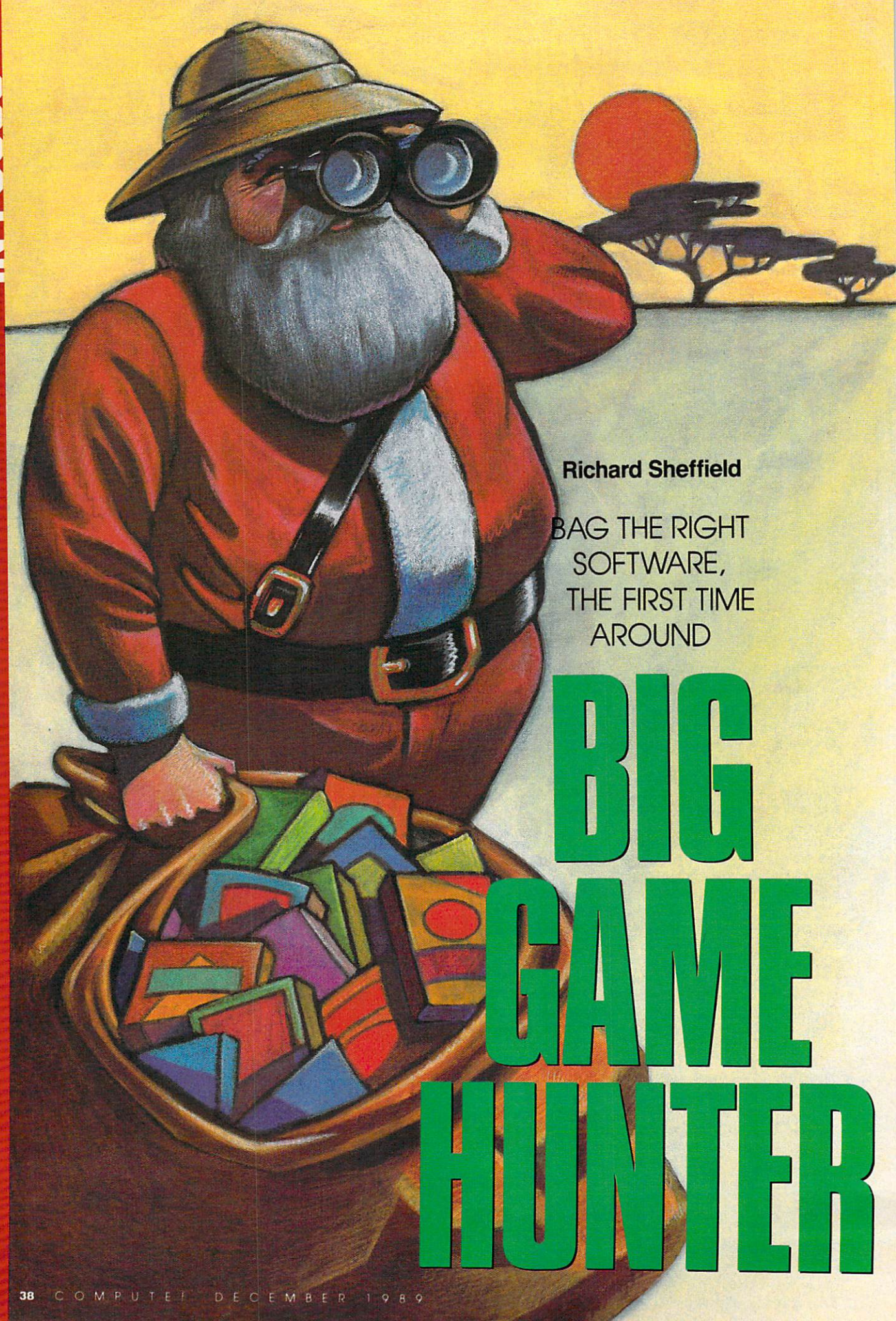


Richard Sheffield

BAG THE RIGHT SOFTWARE, THE FIRST TIME AROUND

BIG GAME HUNTER

Buying fun software used to be so easy. All you really had to know was what kind of computer you were buying for—probably a Commodore 64 or an Apple II. But now, now you have to consider Commodore 64/128s, the Apple II series, MS-DOS compatibles, Macintoshes, Amigas, Atari STs, and numerous subcategories.

Over the last couple of years, the PC has spread into the home like oil into Prince William Sound, bringing with it a number of problems for programmers and gift givers. It seems the MS-DOS world has more flavors than Baskin-Robbins, making your shopping even more difficult.

PCs aren't the only culprits, however. The Apple tree has also branched out, giving us the IIe, IIc, IIc Plus, IIGS, and the Macintosh Plus, SE, and II. It's hard to keep up; maybe we can help.

WHERE FOR WARES?

Deciding where to buy can be almost as important as deciding what to buy. You have local specialty software stores, national chains, discount houses, mail-order companies, and even online services. Here are a few tips to make your explorations easier.

Check Prices and Price Policies

Once you've decided on a game, take some time to find the best price. Entertainment software is usually discounted, so you'll hardly ever pay full list price. But the discount can vary widely. For example, *F-19 Stealth Fighter* retails for $69.95, but I found it for $49.00 in a large computer wholesale store.

Online and mail-order prices for *F-19* were even lower—$44.00. Be sure to read the fine print about shipping and handling fees, which can go as high as $4.50 in the United States and much more outside the country. If you don't have to pay sales tax, some of those charges will be offset.

For a real savings, check out pricing policies. Many stores have a standing policy to beat any advertised price in town. Egghead Discount Software operates under this policy. The store had marked *F-19* at $54.99, and I asked them to beat the $49.00 price across town. They gladly made the deal, and they even checked several other catalogs to make sure we had found the best price. Remember, it's up to you to ask. Nobody's going to sell for less unless you bring it up.

Ask About Return Policies

Because mail-order houses offer lower prices, they are also tougher on returns. Many don't take packages back—all sales are final. Others allow exchanges, but they charge a 20-percent restocking fee for returns. Read the fine print.

Retail stores are more lenient. Most are similar to Software Etc., which allows cash refunds with a receipt within 30 days of the purchase. It always pays to keep the receipt. If the store won't give you cash, it might give you store credit.

Whenever possible, don't break the shrink-wrap until you've decided to keep the software. You may not be able to return an opened package. If the game is a gift, attach a note warning the beneficiaries of your holiday spirit not to tear the plastic until they've decided they love the game.

ON THE HUNT

Now that you know where you want to shop, you're ready to look over your prey. But before you head out to the store, checkbook in hand, here are some things consider.

Check Memory Requirements

Between MS-DOS computers, the amount of internal memory can vary greatly. Unless you can ask the owner, there's no easy way to find out how much RAM a PC has. If you don't find out, though, you may buy a game that requires 512K of RAM for a dear friend who only has 256K. You may as well buy a blank disk.

Memory requirements for MS-DOS games have been climbing rapidly over the last two years. The standard requirement used to be 256K, but increased complexity and improved graphics have pushed most games up to at least 384K and many up to 512K. LucasFilm Games has indicated that all its future simulation games, such as *The Battle of Britain* (the sequel to *Battlehawks 1942*), will require 512K.

While you check on RAM, you should also check on the DOS version. Most games require DOS 2.0 or greater, but some people are still working with earlier versions. (Maybe a DOS upgrade would make a good gift.)

A package's memory requirement is an important consideration for the Macintosh also. Until recently, everything required 512K of RAM. But this year a few releases require one megabyte of memory. *Cosmic Osmo,* recently released by Activision, requires one megabyte (two megabytes are recommended) and a hard drive. Many Macintosh games come with the most recent version of System Software, but you should check out this vital statistic, too.

Like software for the Mac and PC, Apple IIGS games also require more memory than ever. While most games still fall into the standard 512K category, there are a few exceptions. Most notable are the Cinemaware Interactive Movie Series games, which require 768K, and Mindscape's *Balance of Power: The 1990 Edition,* which requires a full megabyte.

Check Graphics-Mode Support

Although most MS-DOS game publishers support CGA (4-color), EGA (16-color), VGA (256-color), Tandy (16-color), and Hercules (monochrome) graphics, some games don't support one or more of these modes. Make sure that you know the graphics capability of the system you're buying for, and check the labeling on the game box to make sure that mode is supported.

Portable and laptop computers further complicate matters. If the game you're considering is destined for the road, support for Hercules graphics or a compatible board is a must.

Check Disk Size

Despite all predictions to the contrary, the compact 3½-inch disk hasn't driven the 5¼-inch disk to extinction. So, the physical size of the game disk is very important. Most game publishers still regard the MS-DOS 3½-inch floppy as an inconvenience. Some companies package both disk sizes in every box, some package them separately, and some make you write in and request the 3½-inch format. Some retailers simplify your search by setting up a separate shelf just for software on the smaller disks.

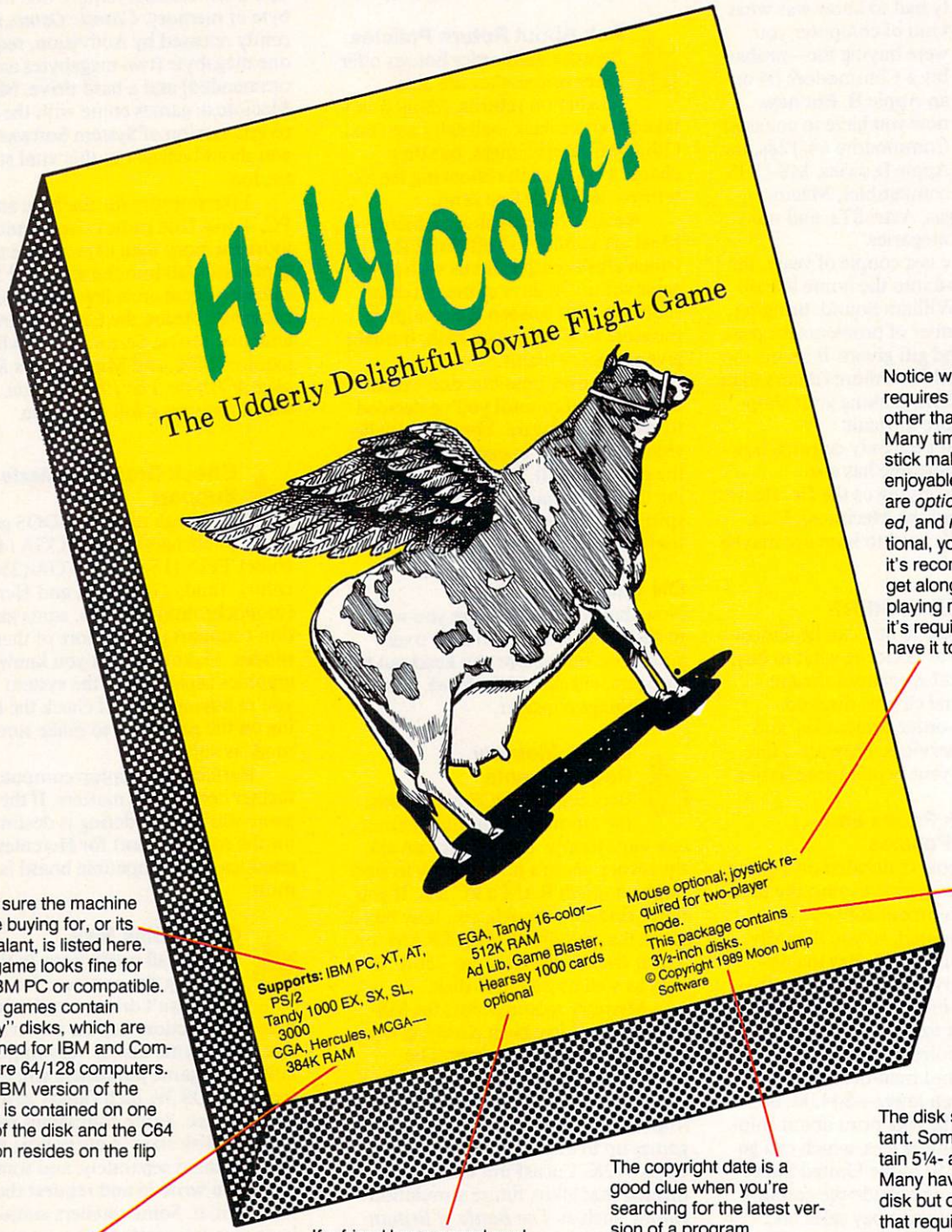
Don't think you're out of the woods just because you have both kinds of drives. Many games will only load from Drive A. With these packages, drive A must be the same size as the game disk.

Luckily, disk capacity is generally not a concern because only a few games require high-density drives. ▷

Illustration by Dan Sherbo

BIG GAME HUNTER

HOW TO READ A SOFTWARE BOX



Notice whether the game requires an input device other than a keyboard. Many times a mouse or joystick makes a game more enjoyable. The key words are *optional, recommended,* and *required*. If it's optional, you don't need it; if it's recommended, you can get along without it, but playing may be difficult; if it's required, you have to have it to play.

Make sure the machine you're buying for, or its equivalant, is listed here. This game looks fine for any IBM PC or compatible. A few games contain "flippy" disks, which are designed for IBM and Commodore 64/128 computers. (The IBM version of the game is contained on one side of the disk and the C64 version resides on the flip side.)

Different graphics modes may require different memory configurations. Not only should you check the graphics capabilities of the computer you're buying for, but you should make sure it has enough memory to run this game in that mode.

If a friend has a sound card, you may want to look for a package that takes advantage of it. Several cards are available; software companies are just now starting to support some sound modes with their products.

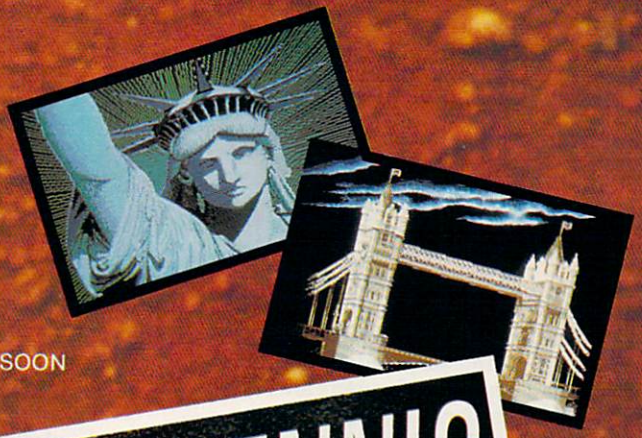
The copyright date is a good clue when you're searching for the latest version of a program.

The disk size is all-important. Some packages contain 5¼- and 3½-inch disks. Many have only the larger disk but offer a swap option that requires you to mail in the disk for a 3½-inch version. Some games come in both versions, packaged separately.

OKAY TENNIS ACE

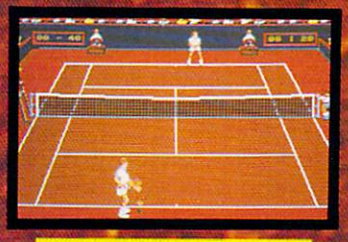
NOW'S YOUR CHANCE TO COMPETE WITH THE BEST.

Pro Tennis Tour - The Ultimate Tennis Simulation ranks you 64th amongst the best tennis players in the world.
Set your sights on such championships as the Australian Open, Roland Garros, Wimbledon, and the US Open.
Step into center court, tighten your grip and prepare to serve up your best shot - Pro Tennis Tour is about to begin.



- IBM
- AMIGA
- ATARI ST
- C 64 TO COME SOON

Warm up on one of six practice programs containing three levels of increasing difficulty. **Put away shots** like a Pro ! **Master** back-hand volleys, passing shots, and other winning tennis strokes.



Rush the net with confidence, knowing you can strategically place your next return.
Feel the excitement build as you challenge your next opponent and **make your way to the top !**

PRO TENNIS TOUR

Blue Byte

THE ULTIMATE TENNIS SIMULATION

Distributed by
ELECTRONIC ARTS®

UBI SOFT
Entertainment Software

Circle Reader Service Number 107

Screen shots represent Amiga versions; others may vary.
Amiga is a registered trademark of Commodore/Amiga, Inc.

Most prominent are *Falcon AT* and the EGA version of *Vette.* Both require AT-class machines and 1.2-megabyte drives.

In the Macintosh world, your concerns are reversed. You don't find any 5¼-inch drives on Macs, so all software is stored on 3½-inch disks. If the machine is several years old, though, you may run into a disk-capacity problem. The older units had a single-sided drive, reading disks that stored 400K of information. The newer Macs read from both sides of a 800K disk. Many of the newer software packages require the 800K drives.

Check Sound Boards

For years, the familiar beep was the only sound to emerge from an MS-DOS machine. It served little purpose except to scold you for performing some appalling illegal function or falling asleep on the keyboard. Game players demand better sound, and manufacturers are beginning to respond.

These boards occupy one of the computer's internal slots and can greatly improve the sound of a game. Most require you to wear headphones or attach the board to an external amplifier and speakers. Tandy computers are an exception because they have a sound system already built in.

If someone has gone to the trouble and expense of installing a sound card, you'll certainly want to buy software that supports it. But because of the large number of cards available, few companies can afford to support them all. Make sure that you know exactly which sound card, if any, is installed in the computer, and make sure that the software you buy fully supports that card. Electronic Arts' *688 Attack Sub,* for example, supports the Ad Lib board, but only with some title music.

If the computer you're buying for doesn't have a sound card, consider one for this year's gift. It can take game playing to new heights and open doors to new uses for an old machine.

WHAT'S IN STORE

You know where and what, but your hunt isn't quite complete. To flush out your quarry, pay attention to several points.

Look at All the Entertainment Software

Don't be afraid to look at the selection of games for different machine formats—especially if you have a Mac, Atari ST, or Amiga. Many retailers offer a very small selection for these machines. If you see a great game in another format, ask about it. The store may be temporarily out of stock, or the publishers may be converting the game to your format even as you shop. Most stores keep a list of games that are scheduled to be released in the next several months, so check it out. The perfect program will be worth the wait.

If a game isn't available on your machine, the salesperson may be able to recommend a similar package for your format.

Look Closely at the Screen Shots

The back of a game package usually features one or two photographs of the game in action. Read the fine print, telling you which computer the game was running on when the shutter snapped. Screen shots taken from an Amiga or an MS-DOS machine in VGA mode may look outstanding, but the game will appear very different on a Commodore 64 or on a CGA-equipped MS-DOS machine.

Also, learn the difference between title screens and action shots. Title screens are usually very impressive, but they have little to do with the way the game looks during play.

Check the Copyright Date

Computer gaming is still a young industry, and developments over the last several years have been nothing short of amazing. Because of these quantum leaps in the state of the art, a game released in 1986 may bear little resemblance to a similar game released recently. Text adventures have given way to 3-D animated adventure games, and flight simulators have discarded featureless wire-frame graphics for solid 3-D aircraft and ground detail.

While many of the older games are still a lot of fun, they often support fewer graphics modes and almost certainly offer no sound-card support. But if a package really catches your eye, ask about plans for updated versions or sequels. Silicon Valley loves sequels almost as much as Hollywood does.

On the flip side, older games are often a great bargain. Many companies realize that their early releases are outdated, so they reduce prices. MicroProse is a good example; it has taken ten of its earliest games and rereleased them in its Value Line Games series. At less than $20 each, these games are a great introduction to simulations.

Review the Game's Documentation

Although you can't judge a book by its cover, you can often judge a game by its documentation. If the company has taken the time to produce a sharp-looking manual, it's a good bet that the programmers have been equally diligent with the game itself.

Size isn't necessarily important, although it may give you a clue about the game's complexity. While the manual for *World Class Leaderboard Golf* tells you everything you need in 14 pages, the more complicated *F-19 Stealth Fighter* weighs in at 192 pages plus a keyboard overlay.

Play the Game or View a Demo

Most of the large software publishers spend a great deal of time and money developing slick self-running demo disks that few people ever see. Retailers have dozens of them stuck in a disk file somewhere, and they'll be happy to run them for you, but you have to ask.

Other retailers allow you to boot up a game in the store so you can play it before you buy it. Obviously, this is the best way to test a game if you're buying it for yourself.

Find Out if a Joystick or Mouse Is Required

For some games, a joystick or a mouse is optional. Other games require one or the other input device. If the person you're buying for doesn't have a mouse or a joystick, then keep this in mind when selecting a package. Action games like jet fighter simulations and arcade games are difficult to handle without a joystick or mouse. But animated adventures and strategy games work quite well with the keyboard.

BUY SMART TO HAVE FUN

As computer game complexity and realism increase, so, unfortunately, will prices. By doing your homework up front and asking the right questions in the store, you'll be able to get the best value at the best price. You'll also avoid some costly mistakes.

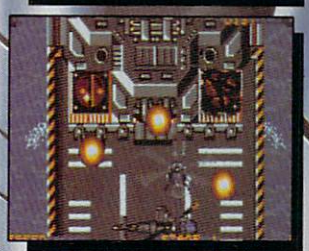
Fit the game to the person you're buying for, but also match the requirements and capabilities to that person's computer. You'll both have more fun.⊡

Richard Sheffield is an avid PC game player looking for the leading edge of software entertainment—at a bargain, of course.

ARCADE SEGA™ H·I·T·S

Storm the Skies!

Thunder Blade™



PILOT THE MEANEST FLYING MACHINE ON YOUR HOME COMPUTER!

Enjoy a whole new action-perspective on your PC from *the* arcade Hit of 1988! You'll reach for a safety belt, your hands will sweat as incredible 3-D realism hits you.

Top-down perspective gives you a bird's eye view that sees all around, while first-person perspective gives you the chance to maneuver between buildings, duck in and out of arches and fire at hidden enemy targets.

Make no mistake. This is 100% action. Strap yourself onto the ultimate flying machine and have at it!

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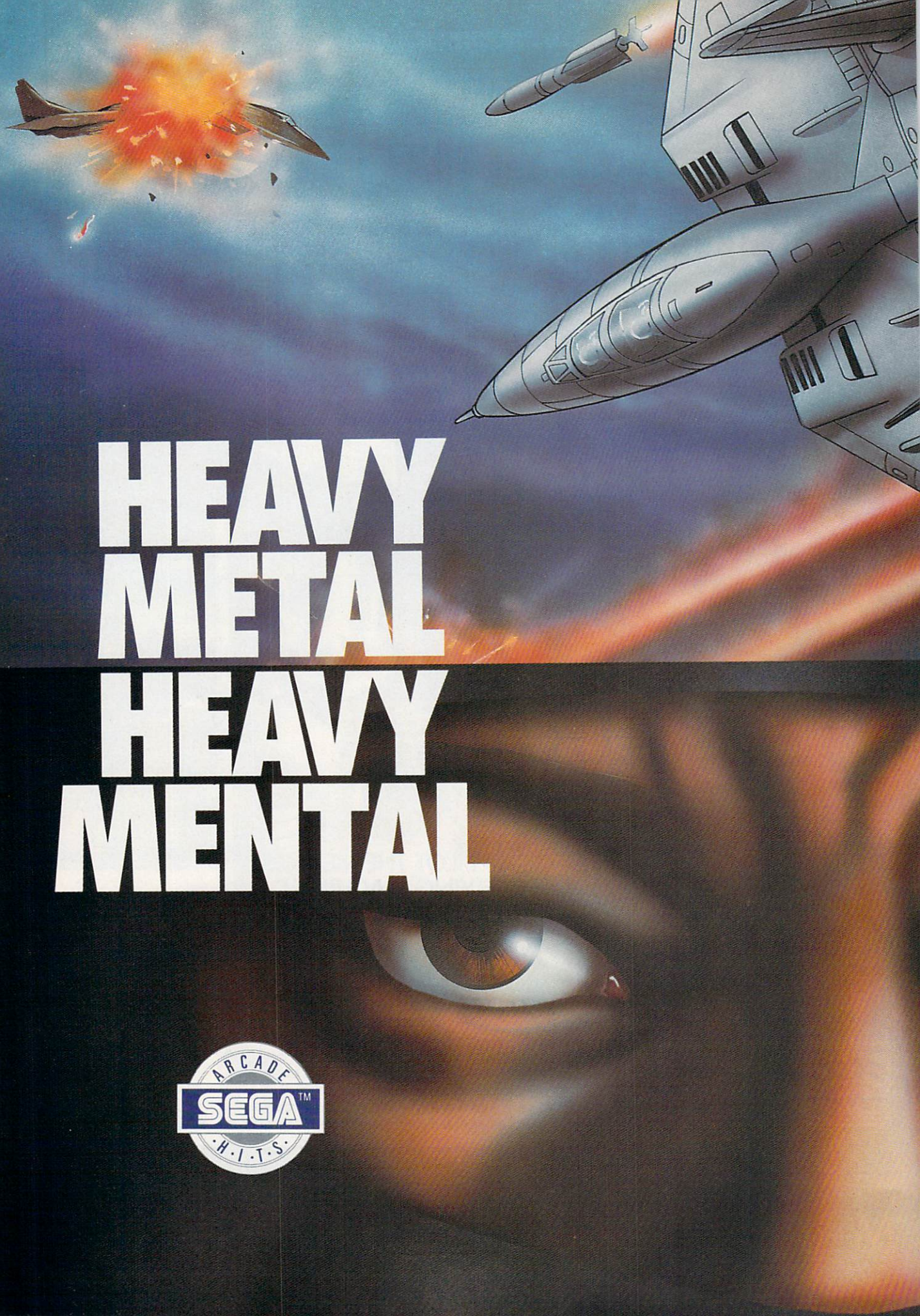
Visit your retailer or call 1-800-221-9884 for VISA and MASTERCARD orders. To purchase by mail, send your card number and expiration date, check or money order for $34.95 (C64 & C128), $39.95 (IBM), and $49.95 (Amiga and Atari ST), plus $3.00 handling to Mindscape, Inc., P.O. Box 1167, Northbrook, IL 60065. Allow 3-5 weeks for delivery. Coming soon for the IBM and Compatibles. ©Copyright 1989 Mindscape, Inc. Mindscape is a trademark of Mindscape, Inc. Copyright ©1989 Sega Enterprises, Ltd. This game has been manufactured under license from Sega Enterprises, Ltd., Japan. Thunder Blade is a trademark of Sega Enterprises, Ltd. Commodore 64 and Commodore 128 are registered trademarks of Commodore Electronics, Ltd. Atari is a registered trademark, and ST, 520ST, and 1040ST are trademarks of Atari Corporation. Amiga is a registered trademark of Commodore-Amiga, Inc. IBM is a registered trademark of IBM Corporation. Actual screen shots of Commodore Amiga version; others may vary. Made in U.S.A.


HEAVY METAL
HEAVY MENTAL
ARCADE
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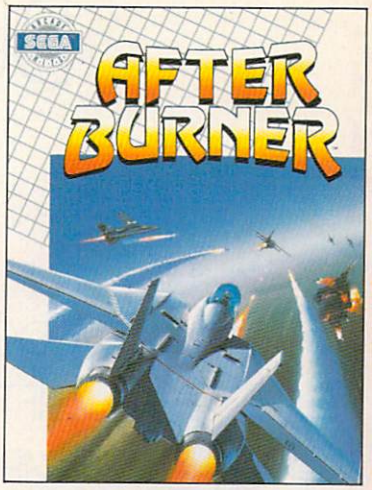
HITS

AFTER BURNER

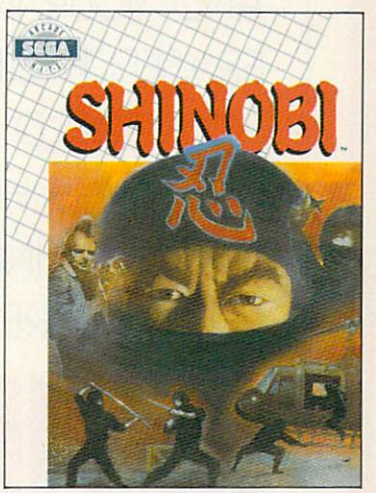


Get your adrenaline pumping—you're going to need it when you take to the skies. Because you're not going to believe what's up there! You supply the guts, the skill and the reflexes—the F-14 Thunder Cat will supply the mach 2+ speeds and the state of the art battle computer.

To evade enemy fire, you must execute difficult maneuvers including a 360° barrel roll. Getting by the Flying Fortresses isn't a simple matter—but if you succeed there's a fuel tanker to dock with. It will replenish energy and ammo.

Ok, jet jockey. Show us your true colors. Are you an ace, the top card in the deck?

SHINOBI

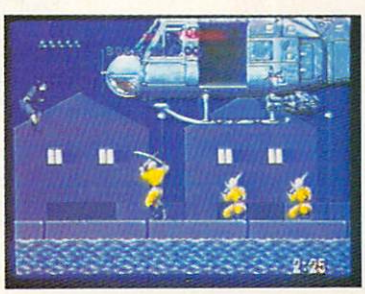


By day, you are Jo Mushapi, an ordinary martial arts instructor. But in crisis, you are capable of extra-ordinary feats. Ninja Mastery, Might and Magic!

You become a walking, breathing force-field!

You can reach inside and unleash the powerful synergy of nerve, muscle and spirit. Behind every corner of the suprising world of Shinobi, danger lurks.

In the caverns of the city—everywhere—enemy leaders roam. Find them. Find their weaknesses. Rescue the hostages. Outmaneuver the attackers. Fend off thugs and mongos with your Ninja Star. Defeat the evil Ring of Five. Destroy the evil helicopter!



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BUYER'S GUIDE

HEIDI E. H. AYCOCK AND JEFF SLOAN

HOW DO YOU FIND A GIFT FOR THE COMPUTER EXPERT WHO HAS EVERYTHING? WHAT ABOUT FIRST-TIME COMPUTER USERS? WITH THE HOLIDAYS IN DRIVE X: AND YOUR IMAGINATION ERASED FROM MEMORY, YOU COULD PROBABLY USE SOME HELP. DON'T WORRY—FIND THE PERFECT PRESENT IN THIS

HOLIDAY GIFT GUIDE

COMPUTER GROOMING

To keep your computer healthy, you have to keep it clean. Whether you're running spreadsheets or flight simulators, dust and grime can really ruin your progress. And static's no friend either. We've listed some good products, but there are many more.

The Computer Starter Kit
Curtis Manufacturing
$59.95

For new computer owners, it's hard to decide what accessories to buy. This kit gives you some of the more basic items—a disk file, a Curtis Clip copy holder, a pair of universal printer legs, a computer cleaning kit, and a surge protector.

Data-Vac
CompuAdd
$49.00

When it's time to clean your computer screen, don't wipe it. Vacuum it. Dusting the screen with a cloth can create static, but a computer vacuum, such as the Data-Vac, safely clears the dust away.

Magni Brush
Magni Brush
$22.00–$35.00

Keep your PC clean with a dusting brush especially designed for your computer. It's static free, and it's made out of—strange though it may sound—vegetable fiber. When the brush gets dirty, you can toss it in the washing machine. And you can even choose between a plastic or a wood handle.

Super Binders
Megamark Products
$4.00–$6.50

Computers seem to breed electrical cords and interface cables. To keep them tidy and out of the way, try these Velcro strips that tie all the technical tendrils together. Super Binders are available in four lengths and come in packages of two.

Typewriter/Printer Preventive Maintenance Kit
Falcon Safety Products
$30.00

Remember that cookie crumb that fell between the Q and the W keys on your keyboard? Couldn't get it out with a toothpick or even a pickax, could you? This package can help clean up your keyboard and printer and keep them clean. The kit includes a dust remover, print-element cleaner, and platen conditioner and cleaner.

SIMPLIFIED COMPUTING

In the world of home computing, there's always more to learn. Any gift that makes computing a little easier is a big winner and we've listed some sure bets. In October, we told you about books and online tutorials that would teach newcomers and old-timers alike. Along with those suggestions, try these computing aids.

Lotus
Lotus Publishing
$18.00

For *Lotus 1-2-3* fans, *Lotus* offers useful information and tips about the well-known spreadsheet. Published monthly, the magazine discusses how to use the spreadsheet for all sorts of business and organizational tasks.

SnapCap KeyCaps
Hooleon
$0.75–$49.95

If you ever want to change the name of a key so you can remember its function, all you have to do is ask. Hooleon imprints IBM-compatible keys to your specifications, and you can choose colors. Check this company for other keyboard enhancements, too.

Word for Word
The Cobb Group
$45.00

Manuals only go so far to teach you about your favorite software. If you use *Microsoft Word*, you probably know that people are thinking up new tips every day. *Word for Word* is a magazine that tells you what's new, what's handy, and what's troublesome with the popular program.

WordPerfect: The Magazine
WordPerfect Publishing
$15.00

Like *Word for Word* and *Lotus* magazines, *WordPerfect: The Magazine* offers useful articles on all aspects of the best-selling word processor. Among other topics, you'll find help with macros, desktop publishing, and printing.

GADGETS

Once you own a computer, gadgets will bring a light to your eyes like Tinkertoys did when you were a kid. A nifty trackball can change the way you control your cursor. A new keyboard can speed up your typing. Some unusually designed screws can have you twisting and turning the chassis of your computer. All of these gadgets make your life easier and often make computing more fun.

The Cable the Cloners Forgot
Mark Twain Computer Manufacturing
$9.95

If your PC and your monitor come from different companies, chances are you can't plug the monitor into the back of the CPU. Using this cable, you can connect the monitor to the computer. The advantage is that, when you switch on your computer, the monitor turns on, too.

Computer Speed Screws
Curtis Manufacturing
$5.95

While you're adding a sound board to your PC, switch your old screws for Speed Screws. You can tighten and loosen these screws with your bare hands, so you can forget where you hid the screwdriver.

DISCalculator
The Computer Giftware Company
$19.95

Slide back the shutter on this 3½-inch disk and you'll find a calculator. This solar-powered accessory can crunch numbers, and it never needs rebooting.

This floppy disk adds up to a handy little calculator.

The Executive Pad
The Computer Giftware Company
$15.00–$18.00

They may be a little more expensive than your basic, royal blue mouse pad, but these come in assorted styles and sizes. Most elegant is the marbleized mouse pad. Try this company for other unusual gifts, too.

MouseCAT
H & H Enterprises
$6.95

When it comes to keeping your desk tidy, a mouse holder can really help. There are several species, but one of the more unusual varieties is the MouseCAT. This plastic holder looks like a cat and, in an unlikely pose, hugs your mouse instead of eating it. The MouseCAT sticks to the side of your computer monitor with a Velcro fastener. Check this company for other mouse accessories, including a cheese-shaped mouse pad.

OmniKey PLUS
Northgate Computer Systems
$119.00

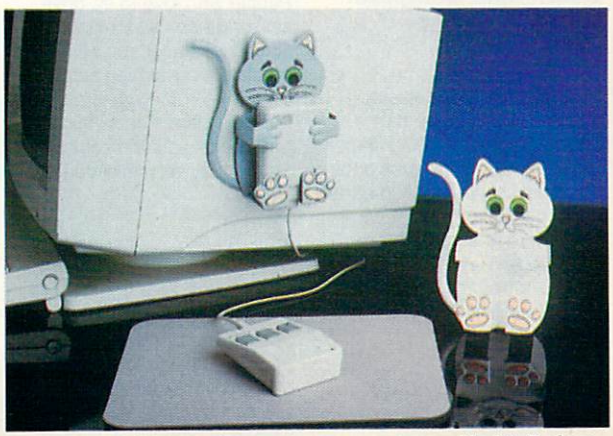
If you know someone who's still using the old PC keyboard—the one so poorly laid out that you're as likely to hit the slash key as the shift key—get that person a new keyboard like the OmniKey PLUS. Among other advantages, the function keys are on the left, the cursor arrows are laid out in a diamond, and the backspace key is very big.

Print Muffler 80
Kensington Microware
$49.99

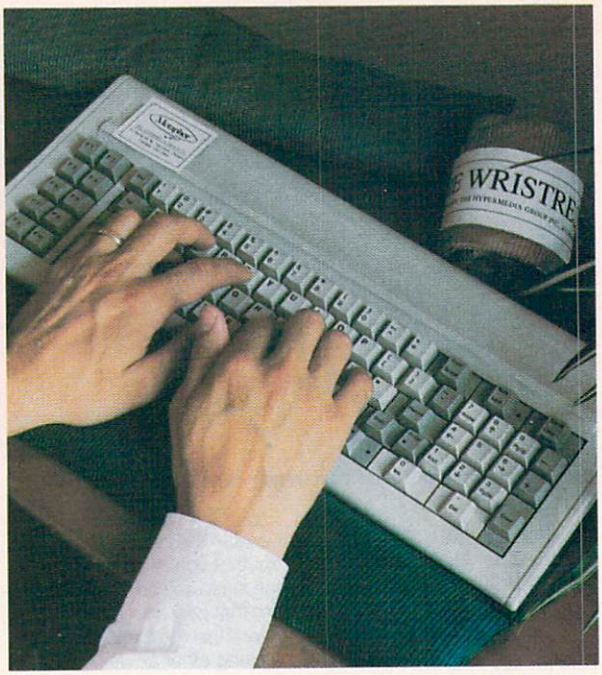
A Print Muffler 80 may be a better gift for the people who sleep in the room next to the home office. This device softens the sound of the printer—perfect for those late-night writers.

TrackerMouse
Penny & Giles Controls
$126.75

When you don't have enough room for a mouse, try a TrackerMouse. It's a trackball with buttons mounted on the sides of the trackball case. The side-mounted buttons let you drag (click and hold the button while you move the trackball) more easily.



The MouseCAT snuggles up to your mouse and holds it close.



Use this cushion to rest your wrists while you type away.

GET IT STRAIGHT

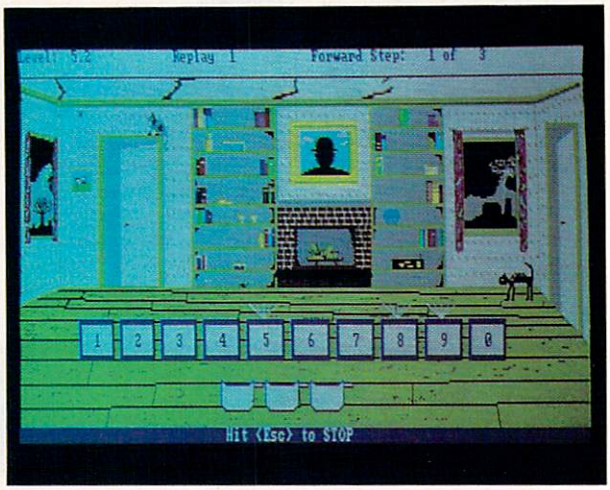
Everybody knows what a neat desk is a sign of: a sick mind. In reality, a neat computer desk is a sign of a person who knows which office accessories to buy. We've listed some organizers for disks, manuals, and supplies; and we've found a nice way to label your disks so you don't have to tear the sticky stuff off each time you recycle them.

Datamate 3000
C & C Woodworking
$239.00

Finding an out-of-the-way place for manuals, disks, papers, and office supplies isn't always easy, but the Datamate 3000 is one option. It's a triple-compartment storage cabinet on wheels. You can organize your materials and then roll them into the closet when company comes.

Erase-a-Label
Erase-a-Label
$4.99

These labels make it easy to rename a disk. For example, if you have a disk holding letters to your Great Aunt Ethel, and you decide to erase it and fill it with games from foreign telecommunications services, simply dab some alcohol on the label and wipe the old name away. Each package contains 20 labels and one pen, and you can get them for 5¼- or 3½-inch disks.



***Neurobics* exercises your gray matter and your memory.**

MIND AND BODY

Productivity's fine, but you need to have fun, mental exercise, and tasty treats, too. You can find several resources for computer novelties and brain-stretching games. The ones we've listed are just the tip of the microchip iceberg.

Chocolate Byte
The Chocolate Software Company
$12.95

Okay, so not every gift has to be useful. At least this 5¼-inch chocolate disk is in good taste. When you've finished processing the disk, you can use the case to hold five nonedible disks. The company also sells 3½-inch disks, keyboards, and computers—all made of chocolate.

Count Disk Computer Dart Gun Game
Count Disk
$19.95

Vent your high-tech frustrations by booting up a dart board. Count Disk's Computer Dart Gun Game includes a toy dart gun, six suction-cup darts, and a game disk with several dart-board designs that are displayed on your PC's screen. You get a free membership in the Count Disk Club with the game.

Neurobics
Ocean Isle Software
$44.95

Neurobics tests and develops your intelligence. The program features logic puzzles, pattern recognition, and other puzzles. A good gift for the Sherlock Holmeses and Albert Einsteins on your list.

Strike Force Navigator
Advantage Ace
$8.95

People who love to fly, drive, sail, or otherwise tool through simulated landscape will appreciate a navigation aid like the Strike Force Navigator. Made of clear plastic, this compass helps you find your way as you play vehicle simulators.

Wristrest
Metaphor
$12.95

Can you still hear your typing teacher yelling at you about the position of your wrists? Metaphor has designed a soft corduroy-covered cushion that you can rest your wrists on while you type.

Dual Pak
Rick RamStar
$18.00

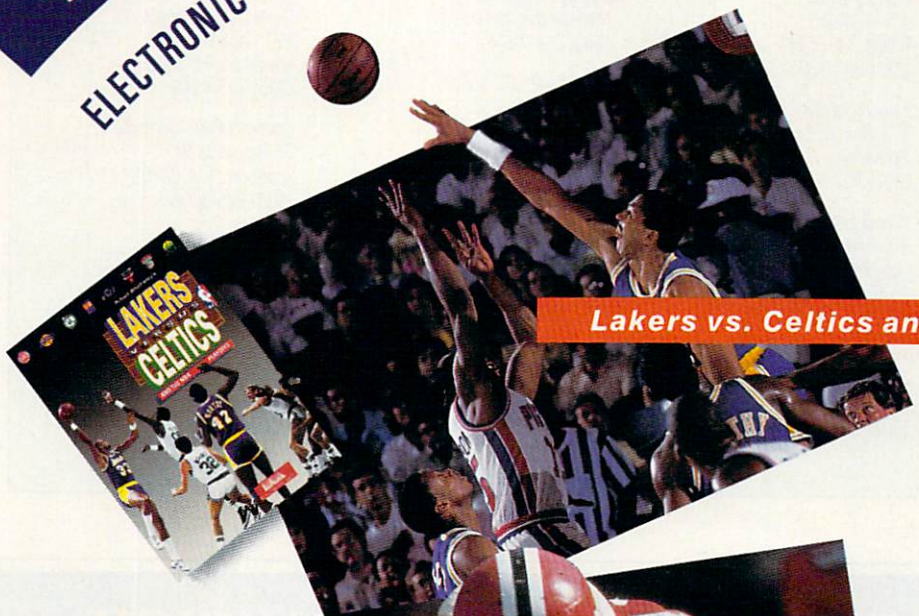
The PC world has put one foot in the 3½-inch disk territory and left the other foot in the 5¼-inch disk zone. So, many of us are walking around with both sizes. The Dual Pak is a disk carrying case that holds ten disks, five of each size. A shield keeps the hard plastic shell of the smaller disks from damaging the larger ones.

Keyboard Slideaway
Kensington Microware
$49.95

If your desk isn't as deep as the combined footprints of your PC and keyboard, Kensington Microware may solve your problems. Simply slide your keyboard out of the way using Keyboard Slideaway. It sits under your computer and frees up desk space. ⊡

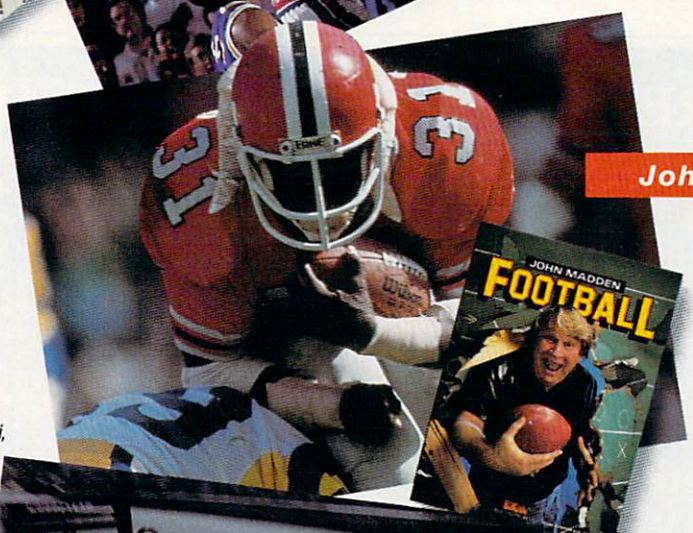
THE THRILL OF WINNING

ELECTRONIC ARTS PRESENTS **3** SIZZLING NEW SPORTS PRODUCTS



Lakers vs. Celtics and the NBA Playoffs™

Score with ten of the best NBA teams in the first full-court 5-on-5 game with real NBA players.



John Madden Football™

Play pro football using over 160 of Madden's own plays, or design your own. The most complete football game ever with everything from audibles and injuries to onside kicks and astroturf.

Ferrari® Formula One™

Design, test, and race the ultimate Grand Prix machine in the first racing game for simulation fans.

HOW TO ORDER

Visit your retailer or phone with VISA/MC: USA or Canada, 800 245-4525, Mon-Fri, 8am-5pm Pacific Time. All products available on the IBM. John Madden Football also on Apple and C64. Ferrari Formula One also on Amiga.

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Circle Reader Service Number 102

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Metaphor
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Northgate Computer Systems
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Ocean Isle Software
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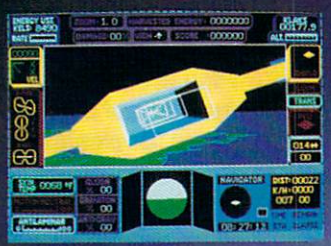
WHEN REALITY JUST ISN'T ENOUGH. . .



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UFO

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Circle Reader Service Number 127

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As Squadron leader, test your flight planning skills against a real-time enemy in multi-mission campaigns.

- *You decide what missions to fly, for yourself and for your squadron.*
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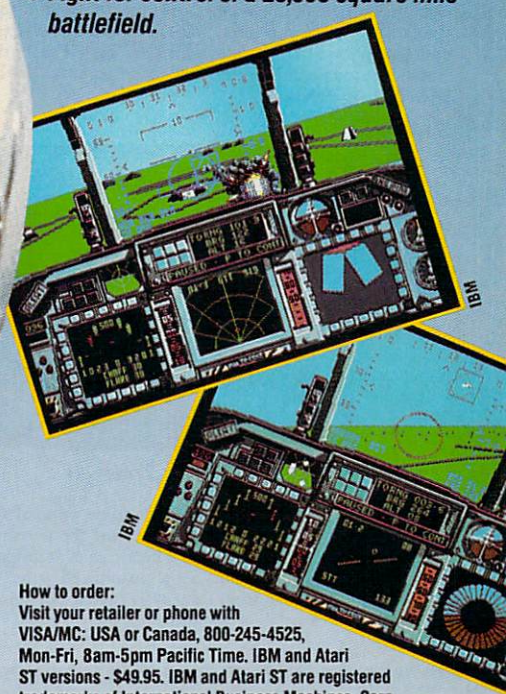
- *Fight for control of a 20,000 square mile battlefield.*



How to order:
Visit your retailer or phone with VISA/MC: USA or Canada, 800-245-4525, Mon-Fri, 8am-5pm Pacific Time. IBM and Atari ST versions - $49.95. IBM and Atari ST are registered trademarks of International Business Machines, Corp. and The Atari Corp. respectively.

F/16 COMBAT PILOT™

Digital Integration

ELECTRONIC ARTS®

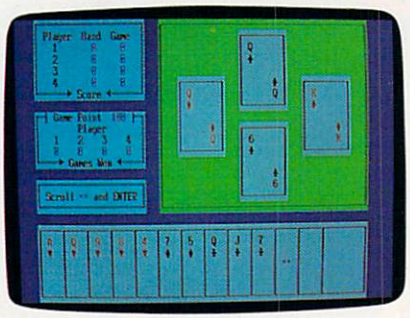
Circle Reader Service Number 152

COMPUTE!'s SHAREPAK for IBM PC and Compatibles

Compiled by the Editors

Get top-quality software—handpicked from the best of shareware—and all the documentation you need on one easy-to-use disk. You pay just one low price for the complete package and sample some of the best noncommercial software available.

COMPUTE!'s December disk offers four challenging strategy games: an ancient Chinese tile game, chess with a view, a card game for the not-so-tenderhearted, and a fishing game you wouldn't believe.

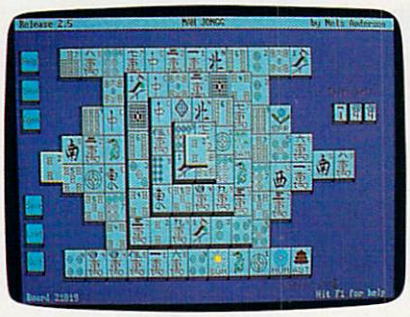


Hearts

Challenge three computer opponents to a quick-witted game of hearts. You'll soon pick up the nuances of this age-old card game and develop your own winning strategies. And just to keep everyone honest, a menu option lets you read the rules while you play. The 16-color text-based graphics run on any monitor. The game requires 256K of memory and DOS 2.11 or higher.

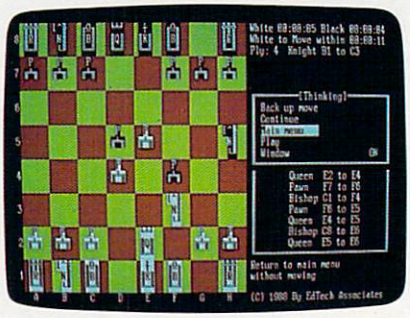
Bass Tour

Cast out and reel 'em in as you try to hook the big one in this computer-based bass-fishing tournament. Your tackle box holds a wide arsenal of colorful lures to tie on your six championship rods. Study the shorelines of the six tournament lakes, or use the depth finder and contour maps for more sophisticated angling. Don't forget to keep an eye on the weather, though, or you may be rained out. The game requires 384K of memory, DOS 2.1 or higher, and Hercules, CGA, EGA, or higher graphics card.



MahJongg

The ancient Chinese inspired this intriguing game of strategy in which you match and stack colorful tiles. Increase the pressure by playing against a time limit. If you need a break, save your game for later, or change the background colors for a customized game. Mouse control is supported but not required. Requirements include 256K, DOS 2.1 or higher, and EGA or VGA monitor.



Ed's Chess

Check. *Checkmate.* Plan your moves carefully in this full-featured chess game. Watch the computer examine its options before it moves, and see how it determines its strategies. Vary the challenge with options such as autoplay, take back a move, change difficulty levels, verify only, and load and save games. All graphics are character-based so they run on any monitor. The game requires 256K and DOS 2.1 or higher.

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Please allow 4–6 weeks for delivery. For delivery outside the U.S. or Canada, add $1 for surface mail or $3 for airmail.

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Disks available only for IBM PC and compatible computers. Offer good while supplies last.

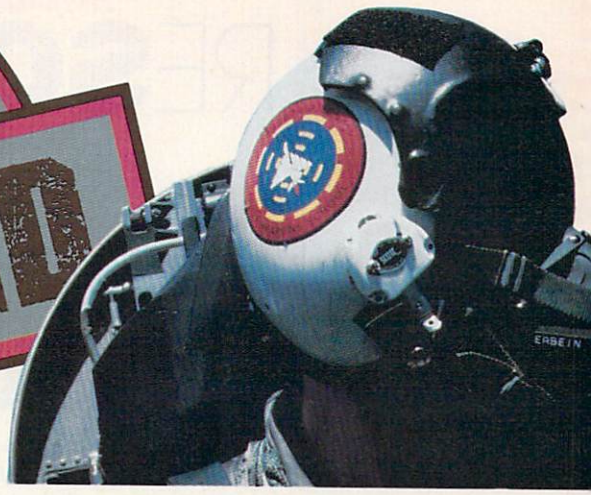
Shareware Agreements

COMPUTE!'s SHAREPAK is a collection of shareware and public domain programs. Public domain programs are free; you can use them and pass them around as much as you like. On the other hand, shareware isn't free; you pay the shareware author if you decide to use the program. Here's how shareware works.

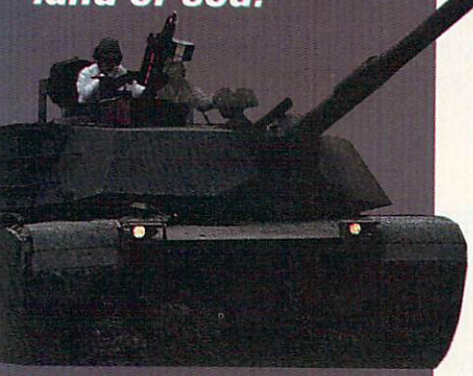
If you like a program on the disk, you should register yourself directly with the shareware publisher (not with COMPUTE!). Each program includes a license agreement that explains whom to contact and how much the program costs. Shareware prices are very low compared with similar commercial programs.

Registering means you pay the software author for a program he or she developed, plus it entitles you to technical support and information about upgrades. You'll find shareware publishers are easy to work with and eager to help.

TAKE COMMAND



Electronic Arts introduces three state-of-the-art simulations for air, land or sea!



Prices are suggested retail prices for 5.25″ version; actual prices may vary by dealer. 3.5″ version available. To order, visit your retailer or call 800-245-4525 from US or Canada 8am - 5pm Pacific Time.

Available for most IBM,® Tandy® and PC-compatible computers. Screen shots represent IBM version. IBM is a registered trademark of International Business Machines, Tandy is a registered trademark of Tandy Corporation.

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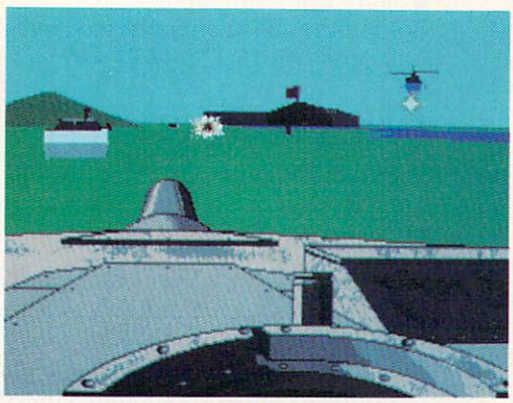
CHUCK YEAGER'S Advanced Flight Trainer 2.0™

The hit is improved. New realistic terrain, Yeager's *Flyin Insights*™ cassette, Thunderbi formations, 18 aircraft, and mo White knuckle thrills with the master test pilot. $49.95.

By Ned Lerner



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The world looks hostile from a M1A1 gunner's sight. Feel the blast of your 120mm cannon in tough, realistic combat action. $39.95.

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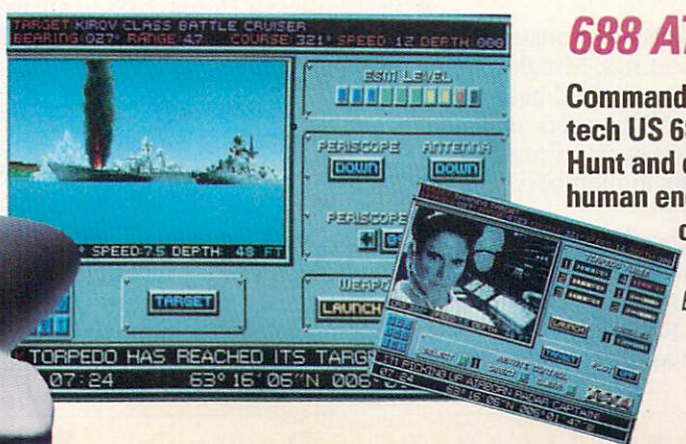

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Command the billion dollar hig tech US 688 or Soviet Alfa sub Hunt and evade unnervingly human enemies. Unmatched color, realism, and 3D graphics. $49.95.

By John W. Ratcliff

Circle Reader Service Number 14

RESOURCES

COMPUTER GAMING—GETTING HINTS IS HALF THE FUN

CUSTOMER SERVICE

Most software companies gladly offer advice and hints about their products over the phone; there's usually a staff dedicated to that purpose. Dial the number found in the documentation, ask for customer service, and then ask away. You'll usually get all you need to know.

REVIEWS

Read plenty of reviews in consumer-oriented computer magazines. This is the best way to familiarize yourself with products without even seeing them. Although reviewers can be rather subjective at times, the information may still be useful when it comes to choosing the best buy for your buck.

DEMOS

Computer stores usually have the latest games running on the showroom floor. You can test-drive them there to see if they're worth the investment. If you can't find what you're looking for on the floor, the salesperson will probably take the program out of the package for you to try. Don't be shy, just ask.

User groups also demonstrate games at their meetings. Mingle during the breaks and you'll hear a lot about software that others are playing. You might even arrange to see several titles at members' houses.

If there's a question-and-answer period during a user group meeting, that's a great opportunity for asking game questions. Chances are someone will have an answer for you.

GAME BOOKS

Do you need some advice on winning? You'll find several books on specific games and strategy books on specific genres of games. A short list of these is below.

- *A Flight Simulator Odyssey*
- *Flying on Instruments with Flight Simulator*
- *The Official F-19 Stealth Fighter Handbook*
- *40 Great Submarine Simulator War Adventures*
- *Gunship Academy: Tactics and Maneuvers for Attack Helicopter Simulations*
- *The Official Book of Kings' Quest: Daventry and Beyond*
- *Realistic Commercial Flying with Flight Simulator*
- *Sub Commander: Tactics and Strategy for WWII Submarine Simulations*

All of the above are published by COMPUTE! Books, Chilton Book Company, One Chilton Way, Radnor, Pennsylvania 19089; (800) 345-1214.

- *King's Quest* hint books
- *Space Quest* hint books

Both of the above are published by Sierra, P.O. Box 485, Coarsegold, California 93614; (209) 683-4463.

ONLINE HELP

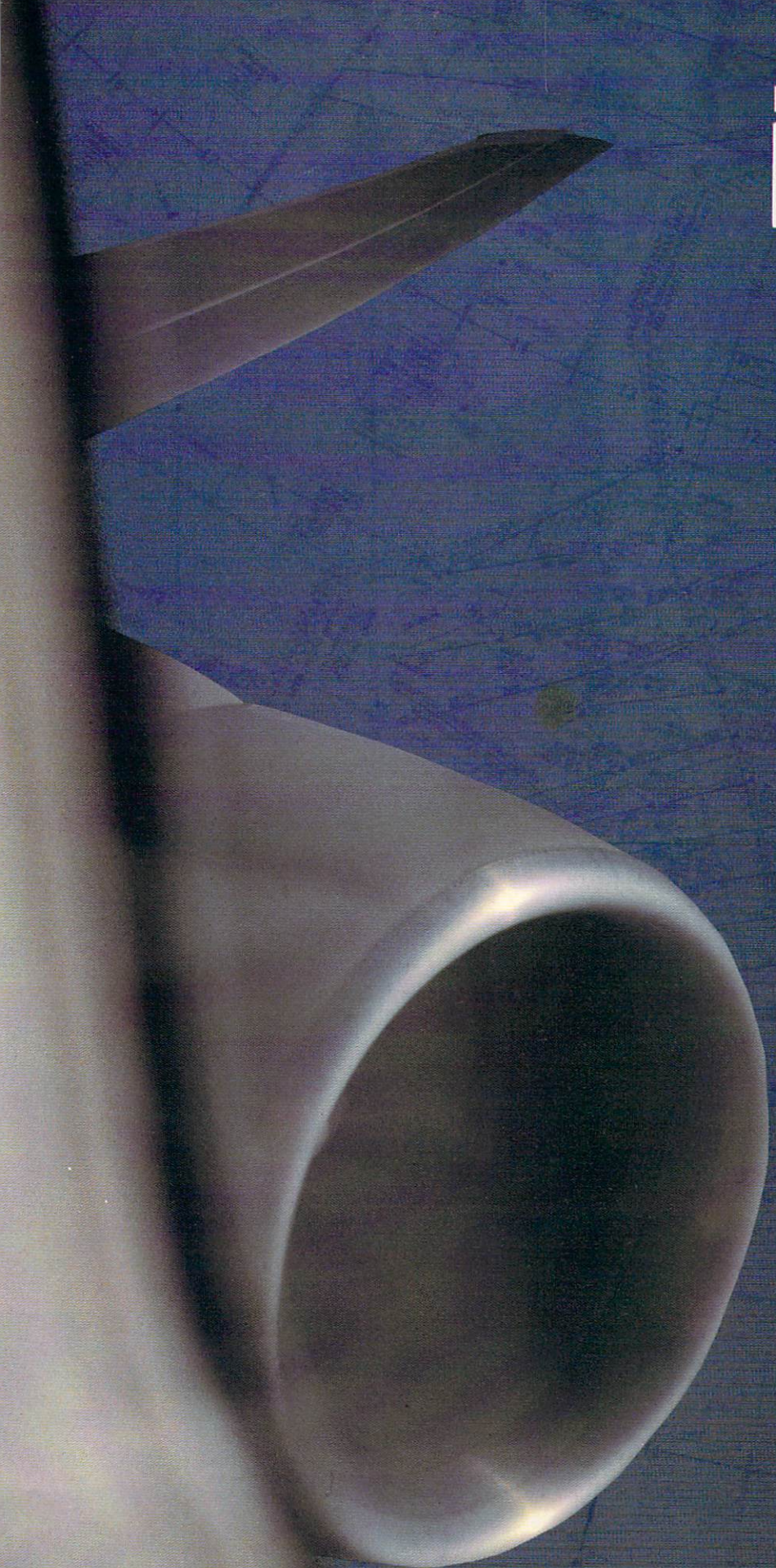
If you can't figure something out, chances are someone else already has. Your modem opens a new realm of game advice. Below is a listing of some places you might try.

- **Log on to CompuServe** and type GO GAMES. A vast array of game forums provide for almost every gamer's interest. You might also type GO IBMNEW and find a library of public domain and shareware games that you can download. Contact CompuServe at P.O. Box 20212, Columbus, Ohio 43220; (800) 848-8199 or (614) 457-0802.

- **Sierra** offers a 16-line BBS to answer many of your questions. Call (209) 683-4463. The service is free; all you pay for is the phone call.

- **Origin** has a dedicated *Omega* BBS. You can upload and download different cybertanks and ask questions about programming *Omega* tanks. The company will also answer questions about other Origin games. The BBS number is (512) 328-4128, and access is free—you pay just for the phone call.

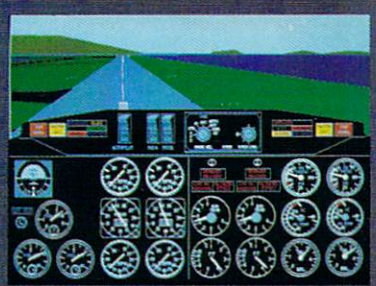
- **Local bulletin boards** are a low-cost alternative to the online sources listed above because you don't have to pay for the service or the phone call. Try a local computer store for their BBS numbers. Once online, you can download the numbers of even more BBSs. Because the different BBSs offer a wide variety of emphases, you should be able to find what you're looking for. ⊡

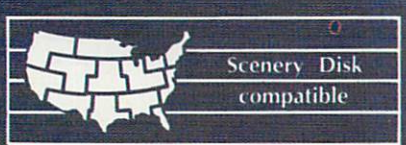


FLIGHT SIMULATOR: A.T.P.

(Airline Transport Pilot)

Fly a Boeing 737, 747, 767, or Airbus A300 jet airliner! Flight Simulator: A.T.P. includes over 350 U.S. cities with service to 25 major city airports, automatic weather generation, Air Traffic Control feedback, six types of airborne traffic, and much more! The program comes complete with heavy-aircraft flight manual, maps, and instrument approach charts. Available for the IBM/compatibles for the suggested retail price of $49.95. See your dealer, or call SubLOGIC for direct order information.





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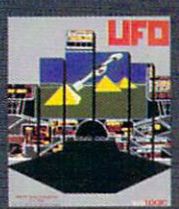

And don't forget UFO. . .when reality just isn't enough!

Flight Simulator: A.T.P. and UFO are trademarks of SubLOGIC Corp.

Circle Reader Service Number 110

9 Top Ready-to-Run Games! ONLY $9.95!
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Play against a friend or a computer opponent in this unusual, arcade-style version of America's favorite beach sport.

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Have fun in the futuristic fast-food business with this challenging, frantically paced arcade-style game.

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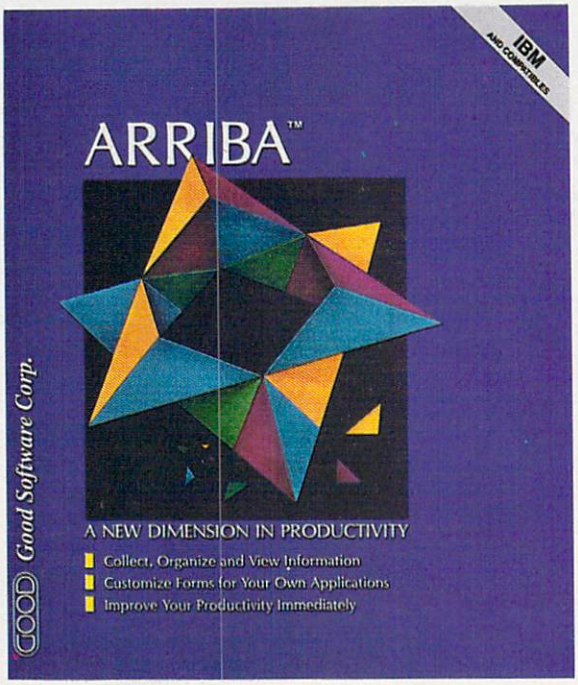

A COMPUTE! CHOICE

KEITH FERRELL

As admirers of one Speedy Gonzalez may recall, *arriba* has something to do with speed. As developed by Good Software, *Arriba* is a personal information manager that has quite a bit to do with speed as well as efficiency, organization, and management of disparate information.

Personal information managers (PIMs) have attracted a great deal of attention over the last couple of years. The odd thing is that no one thought of them sooner.

PIMs are the stuff that computers were made for. A good PIM is essentially a free-form database, a tool that lets you enter information in an almost random fashion, in much the same way as the information crosses your desk in the first place. The PIM software then takes care of indexing the material, letting you see your data in different ways, depending upon your changing needs and interests.

There are almost as many approaches to PIMs as there are personal information packages. None of the packages, though, has dominated the field the way *WordPerfect* dominates word processing or *Lotus 1-2-3* towers over spreadsheets. This is both understandable and beneficial.

It's understandable because no two of us approach organization in the same way. You can argue that the best PIMs are the most flexible, those most suited to individual customization and preference. Lotus's *Agenda* is a good example of such a program—except that it's almost *too* flexible, too free-form. Symantec's *GrandView* is PIM as outliner. Chronos's excellent *Who, What, When* uses the PIM idea as a foundation for a sophisticated project manager.

The benefit of having no clear PIM market leader is that the field remains open to strong and innovative challengers.

While not exactly innovative, Good Software's new *Arriba* is a strong and flexible package, one that just may meet your information-management needs head-on.

From the moment you first boot the program, *Arriba* overcomes one of

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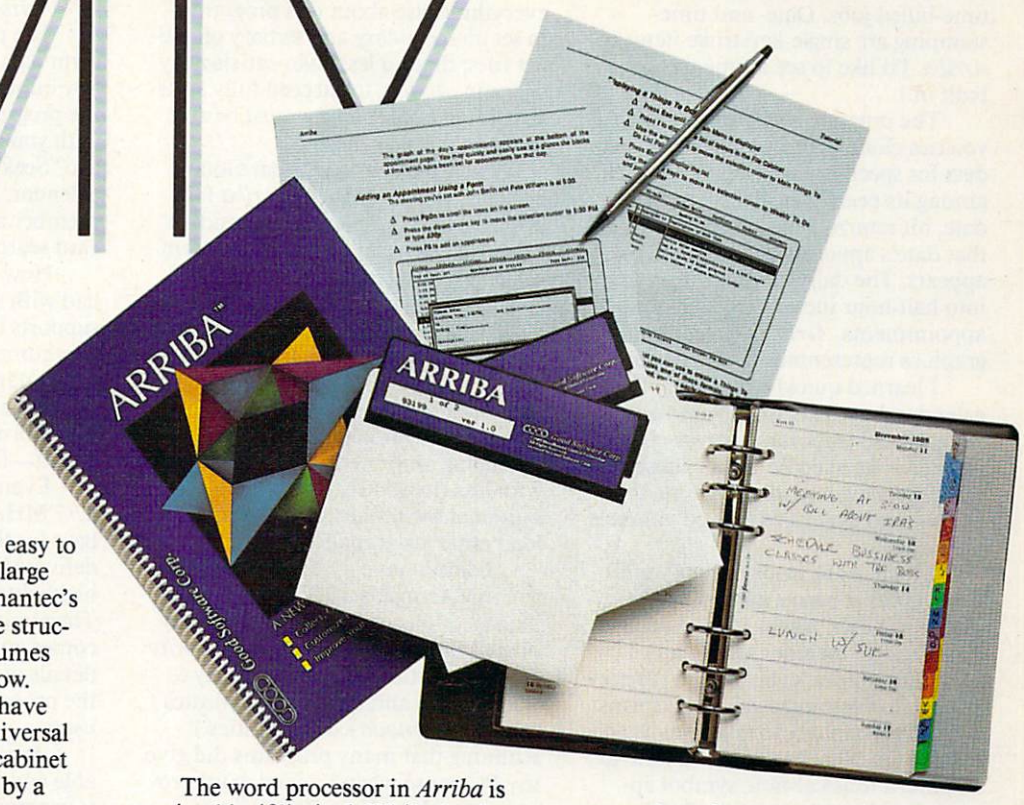


the classic PIM dilemmas: It's easy to use. Where *Agenda* requires a large commitment of time, and Symantec's *GrandView* imposes its outline structure on you, *Arriba* clearly assumes that you want to get to work now.

To that end, its designers have chosen a simple and all but universal metaphor: the idea of a filing cabinet filled with folders, augmented by a calendar and a telephone/address book crammed with names and numbers. The delight of *Arriba* is the speed with which you can navigate through your data.

(These are not, by the way, visual metaphors—no file folders on the screen, no icons and graphics. *Arriba* is text-based, with clean and clearly organized screens that strike me as admirably well-designed for their various purposes.)

The simplicity of the metaphor carries over into ease of operation. To create a folder, simply tap a key and enter the folder's title. Adding notes to the folder, again, calls for a keystroke which opens the note field. In fact, most operations within *Arriba* can be accomplished with a couple of keystrokes from a standing start anywhere in the program.

Store business data in *Arriba*'s folders.

The word processor in *Arriba* is serviceable, if limited. While the documentation suggests that you might use *Arriba* to write a manual, for example, I don't know if I'd want to undertake quite so ambitious a project here.

For one thing, notes are limited to 16K. That's plenty for memorandums, letters, comments, and so on, but it can be confining when working with long reports, chapters, or sizable databases. In future versions of *Arriba,* I'd like to see the note size increased to make the program more practical for working with large amounts of information.

Text entry is simple enough; the basic note screen is blank. Adding a date and time to notes is accomplished by pressing a function key. Beyond that, *Arriba* accommodates only the most rudimentary of text-processing commands. The word processing help screens, for example, point out little more than the fact that arrow keys move you through text to the right or left, up or down; there are some *WordStar*-like key combinations as well.

One odd problem is the program's determination to accept a tab—for example, when you indent a paragraph—as the new left margin.

You can define text as blocks and then cut and paste the block to other folders within *Arriba.* Unfortunately, you can't easily paste notes into other applications except as straight ASCII. You can export files in ASCII; likewise, you can import ASCII text files to *Arriba,* assuming the files are smaller than 16K and contain no lines with more than 80 characters. The program offers no dedicated conversion routines to accommodate other word processors.

It's unlikely, though, that you would use *Arriba* as a primary word processor anyway. This PIM is designed for making notes on the fly, attaching commentary to appointments, managing names and numbers. At these tasks, the program is outstanding, its word processor more than up to the job, and its ability to search and sort the information quite impressive.

What the program lacks in word processing functions, it makes up for with customizable folders. The folders provided with the program are thoughtful choices, designed for some of the most practical PIM tasks. Expense tracking, real estate properties, priority-item lists, contact management, and other common forms are included.

It's easy to build more forms, each tailored to your particular needs. In a few minutes I had constructed forms that tracked article submissions, payments, royalties, and time spent on each project. (PIMs, *Arriba* included, are precisely the sort of soft-

ware useful for time-intensive and time-billed jobs. Date- and time-stamping are single-keystroke items in *Arriba*. I'd like to see a time tracker built in.)

The program's calendar, which you can clone to create separate calendars for specific purposes, is a model among its peers. Scroll to a specific date, hit return, and a closeup view of that date's appointments and events appears. The daily calendar is broken into half-hour increments. As you add appointments, *Arriba* highlights a graphics representation of your day.

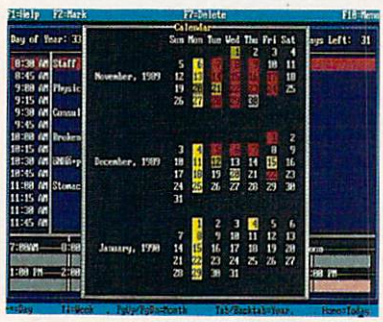
I learned quickly to keep a master calendar, but also came to appreciate the ease and importance of specific calendars for specific tasks. These became working logs, diaries, time reports—and they have proved valuable already.

Much of the information you'll enter is basic: name, address, and phone number. Again, *Arriba* excels. The package includes a standard phone-list folder, even though it's easy enough to customize your own forms.

Arriba alphabetizes names as you enter them. Should you add a note to a name, a musical-note symbol appears beside it; the note symbol is used throughout *Arriba* to indicate underlying information. If you have an autodialer attached to your computer, *Arriba* will dial the requested number for you.

The phone list is likely to be one of the most popular and heavily used features of the program. For the most part, it's up to any challenge you throw at it.

As effective as the phone list is, though, it has some shortcomings. Most of them center around the program's difficulty with large files. *Arriba's* manual suggests that 200 names is the rough maximum the program can comfortably handle in a list. That's a lot of names, but it's nowhere near large enough to accommodate the database of an even moderately successful businessperson.



***Arriba's* calendar is a model tool.**

While it's easy enough—like everything else about this program—to set up secondary and tertiary phone-list files, that's a less-than-satisfactory solution. *Arriba,* to succeed fully at its appointed tasks, simply must be able to manage larger files.

I was pleased to see that Good Software had configured *Arriba* for optional terminate-and-stay-resident (TSR) use. Having your PIM in memory all the time is so logical that all PIM producers should adopt it.

Unfortunately, *Arriba's* TSR potential remains more of a possibility than a reality. In TSR form, the program and space reserved for data occupies just over 200K of RAM, a whopping amount. If you're equipped with less than 512K, that memory requirement will limit your ability to load other large applications.

I didn't have too much trouble running *Arriba* as a TSR, and I even managed to use it in concert with my other TSRs, *Tornado* and *Productivity Plus.* (Admittedly, *Arriba's* ability to track names and numbers duplicates much of *Tornado's* own abilities.) Running that many programs did give my PC pause when I added word processors such as *Nota Bene, WordPerfect,* and *Word,* but, with some shuffling, I made the combinations run.

(Keyboard-control software such as *XyWrite* or *Nota Bene* tend to collide with *Arriba* and other TSRs. Many keyboard-control programs now include utilities that let TSRs coexist more comfortably.)

Any TSR that serves database/notepad functions should also include a calculator, but *Arriba* doesn't offer this feature. Since there wasn't a calculator, I was forced to add another TSR into my already-crowded memory. Math functions should be included in the next *Arriba* upgrade.

On an 8088, *Arriba* seemed a little sluggish in TSR mode, although those problems vanished on even a 10-MHz 286. While none of the computers I used locked up under *Arriba,* I did get a constant whine from my computer when I called up *Arriba* over *Quattro.*

Like most productivity programs, though, PIMs don't really come into their own until they have some personal information to manage. I had a few hesitations about *Arriba* as I started using the program—the text handling seemed clumsy, and I didn't like the file-size restrictions.

These quibbles faded once I had loaded some data into *Arriba* and began playing around with it.

Arriba is *fast.*

The program is a text-base, a free-form database. You can easily call up any information, from any place in the program. Need to know who was with you at that meeting two weeks ago? Seek the information through the calendar, the phone list (if you remember a name), or through a wildcard search.

How many meetings have you had with Joe and Sarah? The program supports both AND and OR as logical operators. Search strings can include whole names and words along with wildcards if you like. If you've entered the information in *Arriba,* you can find it—fast.

Even on an 8088 PC running at 4.77 MHz, *Arriba* combed its database for the information I needed and delivered that information suitably highlighted in a matter of seconds. The search feature more than overcomes any of my quibbles with other details of *Arriba,* and it should make the program invaluable to business users.

Arriba's documentation is readable and well-organized. The manual is augmented by more than 300K of help files that are context-based. Like the manual, help screens are clearly written and, in most cases, are actually helpful.

Good Software's technical support is equally helpful. While there was no technician available on one occasion when I called, I received a call back less than an hour later. Good Software does not, however, offer toll-free customer support.

Arriba is the most easily learned PIM I've seen. It's not the most flexible or the most sophisticated, but I wonder sometimes if the benefits of super-sophisticated PIMs outweigh the learning curves they impose on their users.

Arriba's learning curve, like its operation, is smooth and gentle. This program is designed to help you manage your information, search it in ways that help you become more productive, and arrange it so that you can see patterns you otherwise might have missed. *Arriba* is successful at all of those jobs.

Arriba

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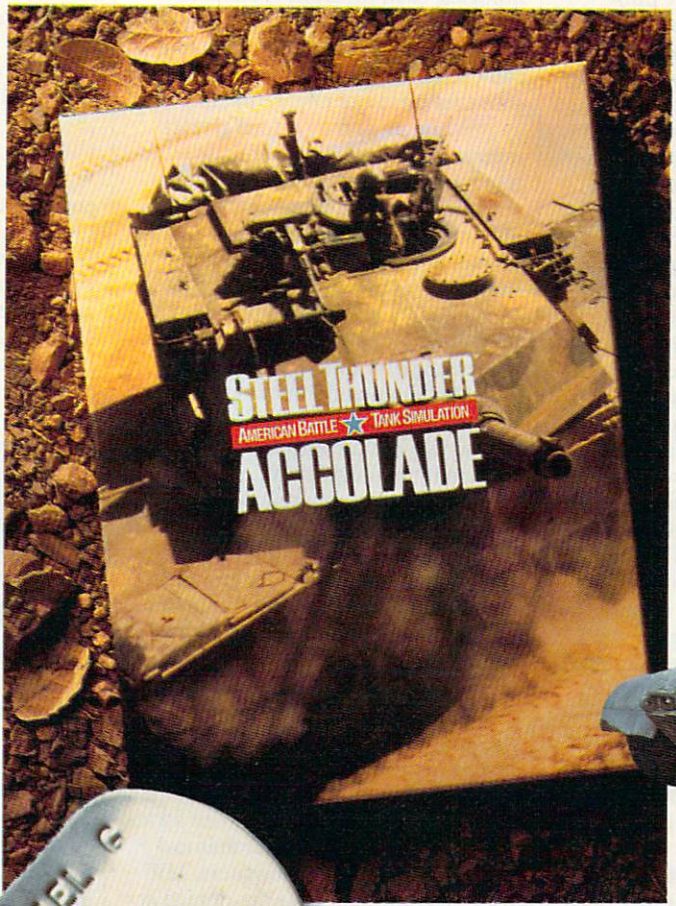

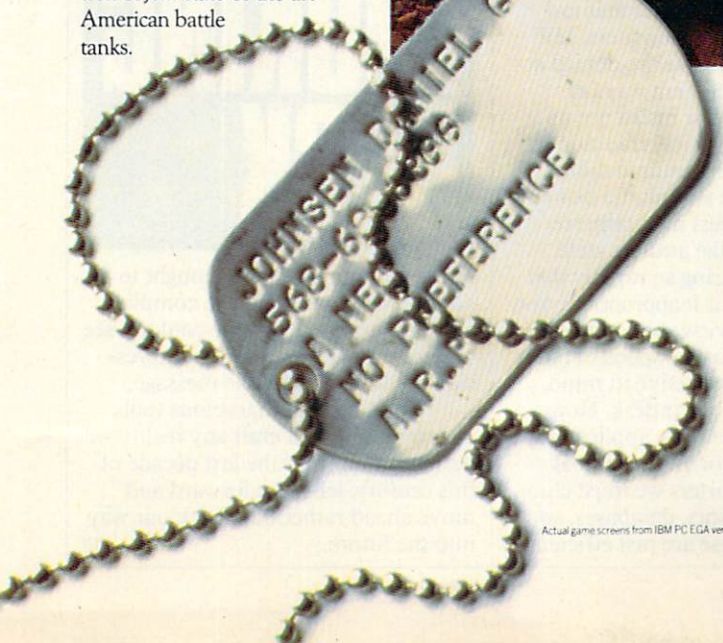

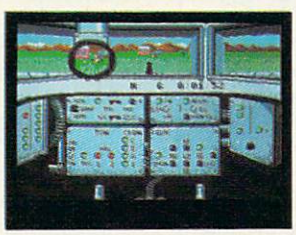

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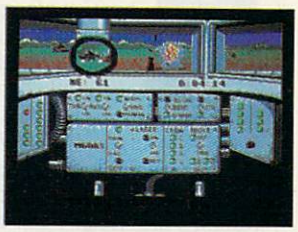

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PRODUCTIVITY IMPACT

DAVID D. THORNBURG

Almost a decade after Marshall McLuhan's death, Oxford recently published *The Global Village* ($29.95), a book he wrote with Bruce Powers. Many years ago, after reading his *Gutenberg Galaxy,* I wondered what McLuhan would have thought about the communications revolution spawned by the personal computer. *The Global Village* provides insights to this question.

A simplistic perspective on McLuhan's philosophy can be found in his famous quote, "The medium is the message." Many philosophers have suggested that the language in which we express our thoughts influences the thoughts we express. For example, Eskimo languages have many words for snow, thus allowing these people to see subtle details in their landscape that would be invisible to the rest of us. In the world of computer languages, most programmers would agree that certain types of programs are more naturally written in some languages than in others. For example, expert systems are naturally written in languages like LISP and Prolog, while other types of programs might be better written in languages like C or Forth.

While this notion of relationship between language and the range of expression is powerful by itself, McLuhan goes one step beyond this by suggesting that our media of expression influence the message expressed. Print journalism differs from television news, for example, because its medium of expression influences the ideas it communicates. The fast-paced multimedia presentation of television allows no time for pause and reflection. The sequence of presentation is determined by the network and can't be modified by the viewer. On the other hand, print-based news reports can be scanned briefly for main points, read in depth later on, or completely bypassed. Just think a moment about the way you read *COMPUTE!.*

Because of fundamental differences between communications technologies, each medium finds itself better suited for the presentation of certain types of material. Television can excite the emotions with the same ease that print can engage the intellect.

While print may afford greater interactivity than video, truly interactive media, such as personal computers, afford opportunities not found in any other medium of expression. And yet we've barely started to explore the implications of this tool, largely because we've chosen to view it as an extension of other media rather than as something new unto itself.

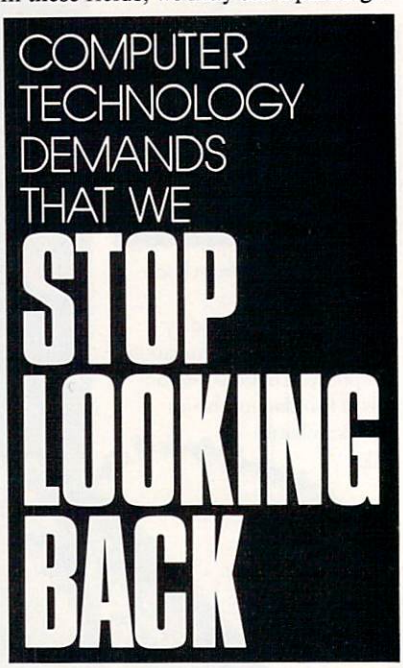
McLuhan and Powers suggest that our tendency is to look backward. Just as the Renaissance citizen of the fourteenth century looked back to classical Greece, we are looking back to the nineteenth century for the conceptual metaphors we apply to our tools. Word processing, for example, is a twentieth-century technique for emulating the nineteenth-century typewriter. The keyboard layout on your computer (or the fact that you even have a keyboard) provides continuity with old ways of thinking that have little relevance today. The scrambled arrangement of the letters on your keyboard resulted from an attempt to overcome the mechanical limitations of early typewriters. Millions of computer users are denied access to far more efficient ways of typing because of our insistence on preserving technological tradition.

Meanwhile, communications technologies have shrunk the planet. East is meeting West in commerce and ideology. As the authors state, changes are occurring so rapidly that looking backward is inappropriate. You don't need a rearview mirror when you are traveling at the speed of light.

With this perspective in mind, look at the box on your desk. How many twentieth-century applications can you think of for your personal computer? For starters we must eliminate word processors, databases, and spreadsheets. These are just efficient extensions of nineteenth-century ideas. While these applications are both useful and appropriate, they mirror the past rather than point to the future.

Even a major twentieth-century concept like hypertext has roots in the past. Most hypermedia projects I've seen are elegant, computer-based versions of nineteenth-century encyclopedias.

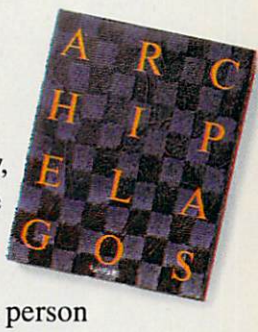
The computer offers the ability to leverage our intellect into new domains that reach far beyond what we've seen before. Computers are allowing us to explore new branches of mathematics like chaos theory and fractal geometry. As work continues in these fields, we may see a paradigm

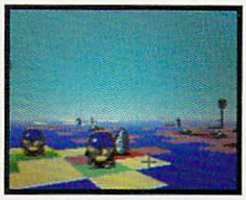


shift as events that were thought to be random turn out to have a complex and subtle pattern that we couldn't see before because our media of expression couldn't convey the message.

We've created marvelous tools with which we can craft any reality we desire. As we enter the last decade of this century, let's face forward and move ahead rather than back our way into the future. ⊡

Survive the Archipelagos.





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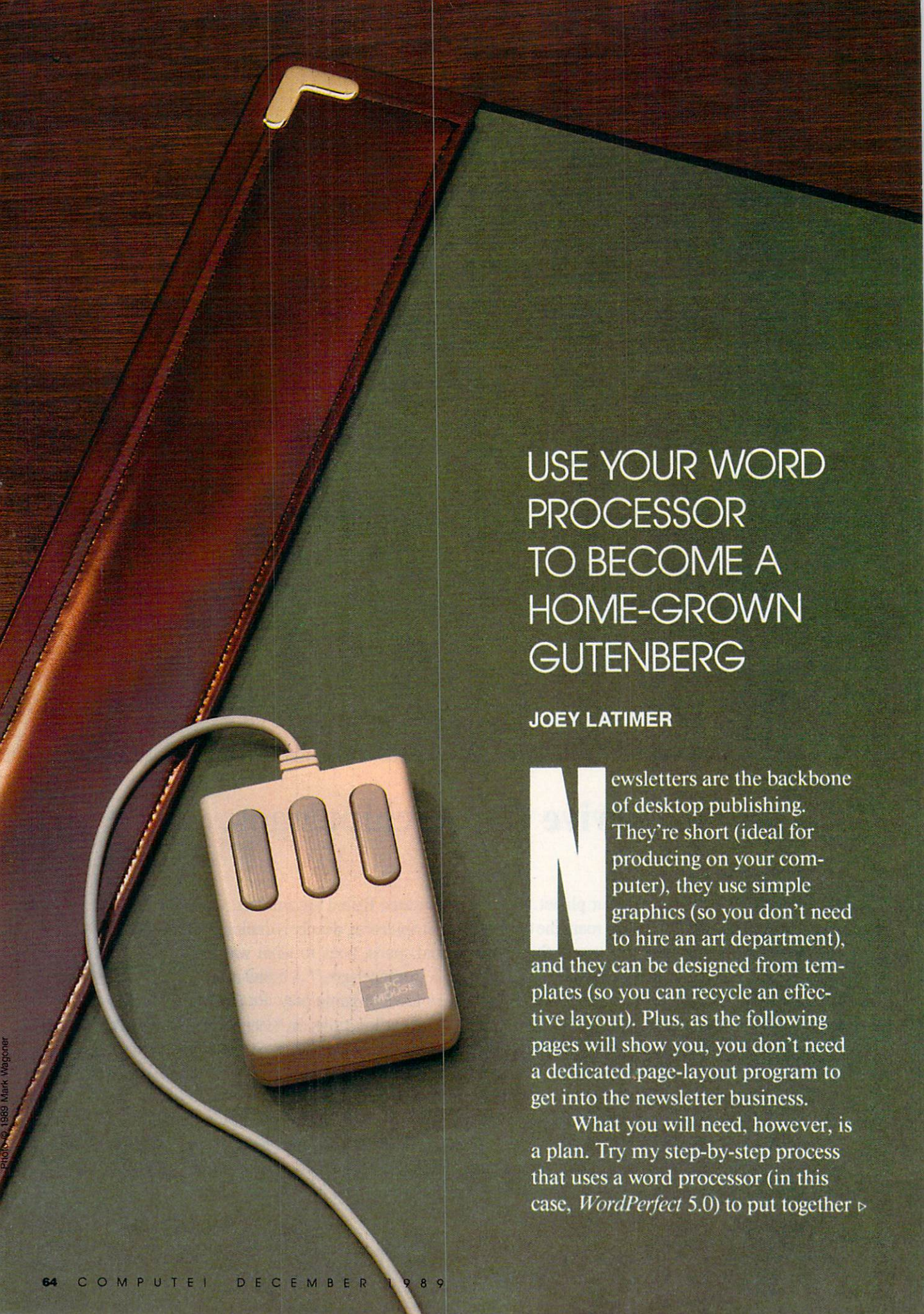


USE YOUR WORD PROCESSOR TO BECOME A HOME-GROWN GUTENBERG

JOEY LATIMER

Newsletters are the backbone of desktop publishing. They're short (ideal for producing on your computer), they use simple graphics (so you don't need to hire an art department), and they can be designed from templates (so you can recycle an effective layout). Plus, as the following pages will show you, you don't need a dedicated page-layout program to get into the newsletter business.

What you will need, however, is a plan. Try my step-by-step process that uses a word processor (in this case, *WordPerfect* 5.0) to put together ▷

Photo © 1988 Mark Wagoner

DESIGNED ON A DESKTOP

a newsletter. Although all word processors and layout programs work differently, the essential steps of newsletter design remain pretty much the same.

The design process has been divided into several illustrated steps, so you can see exactly how a newsletter goes together. Hopefully, you'll save a lot of time and trouble when you do your own designs. One note of caution before you start publishing: Save your work often and you'll avoid devastating setbacks.

Step 1
Make a Sketch

By planning a project before you start, you'll avoid a tangled mess. In the case of newsletter design, ask yourself these questions:

- What is the newsletter's purpose?
- Is the subject strong enough to maintain regular issues?
- What will the format be?
- What kinds of graphics, art, and illustrations will be used?
- Where will it be printed?
- How will it be distributed?

Once you've answered these questions, you should have a pretty clear idea of what you're doing. Try visualizing the finished newsletter. Look at other newsletters. After you get a sketch of how you want to present your newsletter, you're ready to start your design.

Step 2
Create the Masthead

A newsletter's masthead is the first element that catches the reader's eye. It announces the name of the publication in large letters at the top of the first page. When people see the masthead on each issue, they develop a familiarity with the publication.

Figure 1
Save your masthead as a document and you can use it over again.

When I created the masthead for my newsletter, "Mountain Music News," I found that my printer couldn't produce large, fancy fonts using *WordPerfect*. I discovered, however, that it's good at printing bitmapped graphics of almost any size. So, I switched over to *PC Paintbrush,* a separate graphics editor, and selected a nice roman typeface for my masthead.

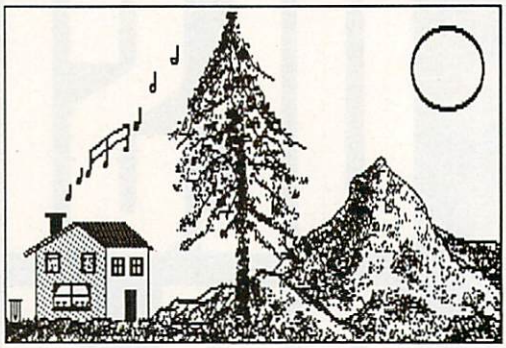
One advantage to *WordPerfect* 5.0 is just this ability to convert files from graphics formats to a format that the word processor can understand. When you look for a word processor that doubles as a page-layout program, you should investigate whether or not it has this capability.

Directly under the masthead, I listed (in normal text) the volume and issue numbers, the issue date, and a *tag line*—a short phrase in fine print that describes the newsletter's focus. In my case, it's *Covering the mountain beat.* I put a line (called a *rule*) below the tag line to separate it from the main body of the newsletter. Then, I saved all these elements as a file called MASTHEAD.DOC. Now, when I create a new issue of my newsletter, all I do is load this file and change the volume, issue, and date numbers to reflect the new issue (Figure 1). Then, I change the name of the file so I still have a good copy of the masthead.

Step 3
Lay Out Text and Graphics

Next you settle on which articles you'll include. Also, choose your column settings, titles, and graphic elements. Before you start typing and making boxes, you should go back and review the visual sketch you made of the newsletter. Decide roughly where you want each item on each page; then mentally fill in the pieces.

Figure 2
This graphics box fills out the first column and enhances the overall appearance of the whole page.



To start my newsletter, I moved to the upper left corner of the first column and used *WordPerfect's* font function to select large letters. Then I typed *Welcome!,* the title of my first article. If your word processor doesn't have a font function, use bold, italic, all caps, or some other way to set your title apart from the text of the story. You could even produce the headline in a graphics program just as you created the masthead. As you type each article, check your layout using a page preview feature such as *WordPerfect* 5.0's View Document; you'll get an idea of how much space remains in the column for another article. In my example, I had room for a short piece called "Homespun Music" in the first column on page 1.

"Homespun Music" didn't fill the rest of the column, so I used a graphic to fill out the article and to enhance the overall appearance of the first page. Using *PC Paintbrush,* I created a picture, converted it to *WordPerfect's* graphics format, and inserted my finished graphics box and picture between the first and second articles (Figure 2).

How to tell if an integrated software package is right for you.

Look How Things Have Changed.

When integrated software first appeared, it had limited functionality, was difficult to learn, cumbersome to use, and cost between $300 and $500. Today most integrated products have a more complete set of features, are easier to learn, and are priced between $149 and $259.

Amazingly, critics say Eight-in-One™, a product costing only $60, is the easiest to learn, easiest to use, yet has the highest performance. Who needs an integrated package the most? And what can you do with them?

Home Office and Small Business People Have Discovered a Secret.

Working in a home office or small business usually means that you do a little bit of everything - write reports, do financial analysis, schedule appointments, track customer information, and anything else it takes to run a business without lots of people. If you have all of the tools you need in one integrated software package you get several immediate advantages.

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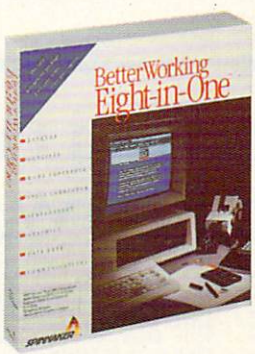
With integrated packages you can save a lot of time. Since you probably teach yourself how to use software (unlike working in a large corporation where you'd get training and support from the department down the hall) you'll appreciate how much more quickly you'd become productive using one integrated package rather than many separate programs. Because when you learn one tool, you've learned them all.

And you can save a lot of money too- over $1000. Because you won't have to buy many separate packages like a word processor, spreadsheet, database, graphics, and communications program, just to get all of the tools you could find in one complete, affordably priced, integrated package.

What Do You Get In The Best Integrated Packages?

The best integrated packages put a complete solution at your fingertips. They provide you with all of the useful tools that you need to do your job- a word processor, spreadsheet, database, outliner, desktop organizer, communications module, graphics program and powerful spell checker and thesaurus.

Well designed integrated packages are obvious-to-use. All of the options are right there on the screen. And each tool should work in the same way, so that after spending a few minutes working with one of the applications, you've virtually mastered the entire program.



Compute! Editor's Choice

What's more, the best integrated packages are lightning fast. Doing things like recalculating a large spreadsheet or spell checking a letter should never slow you down. So with a high quality integrated package you take full advantage of the power of your computer. Many users say they get their work done in half the time.

Surprises in Eight-in-One.

Here's why over 150,000 people in home offices and small businesses have switched to Eight-in-One in the last two years.

With Eight-in-One you get more useful tools than you find in other integrated packages. You not only get a powerful spreadsheet, word processor, database, graphics, and communications program, but also a desktop organizer, outliner, spell checker, thesaurus and pop-up calculator.

You might expect the most expensive packages to have the highest performance. But Eight-in-One actually outperformed Microsoft Works® and PFS: First Choice™, costing more than twice as much, in a recent test conducted by a nationally recognized independent software testing laboratory.

Eight-in-One is the only program that's truly obvious-to-use. Knowing what to do next is always apparent from the on-screen prompts and drop down menus. According to Eight-in-One users, this experience goes beyond "easy learning". They say it's more like not having to learn at all, because everything is so obvious on the screen.

The Experts Agree . . .

"... the best integrated package I've ever seen ..."
-Home Office Computing

"You don't need to open the manual at all to use BetterWorking Eight-in-One"
-PC Magazine

"Eight-in-One may be the only computer program you'll ever need ..."
-New York Times

"... PFS: First Choice and Microsoft Works, move over!"
-PC Magazine

And, amazingly, Eight-in-One costs only $59.95- a fraction of the price of other integrated programs!

Visit your local software dealer today, or call Spinnaker at **1-800-826-0706**, to learn more about why Eight-in-One is the right integrated software package for you.

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Moving to the second column, I typed in the next article, "Talent Contest" and found that I had room for a short table of contents called "In this issue . . .". With *WordPerfect,* I created a separate file for the table of contents (bottom right, Figure 4). Then I defined a text box and directed *WordPerfect* to fill the box with that text file. The first page was done.

On the second page, I still had to fit in two concert reviews, a short piece about upcoming issues, and a byline. In the upper left corner of the page, I imported a nice headline from my graphics package for the concert reviews. I enclosed the title in a rectangular box (Figure 3), and below that I typed the titles and text for the two reviews.

Figure 3
Putting the headline in a box gives page 2 its own identity.

That left me with two items. I repeated the technique I used on the table of contents and called this text box "Up and Coming." This short item highlighted future issues. The newsletter's byline, which lists the publisher, the editor, and an address, found its way to the bottom of page 2. I was done with the layout of "Mountain Music News" (Figure 4).

Figure 4
The finished two-page newsletter balances graphics and text.

Mountain MusicNews

Volume 1, No. 1 — Covering the mountain beat — May, 1989

Welcome!
This is the first issue of Mountain Music News, a newsletter written by and for people interested in music here on the hill. While there are many musical events happening, until now there hasn't been a forum for discussion and sharing of information regarding upcoming and past musical events. Thanks for picking up a copy of this newsletter and joining in the fun. I hope you find the reviews, articles, and interviews to be fun and useful.

Joey Latimer, Editor

Homespun Music
Bluegrass jamming continues to be popular around Strawberry Valley. The tradition, started in part by the illustrious fiddle player, Bob Simpson, has survived the past few years due to the hospitality of several hill families who regularly host jam sessions at their homes. In June there will be bluegrass pot-luck dinners at the Johnsons and Latimers of Pine Cove. For dates and times call 659-4544 or 659-3859.

Talent Contest
Area musicians (as well as other performers) are welcome to audition for the annual Chamber of Commerce Talent Contest, scheduled for May 18th and 19th at the Idyllwild Town Hall. For more information call or visit Wayne Johnson at Lily Rock Music Store in Idyllwild.

If this year's contest is anything like those in past years then you can expect many fabulous local musicians to show their stuff. One of the most memorable moments in the show last year was when 7-year old Chris Thile captivated the crowd with his near-virtuoso mandolin playing, while his dad, Scott, provided accompaniment on guitar. This year you can expect to see the Thiles back as well as other local pickers, such as Tom Horne, Mike Ryder, and Chris Alexander. The new sound system at town hall should add icing to the cake. Don't miss it!

In this issue...

Welcome	Page 1
Homespun Music	Page 1
Talent Contest	Page 1
Concert Reviews	Page 2
Up And Coming	Page 2

Step 4
Editing

Once you've finished laying out your newsletter, it's time to do some editing and to tighten up loose ends.

First, use a spelling checker to correct obvious spelling errors. That doesn't mean you won't have to proofread your newsletter's final copy—no spelling dictionary will count the word *you* wrong if you meant to write *your.* Next, make a printout; sit back and read your newsletter with your best critic's cap on. Look for grammar and punctuation errors; then check the spelling again. (An old proofreader's trick is to read backwards—the spelling errors really jump out at you.) If you're having a hard time, find someone who can edit your newsletter for you.

After you're satisfied with the literary aspects of the newsletter, look carefully for formatting errors in the columns and margins. Make sure that the overall appearance is balanced and not too cluttered. Overall, the newsletter should be easy to read and should clearly express to the reader the subject and purpose that you settled on in the very beginning (remember Step 1?).

Step 5
Printing

You've created a newsletter and stored it in your computer, but no one else will see it until it's printed. If you plan to circulate the newsletter widely, you should make a high-quality printout and then take it to a printer or copy shop. Not only will you save wear and tear on your printer, but you'll keep your ribbon and paper costs down, too. Some companies specialize in printing desktop-published documents. You just give them the disk that holds your files. You can find such services listed in the back of computer magazines or in the yellow pages of your local phone directory.

If you decide to print your newsletter yourself, here are some guidelines:

- Use a new ribbon, toner cartridge, or ink cartridge for the best output.
- Print several trial copies so that you can properly center the paper in your printer.
- Near-letter-quality capability, double-strike, and other printing enhancements spell the difference between mediocrity and excellence.
- Your layout isn't carved in stone, so don't be afraid to go back and change something that doesn't look right.

Following these steps may not make you the next Ben Franklin—you can't get talent from a computer disk—but it will help you become a publisher in your own right. If you've dreamed of writing your own ticket but have balked at the price and complexity of dedicated desktop publishing programs, explore the reach of your word processor. And start the presses. ⊡

Joey Latimer teaches music in Idyllwild, California. The newsletter he created for this article has developed an enthusiastic audience there.

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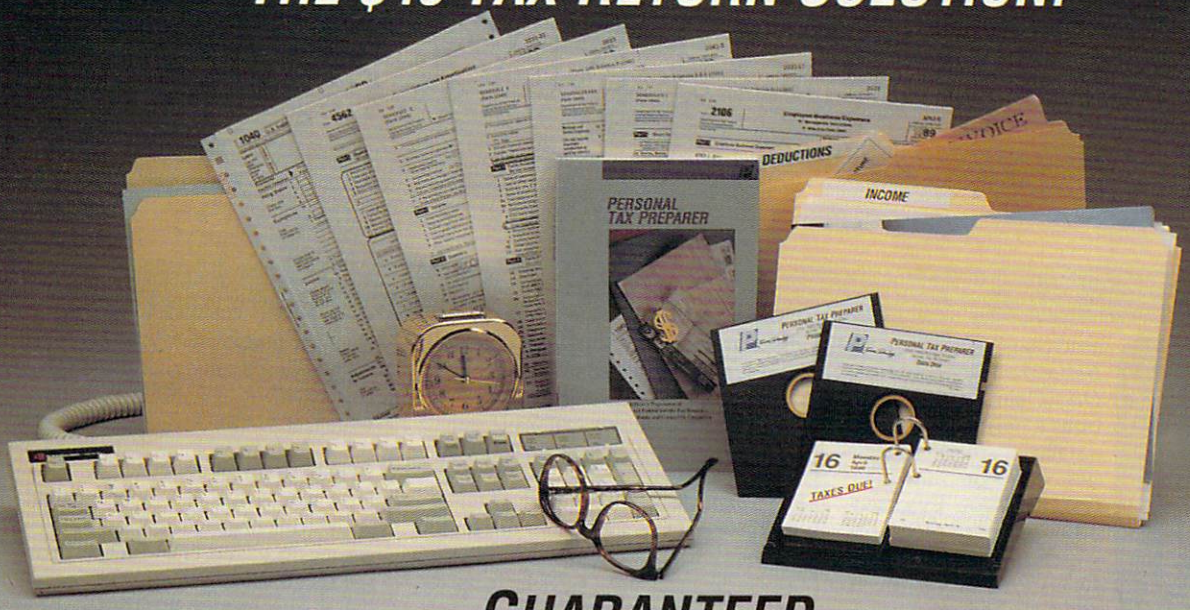

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PC PRIMER

HINTS AND TIPS FROM OUR READERS

David Stanton's review of *BetterWorking Eight-in-One* (October 1989) mentions a deficiency in the database—the Find function works on only one field at a time. I've used other database programs which suffer from this deficiency, as well as the inability to sort on more than one field at a time. I've devised a simple solution I'd like to share with your readers.

Set up a "key" field in your database which contains multiple pieces of information. You can then sort on this key field.

For example, I have my checkbook ledger sorted in a database. Suppose I want to enter a check issued to John Doe on August 24, 1989. Enter 082489Doe in the KEY field, where 082489 is the date and Doe is the last name of the payee.

Enter all checks in this fashion and, when the key field is sorted, you'll be able to produce a ledger sorted by month, day, year, and last name.

Now comes the important part. To find all checks written in August, simply search the key field with wildcards. In my database program, that would be 08??89*, which matches all of the days in August (because of the ??) and all last names (the *). To pull up all checks written to John Doe last year, you'd use FIND ????88Doe.

James A. McKnight
Addison, Texas

Drive You Crazy

You bought a PC with both 5¼- and 3½-inch floppy drives so that you could purchase software in either format. However, you soon discovered that it isn't that easy. Your new game came on 5¼-inch disks and insists on being installed from drive A. Unfortunately, your 5¼-inch drive is B.

The obvious remedy to this problem is to edit the INSTALL.BAT file, replacing all occurrences of A with B, or to copy the files to the proper hard disk directories manually. Either solution is a daunting task for the computer novice. With a little DOS trickery, though, you can fool your system into thinking that drive B is drive A and vice versa.

The ASSIGN command will let you give a drive a new name. The format is

ASSIGN *drive*=*newname*

where *drive* is the letter identification for the drive that gets the new name, and *newname* is the new drive letter.

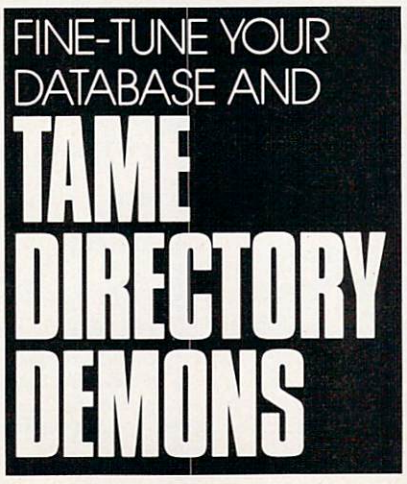
If your program's install batch file thinks the 5¼-inch drive is A, ASSIGN will correct that assumption. Just put the offending disk in your 5¼-inch drive and type

```
ASSIGN A=B
A:
install
```

where *install* is the name of the installation program or batch file. When you've completed the process, type ASSIGN on a line by itself. ASSIGN without any parameters clears all of the assignments.

Be careful with this command. FORMAT and DISKCOPY will ignore it, as will some copy-protected programs that look for a key disk in drive A. It's best to make your assignment, execute the batch file, and then clear the assignment immediately to avoid confusion.

Denny Atkin
Greensboro, NC



Drives from A to Z

How would you like to have all of your word processing files on drive E, games on F, and GW-BASIC programs on G? When you first organized your hard disk, you sectioned things off using subdirectories. Now you can make navigating your system even easier by using the SUBST command to trick DOS into thinking those subdirectories are separate, physically attached drives.

First decide the highest drive letter that you'll be using. If it's higher than E, you'll need to add a line to the CONFIG.SYS file. Suppose that M will be the highest drive specification you want to use (Z is the absolute maximum). From the root directory, type **COPY CON:CONFIG.SYS** and press the enter key, type **LASTFILE=M**, hit the F6 key, and press the enter key; then reboot your computer.

Now you can define the drives using the SUBST command. Suppose you want F: to refer to your *WordStar* subdirectory. Type **SUBST F: C:\WS** and press the enter key. Typing **DIR F:** will now give you a directory of the WS subdirectory. Many other DOS commands will work with the F drive specification.

To have your new drives work automatically, add lines to AUTOEXEC.BAT specifying the aliases.

Several DOS commands won't work with a substituted drive. They are ASSIGN, FORMAT, BACKUP, RESTORE, LABEL, JOIN, DISKCOPY, DISKCOMP, and FDISK.

Richard C. Leinecker
Winston-Salem, NC

Do you have advice that makes a PC more productive? If so, we'd like to hear from you. Send your tip, no matter how brief, to COMPUTE! Feedback, P.O. Box 5406, Greensboro, North Carolina 27403. If we publish your suggestion, we'll send you a gift.

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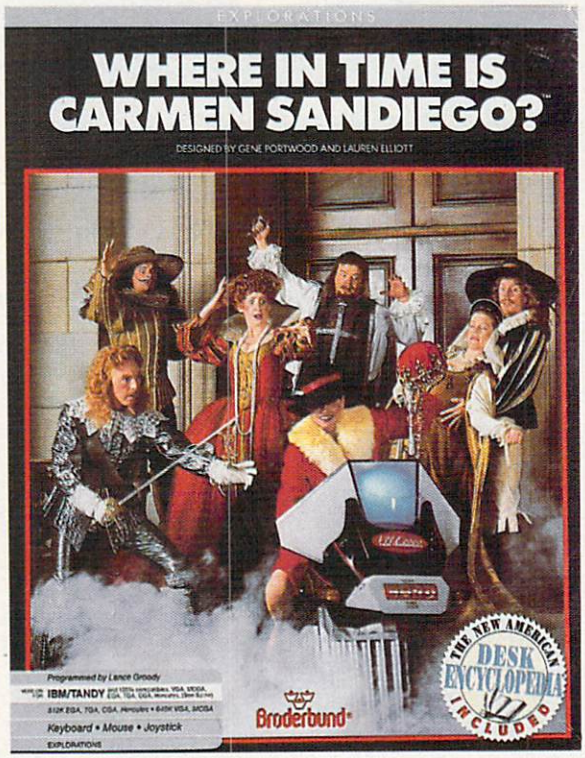

KRISTEN STERNBERG

The fourth and newest adventure in the Carmen Sandiego series—*Where in Time Is Carmen Sandiego?*—is also the most exciting. As with the other games in the series, you're given a crime to solve and you must journey around the globe to collect clues and track down the criminal. But that's where the similarity ends. Brøderbund has added a new dimension to this educational game: time. For all of you who've ever wished you could travel back through history, here's your chance.

Your detective career begins in San Francisco, where you are newly employed by the Acme Detective Agency. The first time you appear at the agency, you'll be asked to complete some forms for the personnel department. As soon as you've done this, you'll be assigned to your first case. Gather your suitcase and your wits—it's time to get moving!

On each of your cases, you'll have the opportunity to explore the world of the past. Carmen Sandiego or one of the members of her gang has committed a crime, and you're assigned to track the criminal and recover the stolen loot. Your sleuthing can transport you anywhere from 400 A.D. through the 1950s. Upon reaching a destination, you'll want to search for witnesses and informers and scan the area for objects, all of which will give you clues about where (and when) your prey might be heading. To transport you to different eras, you'll be issued a chronoskimmer, which is your official time-traveling device.

Brøderbund continues its pattern of offering excellent reference books with its Carmen packages by including the *New American Desk Encyclopedia* with *Where in Time Is Carmen Sandiego?*. The book not only makes a great prop for the game, but it also gets kids in the habit of searching for information—a habit that will serve them well when the time comes to write that history research paper or book report for English class.

Although your first few cases should be relatively straightforward,

don't be afraid to use the encyclopedia. For players who think they are too cool to look up information, I'd caution them to think again. While they are worried about what their friends think, the hours are ticking away and Carmen's cohorts are getting away scot-free.

After you've completed a few cases, you'll find that your assignments become harder and harder. Sometimes the same country will appear more than once on the travel destination screen, so look carefully at the time line that also appears. This is where that added dimension comes into play; your destinations could really be a thousand years apart. Since meeting your deadline becomes more challenging as you solve each case, you won't want to waste any moves.

Solving more mysteries starts your rise through the ranks of the Acme Detective Agency. Your goal is to successfully complete enough cases to get you elected to the hall of fame and then to retire. (If you want to continue sleuthing, you can always work under an assumed name—you probably won't repeat any cases.)

Although *Where in Time* does follow the same format as its predecessors, it's evident that Brøderbund took care to ensure that it has something new to offer. Never have the graphics been so exciting, the animation been so sophisticated, or the possibilities of crimes been so varied. The robot who assists you in capturing the criminal is really cute, as are the henchmen who pop up in your pictures when you begin to get close to the criminal. They're always completely out of touch with time and space; you might find a gunslinger infiltrating your picture of India in 1000 A.D., for example. These and other humorous interludes show how much attention the authors of *Where in Time* have paid to graphic detail. Particularly remarkable is the animation sequence when the chronoskimmer is activated, and I especially enjoy the scene in which the robot capsule aids in capturing the criminal.

While you're running back and forth in time, time is running out for your quest.

If you don't install *Where in Time* on your hard drive, you'll need two disk drives to run the game. The program comes on one disk, and there are two Country disks that you can swap as necessary in the remaining drive. If you install the disks on your hard drive, you'll still need to keep the original program disk handy, as the computer will request that you insert it each time you're ready to be promoted to a new level.

Kids will find it easy to save a game if mom makes them stop in the middle and do their homework or come to the dinner table. I also discovered that you can walk away from the computer without getting behind on a case—the hours are eaten up by your traveling and investigating rather than by the time you spend away from the program, thinking. You can operate all of the game's menus with either a mouse, a joystick, the arrow keys, or the space bar; you don't need any special equipment besides your graphics adapter. (The game supports all graphics modes, but you'll need 640K of RAM for VGA and MCGA graphics. EGA, Tandy 16-color, CGA, and Hercules modes require 512K).

The only other materials you may need are paper and pencil—the pace can be fast and you'll probably want to give yourself an edge by writing down certain clues. All of the prompts are friendly and clear, and I found the program refreshingly free of errors and very easy to operate.

Besides the encyclopedia and disks, you'll also receive a detective's manual with a list of the suspects and their individual traits and hobbies. You can use this to narrow down your suspects as clues appear sporadically

during the game. This manual also contains a time line, to which you might want to refer as you time-travel. The separate paper with suspect photos may come in handy, too. Many amateur sleuths will appreciate the fact that once they've looked over the program guidelines in the program's Detective Manual, they probably won't need to keep referring to it. The manual is clear and concise, and spiced with notes that are both humorous (circa year 1820, 3:00 p.m.: *Haircut appointment with Barber of Seville*) and enlightening (circa year 1630: *Shakespeare's first folio*).

Since everybody knows that traveling in a time capsule transcends real time, when you play *Where in Time,* you'll waste no nights sleeping in hotels as you might in the other Carmen programs. But don't think you're getting away with anything. Unlike the other games in the series, your cases in this game carry time limits measured in hours rather than days! Preparing your chronoskimmer takes time, as does all of your investigating.

Playing this game is such fun you can almost forget you're learning, but you can't help increasing your knowledge of geography and history. For example, if you fail to solve a case, your boss will kindly suggest that you work on sharpening your reference skills

You will find Carmen's cronies cropping up from time to time during your search.

before taking on any new cases. It's a subtle way to motivate more passive learners. Also, clues to each culprit's identity are varied and can require thought: Sentences such as *She had eyes the color of the Mediterranean,* or *His eyes were of slate* stimulate you to think of possible connections. You may have to consult your dictionary for synonyms as you read through the data bank of possible suspects, in which the category Eyes might contain only the entries *blue, gray, brown,* or *hazel.* The result is a clever and painless vocabulary-building exercise.

If a teacher is using *Where in Time* in the classroom, he or she can turn off the sound when a student is playing so as not to disturb others. That feature is helpful also at home when your brother is trying to finish his homework. Of course, the game can be extremely entertaining as a family experience, with two or more people working together to solve the many mysteries.

Although *Where in Time* is by far the most innovative in the Carmen series, I do have some reservations and suggestions. For one, upon returning to the data bank to obtain a warrant for the culprit I was tracking, I found the options for the suspect's favorite artist and author really limited. A larger, more varied group of artists and authors would be welcome and would add a lot of fun to the game. Also, it's difficult for younger children, who could really appreciate this program, to figure out, for example, that a suspect who likes to look at paintings of sunflowers is a fan of Van Gogh. That kind of fact is hard to look up. As a matter of fact, much of the humor and special touches are quite sophisticated and will be most appreciated by either exceptionally mature children or adults. The game itself seems destined to appeal mostly to boys and girls from around the fifth to the eighth grades.

Another slight problem is with the chronoskimmer, which appears on the package to be a separate accessory. In reality, it's a computer screen. Although the chronoskimmer is captivating enough even when it's on the screen, the slightly misleading advertising may set kids up for disappointment.

I also worry that only the most motivated students will pay attention to the introductory screen shown for each travel destination and era. Although these screens contain valuable information, I found it easy to forget the particulars pertaining to the places I visited. As you get caught up in the game and the chase, all that matters is getting to the next clue. I wish Brøderbund had devised a means of linking each destination's introductory screen to the case so that children would read it and register its contents.

I would also have welcomed some attempt to preserve cultural differences. All of the witnesses and informers have pronouncedly American speech patterns. (I assume that the chronoskimmer translates dialogue not only into English but into the regional present.) What a charge it would be if, instead of encountering a dull old banker in late sixteenth-century England, you met perhaps a later-famous poet who used *thee* and *thou* in his bantering rhyme. Perhaps that's a given for software that gives you so much: It gets you thinking of new possibilities.

Everything else about *Where in Time*—and there's a lot of it—is *excellent.* Back at the Acme Detective Agency, for example, if you use the elevator to investigate floors other than the one to which you're currently assigned, you'll find some really nice touches. In the basement, you'll encounter a burning incinerator and an interesting message along with your record and current rank. Other floors have other scenarios—you'll probably want to check out all of them. Don't be afraid to click the mouse or position the arrow and press Return on any object or sign you see as you travel around the building.

If you find yourself on a case in which the clues seem too difficult, you can get hints by going back to your previous location and doing a second search or by scanning an area more than once. This can be especially helpful when the pressure mounts and the clock ticks away.

The students to whom I showed the program received it enthusiastically. They enjoyed, as I did, the special effects and attention to detail. Especially appealing is the manner in which you're drawn into the story. From the beginning, you're intimately involved in the action. All along, it's assumed that you're the key to solving the crime. Knowing that they are relied on to such an extent can make kids feel important and motivated. Learning those two facts alone can be extremely gratifying for any child.

Besides being one great game, *Where in Time Is Carmen Sandiego?* has the added value of being an exceptional education program. It can heighten your children's awareness of historical epochs and the importance of using reference guides, as well as strengthen problem-solving skills. As a game, it offers many hours of adventure and entertainment—even if those hours take place centuries ago.

Where in Time Is Carmen Sandiego?
IBM PCs and compatibles with 512K (Hercules, CGA, Tandy 16-color, and EGA graphics) or 640K (VGA or MCGA graphics)—$44.95

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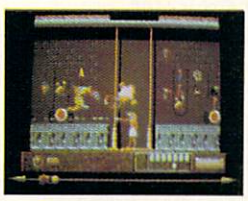
His mummy don't dance and his daddy don't rock and roll.



Horus isn't a happy guy. You see, his father, Osiris, was murdered. His mother, Isis, just lays around the pyramid, grieving. And evil Uncle Set — who's caused all the problems — has challenged him to a fight to the death. It's the original family feud — Egyptian style. And it's all in The Eye of Horus™. A brand new game from Fanfare™ — based on Gods and legends as described in ancient Egyptian mythology. Set has ripped Osiris's corpse into seven pieces and hid them in a dark forbidden tomb deep below the scorching Sahara sands. Your task is to help Horus find the remains, and avenge his father's death. But first Horus must search the dark catacombs for weapons and sacred amulets to aid him in battle. And he'll need all the help he can get. Because in the final confrontation, Set will turn into a dragon to destroy him. Self mapping arcade adventure. State-of-the-art animation. High resolution graphics. The Eye of Horus. An exciting new game for the MS-DOS, Amiga, and Atari ST systems. Look for it at your local software store. Or, call us at 800/572-2272 (in CA: 415/546-1866). LOGOTRON RECREATION

It's no cruise down the Nile. In fact, it's downright ungodly.

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LEARNING

DISCOVERIES

DAVID STANTON

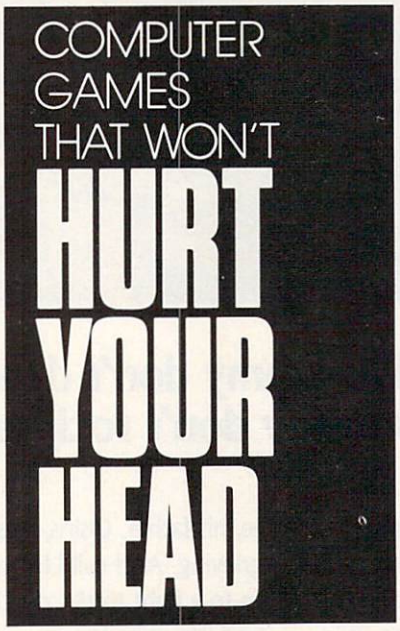
Based on the past three years, it's a safe bet that videogames will score big gains again this holiday season. According to one source, Nintendo of America sold over 13 million consoles by the end of 1988, and it expects to peddle 5 million more before this decade closes. A little number-crunching on my four-dollar calculator suggests that one out of every three American families knows Mario and Luigi.

And Nintendo isn't alone. Japan's Sega Enterprises has been in the business for years. By now, NEC Home Electronics should have its Turbo-Grafx 16 in stores, and there will certainly be other products making their debut this holiday season.

So what's wrong with that? Absolutely nothing. Still, it seems to me that today's best game machines suffer from the same fatal flaw that killed *Pong* and its fellows: lack of versatility. How long can any of us go on beating our heads against bricks or playing arrow-key baseball without suffering serious psychological damage or incurring a hopeless case of boredom?

In the battle between personal computers and dedicated game machines, I'll take the PC every time. Not only can real computers play some excellent games, but they can assist with productive work and educate the family as well. If you'd rather your children play baseball outside your living room, if you prefer taking leisurely Sunday drives to crashing two-dimensional race cars into television trees, if you share my suspicion that children can learn and enjoy simultaneously, then consider these alternatives.

For anyone interested in international politics, Mindscape's *Balance of Power: The 1990 Edition* should prove a worthy challenge. Call it a game if you wish, but it's really a powerful simulation designed to test your knowledge of geography, history, political science, psychology, military strategy, and the art of negotiations. Players become world leaders *pro tem*, representing either the U.S. or the U.S.S.R. Those who gain greatest prestige and influence, whether by diplomacy or military action, win. If any player or the optional computer opponent pushes his or her luck too far, everyone loses in a nuclear war. In concept it's somewhat like the popular board game Risk, but it's considerably more complex. Among other things, it includes world maps to illustrate current alliances and areas of unrest, a historical database for research, four computer-based advisers to assist in decision making, and four difficulty levels from Beginner to Multipolar (a variation where players must worry not only about their opponents, but also about more than 70 smaller countries.)



If serious matters of war and peace aren't your game, maybe trivia is. When Trivial Pursuit came out a few years ago, its popularity rivaled that of the Cabbage Patch Kids and Glow Worm. This year Gessler Publishing began marketing a computer version of Trivial Pursuit. Unlike the board game, this one includes questions that use music and graphics. What makes it especially valuable from an educator's view is that it comes in Spanish and French versions. It's great for reinforcing foreign-language skills.

For developing logical thinking in students from grades 5 to 12, you might want to try Davidson's new *Math Blaster Mystery*. Its detective format and four challenging math activities combine to make learning effective and fun. Each activity consists of a series of mathematical brainteasers. Students learn to solve math word problems in Follow the Steps. Selecting and piling the correct weights to total a given number is the challenge of Weigh the Evidence: You're given three scales and four weights, and bigger weights cannot be placed on smaller ones. It's relatively easy when working with whole numbers but harder when fractions, decimals, and whole numbers are mixed together. Decipher the Code presents mathematical expressions with all numbers missing. Deducing the correct numbers takes serious thought even at Level 1. Level 4 should prove tough enough for Mom and Dad. In Search for Clues, players analyze clues to discover a mystery number. The fewer the clues required, the higher the score. You can enter your own puzzles; a recordkeeping section stores results for later reference.

For maintaining interest in a new computer, you may want to consider a disk magazine. These hybrid software-editorial packages often include a few programs (utilities, games, art, desk accessories, and productivity tools), as well as more traditional magazine stuff like editorials, columns, and letters. For example, Softdisk Publishing recently started a Macintosh magazine-on-disk called *Diskworld*. The company also publishes *Loadstar/ Loadstar 128* for Commodore users and *Big Blue Disk* for IBM users.

Of course, you can't play *Mario Brothers* on personal computers. Then again, none of these programs will hurt your head. ⊡

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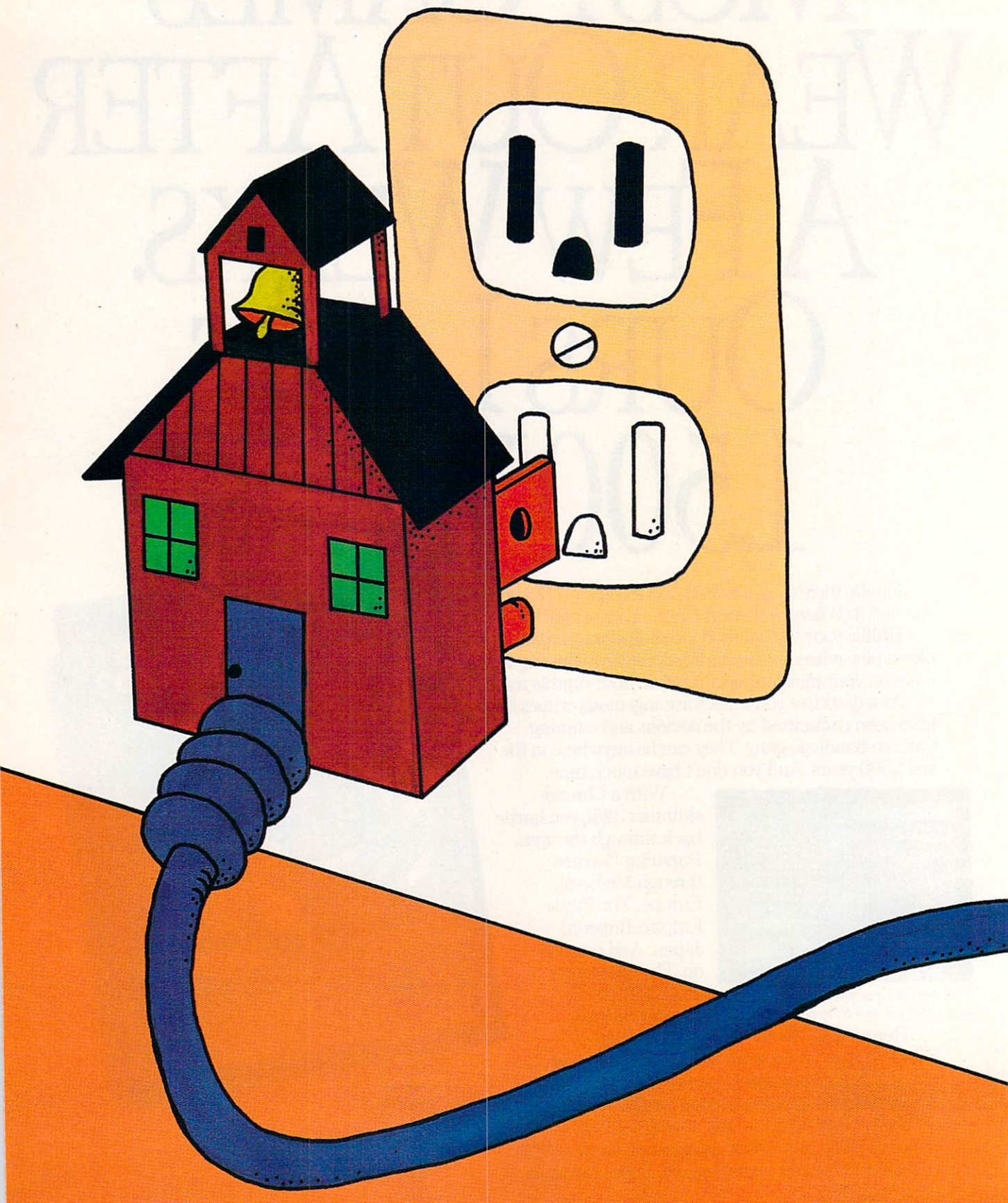

Illustration by Janice R. Fary

THE NEW SCHOOL

A MARYLAND HIGH SCHOOL PLUGS IN TO THE TWENTY-FIRST CENTURY

JEFF SLOAN

The tardy bell rings and the last of the stragglers wander into the largest of Quince Orchard High School's five computer labs. The early birds are already logged on to the 60 IBM Model 25s that line the tables. Through the school's Token Ring network, they can choose from programs like *PageMaker, Microsoft Works, WordPerfect,* and *FoxBASE* which reside in eight file servers located throughout the school. Applications that serve all of the school's 300 computers cover every subject from English and algebra to foreign language and social studies.

Today, the teacher is overseeing events as students manipulate spreadsheets and databases on their screens, performing the basic functions of accounting. Inside a classroom bordering the computer lab, a teacher boots up the roll-book program on his computer to take attendance before handing out the worksheets generated on his PC the day before. In another classroom on the opposite side of the lab, a teacher uses an LCD screen to project a lecture outline and other computer-generated images while students take notes.

Down the hall, in a resource center, a teacher uses a PC to mark her grade book, shuffle through assignments, make lesson plans, and tap the school's various teaching resources.

In the main office, the school's principal

downloads student files from the district's mainframe computer for recordkeeping. In the guidance office, students use a PC to find the best sources for financial aid and to seek the college or career that best suits them.

This scenario remains a dream for many students and teachers, but at this Gaithersburg, Maryland, high school, the ideal is real. While the rest of the nation warns of technology antiquating the country's educational system, a little ingenuity in Gaithersburg has put the kids on the next bus for the twenty-first century.

"We wanted to give the kids access to the latest technology and prepare them for the world of computers," Principal Tom Warren says. But the computers are doing more than just preparing students for the future; they're changing the way students learn, think, and create.

> We just wanted to give the kids access to the latest technology and prepare them for the future.
>
> — *Tom Warren*

The bigger question of whether computer technology is having a measurable effect on student scores remains unanswered. The system is still in its infancy and experiencing growing pains. But intangibles like attitude, creativity, ingenuity, and curiosity have improved, according to several teachers.

"I've noticed an improvement in attitude more than anything else," says John Brenneman, who teaches math and English at Quince Orchard and uses *WordPerfect* in his classes. Dick McCain, software coordinator and math and computer-programming teacher at Quince Orchard, has already noticed improvement in the way students manipulate math formulas. Gone are the days of plotting and plodding through graphs. McCain tells a story of the day he used the computers to introduce his students to simple algebraic graphing. By the end of the day, they were tracing parabolas and creating circles by adjusting variables in standard equations—not something McCain planned on.

"Students get more immediate recognition of concepts because of multigraphing," McCain says. "Experimentation on the part of the student is much greater. I think it's a confidence builder, too. They feel [that if] they can handle the computer, they can handle the subject as well."

Jim Haber, who teaches computer programming at Springbrook High School in Montgomery County, says the computers foster a different kind of learning interaction. "We teach a way to think," he says. "When the students get to solving the problem, it's a fun atmosphere. You've

The Teacher's Desktop

This past July, the NEA's Committee on Educational Technology issued its report calling on all schools to implement a program to install a computer with adequate software on every teacher's desk by 1991.

The goal of the recommendation is twofold: Use the computer to ease the burden of nonteaching paperwork duties, which consume up to 40 percent of a teacher's time; and promote the integration of technology with teaching to facilitate experiential learning and prepare students for today's advanced technology.

Gary Watts, assistant executive director for professional and organizational development at NEA, says he doesn't think the 1991 deadline will be met. But he's encouraged by greater efforts to draw the computer into the classroom and thinks Quince Orchard High School is the system of the future. "You make teachers computer-using people, and then they become computer-using teachers," he says.

Alan November, computer applications specialist for the Wellesley Public Schools in Wellesley, Massachusetts, claims that the way education deals with technology will affect how we live in the future. "If we don't do it, maintaining our current lifestyle is not feasible," he says. "It is essential that we have a technologically literate student population."

Bob Pearlman, national consultant on educational technology for the American Federation of Teachers, insists that asking for a computer on every teacher's desk isn't the final solution. "There should be some things to facilitate those people who want them," he says. "What I would do is put that money out there for people who have interesting and innovative ideas. There aren't enough funds anywhere to do everything anyway."

Judah Schwartz, professor of education at Harvard University, echoed those ideas, downplaying the role of the computer itself. Such variables as software and subject application determine the necessity of the computer, and it's a matter of finding the appropriate tools, he says.

But November says the report isn't just a call for a computer for every teacher. It's asking for changes in the way education views and uses technology as a whole. "The report does not need to be adopted piecemeal," he says. "It really makes cultural suggestions, not just technological ones."

Watts says one of the purposes of the recommendation is to redirect computer attention back toward the teacher. "The focus has been too much on the tool for the student, at the expense of the tool for the teacher," he says. "If it becomes a tool for the teacher, it will increase the amount of attention as a use for the student. One leads to the other."

November claims the problem with computers in education became apparent when students came to class better technologically educated than their teachers. "That was the biggest single mistake nationally, not giving computers to the teachers first," he says.

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got to make it the fun place to be."

Quince Orchard opened in September 1988 at a cost of $26 million. The 706,000 taxpayers in this affluent county north of Washington have a median income over $45,000. They expect a lot for what they pay, and they get it here. "It isn't cheap to do," agrees Warren.

Five labs, each with 30 computers, serve 1700 students with software in almost every discipline. With a ratio of about 1 computer for every 10 students, Quince Orchard easily bests the national average of 1 computer to 30 students. In addition, more than 150 computers are available to the staff. The 300 PS/2s are wired with Token Ring, linking every department, teacher, student, and administrator in the school to file servers. All about the school, visible wiring conduits stand out on the walls—testimony of the installation's newness.

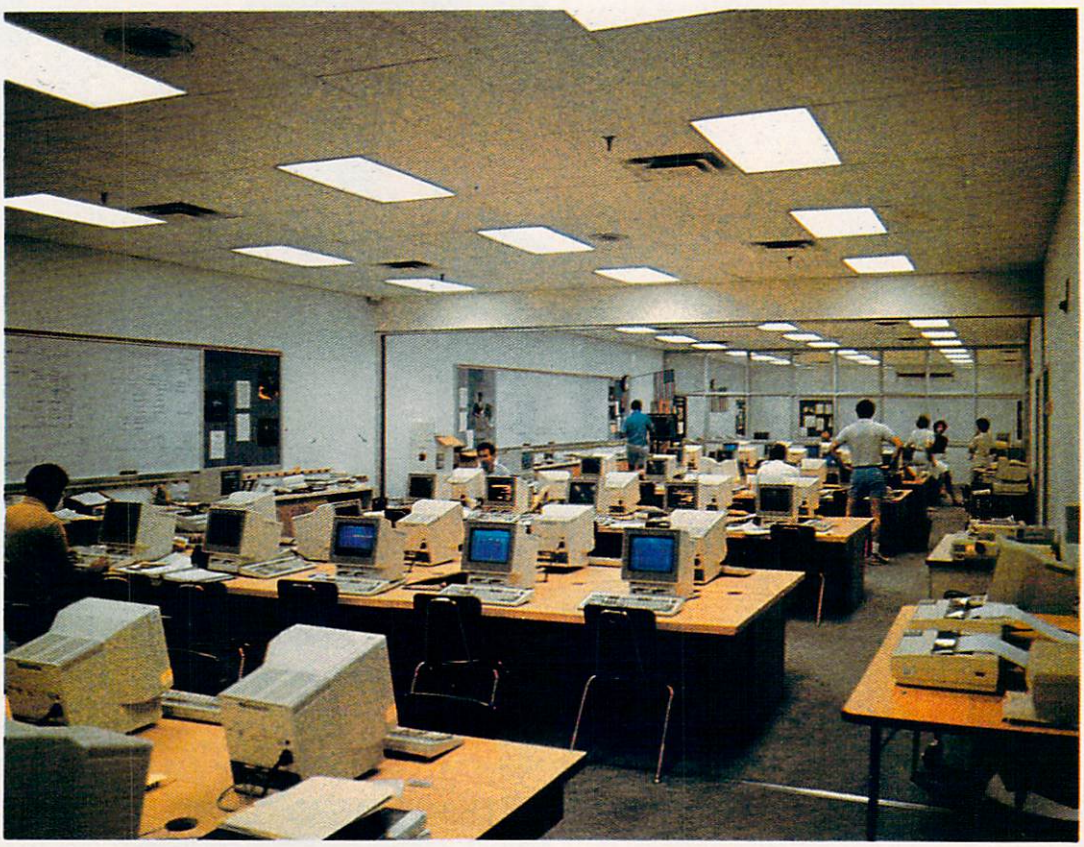
> Five labs, each containing 30 IBM PS/2 computers, serve 1700 students with software in almost every discipline.

The use of IBM equipment was a last-minute decision for the school, which had been designed with Apple computers in mind. About a year before the school opened, Warren and the Montgomery County Public Schools office of Computer Related Instruction (CRI) decided to go beyond the typical school computer configuration. "IBM just has more experience when it comes to networks," Warren says. "We needed that guarantee behind us to make this work."

Within a few months of installation, Quince Orchard staff and students were enjoying the modern luxuries of computing. In the library, students can access CompuServe, Dialog, and the card catalogs at the Montgomery County and the University of Maryland libraries. They can also peruse thousands of publications on CD-ROM discs. Students who have a PC and modem at home have remote access to the library—the ultimate homework source.

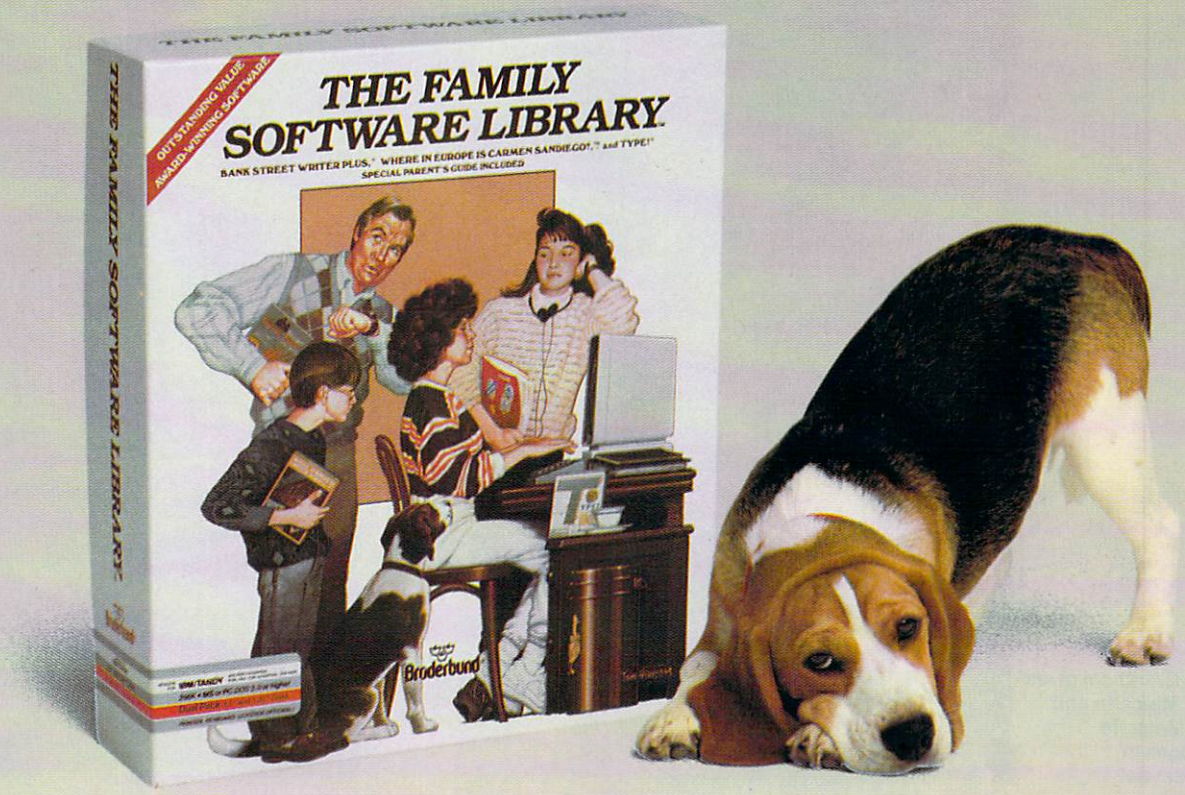
The school's computer system is linked to the county's mainframe computer through an Irma board, which lets a PC emulate a mainframe terminal. With this connection, administration personnel can download student records into school files. Although this system's password protection isn't the best security, administrators say too much security only challenges student hackers.

Of the five student labs, the math/computer-science lab is the largest with 60 computers. A temporary divider in the middle of the room easily creates two 30-computer labs. Flanking the long room on each end are two



Quince Orchard's math/computer-science lab houses 60 personal computers.

SORRY, SPOT.



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Darlene Grantham gives Richard Metcalfe and Sandra Metcalfe instructions in computer use.

glass-enclosed classrooms, which add to the class/lab atmosphere. Having learned concepts and theory in the classroom, students can move to the lab for hands-on experimentation and learning.

Students and teachers all use dual-floppy IBM PS/2 Model 25s. Some administrators use Model 50s; the file servers are Model 80s. Students can choose from software in almost any educational category but must sign antipiracy contracts before beginning. They use one disk to access the network and another as a data disk. With increasing enrollment, Warren expects to increase the number of computers at the school to 350 and to add another lab within the next year.

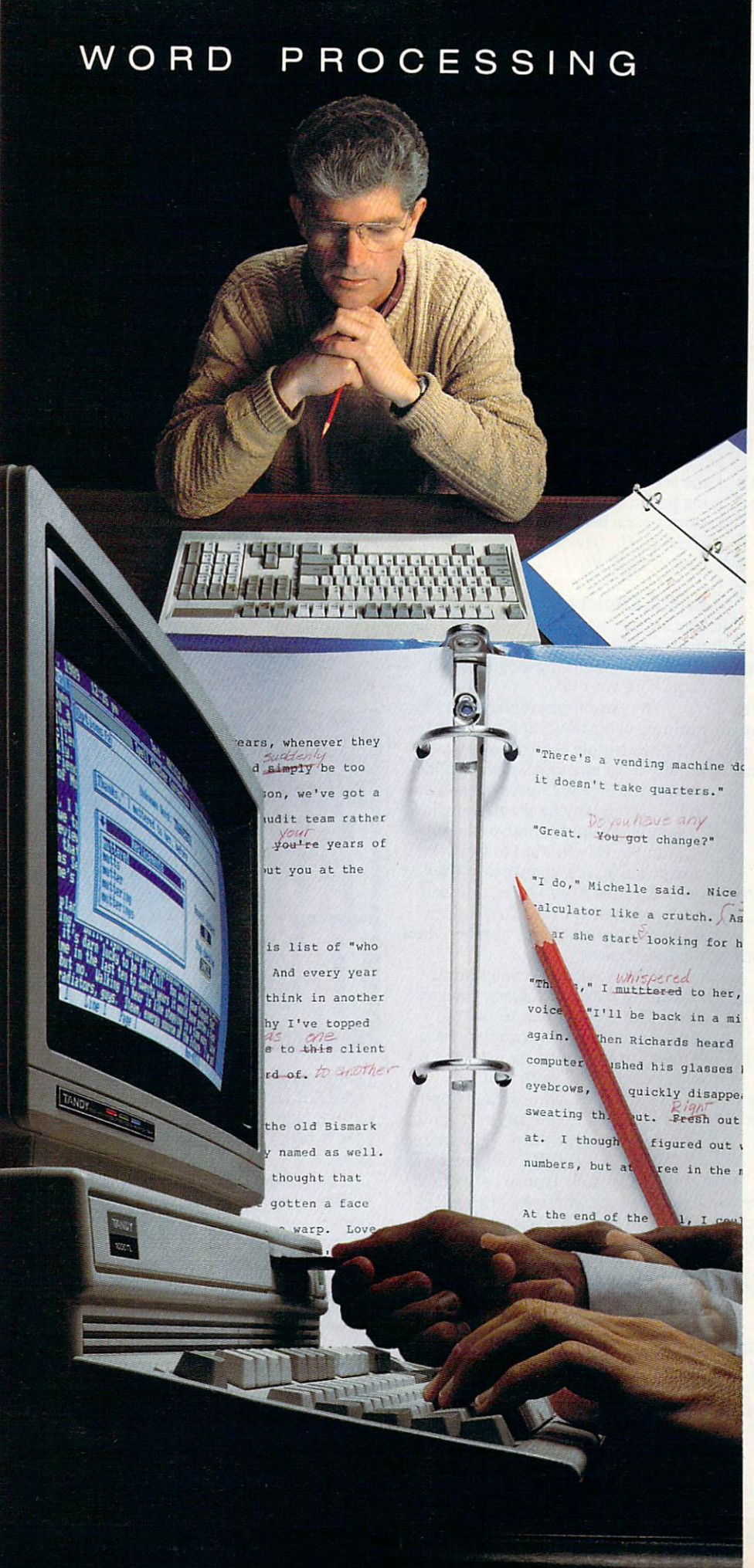
> Number 1, we want to empower teachers with the computer.
>
> — *Beverly Sangston*

Clearly the math and computer-science students get the most use out of the computers, but Beverly Sangston of CRI says the first priority is the teacher. "We wanted to be able to work with the teachers and show them what they can do, and then stand back and let them create," she says. "Number 1, we want to empower the teachers with the computer on their desks." Teachers at Quince Orchard are encouraged to take the their computers home during school breaks and holidays to increase use and familiarity.

"The idea was to give easy access to instructional and educational software," says Darlene Grantham, also of CRI. "The access they're getting to technology is just great. This school took risks."

Quince Orchard represents a county that understands how pivotal computers can be in education and that can afford the technology. For this school, the future of education is now. CRI's Grantham lightly taps the Model 25 screen in front of her. "They're not going away," she says.⊡

Jeff Sloan is a journalism student at Colorado State University who worked at COMPUTE! as an editorial intern.



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HOMEWORK

HINTS AND TIPS FROM OUR READERS

A BASIC LEARNING TOOL AND FAIRY TALE FUN

Kids love to see their names in print, and they love fairy tales. So what could be better than combining the two and personalizing your children's favorite stories? It's easy if you have a word processor that prints form letters or an integrated package that merges databases with word processing files.

First use the word processor to write a story, leaving blanks where the child's name should go. You can also incorporate other bits of personal information, like a favorite toy, a pet's name, or a least loved food. Anytime you can personalize the story, enter a placeholder that will be filled in when you merge the word processing file with the data file.

Here's a short example:

Once upon a time, there was an elf named NAME. PRONOUN was wandering through the meadow one day, picking FAVORITECOLOR flowers and wrestling with a dragonfly named PET'SNAME. When NAME returned home, PRONOUN found that POSSESSIVEPRONOUN magical FAVORITETOY was missing. PRONOUN searched the house from top to bottom and found Jack the Gnome playing with the FAVORITETOY under the front porch. So NAME made Jack eat LEASTFAVORITEFOOD for dinner every night that week.

Once you have written the story, create the data file that will hold each child's information. Name each field for those in the story. For my example, you would need a NAME field, a PRONOUN field, a FAVORITECOLOR field, and so on.

Finally, link the two files by using placeholders in the word processing file. You can find all the details about this process in most word processing manuals under mail merge, form letters, or file merge.

Now the fun starts. Gather the kids around and ask them to tell you about themselves. Ask what their favorite colors are, what their pets' names are, and so on. Fill in the database with the appropriate responses.

To see the results, print-merge the two files. If you use colored printing paper, the children will like the stories even better.

Heidi E. H. Aycock
Chapel Hill, NC

BASIC Choices

You already have a great tool for helping your kids with practice drills—the BASIC programming language that came with your PC.

What you'll be creating is a multiple-choice-question program. With two simple changes, you can modify it for any topic. For instance, change the phrase *Choose the odd one* in the accompanying program listing to something appropriate to the subject matter. (If you want to work on misspelled words, change it to *Choose the misspelled word.*) Next, put your multiple choices in the DATA lines. Enter the correct choice number, then the five choices.

When your child comes home and has to master a subject, you can customize the program to suit the need. Spelling lists, vocabulary lists, homonym and antonym lists, and science glossaries all work well.

Find BASIC among your floppy disks or on your hard drive. From the DOS prompt, type the program name *(BASIC* or *GWBASIC)* and press RETURN. Carefully type in each of the following program lines, hitting RETURN at the end where indicated. This program is designed for IBM PCs and compatibles and will probably need to be modified to run on other computers.

```
10 C$(0)="C":C$(1)="Inc":CLS:
 ON ERROR GOTO 20:PRINT
 "Choose the odd one":READ A:
 FOR X=1 TO 5:READ A$:PRINT
 X;") ";A$:NEXT X:
 PRINT"Choice";:INPUT B:
 PRINT C$((A=B)+1);"Correct.
 Press a key.":A$=INPUT$(1):
 GOTO 10 [RETURN]
20 END [RETURN]
100 DATA 1,"House","Cat","Dog",
 "Mouse","Horse" [RETURN]
110 DATA 2,"Red","Soft","Orange",
 "Blue","Purple" [RETURN]
```

You can enter hundreds of lines of data before running out of memory. The first item in each DATA line is the correct choice number (from 1 to 5), and the next five are the entries. Increment the line number each time—the next line should be 120.

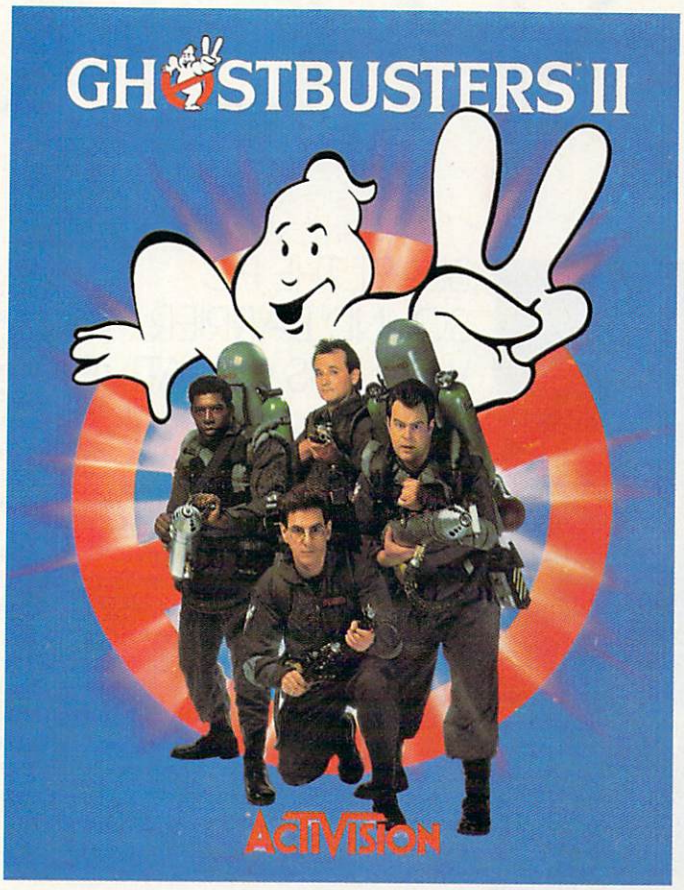
To try out your program, type **RUN** and hit the Return key. To save your program on disk, type **SAVE "QUIZ.BAS"** and press Return. To recall it later, reload BASIC, type **LOAD "QUIZ.BAS"**, and then type **RUN**.

Experiment by adding extra lines of data. Now you can change the program so that your children can pick out misspelled words, nouns, adverbs, or anything else that they may be trying to learn.

Richard C. Leinecker
Winston-Salem, NC

Do you have advice that makes a better teacher out of your PC? If so, we'd like to hear from you. Send your tip, no matter how brief, to COMPUTE! Feedback, P.O. Box 5406, Greensboro, North Carolina 27403. If we publish your suggestion, we'll send you a gift.

Bustin' Makes You Feel Good!



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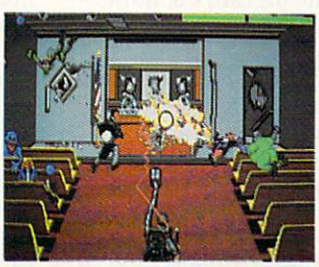
Clear the courtroom of ghouls and get back in business. Bust your pals out of the insane asylum. Trap ghosts around New York City, then turn the slime to your side and march the Statue of Liberty across town to the Museum. If you've got the slimeblower, wasting the evil Vigo should be easy.



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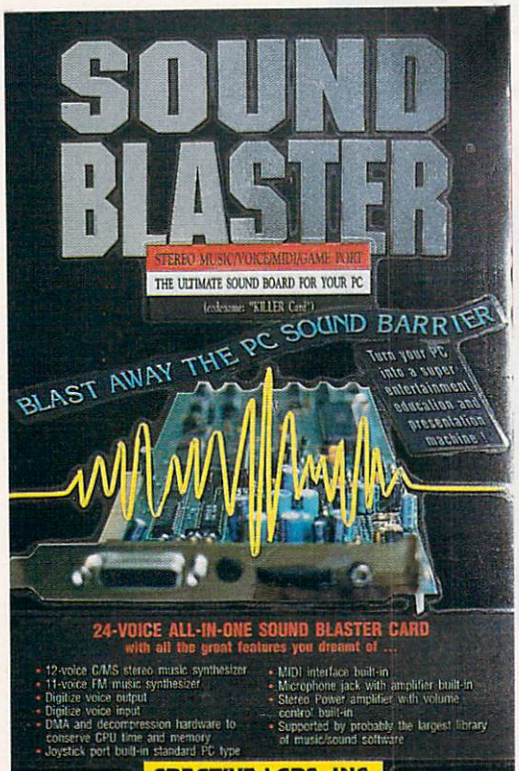


COMPUTE! CHOICE

BLAST THE PC SOUND BARRIER WITH THIS CREATIVE CARD

RICHARD C. LEINECKER

And now a moment of silence for the PC sound critics. With Creative Lab's Sound Blaster card, IBM-compatible computers have taken the lead in sound and music for personal computers. This single board replaces your PC's beep with 24 separate voices: Eleven of those voices offer 100-percent compatibility with software designed for the Ad Lib music card; 12 are compatible with Creative Labs' Game Blaster software; and the remaining voice replays digitized sound. All these features on one card would be enough to satisfy anyone looking for a dynamite PC sound card, but there's much more.

If your PC setup looks like a kitchen in an Italian eatery, with spaghetti wiring drooping to the floor, you'll appreciate the card's built-in amplifier. It eliminates the need for an external amp and the related wires, cords, and cables. The company has also squeezed a microphone jack (for recording digitized sound) and a MIDI interface onto the back of the card. Rounding out the long list of extras is a joystick port—a real boon for gamers.

Inserting the card into your PC is easy if you carefully follow the simple installation instructions. The Sound Blaster prototype I worked with took me just five minutes to install. (Straight from Singapore, it was one of the first in the country, and there were still some temporary wire bridges visible.) Once I had positioned the card, I was ready to take it for a test drive. Because I suffer from the common "manual-aversion" disease, I opted for an immediate acid test: running the opening of *Space Quest III*. I've listened to this Sierra soundtrack many times on both my Roland MT-32 and Ad Lib cards, and I knew the Sound Blaster would have to live up to some pretty powerful hype. It did.

My speakers aren't the traditional Bose models heard at trade-show demonstrations, but what I got from my setup was extraordinary. None of the aesthetics of a full-blown movie score were lost. Rich, full bass voices laid down the fundamental lines, while instruments thick with harmonics and subtle sonorities wove an accompanying fabric. Energetic percussion drove with impending direction, and exciting melodies came out clearly above it all.

Spurred on by my success, I pulled out every game I had with Ad Lib or Game Blaster sound support. Several were downright disappointing; they sounded like my seven-year-old 8-bit computer. Others, thankfully, had sound as superb as *Space Quest III*. I hope that programmers who support the enhanced sound devices of this card do so to the maximum extent; otherwise they're selling short.

Satisfied with the card's performance with commercial entertainment packages, I went on to explore the Sound Blaster's music-composition attributes using the company's Creative Music System (CMS) software designed especially for the Game Blaster card. Although the hardware capability is present, the CMS package isn't very sophisticated with respect to instrument timbre; however, the aural effect was still quite good. I switched over to Ad Lib's *Visual Composer* and, in minutes, had created superb-sounding charts.

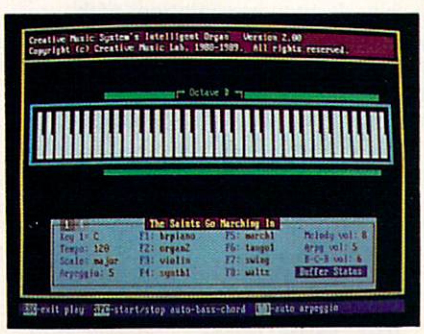
Phillips screwdriver in hand, I spent the next several hours swapping

INMENT

cards and comparing them. Besides perhaps setting a new speed record for installing cards, I came to respect the Sound Blaster as a true breakthrough for the PC. The Roland MT-32 definitely has an edge (and a much higher price tag), but not so the Ad Lib and Game Blaster cards.

Thanks to well-planned hardware compatibility, Ad Lib and CMS software provide a large library of available software. But even better is the fact that programs can now simultaneously combine the 11 Ad Lib voices, the 12 CMS voices, and a digitized component for some terrific audio. Creative Labs aptly illustrated these possibilities on several demos it supplied with the card.

The first demo raised a voice from my computer: "You ain't seen nothing yet. You ain't heard nothing yet," it repeated. Behind the words an increasing fervor grew, with music and arcade-style sounds mirroring the action of graphics images. (The rotating spaceships were amateurish, but they did get the point across.) This particular demo used all 24 voices, and although the music and sound effects were simple in nature, the overall effect was impressive.



Use Creative Labs' *Intelligent Organ* to accompany your melody with chords.

Another demo animated a lip-syncing parrot with digitized sound. A human voice sped up to simulate a parrot's voice provided a glimpse of the card's audiovisual potential. Another digitized demo had two recordings on disk that sounded as good as my stereo and allowed me to change the replay rate and create vastly different effects. The playback quality rivaled any digitized sound I've heard on other personal computers.

A disk of sound effects completed my orientation to the Sound Blaster. Gongs, cars, and brooks accompanied animated graphics.

Aside from its impressive software demonstration, Creative Labs has gone the last mile toward maximizing hardware performance. Not only do the Ad Lib and CMS voices operate as always, but a direct memory access (DMA) chip relieves the processor (for the most part) from the overhead of updating registers from the buffer. Translated, that means your computer can play music and make sounds without slowing down other processing tasks. While your computer runs an application, the DMA chip goes directly to memory and fetches the data. The DMA chip works effectively with digitized data, too.

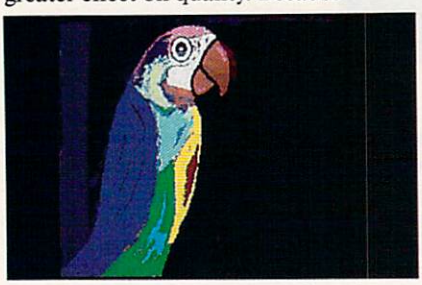
Recording (or sampling) digitized sound on the Sound Blaster is easy. Just plug in an audio signal (a microphone, stereo, or tape player, for example) and then start and stop the recording from a menu in the card's Voice Kit software. Of course you can't store more data than you have memory for. After you've finished, simply tell the software to replay what you've stored. You can also save your recording to disk.

The Voice Kit program let me digitize at a variety of speeds ranging from 5 to 13 kilohertz (kHz). The

hardware itself can sample at rates from 4 to 25 kHz, but the demo software didn't utilize the full range. Less memory is used at the slower speeds, but quality suffers; at the higher speeds the opposite is true—more memory is consumed and the quality is much better. I found, however, that the playback sounded good even at slower speeds. I also created some very interesting effects by speeding up and slowing down the playback speed.

By including hardware-based compression handling, the card's designers are able to save on the amount of memory you need to compose and record. Just how much memory does digitized sound use? At a 5-kHz sampling rate, 64K is eaten up in about 13 seconds. If you maximally compress this, then about 26 seconds' worth of sound data will fit in 64K. You can see how sampling sounds soon fills memory and disk space. Many games that boast digitized sounds optimize by using sounds at different speeds for different effects, which saves considerably on disk space and RAM requirements.

The Sound Blaster has two different types of compression: One packs 50 percent more data into memory with a moderate effect on quality, and the other stores 100 percent more information into memory with a greater effect on quality. Because



An animated parrot shows off Sound Blaster's audiovisual potential.

packing your data significantly affects the sound, you might not want to compress your grand masterpiece.

The sound cababilities are enough to put this card with the leaders of the pack, but its added game port is a great bonus. My PC joystick worked fine; I didn't have any compatibility problems. Price a game card sometime and you'll see the value this one feature adds to the card.

The MIDI interface isn't as easy to use as the joystick port, but its inclusion reflects the serious intent Creative Labs has for offering a single product for a variety of uses. In order to plug in your MIDI instruments, you'll first have to get a special MIDI box from the manufacturer. The box plugs into the card's joystick port. (There's a joystick port on the box itself, so you don't lose the game-control feature.) On the box there are one MIDI-in and three MIDI-out receptacles, making it more useful than the single-plug capacity that I had anticipated.

One other caveat with respect to the card's MIDI capabilities: If you have MIDI software, it won't work with the Sound Blaster. The company is currently trying to standardize MIDI input and output for all software, but until that happens, be advised of this limitation.

A great enhancement to PC sound, with Ad Lib and Game Blaster compatibility, Sound Blaster is wonderful. But when will commercial software take advantage of all that the card has to offer? That's hard to guess, but Creative Labs is doing an admirable job of facilitating developers.

Technical information is readily available for programmers who want to support the card. Creative Labs makes a driver available free of charge. Further, the company can provide an object module for integration into programs where the extra driver file is undesirable.

There are several reasons for such strong company support. Most obvious is the anticipated profits from wide acceptance of the product. Second, Creative Labs claims it wants to achieve a set of compatibility standards for PC sound that will make things easier for everyone—developers and consumers alike. We can only hope that such a standard will arrive in time to prevent the many divergent paths that other PC peripherals and cards have experienced.

Although tools exist for the creation of data files for Ad Lib, Game Blaster, and digitized sounds, there's no single integrated tool for all three. I wish Creative Labs had taken care of this one detail.

With solid support from Creative Labs, developers should soon be writing programs that take advantage of the card. A representative from Sierra told me that the company plans on supporting the card with its new releases. That's good news from one company, and good news for consumers if other companies follow suit.

There is life after games, of course, and the Sound Blaster lends itself to those applications quite well. For education, hypermedia, and aid to the handicapped, new sound capabilities for the PC are a welcome and sorely needed addition. Packages like Optimum Resource's *The New Talking Sticky Bear Alphabet* inspire children to learn. With the availability of the Sound Blaster, your PC can become an effective educational tool on par with the best in the business—provided software companies make the effort to develop supportive programs.

In business and in education, hypermedia presentations that incorporate sound and graphics can become a powerful demonstration of the PC's effectiveness. In addition, speech and advanced sound enhances the PC's usefulness for the disabled.

The Sound Blaster accentuates the attractiveness of its features with a reasonable, if not groundbreaking, price. Listed at $239, the card could be discounted to under $200 by larger computer retail outlets. If you were to total the retail prices for the separate components, the advantage of this one-card solution becomes clear: Ad Lib card, $195; Game Blaster card, $130; joystick port, $40; MIDI interface, $200; digitizer, $90. The sum is $655, almost $420 over the price of the Sound Blaster, which includes all of these features.

Add to that the software that Creative Labs plans to bundle with the card (*Intelligent Organ,* the talking-parrot demo, and the Voice Kit), and a Sound Blaster purchase is even harder to resist. About the only accessories that you'll have to buy are a microphone for recording and the MIDI box, if that's your interest.

A company representative has said that Game Blaster owners will be able to upgrade to the Sound Blaster for $100 and the return of their Game Blaster card. Such a generous upgrade plan will go a long way toward establishing Sound Blaster in the market.

If you want to pursue avenues that require good-quality speech and sound from your PC, whether it be recreation, education, or productivity (such as desktop presentations with sychronized sound), then this one card can quite capably meet all those requirements. For PCs, old beep and boop just got their walking papers.

Sound Blaster
IBM PCs and compatibles—$239.00
MIDI Box—$49.95

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DESK TOP STUFFING.

Konami is cooking now, with a hot computer game that gives you complete control of world championship caliber basketball, featuring Chicago, New York, Boston and LA.

From the opening tip, it's 5 on 5, full court, board crashing action, highlighted by blocks, steals, picks,

foul shots, 3 point bombs and 3 kinds of slams – the Gorilla, the Rim Rockin' Reverse and the In-Your-Face Jam!

Two can play at this game, or you can challenge the computer. Either way, it'll take all the runnin' and gunnin' you can muster if you hope to savor the taste of victory.

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Double Dribble is available for IBM. Also Commodore and Amiga in early 1990.

Circle Reader Service Number 130

GAMEPLAY

ORSON SCOTT CARD

ROLE-PLAYING TEDIUM TRANSCENDS THE COMPUTER AGE

The first time I heard of fantasy role-playing games, I thought they sounded like a terrific idea. A group of players pretend to be characters and have imaginary adventures together. Better yet, characters continue from game to game. On new outings, you still have the things you captured, the spells you learned, even the wounds you sustained in the last game.

To me, it sounded ideal, like a game that bordered on improvisational theater, a game that allowed you to live an extraordinarily romantic but believable life.

Ah, but the reality of *playing* these games is often quite different. The first time I sat down with a group to play, it took hours before we actually started adventuring. It occurred to me that if I wanted to sit around making decisions with a group of inarticulates, forgetfuls, fanatics, and devil-may-cares, I could go to the office.

Yet the *idea* of the role-playing game is so powerful that I kept *wanting* to play. I just wanted to eliminate the housekeeping.

So all you have to do is computerize these role-playing games, right?

Well, sort of. TSR has licensed SSI to produce a series of role-playing games that have the all-important Advanced Dungeons and Dragons name. SSI also produces non–D & D fantasy games, like *Demon's Winter,* a straight role-playing game, and *Sword of Aragon,* more of a strategy game.

All of them strongly resemble the D & D model. You assemble a party of characters with varying qualities, then explore a world and fight battles. Your party wins treasures and tries to stay alive, all the while pursuing some larger objective that might take months of playing to achieve.

The computer games have some real advantages. For one thing, you can play alone (though you don't have to). For another thing, you can't argue with the game master, since it's the computer. Best of all, you *never* hear the hideous sound of billion-sided dice rolling across a table.

But one thing the computer doesn't do is save you tedious time and work. Indeed, the maddening thing about these games is how often they are *more* tedious than the live game. You wade through each character's labors one at a time. The computer has no fudge factor. A human game master can keep things moving by saying, "You defeat the thugs easily and find 50 gold pieces and a magic-seeming amulet when you go through their pockets," so you don't have to roll your dice through endless combat. The computer, however, is relentless. You can't skip over the dull, repetitive parts.

Also, some of the stupidest elements of the original game are faithfully preserved. Why, oh why, must you "ready your weapons" before entering combat? Why aren't your characters smart enough to keep their best weapons at hand?

As Tom Hanks said in *Big,* "What's fun about *that?*"

And yet, if you're a dedicated role-player, perhaps these very "features" are an essential part of the game. You aren't really looking for a simulation of a fantasy adventure—you're looking for a simulation of a fantasy role-playing game. If that's your attitude, then the last thing you want is a streamlined process. The computer version must faithfully replicate every moment of mind-numbing tedium from the real game.

I'm giving the wrong impression. Every one of these games has graphics ranging from barely adequate to quite attractive. Some have creative story elements, like the religion in *Demon's Winter,* where your characters can become acolytes of a particular god and pray for useful favors at strategic moments. (Let us not even begin to discuss whether having your characters "pray" in a game encourages prayer in real life or trivializes it.)

Every one of these games is playable, *obsessively* playable, in fact. And every one has passed the Geoffrey test: My 11-year-old not only plays them when he should be doing his homework, he plays them when he should be eating or watching TV.

Of course, Geoffrey also enjoys reading AD & D manuals from cover to cover just for fun, so you'll have to decide for yourself if he represents a "normal" player.

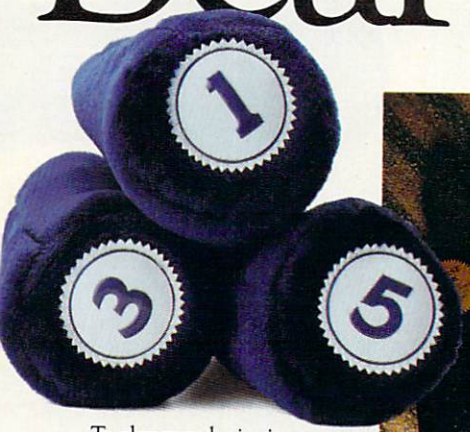
As for me, I'll stick with the Ultima series for fantasy role-playing. It's not because Lord British does it right—heck, he still hasn't learned to conjugate verbs in the second person singular—but because the Ultima games cut out about half the busy work and use the computer interface in a downright humane way.

And maybe someday a truly magical fantasy game will waft my way, one that does all the housekeeping chores itself and allows me to make only the fun choices.

Perhaps SSI and Lord British and all the others already know how to create such a fantasy. But if they ever did publish a game in which we weren't always concentrating on the details of housekeeping, maybe we'd notice the fact that nobody in this whole genre has thought of a new idea since 1951.

J. R. R. Tolkien is dead, folks. Wake up and *invent* something. ⊡

The Bear Essentials.



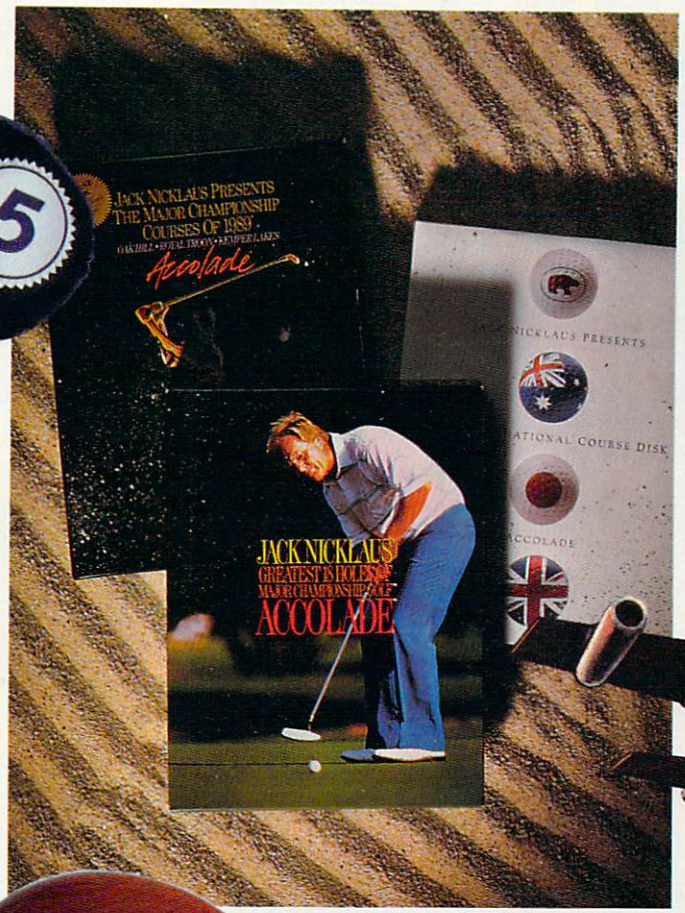
To play award-winning computer golf, you need a great set of clubs.

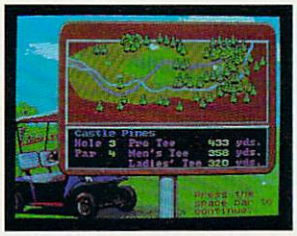
Country clubs.

Jack Nicklaus' Greatest 18 Holes Of Major Championship Golf™ and its add-on course disks offer you a lifetime membership to nine of the world's most exclusive country clubs. Courses selected by the "Golden Bear" himself as the ultimate tests of golf.

The main course? Unlimited use of the most challenging 18 holes in the majors, each hand-picked by the master himself. Then avoid greens fees on two more Nicklaus designed courses: Castle Pines, Colorado and Desert Mountain, Arizona.

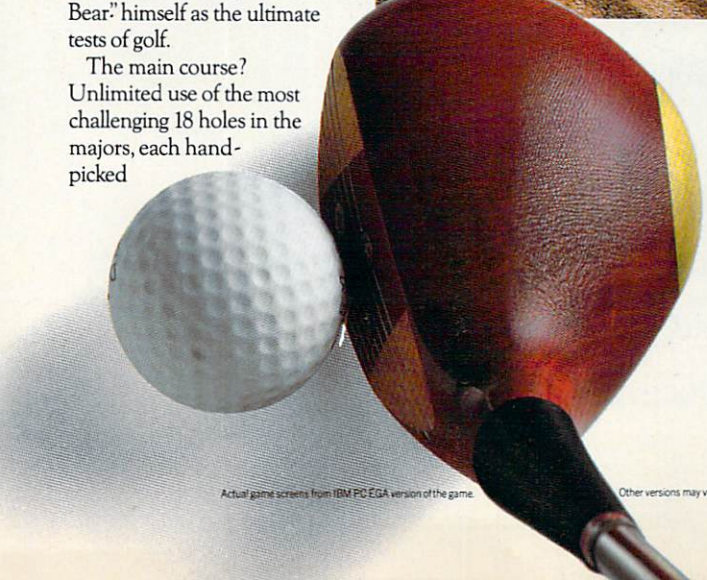
And that's just the Bear minimum.





Boot-up *Jack Nicklaus Presents The Major Championship Courses Of 1989*™ and take on the toughest tournaments of the year. Hit it big at Oak Hill Country Club, New York. Take on hills, heather and gorse at Royal Troon Golf Club, Scotland. Bring your water wings and sand pail to Kemper Lakes Golf Club, Illinois.

Then it's time to pack your putter.



The add-on *International Course Disk*™ jets you off to three world-class layouts designed by Jack. Battle par on such faraway fairways as the Australian Golf Club, Japan's St. Creek Golf Club and Saint Mellion Golf & Country Club in England.

All told, you get nine exceptional bastions of golf – without the outlandish membership dues and outrageous blazers.

Now... isn't it time for a new set of clubs?

How to order: Visit your favorite retailer or call 800-245-7744.

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Actual game screens from IBM PC EGA version of the game. Other versions may vary. Jack Nicklaus' Greatest 18 Holes Of Major Championship Golf is a trademark of Golden Bear International, Inc.

PUT AWAY YOUR TOYS AND TAKE

GROW UP!

DENNY ATKIN

You're an adult now, and along with that title comes responsibility. Unless you're Alexander Haig, you probably get a slight chill down your back when you have to say "I'm in control here." Well, the *COMPUTE!* Leadership Academy has just the course for you. By the time you've finished our rigorous training program, world leaders will be calling *you* for advice.

The academy isn't hard to get into. A quick trip to the local software store to gather your courseware and you're all set. So, boot up your home computer and prepare to enter a world of action, intrigue, politics, and mysticism. ▷

ON THE WORLD

GROW UP!

The Khan Job

Before you can be a great leader, Grasshopper, you must study the mistakes and triumphs of those who came before you. Start your training by playing Koei's *Genghis Khan.* This war game puts you in the role of Temujin, the twelfth-century Mongol chief who started life abandoned and impoverished but went on to rule most of Eurasia as the feared Genghis Khan. Note that an EGA or a VGA monitor is a prerequisite for this portion of the course.

When you start *Genghis Khan,* choose skill level 1 (easiest). We don't want you failing out this early in the semester.

At first glance, the game's map may remind you of the board game Risk. There are 14 countries on the main screen; eventually, you must conquer all of them. However, unlike Risk, you can't just leap in and attack. You'll probably win your first couple of battles, but you'll have depleted your army. That makes you an easy target for quick conquest by your stronger neighbors.

First, build up your home country by trading goods with merchants, adjusting tax rates, and training your soldiers. A successful leader needs the support of the population, so you must give them goods, gold, and provisions to keep their morale up.

While you're boosting the local economy, you should prepare for combat. Using the Diplomacy command, you can call a five-year truce with another country or demand that a weaker country pay tribute to you. The Espionage menu lets you prepare for your battles by spying on your neighbors, sabotaging their economy, or trying to assassinate an enemy leader.

Once you've built up your army's strength and developed a strong enough economy to support a war effort, it's time to invade another country. Pick a bordering country that is weak militarily but strong economically so that you can boost your own wealth. You could send in one of your generals to lead the attack, but then you won't get any combat experience yourself, and that's part of this course.

The attack screen is laid out in a series of hexagons. Combat is typical of computer-based war games: Move your army next to the enemy and issue an attack command. You command cavalry, archers, and infantry, and each have unique strengths in combat. The battle ends when one side is destroyed or the enemy surrenders. If you win, you add that territory to your empire.

Once you've defeated a country, you can choose to rule it yourself or put one of your governor candidates in charge. Either way, you've gained yet another territory to defend and another economy to manage.

Genghis Khan is an excellent prerequisite to a real leadership experience because it forces you to gauge your resources before making decisions. Now that you've had a taste of civilian and military leadership, you're ready for your first real command.

In the Navy

Out of the past, and into the future: The country is on the verge of World War III. Because of your exceptional performance in the *Genghis Khan* historical simulation, you've been selected to enter a crash course in submarine command. So boot up MicroProse's *Red Storm Rising,* a fast-paced sub simulator based on Tom Clancy's best-selling novel, and get ready for some heated undersea battles.

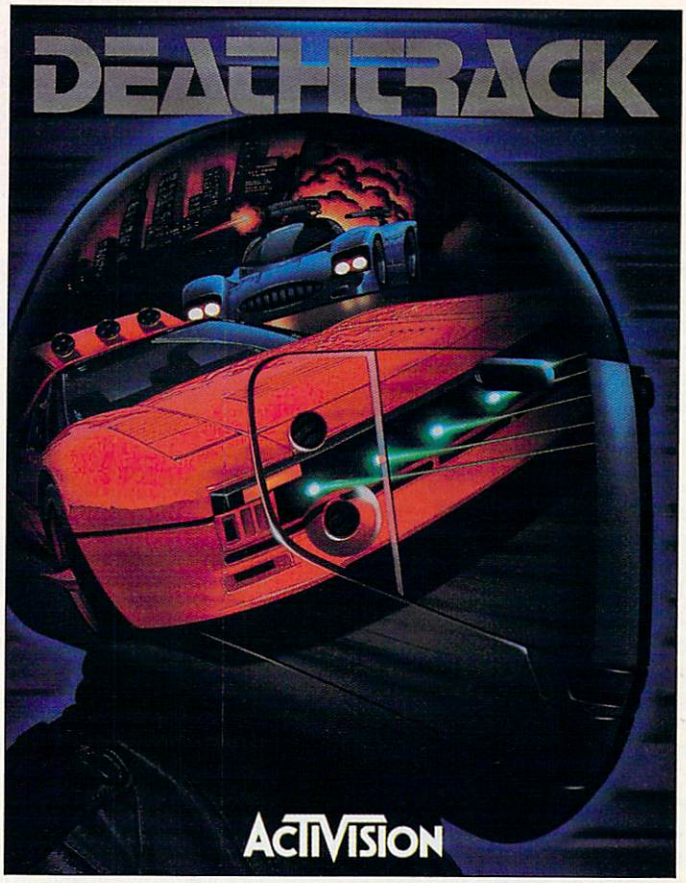
Red Storm Rising puts you at the helm of a modern nuclear fast-attack submarine. Your targets are Russian submarines and destroyers that are hunting you down.

If you've played other sub simulators, forget everything you've learned. There's no surface combat here—usually you won't even get up to periscope depth. Modern submarine combat is controlled from sophisticated computer consoles. Avoiding electronically controlled torpedoes that can double-back and try again demands new combat strategies.

Your sub is armed to the teeth with torpedoes and three different types of cruise missiles. You'll need all of these weapons, too. You have to face 20 varieties of Warsaw Pact ships and 16 kinds of submarines, all with varying combat ability.

You need to read the manual before embarking on your first cruise. You have to learn when to order your crew to use active instead of passive sonar, when to use torpedoes instead of cruise missiles. That knowledge makes the difference between war heroes and shark food. ▷

Everyone on the Road is Armed and Dangerous



Hurtling through the turn, you lock-on to the lead car and fire. In less than a second, your Falcon missile slams into the target and explodes in a ball of fire. You smile to yourself —he was a good assassin, but a lousy driver. Instantly, your radar detects a Terminator bearing down on your exhaust. You swerve, but it's too late. A small mistake ends another brief career on the *DEATHTRACK*—yours.

In the Hot Seat.
Race through hairpin curves and over monster jumps on 10 tracks in 10 cities.

Created by Dynamix.

They've Never Been to the DMV.
America's most wanted are on the circuit, with a colorful rap sheet and plenty of ways to knock you out.

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Circle Reader Service Number 106

GROW UP!

Don't plan on winning this World War III scenario in one sitting, though; the Soviets have a very large navy.

Campaign Trail Mix

You've completed *Red Storm Rising,* disabled the Soviet navy, and become a war hero. Now that you've been promoted to Admiral, you can retire from the Navy. But you're not ready to rest. The taste of leadership under pressure has made you ready to enter a vicious, bloodthirsty combat arena that makes the battles you saw in the Navy seem downright tranquil. That's right—you're going into politics. So boot up SSI's *President Elect* and hit the campaign trail.

With the 1988 version of *President Elect,* you can run against candidates ranging from Bush, Dukakis, Nixon, and Kennedy to Lee Iaccoca and Gary Hart. You could replay a historical scenario (Ford vs. Carter) or try a hypothetical election face-off (Kennedy vs. Reagan). But since you're working on your leadership qualities here, you should throw your own hat into the ring.

You start by planning your campaign. First, select a year between 1960 and 1988 for your campaign. Factors such as unemployment and inflation affect how the public accepts a candidate with your views. Then choose your political party. You get one choice the real candidates don't get: You can choose your opponent.

President Elect has a database of characteristics for all of the included candidates, but you'll need to answer a battery of 21 questions on topical issues to determine your own ideology. Finally, rate your speaking ability, magnetism, and poise under pressure (be honest), and pick a home state. Now, you're ready to hit the campaign trail.

The campaign lasts nine weeks, mercifully shorter than the real thing. Each week has a number of phases. First, you review the polls for that week. Pay close attention to the states where the race is close—they're prime targets for your campaign resources. Next check current events for the state of the nation. Good news will help the incumbent party, while bad news will hurt it. There is a chance during this phase that either candidate will make a gaffe (like getting caught sneaking out of a townhouse with Donna Rice) or a questionable statement (like declaring September 7 Pearl Harbor Day). Now, allocate your budget and start campaigning.

You start the campaign with 30,000 Political Action Points (PAPs), which represent time, money, and effort. You distribute a portion of these each week for national, regional, and state campaigns. You can also spend some of your PAPs on personal campaign stops.

Conquering the 14 Mongolian territories is the first step toward world domination in *Genghis Khan.*

At the end of each week, you can engage your opponent in a debate. However, each candidate can choose not to participate. Candidates with a secure lead will probably not risk a gaffe in the debate, while candidates in a close race may hope that the debate will swing the campaign in their direction. Candidates receive points for their performance in the debate, and the more points gained, the better a candidate's national standing.

After nine turns, the country votes. You can

WHERE TO FIND YOUR COURSE MATERIALS

Balance of Power: The 1990 Edition
Amiga—$49.99
Apple IIgs—$49.99
Atari ST—$49.99
IBM PC and compatibles with 640K, hard disk, graphics card, and *Microsoft Windows*—$49.99 (Runtime version of *Windows* available for $15.00)
Macintosh—$49.99

Mindscape
3444 Dundee Rd.
Northbrook, IL 60062
(312) 480-1948

Genghis Khan
IBM PC and compatibles with 384K and EGA or VGA—$59.95

Koei
1350 Bayshore Hwy.
Suite 540
Burlingame, CA 94010
(415) 348-0200

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

Electronic Arts
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San Mateo, CA 94404
(415) 571-7171

President Elect
Apple II—$14.95
Atari ST—$24.95
Commodore 64—$14.95
IBM PC and compatibles—$14.95

Strategic Simulations
675 Almanor Ave.
Sunnyvale, CA 94806
(408) 737-6800

Red Storm Rising
Commodore 64/128—$44.95
IBM PC and compatibles with 384K—$54.95

MicroProse
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Hunt Valley, MD 21030
(301) 771-1151

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Weapons of fury.

It's the next century in FORGOTTEN WORLDS, and you're the only one left who can save Mother Earth from savage aliens. Your space-age weaponry is awesome but so are your obstacles! Armed with an anti-gravity device you can fly through enemy defenses and eradicate the alien bases. But watch out! Missiles, monsters, dragons, robots and laser guns are bombarding you from every direction!

If you're ready to save Earth's defenseless men, women and children, see your favorite software retailer or call Capcom U.S.A. at 408-727-1665

There's havoc in the factory as you blast away the invaders.

The Bronze Dragon is a formidable foe. You never know when it will strike!

CAPCOM® USA

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GROW UP!

watch the returns as they come in, just like network coverage. At the end of the reporting, you can see how well you did in each state.

A Precarious Balance

You won the election, so now it's time to sit back and sign bills into law and give fireside chats. Right? Wrong. Now the fate of the free world lies in your hands. So, load Mindscape's *Balance of Power: The 1990 Edition* and get ready for some heavy-duty diplomacy.

This political-strategy simulation puts you in charge of superpower political and military relations. As the president of the United States, you increase your country's geopolitical prestige and weaken the Soviet Union's while trying to avoid a nuclear war.

Like the original *Balance of Power,* the *1990 Edition* centers around foreign policy. Using mouse-click diplomacy (the PC version runs under *Microsoft Windows*), you try to sway as many countries as possible over to your line of thinking and away from the Soviet Union's. There are two ways to do this: You can buy their support, or, if that doesn't work, eliminate their current government and install one more sympathetic to your cause.

You exert influence in a number of ways. Giving money to a government or insurgency will strengthen its position. If things get really heated, you can send in troops to help out either side. At higher levels, you add economic aid, diplomatic pressure, destabilization, and trade policy to your diplomacy arsenal.

You won't find it easy to expand your influence, though. The Soviet Union protests most of your actions. The trick to international diplomacy is deciding how far they'll take their objections. If they back down, your prestige goes up and your influence increases. If not, you'll ignite a nuclear war and drop out of the *COMPUTE!* Leadership Academy rather abruptly (since nobody has developed the *Nuclear Winter Construction Set* yet). You also get the opportunity to protest Soviet diplomatic moves.

Every choice you make in this game can have massive repercussions. A four-person crisis advisory group makes suggestions, but the ultimate decisions lie with you. If you're successful, you retire after eight years. If not, there won't be anybody left alive to criticize your performance.

Divine and Conquer

You've completed the first four courses in the *COMPUTE!* Leadership Academy. After eight years as president, you probably feel it's time for graduation. Not so fast. Because of your exceptional performance, you've been admitted to the graduate program.

A mist comes over you, and you lose consciousness. Groggy, you awaken and find yourself floating over a green landscape. You've loaded Electronic Arts' *Populous,* and now you have the ultimate responsibility: You're a god in charge of protecting your followers.

Unfortunately, there's another group of people on the little world below you, and they follow a different supreme being. This universe isn't big enough for the both of you. You have to use your great powers to help your disciples eliminate the other god's followers.

The first thing you'll need to do is make the land around your followers more hospitable. Do this by leveling out mountains so that your people can build homes and farms. As you increase the flat lands, your population (called *walkers*) will begin to multiply, build larger dwellings, and move out to cover more land. Of course, since you are their deity, you can influence where and when they move. And the more they spread out and multiply, the more power you get.

While all of this is going on, the evil deity is building up his own population. However, you have a few tools that make life harder for him. Earthquakes, floods, and volcanoes destroy the evil god's carefully cultivated lands. Change

Floods and volcanoes are among the natural disasters you can use to conquer this icy *Populous* world.

parts of his home territory into a swamp and watch his walkers disappear into the ground. Transform your walkers' leader into a knight who burns and pillages enemy villages. You have to keep the evil deity's land from developing, or his population will grow more quickly than yours, and yours will be overwhelmed.

When you feel mighty enough, you can send your walkers over to conquer his. If you have enough power, you can call for Armageddon, and all of the walkers will converge on one point for a knock-down, drag-out battle to the finish. If you win, you'll have only 499 other worlds to conquer.

Graduation Time

Congratulations! You're now a graduate of the *COMPUTE!* Leadership Academy. You've proven your command skills by conquering Eurasia, wiping out the Soviet navy, winning the presidency, making it through two terms without starting a war, and conquering an entire universe. Not a bad job.

So, now that you've finished the *basic* course. . . . ⊡

Denny Atkin is assistant editor for *COMPUTE!*. He's better at ruling the universe than he is at conquering the ancient world.

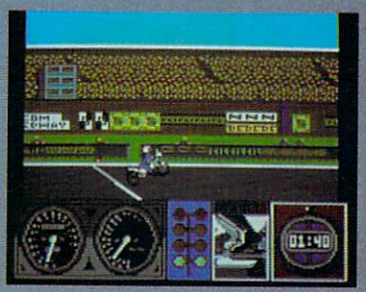
SANTA CLAUS IS COMING TO TOWN

Better watch out!

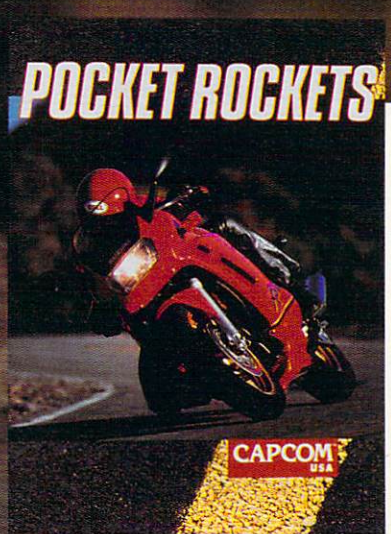
After a test ride on Pocket Rockets, the high-speed motorcycle simulation game, Santa picked up a new sleigh that will make this year's rounds faster than ever. And whether you've been naughty or nice, you could win this Suzuki 600 Katana during "Santa's Sleigh Giveaway" in January.

Meanwhile, experience all the thrills and spills of high-speed racing with machines that take you from zero to 60 in under four seconds. Already gaining critical acclaim, Pocket Rockets lets you choose from four of the quickest, most exotic bikes on the planet. The action's as real as the adrenaline you'll feel.

Then, enter "Santa's Sleigh Giveaway" from Capcom U.S.A. Besides the chance to win a new Suzuki motorcycle, you could get a Bell full coverage helmet, or Capcom computer game software. Look to enter in all Capcom computer game packages or visit your favorite computer game retailer for more information. Capcom's belated Christmas giveaway is just around the bend so don't miss out on your chance to win!



LEFT: Try your skill against the clock with a couple of laps around the test track. RIGHT: Drag racing demands a quick wrist and fast shifting. Just don't blow the engine!



SWEEPSTAKES RULES How to Enter:

1. NO PURCHASE NECESSARY. Fill out and mail official entry found in package or you can enter by hand printing your name, address and zip code on a 3" x 5" piece of paper and mailing it to CAPCOM Santa's Sleigh Giveaway, 3303 Scott Blvd., Santa Clara, CA 95054. Enter as often as you wish. Each entry must be mailed separately by JANUARY 15, 1990. No mechanical reproductions of entry will be accepted and all mail-in entries must be received at the above address by JANUARY 31, 1990. No responsibility is assumed for lost, late, misdirected, or damaged entries.

2. Prize winners will be determined by means of a random drawing to be conducted by an independent judging organization whose decision shall be final. All prizes listed will be awarded, but there can be only one prize winner per household, group or organization. Odds of winning depend on the number of entries received. Approximate grand prize retail value is as follows: Suzuki Katana $4,495.00. Winners will be notified by mail by FEBRUARY 15, 1990 and may be required to execute affidavits and advertising release. Taxes on prize winnings are solely the responsibility of the winners.

3. Sweepstakes is open to U.S. residents except employees of CAPCOM U.S.A. and their immediate families, its subsidiaries and affiliates, its advertising and promotional agencies, and the judging firm. Prizes won by minors may be awarded to parent or legal guardian. Void where prohibited or restricted by law. All Federal, State and Local regulations apply. For a list of major prize winners send a stamped, self-addressed envelope to CAPCOM Santa's Sleigh Giveaway Winners List, 3303 Scott Blvd., Santa Clara, CA 95054 by MARCH 31, 1990.

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GAMESCOPE

HINTS AND TIPS FROM OUR READERS

Has your confidence sunk after playing a few rounds of MicroProse's *Red Storm Rising?* Here are some sure ways to stay afloat. *Red Storm Rising* has a Help key (Alt-H on the PC version) that summons advice from the tactical computer. You should use this often when you first start playing. The advice it gives you is almost always correct and can get you out of tight spots. I've found the tips for avoiding enemy torpedoes invaluable. Don't feel like you're cheating—every good captain asks his or her advisors for tactical advice. As you gain experience you'll find you won't need the help key often, but you'll be glad it's there.

If you have a spotty sonar contact with an enemy sub, but you can't get a steady reading, fire a torpedo in the general direction of the contact. Wait until the torpedo is a good distance from your sub and then activate it. When the enemy submarine detects your torpedo, chances are it will make plenty of noise trying to get out of the torpedo's way, giving away the sub's position.

If you're in combat against a diesel sub, don't waste time stalking it. Fire a torpedo at it immediately—you're faster and more maneuverable.

Denny Atkin
Greensboro, NC

Tetris Tower Tips

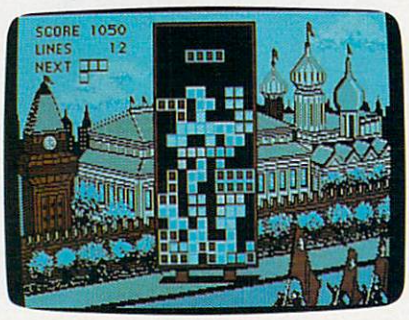
Here are some tips for improved *Tetris*-tower building, to help make those late nights playing Spectrum HoloByte's hit game last even longer.

If you don't know the best way to arrange each piece, you're probably wasting precious seconds and shapes. Although it's tempting to use the straight piece in long vertical spaces, using them horizontally is actually more efficient—two pieces fill almost an entire line.

Always leave a space for a cube, even if that space is very deep. The cube can be very useful or very troublesome depending on how you prepare for its fall. Simply leave two adjacent spots at the same height, whether it's at the bottom level or somewhere on the way to the top.

The *T*-shaped piece is the most versatile of all. It can act just like either *Z*-shaped piece as well as the *L*-shaped piece. When it falls, use it to fill the space that would be hardest to fill otherwise—a space that can only be filled by one other shape, for example.

Use the keyboard instead of the joystick. This tip is debatable, especially among arcade-game fans. If you're more accustomed to a joystick, you might hate the keyboard. However, you'll find that you can keystroke your way to the right position much more accurately and quickly. When a cube shows up, the keyboard is particularly useful. The cube always shows up in the same position on the screen, so, if you can figure out how many keyboard clicks to your open position, you don't even have to aim. You can be focusing at the top of the screen, watching for the next shape.



Learn the best spot for each *Tetris* piece or you'll waste precious time.

Third, practice by playing at level 1 and game speed 13. You'll improve your playing under pressure, so you won't have to just stare at the space-station background as the pieces drop chaotically onto the pile.

Heidi E. H. Aycock
Chapel Hill, NC

Stand and Deliver

If you want to be a successful swashbuckler in MicroProse's *Pirates!,* sailing the Spanish Main in search of treasure fleets, you'll have to learn some hard lessons about war at sea in the days of wooden ships.

I learned my tactics from hours of playing Broadsides (a board game that's still a lot fun in these days of silicon sails, but unfortunately out of print) and countless Saturday afternoons at the Ben Ali theater, watching every pirate movie that came to town.

First lesson: Choose the right ship. A pirate is more a guerrilla fighter than a field general. In this game, you'll come across several ships during your travels. A war galleon or frigate may look impressive when you sail into port, but give me a well-provisioned sloop on the open ocean. It's a fast and extremely maneuverable vessel—even when your sails are close-hauled for battle.

There's one naval tactic that, if mastered, can bring up your enemy's white flag while keeping damage to your own ship at a minimum. "Crossing the T" is when your ship crosses directly behind or across the bow of the enemy ship. The advantage of such a move is obvious: It allows you to send a full broadside into the other ship's hull and rigging while leaving its guns without a target.

Crossing the T takes some practice and experience in reading the winds and in steering your ship so that it doesn't get crossed itself. But once you get the hang of it, it's a surefire way to make your roger jolly.

Peter Scisco
High Point, NC

If you have game tips and shortcuts of your own, we'd like to hear from you. Send your tip, no matter how brief, to COMPUTE! Feedback, P.O. Box 5406, Greensboro, North Carolina 27403. If we publish your suggestion, we'll send you a gift. ⊡

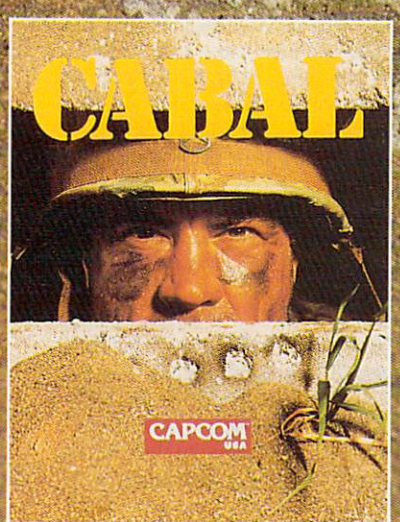
ANOTHER ONE BITES THE DUST

Eliminating terrorists.

Easier said than done. You must destroy these soldiers of fortune who strike you with machine guns, tanks, grenades and worse. Only then can you celebrate your victories.

Go beyond traditional war games and see why CABAL is #1 in the arcades. The fast action of every covert operation keeps you at the edge of survival.

See your favorite software retailer to enlist in the excitement. Or for more details, call Capcom U.S.A. at 408-727-1665 Act fast so that "another one" is one of them.



Cabal Screen Shots.

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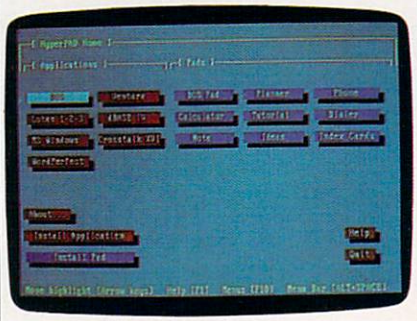
HYPERCHARGE PCS, BATTLE TANKS, CLOCK CAVEMEN, CRASH COPTERS, STACK SOUNDS, SEEK SHIPS, DISINFECT ISLANDS, WORK WORDS, MANIPULATE MICE, AND MORE.

HYPERPAD

The key to success in today's information-oriented society is organizing and managing your data. All that information you have stored in your PC won't do you much good if it's hard to get to. Brightbill-Roberts' *HyperPAD* lets you create push-button solutions to do this. Similar in concept to the Macintosh's *HyperCard, HyperPAD* is a professional productivity tool that allows you to organize and link information together in almost any imaginable manner. You create screens of information, called *pages,* and link them together to form a *pad.* Buttons that you add to various pages in the pad can link them together or be used to launch other programs.

The package includes a well-done, powerful home pad that performs as a DOS shell and as a launching point for creating new pads. A number of valuable sample pads are also included. Not only are these other pads useful, but they serve as good examples for creating your own pads as well.

Getting around in *HyperPAD* requires that you invest some time at the start. To activate onscreen buttons, click on them with your mouse pointer or press Enter when the button is highlighted. The arrow and Tab keys move the highlight from one button to the next. Pull-down menus and shortcut keys provide additional commands. The plethora of choices presents an initial challenge, which is compounded by a bit of confusion because the Tab and cursor keys seem interchangeable at some times and at others, don't. But once you've learned how to navigate, you can begin to appreciate this innovative interface and information manager.



***HyperPAD* lets you customize pads to organize and access your information.**

I was frustrated during the early stages of creating pads, but in the end I gained admiration for the program. The manual takes you step-by-step through the process of pad creation as you build a To-Do List. This simple example proved easy, but experimentation presented a set of unexpected difficulties to which the manual provided either unclear answers or no solutions at all. Fortunately, I was able to solve many of my problems by trial and error, but not all users will want to take that route, nor should it be expected of them. A great program like this deserves a more complete and descriptive manual.

Each pad contains at least one page. You can add pages, define attributes for them, and place buttons and editable fields anywhere on them. You can spruce up your pages with titles and by adding different shadow, fill, and highlight colors.

You can create rudimentary graphics designs using *HyperPAD's* painting functions. However, potential PC Picassos should be warned that *HyperPAD* runs on a text screen, so you're limited to using character graphics.

Any object you place on a page must be accompanied by a script if it's to be of any use. You write scripts in a special language called PADtalk. You should find the scripts easy to write, because PADtalk's language is much like English and its logic is uncomplicated.

I was pleasantly surprised to find that, within an hour of starting, I could create pages that faded out and peeled off to other pads and pages. After about a day's work, I had a page that reminded me of uncompleted chores, I had note cards for important addresses and phone numbers, and I even had background music. More complicated applications will require much more time, but this indicates the relative ease with which pads can be created.

HyperPAD's flexibility gives it the potential for use in a wide variety of applications. It can be used as an information organizer or even as a simple database manager.

You can also use it as a DOS shell. Once you set up a shell pad, you can simply press a button to start a program instead of going to a subdirectory and typing the program name. *HyperPAD* is more powerful in this respect than many dedicated shell programs because each button of a pad can represent a complex set of instructions specified by a PADtalk script.

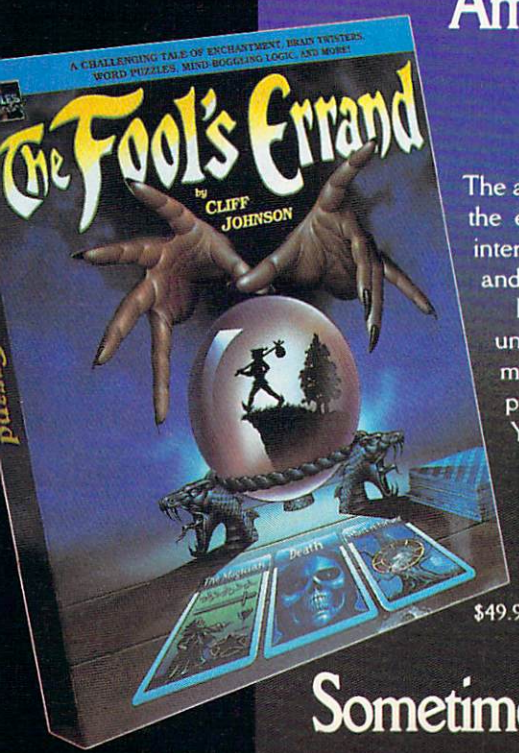
According to Brightbill-Roberts, a program that converts Macintosh *HyperCard* stacks to *HyperPAD* format is under development by a third party, which would make thousands of *HyperCard* stacks into a resource for *HyperPAD* users. One advantage *HyperCard* enjoys over similar pro-

A Fool's Errand– 1492.

Columbus Discovers America.

The Fool's Errand– 1989.

America Discovers A Great New Game.



The award-winning *Fool's Errand* is a game like no other. It tells the enchanting story of the fool in his search for wisdom, intertwined with over 80 original puzzles: graphic, word, logic, and more.

Each unique puzzle is woven into the threads of the unraveling story. The puzzles give you pieces of the sun's map. But the map is a puzzle as well. And there are more puzzles that lie hidden in the map.

You figure it out.

And when you do, you will be rewarded with a four-minute animated finale.

You will have earned it.

$49.95. For IBM or compatible, Tandy, and Macintosh computers. Available at your local retailer or order direct from Electronic Arts Direct Sales at 1-800-245.4525.

Sometimes, it's wise to play the Fool.

MILES Computing

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grams like *HyperPAD* is that almost every Macintosh owner has a copy (it comes free with the Mac operating system). You can't access *HyperPAD* pads unless you're running the program, so you can't share your pads with other users unless they own *HyperPAD*. However, developers can create stand-alone pads by licensing a special runtime version of *HyperPAD*.

HyperPAD's power, its ease of use (especially when creating pads), and its potential applications elevate this program to a level few others achieve. For many PC users, its value is enormous.

RICHARD C. LEINECKER

IBM PC and compatibles—$149.95

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HEAVY METAL

General Douglas MacArthur once said: "In war, there is no substitute for victory." Access Software's General E. E. "Bud" Dink apparently disagrees, because in *Heavy Metal* you can lose every battle and still win the game.

Heavy Metal is an arcade combat game, not a disk filled with Quiet Riot and Twisted Sister songs. It places you at the controls of an M1A1 Abrams Main Battle Tank, an Air Defense Anti-Tank system, and an XR311 Fast Attack Vehicle.

With the computer's forces outnumbering you almost 2 to 1, it's almost impossible to win the war. The game becomes a struggle to reduce the enemy's superiority.

You begin the game as a Cadet with the ultimate goal of getting enough points to be promoted to Five Star General. Before *Heavy Metal* will allow you to play the strategy game, you must complete three arcade combat games. After achieving a minimum score in each, you are promoted to Second Lieutenant and can assume leadership of a field unit.

When you choose the strategy option, you must maneuver four units on the battlefield against the overpowering enemy. You issue commands and monitor the progress of all four units on the Tactical Command Center (TACC) screen while protecting your headquarters from enemy advances. When a unit becomes low on ammunition or fuel, you must order it back to headquarters to resupply. While your units square off with the enemy, the program lets you know how well you're doing by displaying the enemy's advantage at the beginning of play compared with its current edge. The smaller the advantage, the more points you'll rack up.

Fire quickly in *Heavy Metal* or your tank will be reduced to a pile of molten metal.

You could sit back and watch the battle take place on the TACC screen, but your forces will suffer a humiliating defeat, and you'll become bored with the game if you do. It's important to join the fight. Joining any of the four units takes you to the arcade sequences, but this time you're not just shooting at planes and tanks at random, you're trying to reduce the total number of enemy units.

The tank units are the most difficult to master. You'll want to keep the game's keyboard reference card nearby. Besides shooting and controlling the tank's direction, you must select targets, regulate the tank's speed, rotate the turret, move the gun barrel up or down, and choose from three types of shells. These commands are scattered around the keyboard, requiring you to frequently look away from your monitor, which can be fatal.

The easiest unit to command is the Air Defense Anti-Tank (ADAT) system. It's almost too easy, because the missile launcher uses a laser-tracking system to find the target and shoot it down. This modern technology makes you feel less a part of the action. The ADAT also has a 30-mm cannon, which does require you to line up the targets in the crosshairs.

In the third combat scenario, you drive across a desert landscape in an armed dune buggy. Your Fast Attack Vehicle speeds across the terrain while you fire at or try to avoid obstacles.

Heavy Metal supports CGA, Hercules, and EGA graphics boards. However, the 3-D landscapes lack variety and character, even in EGA mode.

You can pause in the middle of battle to catch your breath or start your own resupply movement (head to the kitchen for a snack). If you find yourself playing late into the night, you can save up to ten games on disk to finish later.

You can install *Heavy Metal* on your hard disk. However, the game uses a soft copy-protection scheme that requires you to match an on-screen outline of a tank with one of 16 shown on an included chart. Several of the tanks look similar, and the silhouettes on the sheet are difficult to see. Like other games using this procedure, getting the program to run turns into a game in itself.

It's a long, hard road to Five Star General, and you'll lose many battles before achieving that rank. But if you like the challenge of being the underdog, you just may succeed on the Access battlefield.

MICKEY McLEAN

IBM PC and compatibles with 384K and CGA, EGA, or Hercules graphics—$44.95
Commodore 64/128—$39.95

ACCESS SOFTWARE
545 W. 550 S
Suite 130
Bountiful, UT 84010
(801) 298-9077

CAVEMAN CLOCKWORK

Time doesn't mean much to kids. Tomorrow and Christmas are unbearably far away, and five minutes ago is ancient history. But, as grownups have discovered, time does matter. Schedules must be kept and deadlines must be met. Luckily, *Caveman Clockwork* is here to help your kids bridge the gap.

Designed for children ages 4–8, *Caveman Clockwork* teaches and reinforces the concepts and skills children need to tell and manage time.

Following an introductory round of Big Ben–like beeps, you get an opening screen dominated by an animated dinosaur, complete with winking eyes and a wagging tail. The animation isn't fancy, but it's charming. There's something undeniably appealing about the simple movements, something every kid who sees them will love.

The dinosaur announces, via a cartoon-style balloon that covers most of its tummy, the options available, which fall into two categories. One set introduces basic time concepts, while

Mean Streets

An Interactive Detective Movie

It's the year 2033. Your name is Tex Murphy, private investigator in San Francisco. You've been hired by the beautiful daughter of a university professor to uncover the facts about her father's death.

As you begin your investigation, you uncover the deaths of several prominent members of the scientific community. Are these deaths coincidental, or is something more sinister going on?

- You will interact with more than 27 characters which animate and respond to questions, bribes and threats.
- Some characters actually talk. This spectacular effect is achieved by synchronizing digitized animation with Real Sound™
- You'll crack high-tech security systems.
- You'll rummage through offices, warehouses, and factories as you search for vital clues.
- You'll risk your life in action-packed shootouts.
- You'll fly to major cities along the west coast in your Lotus speeder. This land and air vehicle is a full 3-D solid-fill flight simulator.

Mean Streets features Real Sound™ our own proprietary technology that allows MS-DOS computers to play high quality digitized sound effects, music and speech WITHOUT HARDWARE.

Real Sound™

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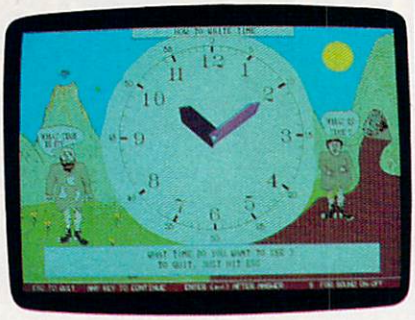
the other offers activities that let children practice those concepts they've learned. Each option is described by words only—there are no graphics or other visual hints to help kids who can't yet read.



Children will have hours of fun learning to tell time with *Caveman Clockwork*.

Selecting an item brings up a colorful prehistoric panorama, complete with a smoking volcano, a bright yellow sun, and a road paved with red brick. In the middle sits an enormous analog clock (remember those?) flanked by a pair of cavepeople who wear, among other things, well-worn socks. Socks? These guys look more like vagrants. But my six-year-old thinks they're delightful, and that's good enough for me.

These cave folks are, it seems, still wrestling with the basic concepts. "What time is it?" one asks. The other, confused by the very notion, replies, "What is time?"

"Look, they don't know about time either!" one child observed delightedly. His conclusion: If it's OK for the cavepeople to be confused, then it's OK for modern kids to be confused, too.

Tutorial options cover all sorts of basic time-telling concepts, including hour and minute hands and how the clock face looks at different times of day. Children are encouraged to interact with the analog clock by entering a time (in 12-hour hh:mm format), which is then displayed on the analog clock face. *Caveman Clockwork* also shows how time passes, speeding up the onscreen clock's hands.

After the kids have mastered the basics, *Caveman Clockwork* introduces a genius caveman (in high-top sneakers yet) who has finally figured out what time is all about. However, his newfound knowledge hasn't gone to his head, and he's apparently made it his life's work to help others figure out time concepts too.

He spreads his knowledge the old-fashioned way: by asking questions. What time does the clock show? What time was it 15 minutes ago? What time will it be 30 minutes from now? Kids enter answers in hh:mm format; correct answers are acknowledged by a volcanic eruption. After three wrong answers, the correct time is revealed.

At the end of each session, you get a summary of how things went. A report shows time spent in tutorials, time spent practicing skills, and total time. You're also told how many exercises were completed and how many of your answers were right or wrong.

Caveman Clockwork is a well-prepared tutor. However, it's also an impersonal one. Names are important to children, but this program can't be personalized to call your child by name.

The program is also fairly verbose. Blocks of onscreen text accompany many activities, and prereaders may be lost unless Mom or Dad sits down to help out.

But that's no problem. You'll enjoy sitting down with your kids for a visit with these well-dressed cave folks. Just be sure when you're having all that fun that you don't lose track of the time.

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FAST LOOKS

APACHE STRIKE

You're flying an AH-64 Apache attack chopper at street level, dodging gunfire from tanks and other helicopters. You find your primary target—what appears to be an orbital communications satellite floating in the center of the city.

This is the unlikely scenario behind Activision's *Apache Strike*. In this fast-action arcade game, you must pilot a helicopter through a maze of skyscrapers, blasting away tanks and helicopters while searching for the Strategic Defense Computer (SDC). On earlier levels it's relatively easy to use your radar to find the SDC and destroy it quickly, without worrying about other targets. However, you may want to save the SDC for last, since you earn bonus points for destroying all the tanks and choppers.

Graphics in *Apache Strike* are sparse but colorful. The city you fly through is populated by identical gray skyscrapers, with only an occasional elevated crosswalk to break up the landscape's monotony (and break up your helicopter, should you accidentally fly into one). However, the cockpit and enemy vehicles make good use of color. This is one of the few low-priced arcade games I've seen that takes advantage of the 256-color graphics available with VGA and MCGA adapters.

Apache Strike is best played with a joystick or mouse. While you can control the game with the keyboard, the speed-control keys are so far away from the keys used to fire guns and missiles that you'll find yourself looking down at the keyboard, a distraction with deadly consequences.

If you're looking for a realistic helicopter flight simulator, look elsewhere. But if you just want blow some bad guys out of the sky without having to think too hard, *Apache Strike* may be for you.

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HYPERSTUDIO

You're thumbing through a stack of index cards, looking for information on famous rock singers. As you stop to look at the Elvis card, the sound of *Jailhouse Rock* blasts from the stack. You press a button on the card marked *Early Career,* and a new card pops to the top of the stack, displaying a moving video of the King on "The Ed Sullivan Show."

This seemingly magic stack of cards isn't in your hands. You created it on your Apple IIGS using *HyperStudio* from Roger Wagner Publishing.

Like *HyperCard* on the Macintosh, *HyperStudio* uses a metaphor of a stack of index cards upon which you can place graphics, text, sounds, and video images. On the cards are buttons that let you interactively move through the deck.

You don't move through the cards in a linear fashion, as you would with a book or movie. Pressing a button leads you directly to another card, a stack of cards, or even a stand-alone program such as *AppleWorks. Hyper-*

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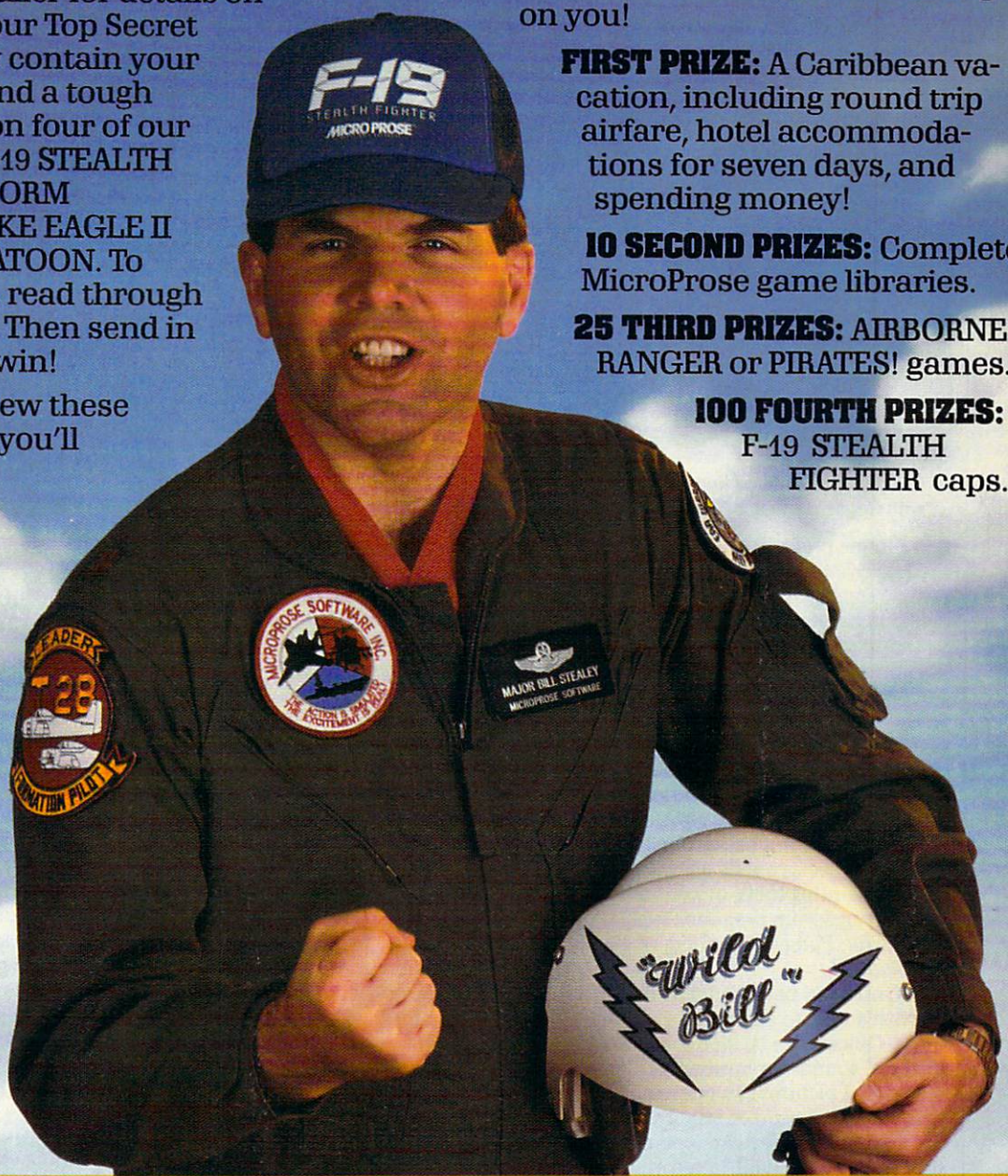

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Studio lets you incorporate high-resolution color graphics and digitized sounds, and it even lets you control a videodisc player—so you're not just moving through text, but through a world of sight and sound.

The *HyperStudio* package includes four non-copy-protected disks, a manual with tutorial and reference sections, a sound-digitizing card, a microphone, and an amplified speaker. Setup is fairly easy—it took me about 15 minutes. The sound digitizer card screws into a hole in the back of the Apple IIGS and draws power from the fan connector near the back of the motherboard. Because the *HyperStudio* digitizer card doesn't use an expansion slot, it has less noise interference than other cards have.

Create superb sound and graphics with Roger Wagner's *HyperStudio.*

On the program disks, you'll find the *HyperStudio* authoring program, sample stacks, over 250 clip-art images, music, sound effects, and three sound-manipulation programs.

The files created with the *HyperStudio* program are referred to as *stacks,* and stacks are made up of *cards.* To create a card, you start by choosing a background. A Rolodex card might have a blank background, while other types of cards might have ornate and colorful backgrounds. You can design backgrounds using the built-in painting tools, or you can import pictures from programs such as *8/16 Paint, PaintWorks Gold,* or *DeluxePaint II.*

Once your background is in place, it's time to add objects to your cards. Objects can be blocks of text, pictures, sounds, or buttons. Text blocks and pictures can be created within *HyperStudio* or imported from other programs. You can record sounds using the built-in recording tool and microphone, which operates like an onscreen cassette recorder, or you can import sounds from *HyperStudio's* Sound Shop program. Buttons come in several shapes and sizes, or you can create your own. Because buttons can be visible or invisible, you can use any part of the card as a button. If you want a door to open when pressed, outline it onscreen and use the door as a button.

HyperStudio includes three programs that work in conjunction with the included sound digitizer. Sound Shop is a utility that lets you digitize, edit, and save sound files. Although *HyperStudio's* sound-tool feature also lets you record sounds, Sound Shop gives you finer control over the process and also lets you convert sounds recorded with other products. Sound Shop also lets you control the quality of the sound sample and add an echo to a sound. Sound Browser lets you browse through and hear sound files on a disk, while Sight 'n Sound lets you set up a disk to bring up a super-hi-res picture-and-sound file while a disk is starting up.

HyperStudio can also control videodisc players, allowing you to attach video images or sequences to any card in a stack. Using *HyperStudio* in conjunction with Apple Video Overlay Card, you can add images from a VCR or laser disc player to individual cards.

Exploring completed *HyperStudio* stacks, loaded with backgrounds and objects, is really fun. Pressing buttons can trigger sounds, animations, pictures, programs and all sorts of other surprising events. It was really unusual to hear my daughter's voice coming from my Apple IIGS when I pressed a window on a picture she had painted. Among the wide variety of stack ideas suggested in the user manual are an interactive adventure story, a children's ABC book, a repair guide, interactive tests, family trees, and graphics databases of animals, art, and countries. Best of all, you don't need a lot of programming knowledge to create your own stacks.

HyperStudio is a revolutionary product for the Apple IIGS that is guaranteed to unlock some doors to the machine's true potential. It's definitely not the type of package you'll buy and abandon in a few days. In fact, if you start playing with *HyperStudio,* there's a good chance people wonder where you've been lately.

JOEY LATIMER

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SEARCH FOR THE TITANIC

You've flown a military jet, managed a baseball team, raced a Porsche on the Autobahn, and led your country into war—without leaving the safety of your computer room. Now you can sink to new depths with *Search for the Titanic.*

Shipwrecks have a fascinatingly mysterious quality. What you find when you dive on a wreck is intriguing, addicting, and terrifying. And the most fascinating wreck of all is the Titanic.

Capstone's *Search for the Titanic* not only provides hours of oceanographic adventure, but also does a good job of explaining how the ship was found. Dr. Robert Ballard, the leader of the expedition that discovered the great liner four years ago, spent enormous sums of money achieving his goal. Once you've played this game, you'll understand why he needed it all.

Experience the excitement of undersea explorations in *Search for the Titanic.*

In *Search for the Titanic,* you must get together the money for a series of discovery expeditions, then equip your expedition and sail to the site of the wreck. There, you must coordinate your divers and equipment as you explore sunken vessels.

There is a mini-game in which you search only for the Titanic, but the real challenge lies in the full game, where 77 wrecks wait to be found. You begin with only $10,000, with which you must rent a ship, hire a crew and divers, and buy fuel and provisions before you can look for a wreck. When you find one, dive to it and then return to port to improve your reputation. An improved reputation means a greater chance of securing funding for future expeditions, which in turn yield an even better rep-

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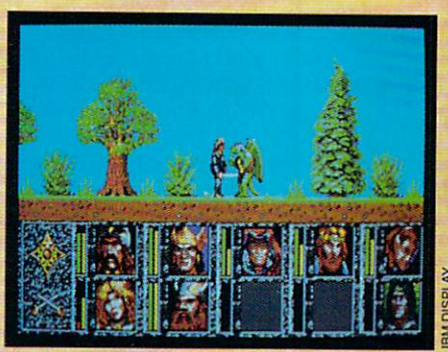

IBM DISPLAY

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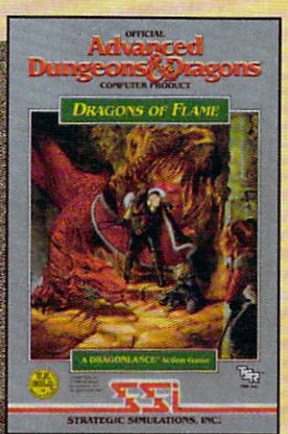
Each Companion possesses specialized skills. Use these skills to evade evil Draconian patrols. Keep one step ahead of the Dragonarmies while battling scores of deadly monsters.

All the terrors of the journey, however, pale in comparison to the horror of your destination. The fortress of Pax Tharkas looms before you, crackling with vile energy.

Can you stand the heat?

CAN YOU STAND THE HEAT?



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utation. You're in this business for excitement and glory, but your sponsors want something more.

Four types of ship are available for rent or purchase, ranging from the lowly $50,000 Moyu to the $600,00 Voyager. You can start your expedition from over 40 different ports around the world, each one rated according to technical level, important for repairs and equipment availability. Planning includes getting your ship and choosing a starting port, then hiring your captain, doctor, navigator, mechanic, technicians, and divers. Each of these people gets paid by the day, and the more experienced they are, the more they'll cost you.

You must also buy equipment. At first, you can't afford any, which means you will only be able to scuba dive on shallow wrecks. Later, you'll want to consider purchasing items like a magnetometer ($10,000), platform sonar ($80,000), weather radar ($10,000), and minisub ($750,000). Because all your initial money is needed to rent a ship, buy supplies, and hire a crew, this equipment is completely out of reach until later in the game.

After choosing a wreck to search for, then getting your plan evaluated and finding funding, you're ready to head to sea. In Navigation mode, you guide your ship to the approximate coordinates displayed on the wreck chart. Once close to the site, switch to Exploration mode and zero your ship in on the target. When you're close, stop the ship and send down the divers.

Two divers go down at a time, spend some time on the bottom, then resurface and tell you what they've found. First you have them survey; then, when they've found the wreck, you send them down to explore it. You can view a digitized picture of what they find. These photographs are especially exciting when you find the Titanic; VGA owners are treated to some spectacular photos of the actual wreck.

If the wreck is below scuba-diving depth, you'll need advanced equipment just to find it. The magnetometer will locate large pieces of metal lying on the ocean floor. Ship sonar, deep sonar, and platform sonar return information about water depth, revealing possible wreck locations. You need all three to fully cover the varied ocean depths. Once you know where the wreck is, you can send down your minisub or bathysphere to explore the sunken ship and bring back artifacts and treasures.

A command you'll definitely want to use when playing *Search for the Titanic* is ALT-W, which toggles warp speed on and off. Warp speed changes the game from realtime to accelerated time. Without it, the game would be unplayable because all of the diving and exploring would, in realtime, take hundreds of hours.

Search for the Titanic is an extremely educational game. You'll learn what it takes to find a sunken ship, and you'll begin to appreciate the enormous financial commitment needed to make such discoveries. Finding shipwrecks is something few of us will ever get to do. This excellent simulation will expand your port of call beyond the computer room.

— NEIL RANDALL

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An Apple II version will be available soon.

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ARCHIPELAGOS

A dark force has spread over the archipelagos. The radiation emanating from the tall obelisk looming defiantly on the horizon is polluting the once-serene isles. Only you can rid this strange land of the evil power that infects it.

The object of this unusual and addictive game from Brittanica Software's FanFare line is to destroy the obelisk that you'll find on each of the game's 9999 levels. Before it can be eliminated, you'll have to find and destroy a series of radioactive nodes scattered around the islands. Destroying the nodes is easy—just place a crosshairs pointer on the same square as the node and collapse it with a click of the mouse button. Only after collapsing every node on a level will the obelisk become vulnerable. At that point, you'll have just 90 seconds to find and destroy it.

As you examine each landscape in search of nodes, the mouse or cursor keys can be used to pan around your position. To move across the landscape, you place the crosshairs on any green land square and click on it. You'll zoom to the new location as the checkered ground scrolls smoothly beneath you. The animation is superb.

Most of the island landscapes of *Archipelagos* are very large and irregularly shaped, making it nearly impossible to thoroughly search each area without consulting a map. By pressing a function key, your view is replaced with a map that includes a closeup of your immediate surroundings. Also helpful for getting your bearings is a mysterious red planet that sits in the northern sky.

You must save the land from viral trees and other infections in *Archipelagos*.

Although you can only travel onto green land squares, you can convert other squares to green land if you have enough energy. Your energy supply increases each time you destroy a node or collect a sand pod. You'll need to do this to get over large patches of infected land or to build land bridges to reach other islands.

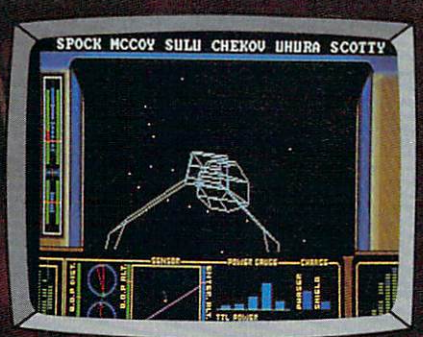
Many of *Archipelagos'* early levels are fairly easy and can be completed without ever creating new land or disinfecting any red squares. As you reach higher levels, the game becomes increasingly difficult. For instance, instead of finding all of the nodes on the same land mass as the obelisk, you'll have to search a number of individual islands for them and create new land squares over the ocean to reach them. Also, the number of viral trees infecting the land increases. If you get too close to a viral tree, it could infect the land you're on, killing you in the process. Beginning on level 13, you'll also have to worry about a necromancer that rises from the ground and moves around the landscape turning land squares to sand. Since each node must be connected to the obelisk by a contiguous land path before it can be destroyed, the necromancer can make creating and maintaining these paths a nightmare.

Things really start getting tough on level 20, when eco-eggs begin hatching. One type of egg quickly infects the land with radioactive wastes, while another eats away at the land itself until there is nothing left. Finally, tornadolike air cleaners begin to appear on level 25. Contact with any of these will kill you, forcing you to start the level over again.

Archipelagos has a lot going for it

Spock! — aren't you supposed to be dead?

I rebooted!



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besides slick graphics animation and addictive gameplay. Each time you complete a level, you're told how long it took, and you're given the option to move on to the next level or repeat any of the previous levels. The highest level you've completed is automatically saved to disk, so, each time you play, you can pick up right where you left off. If you enjoy games that combine challenging logic puzzles with first-rate graphics animation, you'll definitely like *Archipelagos.*

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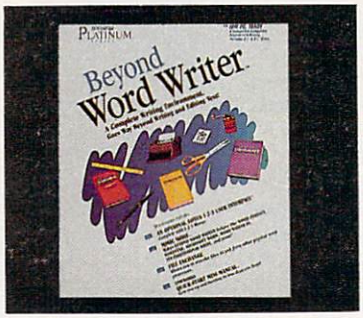
BEYOND WORD WRITER

To make a dent in the crowded PC word processor market, publishers must try to create the ultimate text-editing program, one that's easy to use and laden with every bell and whistle developers can cram in. TimeWorks' *Beyond Word Writer,* an ambitious upgrade of the popular *Word Writer* program, is a new contender that just might have what it takes to be noticed in the crowded sea of word processors.

Beyond Word Writer's simplicity starts with the WYSIWYG (What You See Is What You Get) interface. There are no codes to memorize for basic operations; all editing options come from pull-down menus, dialog boxes, and mnemonic keyboard commands. File management, block moves, and page formatting are handled quickly and easily. You can begin writing standard documents like letters and school reports with a minimum of setup and study. A timed backup feature, several levels of Undo, and context-sensitive help screens make basic word processing relatively foolproof.

If you're accustomed to using another word processor and don't relish the thought of learning a new interface, *Beyond Word Writer* can mimic the command sets of *WordStar, WordPerfect, Microsoft Word, Sprint, PFS:Professional Write,* and *Lotus 1-2-3.* It has a file-translation utility to import documents created with those programs, as well as standard ASCII files. Up to three documents can be open at once in separate sections of the screen, allowing you to cut and paste between them. This convenience isn't available on many PC word processors, but most writers will find it invaluable.

There are three ways to use the 100,000-word spelling checker: You can have it check automatically as you type, check when you've completed the document, or look up single words. I found the 240,000-synonym thesaurus weak in many subject areas; you're better off with an unabridged copy of *Roget's.* Additional writing aids include an outliner, a proofreader for catching simple errors, a FOG readability analyzer, a word counter, and a mail-merge function. A macro utility lets you record multiple keystrokes, such as your name and address, and add them to your document by simply hitting two keys.



***Beyond Word Writer* is a full-featured word processor that's still easy to use.**

Besides basic writing and editing features, *Beyond Word Writer* includes some desktop publishing capabilities as well. *Beyond Word Writer* supports such text styles as boldface and underline and allows you to mix them freely in the document. You can insert formatting rulers at any point in your work, using them to create tables with decimal tabs or to center or indent extracts. You can vary line spacing, but not leading, and define your own page breaks. The program supports autohyphenation; widow and orphan control, to keep paragraphs together at the beginning and ends of pages; and sticky spaces between words that you don't want to split up at the end of a line.

Most of the advanced formatting features—such as index generation, columns, and footnote numbering—require adding codes to the text or stepping through complicated dialog boxes. However, once you've learned the procedure for a particular operation, it's easy. *Beyond Word Writer* does lag behind other similar programs in its handling of graphics. Although you can create boxed text and line rules, *Beyond Word Writer* can't import graphics or create them from within the program. This is a real shortcoming for report writers.

I expected a feature-laden program like this one to be sluggish, but it raced right along on my 10-MHz AT. The only time the program had trouble keeping up was in multicolumn mode, when I couldn't tell how the columns would look until I finished typing.

On the whole, *Beyond Word Writer* is a responsive, robust, well-crafted program, with only one minor bug that I could find. I was able to lock it up once by trying to reformat an existing single-column document into two columns. The program inserted a duplicate of the first line of text at the top of the first page. When I tried to delete the line, the program hung, forcing a reboot. All other features of the program worked; however, the alphabetic and numeric list sorting, which is mentioned on the packaging, did not make it into this version. Still, *Beyond Word Writer* delivers on its promise of simplicity and power at a reasonable price.

STEVEN ANZOVIN

IBM PC and compatibles with 512K—$199.95

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FAST LOOKS

MOSTLY MICE

Once you become accustomed to using a mouse with your computer, you probably find it awkward to run programs without mouse support. Luckily, a solution has arrived for users of three major word processors. Mostly Mice Software offers three products that add mouse capability to existing word processors: *El Perfecto,* for *WordPerfect; The StarMouse,* for *WordStar;* and *MouseMate,* for *MultiMate.*

Installating the drivers is easy. Simply run the install program and answer some questions about how your system is configured, and the files will be copied to the appropriate directory.

After you've installed the program, you'll find a number of menus

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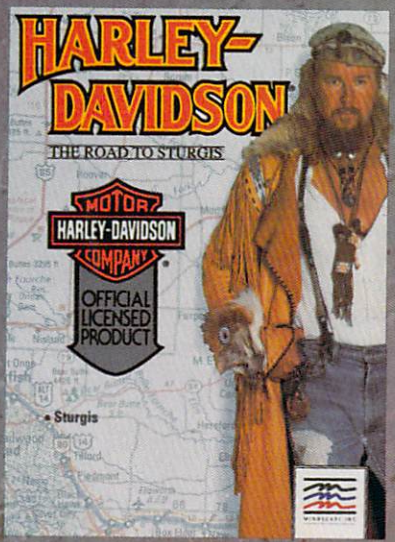

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Circle Reader Service Number 121

available within your word processor that can be selected with a mouse-button click or keypresses. These are especially handy if you're just learning the program, since most commands can now be easily selected from a menu. If you're a seasoned user, you'll still often find making selections with the mouse easier than executing the sometimes awkward keystrokes.

Placement of the mouse pointer requires some practice. The cursor itself is easy to position, but choosing the exact spot for marking a block or deleting a character takes some getting used to.

If you find yourself intimidated when using your word processor or you're looking for shortcuts, consider these useful packages.

RICHARD C. LEINECKER

IBM PC and compatibles—$40.00

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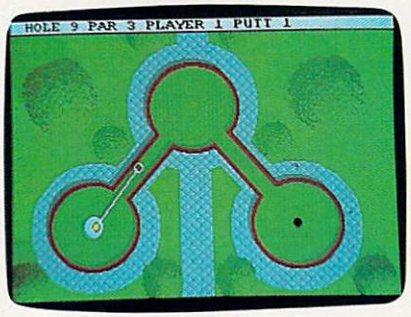
HOLE-IN-ONE MINIATURE GOLF

Drive by any miniature-golf course and you'll see players tapping brightly colored balls through and around obstacles into that little hole. Most of us remember our first hole-in-one—the ball skittered past the windmill, banked off the wall, and fell into the cup. Who can forget winning their first free game, the shot skipping into the clown's mouth on the 18th hole?

DigiTek's *Hole-in-One Miniature Golf* brings back many of those memories and creates new ones with a tantalizing selection of courses, an extensive range of difficulty, and an accurate representation of plastic-turf physics. It gives you the changes in elevation found on modern courses and the simplicity of traditional miniature golf. Once you have the game figured out, DigiTek adds the Fantasy course, one that grew either from a nightmare or a hallucination.

You won't waste any time learning the joystick, mouse, or keyboard interface. A tutorial takes you through the basics, and in just a few minutes you're teeing up on the first hole. You place your ball, set your direction and power indicator, and then hope you've correctly figured the angles.

All of the available courses offer difficulties, but you can choose beginner, intermediate, or expert levels for each. Actually, there's little difference between the first two levels; then there's a jump in difficulty for advanced players.



Plan your golf shot well in *Hole-in-One*.

Hole-in-One delivers some nifty options to the computer-golf scene. From the overhead view, elevation is indicated by shading. You can also view a hole's contours from four different angles: hole to tee, left, right, or forward. When you reach the harder courses, the views are extremely helpful in shot selection. A replay option lets you see the last shot, and during practice sessions you can retry putts that missed the mark.

Up to four players can compete in a stroke-play match. You can toggle between the difficulty levels as each player takes a turn, handicapping players of different caliber.

The first level of play is the Classics course. Here you'll find the windmill, the straight-uphill putt, and the single carom shot off a side wall. The holes carry a par of 2 or 3 and, once you've learned to judge the strength of your shots, are relatively easy to master.

The Intermediate course presents a different challenge as elevation is given a greater role, multiple twisting doglegs come into play, and the number of obstacles increases. You can usually figure out the hole the first time you play this course, but execution places great emphasis on combining the correct angle with the proper speed.

The upper-level courses are almost impossible to predict the first few times you play them. The Fantasy course is easier than the Expert, but it brings its own unique view. You'll play one hole upside down, putt into sewers, and discover bridges guarded by dragons on a hillside.

The game supports Hercules, Tandy 16-color, CGA, EGA, and VGA/MCGA graphics. The EGA and Tandy versions are clean and attractive. The VGA game takes full advantage of the 256-color palette, but it requires 384K of RAM. (The other graphics modes run with 256K.)

Hole-in-One Miniature Golf is a novel package with wide-ranging appeal. If you've been captivated by the magic of miniature golf on an actual course, you won't be surprised with the long hours you'll spend with this computer version.

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TURBO EMS

Computer users are constantly trying to stuff more features into their new programs or add just a few more fields to their databases. Luckily, there are products like *Turbo EMS* to help you stuff in a little more.

If you found yourself in the past hitting your head on the 640K ceiling in your PC, you've probably already purchased a Lotus/Intel/Microsoft (LIM) Expanded Memory Specification (EMS) memory board. EMS allows programs to store data in memory outside the normal DOS 640K area, using a technique called bank-switching to shuttle needed information in and out. If you run into limitations only occasionally, you may have decided the cost is too great compared with the infrequent benefit. Either way, *Turbo EMS* can help you go beyond your current limits.

Turbo EMS offers a middle-of-the-road solution, letting you use your PC's existing memory (including EMS memory boards and ramdisks) and then use your hard disk for a total of up to 32 megabytes of simulated EMS memory. If you're desperate, you can even use a floppy disk for extra EMS memory, because the program lets any recognized DOS drive simulate EMS.

Turbo EMS simulates LIM EMS version 4.0, even when using LIM 3.2 memory boards. The program optimizes performance by using actual random access memory first. Next, *Turbo EMS* uses disk storage, includ-

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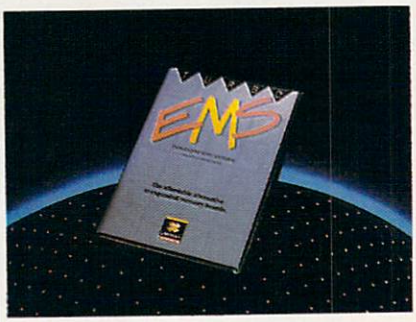
ing drives over 32 megabytes, and even networked drives. *Turbo EMS* also supports the LIM Extended Memory Specification 2.0 for extended memory, a new standard which may become important in the future.

This all comes at a price. Your PC's processing speed and hard disk access times will determine how fast programs will operate under *Turbo EMS*. Even fast hard disks are dismally slow compared with RAM.



You can enter the world of virtual memory at a low price with *Turbo EMS*.

However, *Turbo EMS* will make it possible to do things you could not do before. It provides extra room for large spreadsheet, database, CAD, and other files. It will also free up some of the most precious memory, conventional memory below the 640K limit, for TSRs and application programs.

For example, one sample spreadsheet file of 265,370 bytes created in *Lotus 1-2-3* left less than 1 percent of conventional memory free (58 of 309,536 bytes) without *Turbo EMS*. Activating *Turbo EMS* stole some available conventional memory from *1-2-3*, but it actually increased the amount of memory available for other applications. The same spreadsheet loaded into *1-2-3* with *Turbo EMS* providing one megabyte of EMS on a hard disk left about 84 percent of the remaining available conventional memory (202,672 of 239,104 bytes, an increase of 239,046 bytes) free for other tasks.

Processing slowed since *Turbo EMS* had to bank-switch the spreadsheet file in and out of RAM when I moved around the screen, saved and retrieved files, and recalculated my spreadsheet. On a 10-MHz AT compatible with a 28-ms-access-time Miniscribe 6053 hard drive, the conventional memory spreadsheet took about 5 seconds to recalculate. Under *Turbo EMS*, the spreadsheet took about 11 seconds to recalculate.

File retrieves took 17 and 65 seconds, respectively; saves took 15 and 65 seconds. The simple tests dramatically point out that using a hard disk as EMS memory is considerably slower than using internal RAM or EMS memory boards.

On the other hand, *Turbo EMS* makes it possible to increase the size of the sample file far beyond what was possible before. Further, *Turbo EMS* makes it possible to execute the /SYSTEM command to use DOS. Without *Turbo EMS*, *1-2-3* had too little memory to invoke DOS while the sample spreadsheet was in memory.

Turbo EMS's menu-based installation is simple, with help screens providing basic information. The manual is easy to read, understandable, and informative; it also provides essential information not presented in the help screens.

Turbo EMS is a good product in the right situation. If you have unlimited funds and frequently need more memory, go out and buy the biggest and fastest EMS board you can find. However, *Turbo EMS* is an excellent option if you have limited funds and occasionally need more memory—as long as you don't mind waiting a little longer for results.

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BEYOND THE BLACK HOLE

FAST LOOKS

The Software Toolworks has done the seemingly impossible: brought true stereoscopic graphics to PCs, even those with CGA graphics. The game is sort of a 3-D combination of *Pong* and *Breakout*. You have a paddle on each side of the screen that you use to bounce a space probe toward a variety of objects in the middle of the screen. However, the probe doesn't only move back and forth, but moves in and out of the screen, too. All in all, *Beyond the Black Hole* is heavy on packaging and special effects and light on gameplay.

The game includes a pair of GrenoVision goggles, which are similar to those 3-D glasses used for the 1989 SuperBowl halftime show. The effect is very noticeable, although the space probe is the only object that actually moves in three dimensions. Because the stereo effect relies on motion instead of on colors, the game looks fine without the glasses.

Beyond the Black Hole probably won't hold your interest for long, but The Software Toolworks should be lauded for creating an impressive 3-D effect. Hopefully it will use the technique in a more substantial game.

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DINOSAUR DISCOVERY KIT

The little speech, "Zug the Megasaurus presents the *Dinosaur Discovery Kit*," begins one of the cutest dinosaur programs around. Designed to entertain and educate the preschool and kindergarten set, *Dinosaur Discovery* is a careful combination of speech, attractive graphics, and simple layout.

From the main menu, *Dinosaur Discovery Kit* provides access to three different kinds of activities, each one carefully designed to appeal to the most demanding three- to eight-year-old child. Large boxes contain names and icons for the Coloring Book, Dinosaur Match, Story Maker, and Quit options. Zug appears dressed in different outfits each time the menu comes up. There is a help menu that includes several useful control options, including volume, printer access, and the ability to personalize the program with your child's name.

Zug's coloring book features accurate drawings of six different dinosaurs, each in an appropriate environment. There is just enough detail to keep preschoolers entertained without overtaxing their attention span. As each picture is completed, Zug randomly states one of several amazing facts about that particular type of dinosaur. Pictures can be printed at any time, a useful feature if your children would rather do their own coloring or want to keep a record of their work.

Dinosaur Match is a well-constructed version of a traditional memory game that offers enough variety to satisfy a wide range of age groups. Younger users will want to play by

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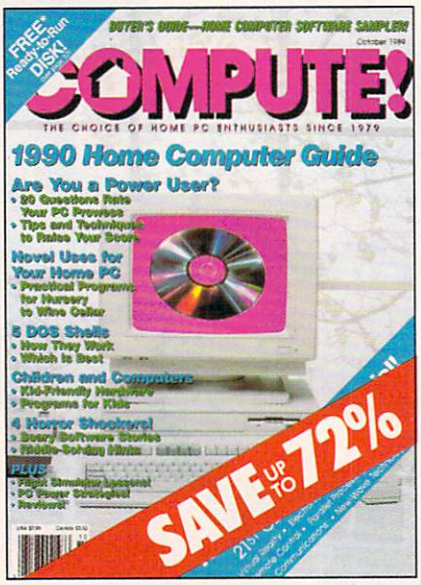

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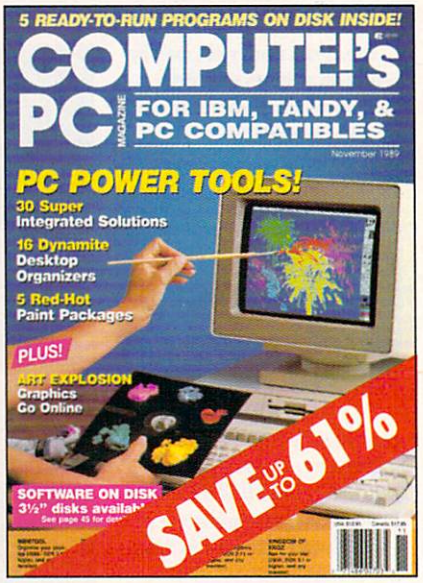

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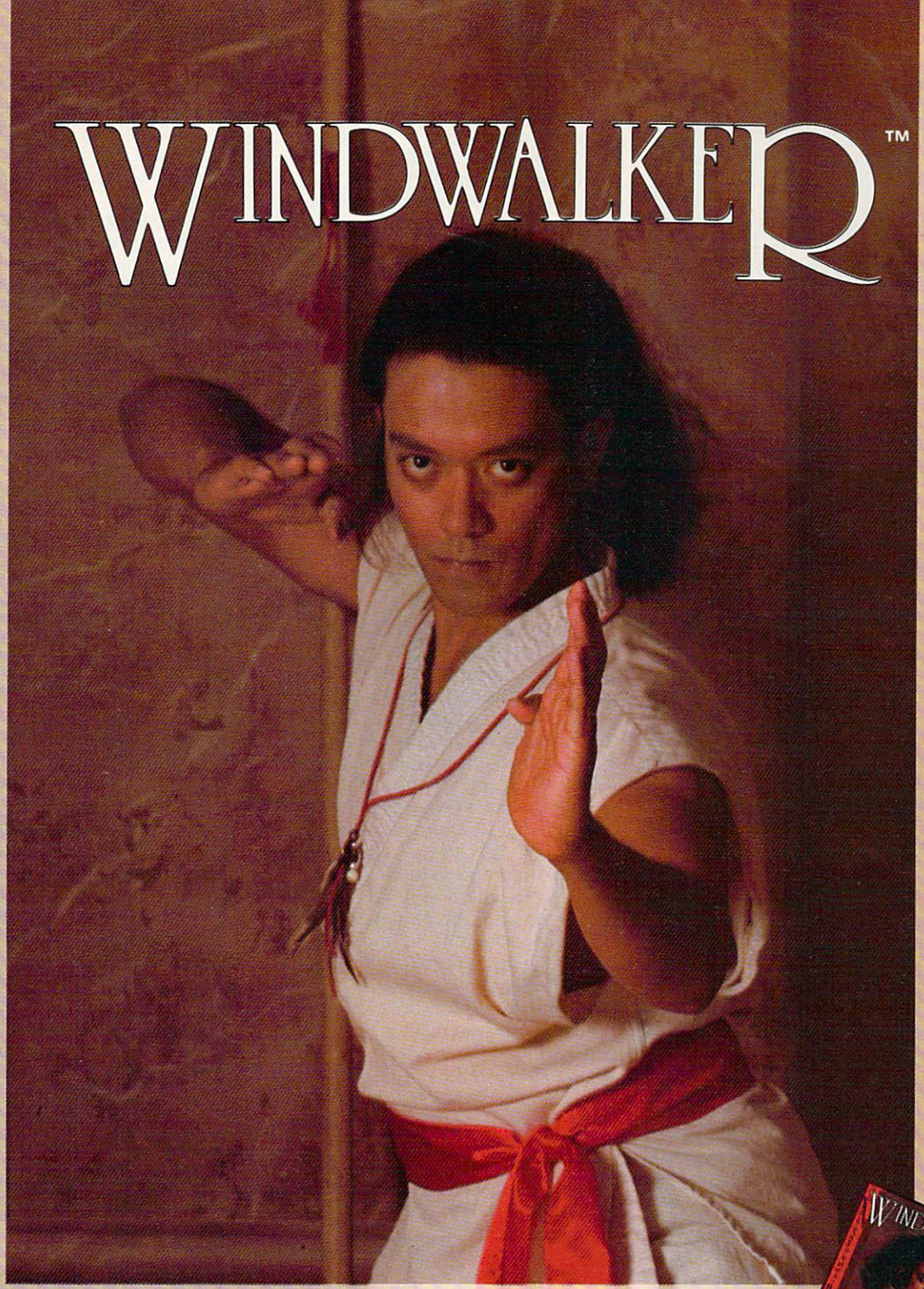

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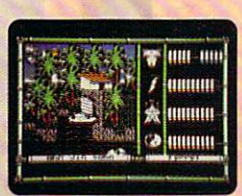
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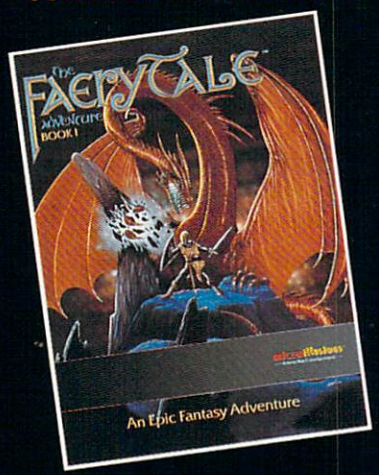

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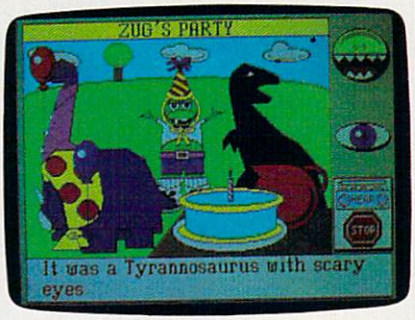
themselves with large cards and real dinosaurs, or they may try their ability in a contest against Silly Zug. Older kids might challenge Very Smart Zug to an 18-card game of Dinosaur shadows. If you can beat Zug, he'll present you with an award.



Children can create their own fantastic parties with *Dinosaur Discovery Kit*.

Story Maker combines fantasy and reality into user-made stories that encourage nonreaders to build connections between written and spoken words. After your child has selected a title for the story, the program displays the first sentence onscreen and recites it. The sentence is missing a word at the end; to complete it, your child must choose from the available words. After the choice has been made, an appropriate image appears on the screen and Zug patiently reads each sentence. Is the triceratops wearing a striped bow or a polka-dotted scarf? Will the brontosaur hide from two allosaurs or two tyrannosaurs? When the story is finished, you can choose to print out the story and the pictures as a book or to let Zug read you the story a sentence at a time.

Speaking of speech, *Dinosaur Discovery Kit* uses the new Smooth Talker technology from First Byte; the Macintosh and Amiga versions are astonishingly clear. While the Tandy 1000 and MS-DOS version suffer in comparison, they are also clearly understandable and even feature a rather attractive accent.

Despite the strength of the overall program, there are some irritating weaknesses. The overall lack of a backup or undo option is quite frustrating for older children. Although the speech is quite clear, it's not used consistently. The speaking of some menu items can be turned on and off, but even with all the speech options on, some important menu items are never spoken.

The Story Maker and Coloring Book sections could profit from larger selections of pictures, colors, titles, and perhaps some branching stories. For classroom use, simple recordkeeping and a story-editor mode for the teacher would be very useful. And if you only have CGA graphics, be warned that the install routine is a bit tricky.

The *Dinosaur Discovery Kit* is attractive, educational, fun, and highly entertaining. Young children will like the simplicity of design and attractive results. Older kids will find the combination of fantasy and reality appealing. No bones about it, *Dinosaur Discovery Kit* is a wonderful program that makes good use of the newest in speech technology to entertain and educate.

LESLIE EISER

Amiga—$39.95
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ON BALANCE

Two features you should look for in any software program are its learning curve and the way it lives up to the hype on the box. On both counts, *On Balance* boasts a healthy bottom line. It manages personal finances with sophistication, reliability, and speed. And setting up the program took me only about 30 minutes, a reasonable amount for something so powerful.

The package keeps track of your money by establishing accounts for your assets, liabilities, income, and expenses. Don't panic if you don't understand these accounting concepts: The manual tutors you in these areas.

On Balance is similar to your checkbook, but it holds more financial information than any check register. You can record up to 800 transactions each month and an entire year's records on one disk.

I particularly liked being able to create accounts as I needed them, either while entering transactions into the register or beforehand by selecting add/edit from the accounts menu. The program allows as many as 200 accounts in categories such as checking, savings, credit card, income, investments, entertainment, household, or business. You can further define your accounts by assigning them to groups, such as personal, spouse, or jointly held. ▷

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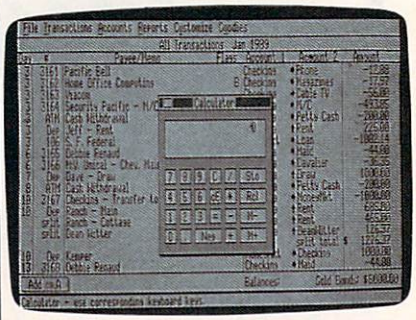
Navigational shortcuts will assist you in moving through the program. Pressing the Escape key, for example, takes you back one screen (keep pressing and you'll eventually return to the main menu); pressing the Alt-H key combination brings up a help screen; and pressing Control-O verifies the information you have entered. Also, the function keys are assigned to some of the most frequently used commands, such as Accounts Menu (F4) and Calculator (F8). The program's manual is personable and encouraging. The text is easy to understand, and there are plenty of examples and warnings to keep you on the right track.

One of *On Balance*'s bonus features is its flag-setting capability. This gives you a way of tracking items that belong together but aren't in the same account. For example, you could flag some transactions as tax deductions; then, at tax time, you could sort and list those transactions.

Another bonus, split transaction, allows precise tracking of a single transaction that affects more than one account. This is very useful when recording credit card expenses or for breaking up a house payment into principal, interest, and escrow accounts.



***On Balance* delivers power and sophistication in an easy-to-use package.**

On Balance can provide reports that will impress any banker—handy when you're going for that new-car loan. Available reports include net worth, net income, accounts, transaction list, and amortizations. The amortizations report alone is worth the price of the program.

Keeping a budget is easy; you can create a year's month-by-month budget for any account. For that account, you will see the actual amount spent for each month, the amount budgeted, and the dollar difference between the two. Year-to-date values as well as the monthly average for the actual balance are shown at the bottom of the screen.

Like most other personal-finance programs, *On Balance* will print checks as well as track your financial health. The Print Checks screen will list transactions for the account, month, and year you have specified. To print a check for a particular transaction, answer *Yes*. A check will appear in the highlighted box. After you have selected the transactions for which you wish to print checks, press the Control-O key combination and your printer will spring into action. At the end of the month, you can reconcile your account with your bank's statement.

Two minor drawbacks plague the program. You'll need an EGA or VGA card to get color; a CGA card displays only two shades of gray. Also, *On Balance* is designed for use with either a mouse or the keyboard. But, because the mouse is the default, you'll have to disconnect it each time you load the program if you want to use the keyboard.

On Balance's solid features and performance offer you increased productivity when it comes to managing

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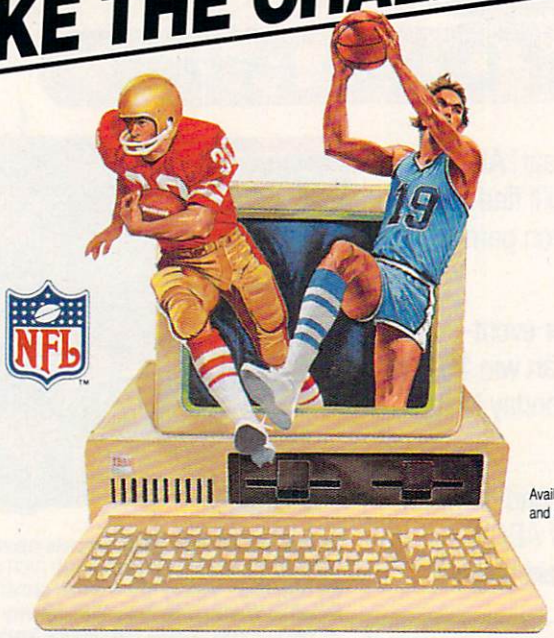

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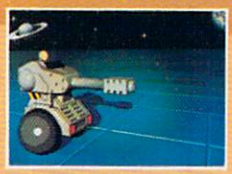

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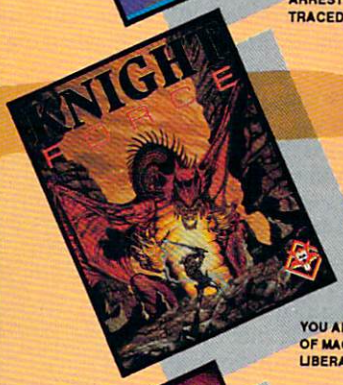

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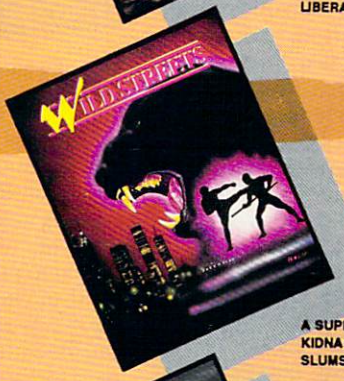

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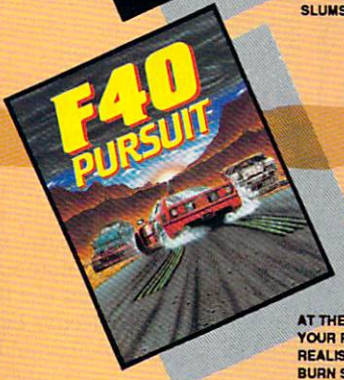

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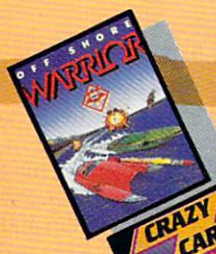

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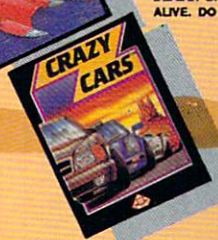

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MICROLEAGUE BASEBALL II

Baseball, with its reliance on statistics, lends itself well to a computer-game format. In the days before computers, baseball fans maintained their Walter Mitty aspirations with games like Strat-o-matic and APBA. Dice generated outcomes, and compiling stats took as long as playing the games. The computer changed all that by allowing random-number generation and sophisticated stat compilation. Perhaps most importantly, you can play alone.

MicroLeague Baseball II attempts to fulfill the dreams of tired-wristed dice rollers. Its three booklets describe methods of play and how to build new teams; they also list the qualities of the teams included with the game. Those 23 clubs range from the 1927 Yanks to the 1988 all-star teams. If you want a team with no weaknesses, try creating an all-time-great collection with Jim Palmer and Carl Hubbell as fifth starters, and Mickey Mantle and Stan Musial riding the bench.

You begin by choosing which of the offered teams you wish to represent, which of the teams the Baseball Buddha will play, whether or not you'll use the designated hitter, who will be your starting pitchers, and who will be in your starting lineup. Then the players charge onto the field.

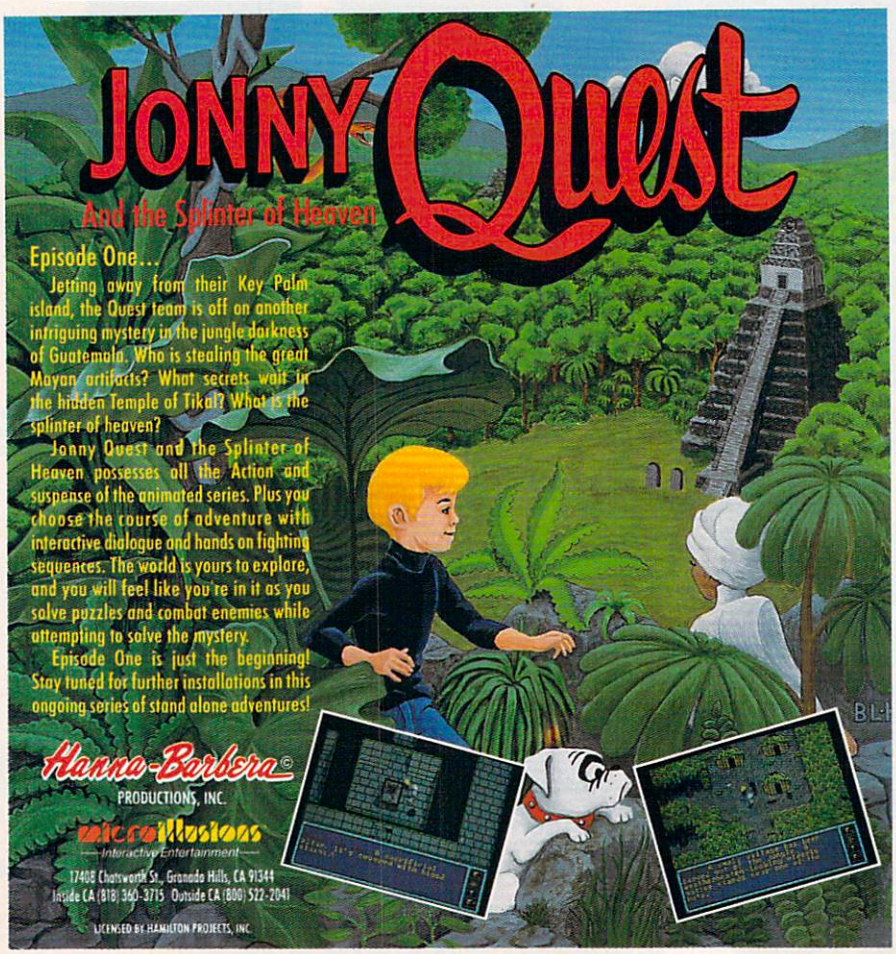
The game's graphics are excellent. Base runners actually run the bases, and outfielders run down flies. There's no variance from park to park, but this would take up memory and not allow for sophisticated play. *MicroLeague* does offer several other positive attributes besides being pretty. New teams can be easily made; it took me just 15 minutes using the General Managers disk. Also on the plus side are features like bullpen warmups, different base-running options, solitaire and no-play options, ejections, and rain delays.

I found the game's stat compiling, perhaps the most important aspect of any baseball simulation, lacking. Its biggest problem is its inability to compare players. There's no ranking system or standings board, no way to see how a player has done in the middle of a game. At the end of the game, the only stat shown is a simplistic score box.

Play the game from the manager's viewpoint in *MicroLeague Baseball II*.

Fanatics who play inside baseball may be disappointed with other omissions as well. *MicroLeague II* lacks the depth of the real game. There's no reason to platoon, for example, because pitcher handedness means nothing. There is no way to perform the suicide squeeze, and there are no fatigue factors—you can start your number 1 starter every game. All pitchers hit with the same skill; Rick Rhoden has the same average as Rick Camp. Along the same line, there's no rating for hit-and-run ability, bunting ability, clutch hitting, and the pitcher's ability to hold runners on base. The base-stealing ratings make no differentiation between a speed merchant like Ricky Henderson and a selective base runner like Kevin McReynolds. The outfielders have no arm ratings. These are all fine details, to be sure, but they help to create a more realistic simulation of what really happens between the chalk.

How much you'll enjoy *MicroLeague II* depends on the kind of baseball fan you are. Most fans are casual about their interest. They tune in to see the Mets or Yanks play someone on Saturday afternoon and listen to Vin and Tom on NBC. If that describes you, then you may enjoy creating a baseball-park atmosphere with *MicroLeague II*. But if you're the kind of fan who looks up stat after stat, who follows baseball like a religion, you may want to stick with your Strat-



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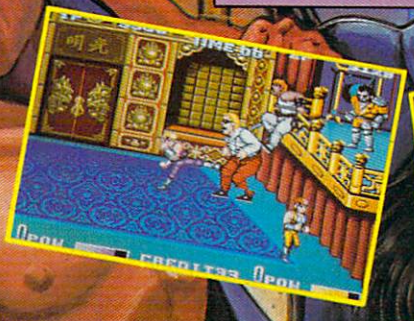

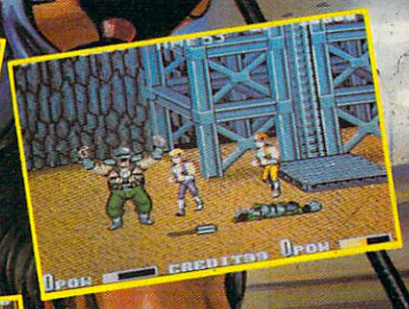

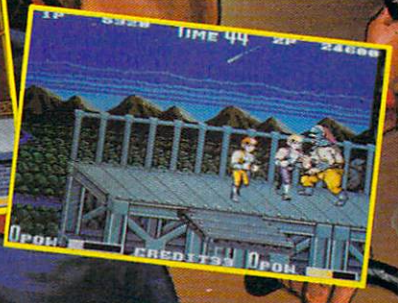

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* Back issues of *COMPUTE!*, and *COMPUTE!'s Gazette* are $6.00 each. No issues dated prior to January, 1986, are available. In addition, the following issues are **NOT** available: ***Gazette:*** 1/86, 3/86.

* Single disks for *COMPUTE!'s Gazette* are $15.00. Disk/magazine combinations are $16.00 NOTE: No disks dated prior to June 1986 are available. The May 1986 and October, 1987 *Gazette* disks are no longer available.

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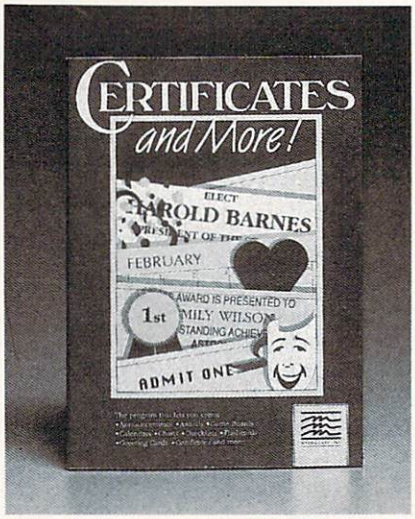
You can rotate your certificate left and right and flip it vertically and horizontally. Using these functions, you can place clip art and text virtually anywhere on the page. A mouse is much easier to use for positioning than the directional cursor keys.

The clip-art categories include the usual assortment of animals, transportation, holidays, people, and seasons, as well as banners and medals that you can fill in with text or other graphics. All of this really makes a sheet of paper look important.

The nine fonts in 15 sizes comprise a good selection from which to dress up a certificate. They range from Baby Bold to Venice and are easily entered and deleted.

Most people will use this program at school and at home. Some ideas might be garage-sale announcements, chore charts for family members, and club or individual recognition awards.



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The program and manual were originally created for Apple computers, and, although the program was revised for IBM PCs and compatibles, the manual was not. Mindscape included an IBM/Tandy Reference Card that points out the differences

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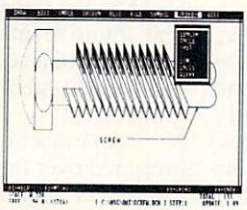

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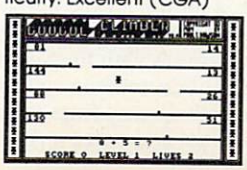

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between the two versions. Unfortunately, those differences are so great that the manual becomes almost irrelevant. Then again, the program is so easy to use that this is but a small problem.

Finally, the program is copy-protected. Because it's so reasonably priced (the lab-pack version of the program, which contains five copies, costs just $99.50), Mindscape probably feels that complaints about copy-protection are unwarranted. But it certainly makes operating the program more cumbersome than it needs to be.

At less than $50, *Certificates and More* is a good buy. It does what it promises, and quickly, too. Once I was familiar with the program, it took very little time to design a certificate. Printing certificates, in any of the four sizes, also proved easy. Pick up this package for an easy and creative way to reward that person in your life for a job well done.

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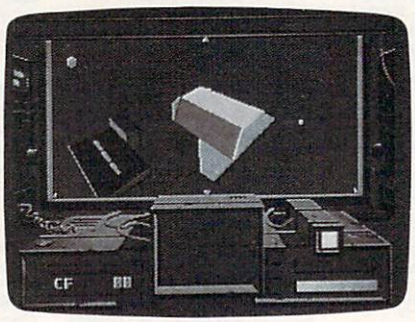
The best of flight simulation and role-playing come together in *Space Rogue*. Soar through space, dogfight other ships, maneuver through treacherous asteroid belts, and then dock at various starbases to interact with the people and aliens you meet.

You begin as a private aboard a large merchant ship called the Princess Blue. When your ship receives a small-craft distress beacon, the captain sends you to investigate. The ship in distress turns out to be the Jolly Roger, a Sunracer-class scout ship. You find it abandoned but in perfect working order. Before you can figure out what happened to the ship's crew, the Princess Blue is attacked by Manchi Vulture–class hiveships and destroyed by plasma torpedoes. The Manchis then disappear back into space leaving you and the derelict Sunracer unharmed. Thus begins your career as a space rogue.

The setting for *Space Rogue* is the twenty-fourth century in a part of the Galactic Empire known as the Far Arm. It consists of a dozen starbases, outposts, and mining stations spread out over eight different star systems. All of these systems are linked through wormholes by a network of Malir gates. Fortunately, your new Sunracer has been approved by the Imperial authorities for travel through Malir gates.



Maneuver your ship in space around the 3-D objects found in *Space Rogue*.

The Sunracer is a good, all-purpose cargo ship with some armor and a basic laser-beam weapon. You pilot the ship by charting a course with the navigation computer and then activating the automatic helm. If another ship is detected and you think it's a threat, you can take appropriate action. Once you arrive at your destination, you switch to the cockpit mode and pilot the ship manually for docking.

There are four types of bases, and they offer protection, repair and service facilities, trading posts, and friendly cantinas. The people you meet on your travels can provide valuable information about life in the star system or tell you about specific business opportunities.

As a space rogue, you can take three different directions. You can make your living as an honest trader, buying and selling everything from explosives and brandy to souvenirs and manure. You can turn to piracy and raid merchant ships. Or, you can become a bounty hunter and collect imperial bounties for destroying all the pirate ships you can find. Since most pirate ships are fairly well armed, however, you'd better make sure to upgrade your Sunracer before embarking on this career.

You can play *Space Rogue* with a joystick, a mouse, or the keyboard. Instead of a conventional user's manual, the game comes with the Sunracer Owner's Guide and Navigation Manual. From the greasy fingerprints, coffee-cup rings, and notes scribbled in the margins, it's clear that the manual once belonged to the original owner of the derelict Sunracer.

From the interesting opening premise to this clever manual, *Space Rogue* works. Not simply because it's one of the first games to integrate two distinct genres, but because it does so believably and with style. While you're in flight, objects you see from your cockpit view appear solid and 3-D; the animation is incredibly smooth and realistic. More importantly, the realism continues even after you step out of your Sunracer and begin to deal with the bounty hunters, merchants, pirates, and economic conditions you'll find in the Far Arm. If you've ever wondered what it would be like to be Han Solo, Space Rogue is your chance to find out.

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DOSTALK

That inhuman command line interface, MS-DOS, is responsible for the largest number of gripes in the PC-compatible world. The intimidating prompt! Those obscure abbreviations! That unforgiving syntax! The inflexibility and coldness of it all! Millions of Macs have been sold on the strength of Apple's "natural, intuitive interface," with the implication that competitor MS-DOS is an "unnatural, incomprehensible interface."

A number of programs have been released over the years to transform MS-DOS into a kinder, gentler operating system and to make it more appealing to novices and experienced users. *DOSTALK* (now in version 2.1), one of the more ambitious efforts, offers "an English-language interface to the DOS environment," according to its developer, SAK Technologies. The program translates regular English phrases into executable commands, presumably eliminating much of the necessary MS-DOS know-how. ▷

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One important aspect of *DOSTALK* is that it doesn't ask you to memorize many terms and rules. The only thing that you must keep in mind is to capitalize the first letter of directory, file, and device (disk drives) names. A potentially disastrous situation may arise if you don't because *DOSTALK* will ignore the name and, if possible, execute the rest of the command. Typing *erase word.txt from the hard disk* without capitalizing the filename as *Word.txt* will cause *DOSTALK* to read the command line as *erase the hard disk!* Luckily, the program queries you before erasing any file, and its UNDO feature lets you cancel your most recent command.

But can *DOSTALK* really understand English-language commands? From my hard disk's root directory, I typed commands to change to a subdirectory called Dpaint. The usual DOS command would be *cd dpaint*. Entering *change directory to Dpaint* and *go to dir Dpaint* both worked. But typing *go Dpaint* elicited the query *What should I do with the Dpaint directory?* I had to enter the additional *change to it* to get the job done. *DOSTALK* will continue to query you until you issue a command it can follow. I found it can cope with many things you tell it, but don't expect the program to understand every possible way of forming a command. Ironically, the closer you come to MS-DOS syntax, the more likely *DOSTALK* will understand what you're trying to say.

DOSTALK offers several features that should have been built into MS-DOS from the start. These include a more flexible command editor that allows you to type corrections into any part of the current command, and an input history buffer that lets you review and edit any of the last ten commands. Another feature is the ability to locate any file and directory automatically. For example, if you issue a command such as *find the file Kingtut.ibm* for a file (with or without wildcards) that's not in the current directory, *DOSTALK* will list the pathnames for the file. Note also that you have to specify just what you want—in this case, a file and not a directory or subdirectory.

DOSTALK's 27-page manual tests the reader's own language comprehension. Here's a typical sentence: *Yzx which is the name of a file or a directory should be starting with an upper case letter since it is not the sentence will be read as: erase the hard disk.* Once you get past the manual's peculiar punctuation and syntax, it offers a reasonably complete discussion of how to use *DOSTALK*.

The bottom-line question for a program of this type is will it really save you time and effort? I'm no MS-DOS maven, but for me the answer is *No.* Some of what *DOSTALK* does can be accomplished from within MS-DOS. For the rest, the time needed to learn *DOSTALK* and handle its queries could be better spent learning the dozen or so commonly used MS-DOS commands. But if you're hopelessly confused and put off by MS-DOS, *DOSTALK* will shield you from the worst offenses of the PC command line interface; and it's a lot cheaper than a Macintosh.

STEVEN ANZOVIN

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PC-KWIK POWER PAK

Back when your PC was new, it seemed fast and responsive. Now it feels sluggish and outdated. Perhaps it's an older model, or maybe it's new and you just crave a faster machine. You could buy an accelerator board, but you don't want to spend that kind of money. Short of stepping up the voltage, what can you do to add some pep to your tired CPU?

If you have some extra memory in your computer, your best option may be Multisoft's *PC-Kwik Power Pak.* Unlike other memory-resident programs, these programs are designed to share the same RAM—when one program finishes its work, it gives back the memory to the other programs. Now you don't have to decide between a RAM cache and a ramdisk program or between a print spooler and a screen accelerator. With *Power Pak,* you can have all four—and a keyboard accelerator, too.

The center of *Power Pak*'s memory-resident universe is Multisoft's highly-regarded RAM-cache program, *Super PC-Kwik.* The ramdisk, print spooler, and screen accelerator work only when the cache program is loaded, because they borrow their memory from the cache's memory.

A typical cache program stores in memory the most recent information the computer has read from the disk in case it's needed again. When the information is requested again, the computer reads it from RAM, which can be read much faster than a floppy or even a hard disk. *Power Pak*'s cache program can use as little as 64K or as much as 16 megabytes and can run in conventional, expanded, or extended memory.

***PC-Kwik Power Pak* packs many tools.**

I used Multisoft's benchmark program to repeatedly load a 512-byte and a 4096-byte file with a floppy disk–based PC. The total time was 888 seconds without the cache, 706 seconds with a 128K cache, 648 seconds with a 256K cache, 405 seconds with a 384K cache, and 404 seconds with a 450K cache. In general, the larger the cache's buffer the better, but performance varies according to the application's use of the disk, the amount of data being used, and how often the data is read from the disk.

Power Pak's second program is a ramdisk program. Like a cache, a ramdisk takes information from your floppy or hard disk and places it into your computer's memory for faster access. But, unlike a cache program, a ramdisk lets you select specific files to speed up. *Power Pak*'s ramdisk program also expands and contracts to accommodate the size of its files.

You might use the ramdisk to hold the few program files you use most often and use the cache program to speed up the rest. *Power Pak* even lets you install a second ramdisk. Try copying a file from one ramdisk to the other: The file copies instantly, and, because the drives aren't used, you won't hear a thing.

Next, we come to *Power Pak*'s print-spooler program. Like the ramdisk, the spooler automatically borrows its memory from the cache program. When you print a document, the print spooler captures the data before it reaches the printer, writes a copy of it to RAM, and then

returns control of the computer to you. To use the least amount of memory, the spooler compresses your printer data before writing it to RAM. If the spooler does run out of memory, it automatically waits for more memory to become available as your data prints.

You can monitor the progress of your files with the spooler's pop-up display. It lets you pause, suspend, flush, or resume printing; insert printer control codes; disable and reenable the spooler; change to single-sheet printing; and modify the printer's output rate.

When the spooler is operating, you may sometimes notice a temporary delay in either your printer or, less often, in the program you're running. This happens because your computer's processor is being shared between the spooler and your program. *Power Pak* intelligently manages this with far fewer delays than other printer spoolers.

The fourth *Power Pak* program, the screen accelerator, speeds the output of text to your video screen. How much improvement you'll see depends on your display adapter. A CGA display will increase in speed 200–400 percent, an EGA or VGA display will increase 300–600 percent, but a Hercules monochrome display will improve only 30–100 percent.

When used with the cache program, the screen accelerator includes a handy scroll-back feature that lets you see text that has scrolled off the screen. The default is 16K, which is only enough for four screens, but the maximum can be set to nearly the size of the cache. If you have problems with flickering or snow on your CGA screen, you'll be happy to know that the screen accelerator can cure that problem, too.

Finally, *Power Pak* includes a keyboard accelerator that increases the rate a character is repeated when you hold down its key. The normal DOS rate is nine characters per second, which means it takes a full nine seconds to move the cursor across the screen. *Power Pak*'s keyboard accelerator can increase the rate up to 100 characters per second, offer gradual acceleration, make the horizontal cursor keys twice as fast as the vertical keys, eliminate character run-on for fast cursor stops, and let you select which keys to speed up.

PC-Kwik Power Pak is easy to install, and in most cases you can use its automatic configuration. Multisoft is so confident you'll like its product that it offers a 30-day money-back guarantee. It's a safe bet on Multisoft's part: Once you get a glimpse of life in the fast lane, you'll never look back.

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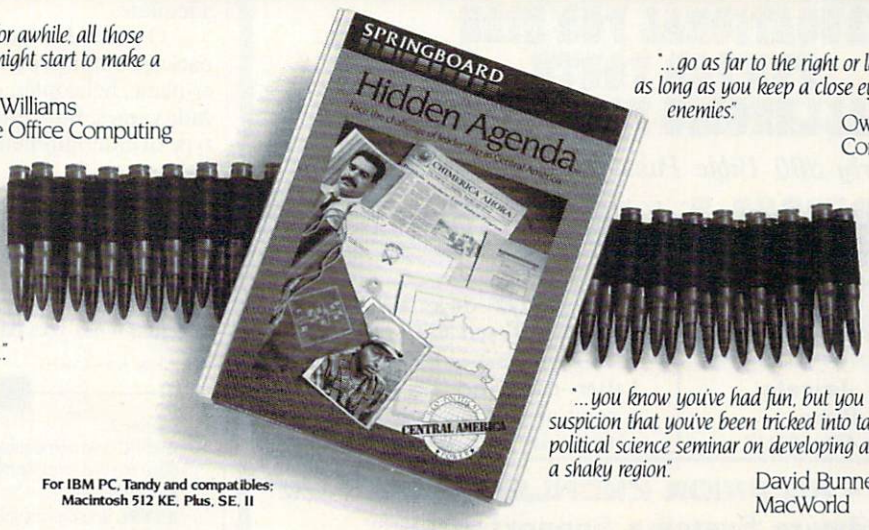

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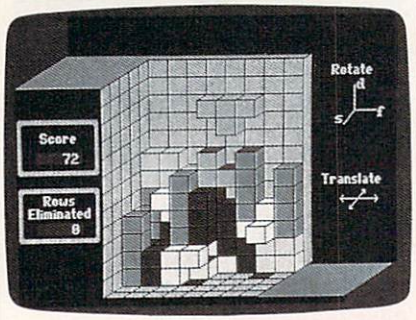
Circle Reader Service Number 138

Mental Blocks consists of three geometric games: Free Fall, California Achievement Cubes, and What's Next, Pussycat?. If you're bored by mindless arcade games, these are for you.



***Mental Blocks* adds one extra dimension of difficulty to your cerebral challenge.**

Free Fall, like the game *Tetris,* features a series of falling geometric shapes that you manipulate to fit into solid rows. If a solid row is created, that row disappears and points are awarded. If the pieces are not successfully fitted together, they accumulate until they reach a certain height and the game ends.

But Free Fall takes *Tetris* to another dimension. You find yourself rotating and moving pieces along three axes, with the difficulty increased exponentially. The falling pieces, reminiscent of those used in the Soma cube puzzles popular years ago, are far more complex in shape than those in the two-dimensional game, and it's very difficult to see the openings that you must fit as they become hidden behind other pieces.

The designers have added nice extra touches in Free Fall, including a grid to help you line up pieces and a shadow that allows you to see where your piece will fall.

California Cubes presents a multicolored cube and a series of four shapes. Your objective is to mentally fold the shapes and select the one that will form the given cube, all within a 30-second time limit. This game is tough.

What's Next, Pussycat? makes a game of logical progressions like those given on IQ tests. A series of three geometric shapes with variations is shown, and four choices are given as the next possible shape. You must pick the next logical piece within a short time limit. This game is fun, varied, and challenging.

The *Mental Blocks* manual is brief and sufficient, the graphics are good, and the controls are easy to use. This tricky trio is for intellectuals, Mensa members, and those of you who want to test the spatial-relationship capacity of your brain. Overall, it's original and challenging fun for a very reasonable price.

In *Harrier 7,* your mission is to destroy seven enemy rocket bases, protect your carrier from Exocet missiles, and shoot down hostile planes.

Despite the Harrier name, this is not a flight simulator. The action is much like the arcade game *Defender.* You fly around on a course from your carrier, wait for the indicator to warn you of what's coming up, arm the appropriate weapon, and fire it. Successful play involves quickly reacting to the variety of situations that show up on your panel.

It takes quick reactions to track down and annihilate your enemy in *Harrier 7.*

The animation is smooth with passable graphics. At times it's difficult to distinguish your Harrier from enemy fighters. The controls are easy to use. The manual is brief but adequate.

Overall, *Harrier 7* is an ordinary package among countless other fighter-plane, helicopter, or spaceship arcade games. But if you're into this type of entertainment, *Harrier 7* is all right.

When bargain shopping, you usually get either a good value or a product whose quality reflects its low price. *Mental Blocks* shines as a gem at a reasonable price; *Harrier 7* gives you just what you pay for.

WAYNE N. KAWAMOTO

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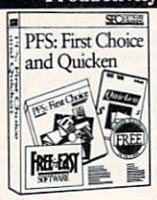

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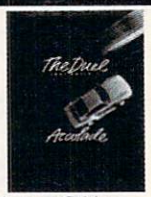

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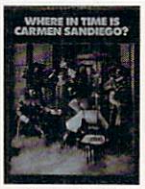

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- ___ M15 Red Storm Rising MS-DOS 3½
- ___ M16 Red Storm Rising Commodore 64

ORIGIN
- ___ O1 Times of Lore MS-DOS 5¼
- ___ O2 Times of Lore Apple 5¼
- ___ O3 Times of Lore Commodore 64/128
- ___ O4 Times of Lore MS-DOS 3½

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- ___ R1 DeskMate MS-DOS 5¼ CGA
- ___ R2 DeskMate MS-DOS 5¼ EGA, VGA
- ___ R3 DeskMate MS-DOS 3½

SIERRA ON-LINE
- ___ S1 Colonel's Bequest MS-DOS 5¼
- ___ S2 Colonel's Bequest MS-DOS 3½

STRATEGIC SIMULATIONS
- ___ S3 Curse of the Azure Bonds MS-DOS 5¼ (2 disks)
- ___ S4 Curse of the Azure Bonds MS-DOS 3½

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MR BILL	BU 102	(2 disks) Ideal for general billing, invoices. Reports, audit trail
FORM LETTERS	BU 103	Standard business letters, may be modified - one to suit most common situations
EZ-FORMS-LITE	BU 104	Generate business forms you need on your own computer. Flexible and cost-effective.
PC-PAYROLL	BU 106	(2 disks) 1989 Edition! Complete menu-driven system with reporting package.
PC-ACCOUNTING SYSTEM	BU 107	(2 disks) Complete general purpose business accounting package.
CPA LEDGER	BU 108	(3 disks) Serious professional GL system with exhaustive documentation.
EMPLOYEE MANAGEMENT SYSTEM	BU 110	Accurate personality analysis designed to help you reduce employee turnover
LASER SOFTFONTS II	BU 111	(2 disks) Add these superb fonts to your collection!
POS INVENTORY	BU 117	Maintain inventory effectively at point-of-sale
ACS IN-CONTROL 12 PACK	BU 118	(2 disks) The ULTIMATE in prospect/client/customer tracking - in use worldwide!
MEDLIN ACCOUNTING SHAREWARE	BU 123	Super 4 packages for the small/med business - GL, Accts/Rec, 1989 Payroll, Accts/pay - GOOD!
EZ-FORMS-EXECUTIVE	BU 125	The ULTIMATE forms generator - save a fortune on printing costs
SHARING	BU 131	A decision support system for assigning tasks equitably amongst groups of workers, allowing maximum choice freedom
THE OFFICE PRO	BU 133	(2 disks) Excellent order entry package with windows and custom invoices, reports, labels, desktop etc. - Good!
PC YELLOW PAGES	BU 139	(5 disks) One of the most effective marketing tools we've seen. Address merge, labels, fax mail, built in database routines!
PAINLESS ACCOUNTING 3.1	BU 140	(3 disks) Another excellent GL, AR, AP complete with billing and inventory
BILLING MANAGER 1	BU 141	(2 disks) A powerful, well-written time & billing program for professionals (architects, attorneys, CPA's, engineers, consultants, etc.) Menu driven - bill by hour, item or flat rate
BILLPOWER	BU142	This is a nice employee tracker for a small or large business. Keep track of your employees money and overtime with this nice finance manager
TICKLEX	BU 143	A powerful tickler/calendar/scheduler for home/office and hard disk
UPS MASTER	BU 144	If you ship by UPS then you need this complete shipping program - indispensable
SOLVE-IT!	BU 145	Comprises 29 menu-driven financial calculations
FONE	BU 146	Time your 'phone calls while you're on the line and save money
SMARTCALC 2.0	BU 147	We put this in the business section because it's a completely computerized desk-top calculator, complete with paper tape output.
PCBILLING	BU 148	An easy to use billing program for small business applications, comes with accounts receivable functions also
JOB COST 1.08	BU 149	Job costing at its best . Destined to be the favorite for everyone whose profits depend upon staying within budget
ELECTRC5	BU 150	An electrical calculation program for electricians, engineers, architects, and lighting system designers
BILLER 1.3	BU 151	Another good billing program; direct amounts or hourly rates, blank paper or forms, 1000 clients per file, HD or floppy, export data for mailmerge
DENTAL OFFICE MANAGER	BU 152	Software for dentists and busy practices!
PC-TICKLE	BU 153	More really useful Buttonware!
EXPRESS CHECK 3.07	BU 154	Excellent checkbook management software from Expressware
OWL PORTFOLIO MANAGER 2.0	BU 155	Investment analyzer and manager - maintains important personal financial records for taxes, loan applications etc.
PAYROLL USA 2.11	BU 156	(2 disks) Another great payroll program from Anthistle Systems -
*SBAS GENERAL LEDGER 1.5	BU 157	A good double entry GL package for the small business owner! Examine this one before you take the plunge!
*GENERAL LEDGER LITE 1.3e	BU 158	Very professional, but user-friendly accounting package. Menu-driven, mouse-compatible double entry system
*ACCTS PAYABLE LITE 1.3f	BU 159	(2 disks) Manage your cash flow! Pay invoices using up to seven payment selection methods. Report on accounts payable, non-posted payments, etc.
*ACCTS REC LITE 1.3f	BU 160	An easy way to track and understand your receivables! Generates customer accounts list, invoices, labels, etc.
*PAYROLL LITE 1.3f	BU 161	(2 DISKS) A complete payroll package for the small business.
*APPTRAK	BU 162	Store and retrieve information on job applicants.
*FRIDAY 1.03	BU 163	The "Executive Information System." Friday keeps track of important meetings, phone numbers, key contacts, etc. (HD req'd)
*XTAB 2.0	BU 164	A complete business statistics utility for dBase III compatible files. Features hot-key pop-up menus and online documentation.
*SURVWARE	BU 165	Input questionnaire data, analyze results, and format reports from the data!
*FREIGHT+	BU 166	(2 disks) If you ship more than 10 packages a day, you need this program Includes context-sensitive help screens

SPREADSHEET & UTILITIES

Templates, Macros, Utilities...

PC-CALC+	SP 101	(3 disks) Superb 123 clone - interacts with PC-FILE+.
EZ-SPREADSHEET V.S21	SP 102	Simple to use but powerful system - ideal for beginners - one of the best
LOTUS MACROS	SP 104	Save tedious work with these short-cuts for use with 1-2-3.
LOTUS TEMPLATES	SP 106	If you use Lotus, you'll love these ready-made applications!
INSTACALC	SP 107	This one's special - a fully-powered spreadsheet MEMORY RESIDENT (TSR)!
PIVOT!	SP 108	Sideways print routine for SP 103
QUBECALC	SP 109	This powerful 3-dimensional spreadsheet lets you view data in a new light.
123 POWER WORKSHEETS	SP 110	(2 disks) More powerful worksheets - these 2 disks are worth having if you use Lotus!
MIPSCALC PLUS	SP 111	(3 disks) A wonderful spreadsheet running under the GEM environment - reads, writes Lotus files - needs GEM
WHITLING WORKSHEETS	SP 112	(2 disks) Excellent budgeting tools for Lotus 123
LOTUS GOLF LEAGUE SCORING	SP 113	Worksheet for Lotus for golfers
EXPRESSCALC 4.07	SP 114	Superb spreadsheet from Expressware - interacts with their ExpressGraph and File Express programs - recommended
*LOTUS LEARNING SYSTEM	SP 115	(2 disks) A good, basic tutorial for anyone trying to learn how to use Lotus 1-2-3. The registered version includes a 130 page workbook, but the tutorial works on a stand alone basis. (1-2-3 req'd)
*BEGINNING 1-2-3 TUTORIAL	SP 116	Worksheets and tutorial to take the novice 1-2-3'er through the basics. A good place to start if you have just gotten the program. (1-2-3 req'd)
*ADVANCED 1-2-3 TUTORIAL	SP 117	More worksheet and tutorial, but this one is designed for someone who has worked through the basics and wants to learn some of the more advanced features. (1-2-3 req'd)

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WORD PROCESSING

Style, Speller, Macros, Thesaurus...

PC-WRITE	WO 101	(3 disks) Latest version 3.02 of this powerful package w/mail-merge and spell checking!
GALAXY 2.43	WO 106	Easy to use WP with menus and quick keyboard commands. Fully featured and now latest version!
BRADFORD 2.04	WO 107	Letter quality output from dot-matrix in over 35 fonts - recommended
WORDPERFECT MACROS	WO 108	Over 80 macros for WordPerfect v 5.0
EZX-WRITE 2.3	WO 110	Recommended VALUEWARE tm - these people are VERY professional and this package is ideal for a first, highly functional word processor. Includes pull-down menus
THESAUR V3.5	WO 111	Shareware's 1st thesaurus! - very useful for a variety of applications
WORDPERFECT 5.0 TOOLKIT	WO 114	ASCII to WP5 format converter plus lots of other useful utilities
PRO-SCRIBE	WO 115	Improve the impact of your writing with this new program
WRITER'S HEAVEN 4.0	WO 116	For PC-Write versions 2.6 and up. Adds a complete new set of ingenious command keys,
PC-WRITE MACROS 1.2	WO 117	A set of 100 macros for this popular word processor -Requires PC-Write 3.0 or later (see WO 101)
WORDPERFECT 5.0 POPUP	WO 118	This handy little tool pops all the information on function keys up on the screen!
SPLIT/APPEND 1.0	WO 119	This excellent utility will split any file into multiple files, and will append any file to any other file - really useful
WORDPERFECT MENUS	WO 120	Pull-down menus for both 4.2 and 5.0
*WORD PROCESSING FOR KIDS	WO 122	A WP program with all the basic features designed just for kids! LARGE letters and easy to follow menus .
* NEWSLETTER KIT 1.01	WO 123	If you use Ventura Publisher 2.0, the Newsletter Kit belongs in your program library!
*PC-INDEX 1.1	WO 124	This handy program will save you hours of work! Import any text file, and PC-Index will create an index for you !
*IMAGEPRINT	WO 125	Great letter quality from that old Epson! Comes with good fonts!

Readability Guaranteed!

EDUCATIONAL

History, Geography, Languages...

AMY'S FIRST PRIMER	ED 101	Latest version 1.7! A collection of routines for pre-schoolers with alphabet, counting, shapes and color
PC-TOUCH	ED 107	Super typing tutor with on-screen performance data !
FLAGS	ED 110	115 in all, displayed on screen for recognition and learning
PHYSICS	ED 111	High school level - excellent
SPANISH	ED 112	(2 disks) Quality language tutor, beginner to advanced
ALGEBRA	ED 113	Both integer and real computations - 1st class!
TEEN ED 1	ED 124	Higher Math, Trigonometry, Geometry, Biology, Circuitry, Pi.
HIGH SCHOOL VOCABULARY	ED 125	Multiple-choice quizzes with re-testing and clear definitions.
WISDOM OF THE AGES	ED 128	(4 disks) A major work! Worldwide classical data - quotes, thoughts, proverbs, epigrams
FRENCH I	ED 130	French for beginners - great!
FRENCH II	ED 131	Continues where French I leaves off.
GERMAN I	ED 132	An introduction to German
VIDEO CHEMISTRY	ED 138	Perfect program for assisting in chemistry - valency and molecular combinations
PC FASTYPE 3.01	ED 139	Another excellent menu-driven typing tutor
FACTS	ED 140	A kid's tutor for capitals, states and presidents
THE PRESIDENTS	ED 142	(2 disks) Biographical and quiz system on all the US Presidents
MICRO WORLD DATA BANK	ED 143	(5 disks) Detailed world mapping database produced by the CIA
NIMONIK 1.1	ED 145	A smart, menu-driven program that helps you memorize many different subjects/ languages
EDICOM-12	ED 146	A DOS assistance program /tutor for new PC users
ET	ED 147	A rtificial intelligence neural network demo for EGA and mouse
WORDSTALK	ED 148	(2 disks) A really entertaining word game for all ages, with ability to solve crosswords and cryptograms etc.
*GOOGOL MATH GAMES	ED 149	V2.0 An excellent primer in basic math for pre-school and primary school youngsters. Uses classic arcade games to teach the basics.
*PC BASIC PRIMER	ED 150	New! Menu-driven Basic tutor for beginners.
*WORLD ATLAS	ED 151	(2 disks) Data Base of important geographical information from the Rand McNally Atlas!
*CHINESE CHARACTER TUTOR	ED 152	Demo of selected chinese characters including phonetics!
*SAN MATEO SOFTSWAP	ED 153	18 educational games from the San Mateo Office of Education.
*WYNDWARE FLAGS	ED 154	Color representations of over 250 different flags,.
*DOS NOVICE UTILITIES	ED 156	Ideal for starters!
*BRANDON'S LUNCHBOX	ED 157	A collection of educational programs for pre-schoolers .
*DIFF. & CALCULUS	ED 158	For EGA, this learning tool for both math disciplines .
*DOS LEARNING SYSTEM	ED 159	An excellent first tutor for DOS, highly recommended for newcomers to PC computing

MUSIC

Compose, Save, Play...

PIANOMAN 3.2	MU 101	Turn your computer keyboard into a piano keyboard - lots of fun!
PC-MUSICIAN	MU 102	Compose, save and play your own music - inspirational and educational
MUSIC LIBRARY SYSTEM	MU 105	A really nifty music database for cataloging all your CDs, tapes and records
*GREETINGWARE	MU 106	Play a variety of Christmas selections with a "bouncing ball" so you can sing along. Customize a message and send a greeting on disk to a computer user friend. Entertaining seasonal fun!

DATABASE MANAGEMENT

dBase, Files, Routines...

PC-FILE+	DA 101	(3 disks) The dBase killer! State-of-the-art DBMS.
dBASE III ROUTINES	DA 103	Over 60 helpful routines for the dBase III user. A must!
NEWBASE II 4A	DA 104	New version! Excellent user-supported DBMS with full menu package. Try for power and simplicity
WAMPUM 3.3S	DA 105	Latest version or this legendary dBase III/IV compatible clone. Powerful but ludicrously inexpensive!
FILE EXPRESS 4.3	DA 106	(2 disks) Another powerful package from Expressware - interacts with their ExpressCalc and ExpressGraph .
dLITE 1.0	DA 107	Ward Mundy's (Wampum fame) new pop-up dBase marvel - background access to 10 dBase compatible applications!
GRAPHTIME II	DA 108	(2 disks) dBase, Wampum, Lotus and Multiplan compatie business graphing
EZ-dBASE TRAINER	DA 109	A really nice tutorial for dBASE
WYNDFIELDS 1.0	DA 110	Here's a great database that's 3 disks squeezed onto one - mouse supported and easy menus - HIGHLY RECOMMENDED
JAGER MANAGER 1.4A	DA 111	Information manager with database, dialling and calendar
*FILEBASE	DA 113	An uncomplicated, semi-sophisticated, user-friendly database package! Permits comma-delineated, variable-length fields (no more truncated entries)! This program sold commercially for over $100!

*New This Month

GAMES
Chess, Planes, Adventures...

JET FLIGHT SIMULATOR	GA 101	Stimulating and fast-paced fun!
3-D CHESS	GA 103	Fantastic 2D and 3D play with many levels
GAMBLER'S DISK	GA 121	All the casino thrills - blackjack, slots, baccarat, solitaire
MONOPOLY WITH GRAPHICS	GA 127	An old favorite cleverly programmed for absorbing fun!
ADVENTURE TOOLKIT	GA 138	(2 disks) Create and play your own text adventure games
PC-PRO GOLF	GA 139	(2 disks) A must for the golfing fraternity - good graphics
EGA TREK	GA 140	Superb Star Trek game for EGA - fight Klingons and Romulans
MAZE	GA 142	Wolfgang Stiller's mind boggler - a LENGTHY mental challenge!
SOLITAIRE	GA 147	Absorbing card games for one player - nice CGA/EGA graphics
EGA SORRY!	GA 150	Immensely popular version 2.0 of this classic game, for EGA card only
GAMESCAPE	GA 152	The incredible adventure game designing system!
PINBALL ART GAMES	GA 156	Good pinball action - circus, money maze, par 3 golf, spooky , etc.
LOVE FIRE	GA 157	You fashion the structure of this love adventure as you go!
CAPTAIN COMIC	GA 158	A Nintendo 'Mario Bros' style game with multi-levels of play, scrolling screens, beautiful sound effects. (EGA req'd))
BARD'S TALE CHAR-ED	GA 159	Allows modification of characters from Bard's Tale I and II
ED'S CHESS	GA 160	A truly fine chess game with the power to beat Chessmaster 2000!
CYRUS EGA CHESS	GA 161	Here's another challenging opponent for chess if you have an EGA card to show the fine detail - a program of pure breathtaking quality
ARMCHAIR QUARTERBACK	GA 162	Set the scene and call plays in this football strategy game
MASTER THE MARKET	GA 164	Realistic and challenging stock market simulation
FORD SIMULATOR	GA 165	A new exciting driving simulator from Ford
DRACULA IN LONDON	GA 166	A really good graphics and adventure game
EGA GOLF	GA 167	Play 18 holes with scenery in finer detail on your EGA!
PC-RAILROAD	GA 168	Control your trains on supplied routes or design your own
NINJA	GA 169	A commercial quality arcade game with karate tactics!
CRIME LAB	GA 170	A super, graphic, murder mystery game for all the family
MORAFF'S EGA/VGA PINBALL	GA 172	Here's a high class pinball for high resolution!
*SUPER PRO WORD SEARCH	GA 173	If you like the "word search" games in the newspaper, you'll love Super Pro!
*PATIENCE	GA 174	Super Solitaire! Nine great card games,.
*QUESSIT II	GA 175	An absorbing word game, based on "hangman."
*MEMOR-E	GA 176	Based on the classic TV game show "concentration."
*TUNE TRIVIA	GA 177	"Name That Tune" Includes a library of 200 tunes.
*MILLE BORNES	GA 178	Now you can play this great card game against the computer.
*YACHT RACING SIMULATOR	GA 180	Whether you are a serious sailor, or a landlubber, this realistic simulator is challenging and fun! (CGA req'd)
*DULLES TOWER	GA 181	Ever wonder what it's like to be an Air Traffic Controller?
*PHRASE CRAZE	GA 182	"Wheel Of Fortune" clone for CGA monitors.
*RISK	GA 183	The classic game of world domination. (CGA req'd)
*ELIZA	GA 184	The prototype of artificial intelligence!
*MOSAIX	GA 185	(2 disks) A remarkable electronic jigsaw puzzle generator .
*BASS TOUR	GA 186	The latest version of a great fishing simulator! (EGA req'd)
*TOMMY'S GIN RUMMY	GA 187	One of the best card games we've seen! (CGA req'd)
*SCRABBLE	GA 188	THE program for Scrabble buffs! (EGA req'd)
*BATTLE GROUND	GA 189	Control artillery, troop movements, etc. to destroy opponents. (CGA req'd)
*FACING THE EMPIRE	GA 190	Defend the world of Lyra against the evil Morte Star Empire.
*MAHJONG	GA 193	2 versions of this fascinating, colorful oriental game, one for CGA, and another EGA .

GENERAL APPLICATIONS
Astronomy, Finance, Travel...

MAIL MASTER	GE 101	Good and dedicated mailing list manager for form letters and labels
CITY DESK	GE 103	Desktop publishing - simple but effective for smaller applications
GENEALOGY ON DISPLAY	GE 105	(2 disks) A complete package, ideal for beginners
PERSONAL FINANCE MANAGER	GE 107	Household budgeting, savings, investments, checking etc.
STRESS & SHRINK	GE 122	Stress test and personality analysis
PC-LOTTO 2.41	GE 152	Popular and all-embracing package for use with worldwide lotto games
NEW AGE NOTES 1.1	GE 153	Over 200 metaphysical compositions for the Open Minded Individual
GOLF MANAGEMENT	GE 154	Golf handicapping and league secretary programs for golf clubs and golfing fanatics.
XACT SERIES CALCULATORS	GE 155	Three Hewlett Packard calculators - faithful simulations of the HP-11C Scientific, the HP-12C Financial, and the awesome HP-16C Programmers' model.
CREATIVITY PACKAGE	GE 156	(3 disks) Unleash the power of your brain with this creative thinking tool.
IDEA TREE	GE 157	Organize your thoughts with a graphic display of ideas
LOTTO-CAL 1.01	GE 158	(2 disks) A powerful and scientifically oriented lotto predictor;.
PROTAB 1.1	GE 159	A statstical calculator for fast quantitive analysis of small data sets
AMORT 1.07	GE 160	Excellent loan amortization program - easy to use and has powerful features
FAMILY TREE 6.0	GE 161	Succesful genealogical package, with full documentation. Family history and fun
LOTTO 3.0A	GE 162	One of the best lotto programs - with every conceivable lotto feature
THE CODE MACHINE	GE 163	Key Ham Radio transmitters and provide Morse Code practice sessions
COMIC BOOK COLLECTOR 1.4	GE 164	A dedicated database for comic book fanatics!
BASEBALL CARD COLLECTOR 1.4	GE 165	A dedicated database for baseball card collectors!
COUCH COACH	GE 166	Fantasy football drafter from Potato League Sports
*PRO FOOTBALL LINEMAKER	GE 167	Calculates and projects point spread and expected statistics
*HOME ENTERTAINMENt Mgr.	GE 168	Oganizesvideo tapes, casettes, cd's and records.
*HOME INVENTORY KEEPER 2.0	GE 169	Protect your investment in computer equipment! This program will keep an accurate record of the location and value of all of your household possessions.
*THE PROGRADE SYSTEM	GE 170	(2 Disks) Record, process and print grade reports using a variety of formats.
*THE TENANT FILE 1.3.2	GE 171	Keeps detailed tenant information, including payment histories.
*MR LABEL 4.0	GE 172	Print mailing labels, disk labels, price tags, rolodex, envelopes, forms..
*THE CARDSHOP	GE 173	Baseball card collecting has become a profitable hobby! This program will help you keep track of your investment.
*BY THE NUMBERS	GE 176	Computer Numerology! Includes manual to explain the science of numerology.
*EXAM BANK	GE 177	Stores exam questions (multiple choice, true/false, essay, etc.) and allows editing.
*MINI COUPCAT	GE 178	For people who collect grocery coupons. Stores coupon information by category, brand, volume, expiration, etc.
*CARD TRACK	GE 180	V3.0 Plan credit usage and repayment, and get control of your credit.
*TYPING TESTER	GE 181	Sophisticated typing test .
*PC-QUIZZER	GE 182	Create lessons and administer complete tests on a computer!
*WEATHER FORCASTER 2.0	GE 183	Generate your own weather forecasts and calculate current conditions.
*HANDWRITING ANALYST	GE 186	The science/art of handwriting analysis!
*PC-AREACODE	GE 187	A user-friendly program that can find the area code for virtually any city in the U.S. or Canada in less than two seconds!
*EXCHEQUER	GE 188	A check-writing and checkbook management program with some advanced features!
*HOME MANAGEMENT II	GE 189	One of the best packages of personal financial management programs we've seen!
*RESUME!	GE 190	Apply for your next position in the confidence that your resume will be as professional as you purport to be!

UTILITIES
Disk & Program Management...

DOS TUTORIAL	UT 107	Master DOS with this able mentor
BATCH FILE TUTORIAL	UT 109	Learn and utilize batch (.bat) file processing. Time saving, very useful
DOS TIPS	UT 110	(2 disks) Advanced DOS tutorial
KARC/PKXARC 3.6	UT 126	Latest version of a great file compression/extraction tool. A must for hard disk users
SCREEN SAVERS/BLANKERS	UT 134	Prevent monitor burn-in! This disk provides many screen savers for mono. CGA, and EGASAVE and EGABLANK
LAPTOP GASGUAGE	UT 135	Monitors laptop battery and lets you know when to recharge
POINT & SHOOT	UT 136	A far better hard disk backup/restore utility than DOS provides!
BAKER'S DOZEN	UT 138	A collection of valuable utilities for general use that everyone wants
HD UTILITIES	UT 139	A useful set of hard disk utilities
BEST BATCH UTILITIES	UT 140	Put some punch into your batch files with the aid of these 25 programs
YEAR PLANNER	UT 141	This powerful organizer prints wall calendars!
ARCHIVER 1.3	UT 142	Here's a REALLY USEFUL program - an archiving shell. Makes archiving and unarchiving a breeze with pull-down menus and professional interface.
MENUX 3.1	UT 145	Excellent HD menu with multiple windows - use batch files to run your programs - used by federal government
*FREEPACK	UT 146	A good example of the latest generation of Hard Disk mgt utilities, Six programs;
*NET-TOOLS	UT 147	New! If you have invested in a Novell NetWare LAN, this new program will help you get the most out of your system.
*SCREENSAVER 1.05	UT 148	A memory resident screen blanking utility requiring less than 2K of memory.
*ANADISK	UT 149	The ultimate Diskette utility! Analyzes, inspects, edits, repairs and copies diskettes.
*EMU	UT 150	Hard/Soft Disk manager. A full-featured DOS shell with more features than the popular commercial programs at a fraction of the cost!
*BURN-IN & DIAGNOSTICS	UT 151	A very handy disk that performs extensive system checks and diagnostic routines.
*DISKCOPY/FORMAT UTILITIES	UT 152	Plenty of super utilities for copying and formatting disks - goes further than the standard DOS XCOPY and FORMAT!
*DOS 'CHKDSK' UTILITIES	UT 153	A sound collection of disk routines to include reporting of free space, warning of insufficient space before a problem occurs, checking of file contiguity, etc. etc.
*HD-TEST	UT 154	Probably the most thorough hard disk tester available in shareware. Supports floppy testing also
*HARD DISK BACKUP	UT 155	One of the most comprehensive utilities available for backing up your hard disk safely and quickly to floppies!

***New This Month**

GRAPHICS
Design, Draw, Animate, Clip...

PC-KEY DRAW	GR 101	(4 disks) Now version 3.53 with 'hyperdraw' of this magical drawing/art program with tutorial, library and many demo files - recommended
SIMCGA	GR 102	Run CGA progs with Hercules type cards
DANCAD3D	GR 106	(2 disks) The best for 3-D wireframe with all conceivable options
PRINTSHOP GRAPHICS	GR 108	3 additional libraries, over 200 additional pics - needs PrintShop
PRINTMASTER GRAPHICS	GR 109	3 additional libraries for PrintMaster
PRINTSHOP GRAPHICS II	GR 111	Another 500+ images for the PrintShop program
PRINTMASTER GRAPHICS II	GR 112	(2 disks) Another 500+ images for PrintMaster
VENTURA CLIP ART	GR 113	(5 disks) Office/business subjects for Ventura Publisher
VENTURA PUBLISHER TUTOR	GR 118	Packed with utilities and instruction for VP - recommended for all users
WP/PM/PCC CLIP ART	GR 119	(11 disks) An absolute wealth of art for Pagemaker and WordPerfect 5.0 in PCC format, in 300 dpi res
FIRST PUBLISHER GRAPHICS	GR 121	(3 disks) Full of pictures and symbols for First Publisher in .PCX format
VGA PAINT	GR 122	At last! A superb graphics and painting program just for VGA owners
EGA FONTS	GR 123	Here are more than 50 fonts to liven up your EGA display
HERCBIOS	GR 124	New! 43 lines by 90 columns on Hercules mono!
PRINTSHOP GRAPHICS III	GR 125	(2 disks) More superb art from Jim Cooper and his wife
PRINTMASTER GRAPHICS III	GR 126	(2 disks) And the same for PrintMaster!
*COOPER GRAPHICS	GR 127	(3 disks) Clipart in PCX format!
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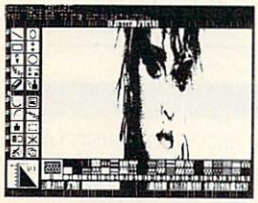

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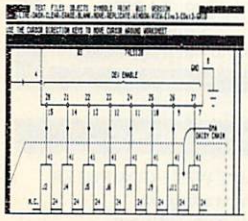

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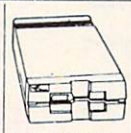

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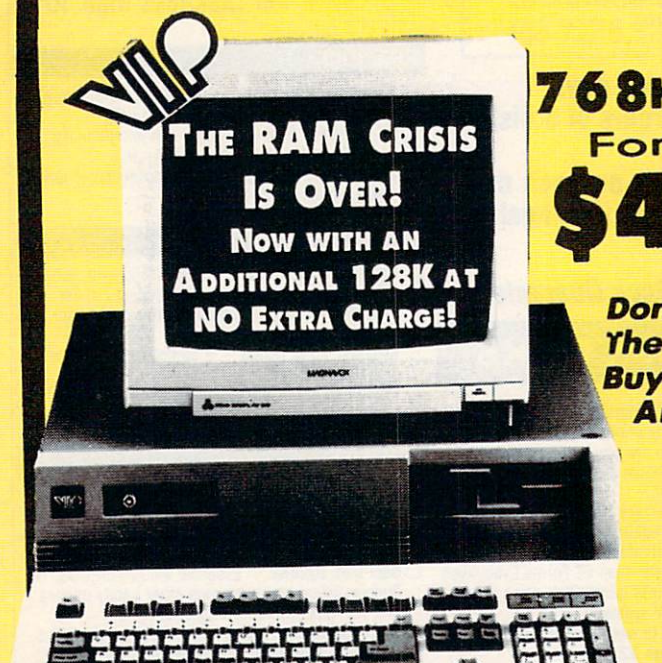

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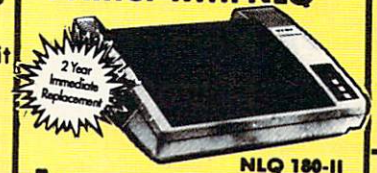

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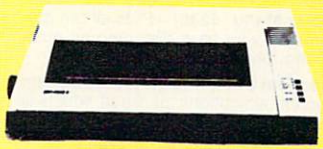

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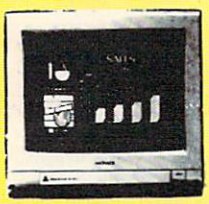

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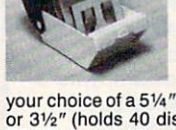

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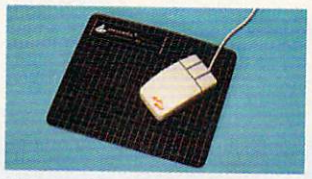

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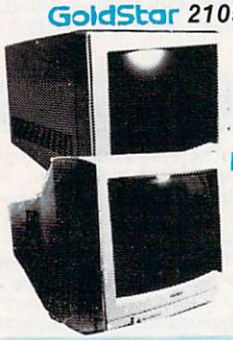

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• Low error data transmission and reception over standard dial-up telephone lines • Hayes compatible with the universally-accepted AT command set • Automatic Data Standard and Speed Adjust features

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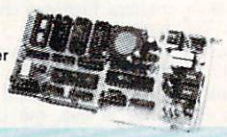

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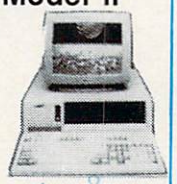
The Lazer Turbo provides everything you expect plus such standard features as 4.77/10 MHZ speed, 102 key enhanced keyboard, security lock and a clock/calendar with battery backup. Lazer's compatability is guarenteed through a 150W power supply, four accessable drive slots, 8 I/O expansion slots, parallel centronics and RS 232 interfaces, 640K RAM standard. Introduce yourself to the new generation through Lazer's Turbo II.



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The Panasonic FX-1650 Business Partner personal computer is the solution to many business needs. Featuring an 8086 CPU running at 4 or 8 Mhz. The 1650 comes with a full 640K of RAM, and one 3½'' 720K floppy drive. A one year limited parts and labor warranty for your protection, and the backing of Panasonic, a name you can trust.

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Osicom Executive 88/10

The Osicom Executive 88/10 is a powerful, lowcost, 8088-based desktop computer with 10MHz, 1 wait speed and a small footprint that make it an ideal choice for LAN workstations. The basic model comes standard with 640K RAM on the motherboard, a 360KB floppy drive and an enhanced 101-key, AT-style keyboard and many more features.

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FCC Class B Approved

Osicom Executive 286/12

The Osicom Executive 286/12 is a high performance, 80286-based microcomputer that's the perfect solution for your most demanding computing and networking needs. It features a floppy/hard drive controller, and an EGA controller integrated directly on the motherboard. With 12/6.25MHz switch-selectable speed and 1 wait state, 1MB RAM on the motherboard, 1.2MB floppy drive, the Osicom Executive 286/12 is packed with features for the executive who means business.

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Monitor Optional
FCC Class B Approved

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* Commodore & Atari

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ST 125 20 meg 40 MSEC MFM	$225.95
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The Commodore Colt is a computer with all the built-in features you need. The Colt includes 640K RAM, CGA video support, two 5.25 360K disk drives, serial and parallel ports with three clock speeds. Plus many more Commodore extras. Try the Commodore Colt in your home or office and experience what a difference it will make.

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Monitor Optional

VENDEX® Headstart III

The Headstart III has a speedy 12 MHz microprocessor, 1MB TAM, both 3.5'' and 5.25'' disk drives and a hefty 32MB hard drive. Vendex also includes top selling software from Ashton-Tate, Software Toolworks, Timeworks and Microsoft all FREE. There are no hidden extras, no add-on's to add on. The Headstart III is a complete, high performance computer package for your advanced computer needs.

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T-1200F & T-3200 models are available, please call.

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The T-1200F is easily customized to your personal work style thanks to 1MB memory, two 3.5''720K disk drives and a rechargeable battery pack. For further convenience, Toshiba includes MS-DOS 3.3, sidekick and disk cache utility software with your new T-1200F. Put the future in your hands with Toshiba's remarkable T-1200F.

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Toshiba T-3200 model is available, please call.

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NEW PRODUCTS

MICKEY McLEAN

Expanded Manager

Peter Norton Computing has announced an expanded version of its DOS manager, *The Norton Commander* (designed to simplify and enhance DOS).

Version 3.0 features expanded file viewers, which allow you to view files in their proper formats without loading the application with which they were created; quick views, which display the list of files in a directory and the contents of a file side by side; and Commander Mail, an automated electronic-mail feature that allows you to send documents with fewer keystrokes. The new version also contains Commander Link, which transfers files between any two PCs via a serial-port connector cable.

The Norton Commander 3.0 has a suggested retail price of $149.00. An optional cable to use Commander Link can also be purchased for $29.95.

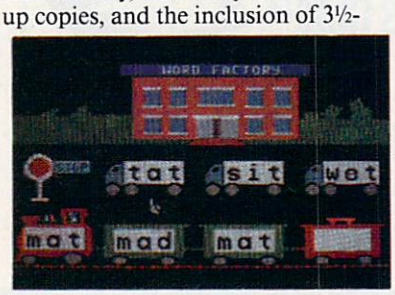
Peter Norton Computing, 100 Wilshire Blvd., 9th Floor, Santa Monica, CA 90401-1104

Circle Reader Service Number 200.

Graphics Rabbit

The Learning Company has announced that its popular reading program, *Reader Rabbit,* now supports Hercules, CGA, EGA, Tandy 16-color, VGA, and MCGA graphics. The program's additional graphics support illustrates the company's commitment to develop educational software for the IBM PC marketplace.

The program features hard disk installability, the ability to make back-up copies, and the inclusion of 3½- and 5¼-inch disks. The company announced that these features will now be available for its entire line of PC educational products.



The new *Reader Rabbit* now takes full advantage of advanced graphics cards.

Reader Rabbit consists of four sequenced games to teach children ages 4–7 the basics of reading, spelling, and vocabulary. It is available for IBM PCs and compatibles and carries a suggested retail price of $49.95. An Apple II version sells for $39.95. A talking edition for the Tandy 1000, Macintosh, and Apple IIGS sells for $59.95.

The Learning Company, 6493 Kaiser Dr., Fremont, CA 94555

Circle Reader Service Number 201.

Hyundai Expands AT Line

Hyundai's Super-286E extends its line of AT computers. This small-footprint computer is 8/12-MHz switchable, with 640K of RAM (expandable to one megabyte). Features include two 8-bit and four 16-bit expansion slots, one serial and one parallel port, a built-in floppy drive controller and clock/calendar, and a 101-key, click-type keyboard. MS-DOS version 3.3, GW-BASIC, and a system diagnostic disk are also included. The Super-286E supports CGA, EGA, and VGA color graphics.

The suggested retail price for the Super-286E with a single 1.2MB floppy drive is $1,295. The addition of a 30MB hard drive brings the price to $1,845; a 40MB hard drive, to $2,045. It's covered by Hyundai's 18-month warranty; the company's S.O.S. on-site service plan is also available.

Hyundai Electronics America, 166 Baypointe Pkwy., San Jose, CA 95134

Circle Reader Service Number 202.

Electronic Payment

MECA Ventures has released version 1.1 of *Andrew Tobias' CheckWrite Plus* with CheckFree electronic payment capability built into the software. *CheckWrite Plus* provides budgeting, loan analysis, cash forecasting, tax planning, back-account management, accounts payable and receivable, and now electronic bill paying.

CheckFree has been integrated into *CheckWrite Plus* at no extra charge to users. The monthly service charge for CheckFree is $9 with a nominal fee added for more than 20 transactions.

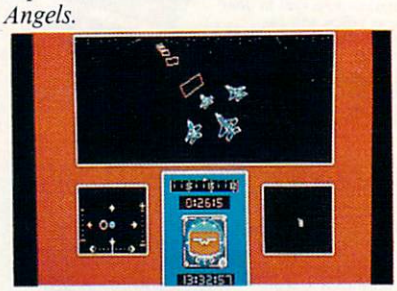
Andrew Tobias' CheckWrite Plus for the IBM PC and compatibles has a suggested retail price of $49.95. Current registered owners can upgrade to the new version with the CheckFree capability direct from MECA Ventures by calling Customer Sales and Service at (203) 222-9150.

MECA Ventures, 327 Riverside Ave., Westport, CT 06880

Circle Reader Service Number 203.

Take Off with the Blue Angels

Have you ever wished that you could soar with the Navy's Blue Angel squadron? Now you can have that experience with Accolade's *The Blue Angels.*



Fly a tight formation in *The Blue Angels.*

Learn over 25 flying maneuvers in one of four F/A-18 Hornet jets, and then head for the wild blue yonder with three other squadron members. In the training sequence, you begin in a wire-frame flight simulator. Once you learn the ideal flight path of the maneuver, you can practice it from the cockpit perspective and watch your flown path plotted in 3-D against the ideal path. Your final test is in an air show in which you control one of the jets in the formation.

The IBM PC and compatibles

version of *The Blue Angels* has a suggested retail price of $49.95. The Amiga release sells for $44.95.

Accolade, 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128

Circle Reader Service Number 204.

Defend Aladda

You're the only child of the late Duke of Aladda, and his legacy is for you to extend Aladda's dominion and sit on the emperor's throne in *Sword of Aragon* from Strategic Simulations.

To grant your father's last request, you must raise and equip an army of bowmen, cavalry, infantry, mages, and priests. You may even have to hire mercenaries, but you'll have limited budgets and resources. Once you've organized your forces, you can lead your army against the demonic rulers of the Eastern Realms while defending Aladda against the plundering raids of Goblin hordes. Strategic and tactical maps aid you in your quest. Your warriors, knights, and rangers are equipped with swords, bows, and lances, while the priests and mages wield magic spells; but it will be your battlefield decisions that determine whether you become the Sword of Aragon.

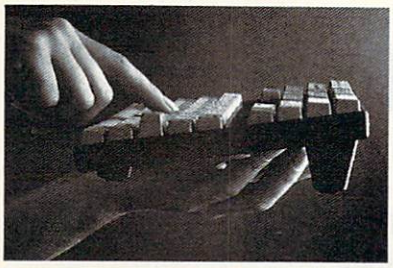
The game is available for IBM PCs and compatibles, is distributed by Electronic Arts, and retails for $39.95.

Strategic Simulations, 675 Almanor Ave., Sunnyvale, CA 94086

Circle Reader Service Number 205.

Wireless Wonder

nView's Toteboard wireless keyboard is a 100-key, full-function keyboard that uses infrared technology to communicate with your IBM PC or compatible. The battery-powered keyboard is approximately half the size of a conventional keyboard and can be operated with one hand.



The wireless Toteboard uses infrared transmission for PC communications.

A small infrared receiver plugs into the keyboard port and picks up transmissions from Toteboard. The receiver uses a data-verification technique to understand transmissions from wide angles and long or short distances. An optional serial interface is also available. Other features include the ability to use more than one Toteboard to address a single computer, or one Toteboard to control two computers. A Turbo Rep-rate allows you to select IBM's standard key-repeat speed or an accelerated key repeat.

The suggested retail price of Toteboard is $495. The keyboard operates on four standard AA batteries. An automatic sleep mode extends battery life for six months to a year.

nView, 11835 Canon Blvd., Newport News, VA 23606

Circle Reader Service Number 206.

Animated Program

Eastridge Technology has introduced *Impel*, an animation program for IBM PCs, PS/2s, and compatibles. You can use the program to make animated business presentations, product demonstrations, and moving displays of graphics and text.

The animation system uses mouse-driven menus and intuitive pick-and-place positioning. Features include a drawing package, proportionally spaced text fonts, film editing and splicing, depth perception, simultaneous movement of different pictures, and a film compiler to speed up finished films. The manual includes a tutorial.

Impel supports CGA, EGA, VGA, and MCGA graphics. The compete package, including a reference manual and demonstration disks, retails for $295. The demonstration disks are also available separately on a 5¼-inch disk for $10 and a 3½-inch disk for $15. The disk prices are applicable toward the purchase of the full package.

Eastridge Technology, 37 Murray St., New York, NY 10007

Circle Reader Service Number 207.

It'll Bowl You Over

Bowling-league secretaries around the country will be pleased to know that CDE Software has developed *Bowling League Secretary* to speed up recordkeeping.

After entering individual scores, the program calculates averages, handicaps, and scratch/handicap totals for each individual as well as the entire team. It also maintains statistics on high-scoring games and series for each bowler and a complete bowler history.

The program also generates all the printed weekly reports, which are accepted by the American Bowling Congress and the Women's International Bowling Congress.

Other features include match-point play; separate handicaps for men, women, boys, and girls; high-average listing; substitute lists sorted by high averages; weekly recap sheets printed on plain paper or three-part continuous forms; and the ability to determine the most improved bowler in your league.

Bowling League Secretary is available for IBM PCs and compatibles. The program's suggested retail price is $74.95.

CDE Software, 4017 39th Ave. SW, Seattle, WA 98116

Circle Reader Service Number 208.

Boca Enters VGA Arena

Boca Research has begun shipping its first VGA board for IBM PCs and compatibles. The board is register-level compatible with the IBM VGA adapter and supports all standard VGA modes. It also provides downward compatibility for EGA, CGA, MDA, and Hercules graphics.

VGA by Boca comes configured with 256K of VRAM and provides a 640 × 480 pixel resolution with 16 simultaneous colors. The board also offers an optional resolution of 320 × 200 with 256 simultaneous colors.

You can choose an 8- or a 16-bit connection; 16-bit slots can relay information from the computer at a faster rate than the 8-bit can. The board also utilizes Chips and Technologies' latest single graphics chip.

The one-step installation requires no jumpers or switches to be set. A diagnostic test program is included to verify proper functioning of the board and attached monitor. The board is backed by a two-year warranty and a 30-day money-back guarantee. The suggested retail price of VGA by Boca is $345.

Boca Research, 6401 Congress Ave., Boca Raton, FL 33487

Circle Reader Service Number 209.

Nightmares and Aliens

Medalist International has released two new games that may keep you up at night. *Weird Dreams* delves into the subconscious, while *Xenophobe* takes you on a mission of alien extermination. Both games are marketed under Medalist International's Micro-Play label.

In *Weird Dreams* you assume the role of a hospital patient as he undergoes surgery. As the patient's subconscious mind begins to wander, you'll begin to experience dreams where

you'll encounter giant wasps, carnivorous rose bushes, a psychopathic lawn mower, and an evil little girl. Your success at confronting these people and objects and the unusual challenges they provide directly affects the patient's health on the operating table.

Weird Dreams is available for the IBM PC and compatibles, the Amiga, and the Atari ST for the suggested retail price of $39.95. A Commodore 64 version sells for $29.95. The Amiga, Atari, and 64 versions require a joystick. The PC version supports EGA, CGA, VGA/MCGA, and Tandy graphics.

Xenophobe puts you in command of three squads of scientists, soldiers, and others in a battle against alien invaders. From your nine charges you must select the two best personalities to handle each mission. These fighters then face a continuous wave of creatures, each with its own unique way of knocking human attackers out of action. The soldiers can fight with a variety of weapons.

The suggested retail price for the IBM PC version of *Xenophobe* is $34.95. The Amiga and Atari ST versions each sell for $39.95, while the Commodore 64 edition retails for $29.95. A joystick is required for the Amiga, Atari, and 64 versions of the game. EGA, CGA, Hercules, and Tandy graphics systems are supported by the PC version.

Medalist International's Micro-Play games are marketed by MicroProse.

MicroProse, 180 Lakefront Dr., Hunt Valley, MD 21030

Circle Reader Service Number 210.

Video Digitizer

MFJ Enterprises has released the MFJ-1292 Picture Perfect Video Digitizer for IBM PCs and compatibles. The MFJ-1292 plug-in card and software allows you to connect a camcorder or video camera to your computer and instantly capture digitized video snapshots on floppy or hard disks. The digitized video snapshots can be displayed onscreen or imported into a paint or drawing program.

The software allows you to create pictures in VGA, EGA, CGA, Hercules, or raw data formats. The resolution of the pictures depends on your graphics card; VGA comes the closest to photographic quality.

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The complete package includes a contrast-and-brightness control unit that can be placed near the keyboard for fine-tuning your pictures.

The MFJ-1292 Picture Perfect Video Digitizer's retail price is $199.95.

MFJ Enterprises, P.O. Box 494, Mississippi State, MS 39762

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OFF LINE

DAN GOOKIN

BIG BLUE NIGHTS AND DREAMS OF GLORY

One of the cigar-chomping bigwigs up there somewhere in IBM's ivory tower goes to sleep with bitter tears each night. He (or she—no he, and a Yale grad) laments the early heydays of IBM's dominance in the personal computer industry, when Compaq was just another clone and when Apple made toy home computers. The days when IBM called the shots. Sniff, sniff.

I know this because those sleepless nights are creating a negative ripple in the psychic fabric of the universe. Every time Shirley MacLaine tries to channel, she picks up HBO. When my weird psychic friend complained, I suggested that we investigate. So we stuck some orthogonal crystals into our ears (just like Spock on Star Trek!) and summoned Modra, her spirit guide. The following is a summary of our astral detective work.

Saturday, the 23rd. Behold! (No one really uses that word any more, but it fits the quasi-lunatic vein of this column.) A dream of the past, of the glory days back in 1983. The microcomputer world was holding its breath against the rumors of "the Peanut," IBM's first real home computer. Our slumbering IBM giant was all smiles and giggles about computerdom's greatest event: the introduction of the PCjr.

The PCjr might well have been something, had IBM not forgotten to make it IBM-compatible. Forget the Flash Gordon infrared Chiclet keyboard and the easily broken, nonstandard connectors on the machine's rump. Had it worked, third-party developers would have created other keyboards and connectors. Had the machine taken off, every PC today would have those glorious sound extensions in ROM. Think of it: PCs that could do more than beep like their 20-year-old ancestors; PCs with real imitation PCjr sound.

But back to the dream: The world bought the PCjr and paid homage to IBM. That Christmas, families posed by the fireplace with the dog and the PCjr. It was a status symbol. Kids with PCjrs at home were earning doctorates by the age of 12. The president of Compaq phoned IBM: "Golly, you guys just have us beat! We're throwing in the towel! Here, take our inventory!"

Unfortunately for our snoring bigwig, the dream ended there. He woke up and stumbled to the refrigerator for some Perrier and Brie.

Monday, the 25th. This dream was really odd. Probably due to that extra helping of Haagen Daz before bedtime. It had to do with someone, or something, named Sue. But whether Sue was someone our Big Blue dreamer knew or something he wanted to do never became clear. There was some wordplay in the dream about *megahertz.* My psychic friend asked if it was one or two words. I shrugged, and the crystal fell out of my ear, ending our session.

Thursday, the 28th. After a rather bland beginning, our snoozing IBM executive finally drifted into REM about 4:00 a.m. He first dreamed about buying all the Mazda Miatas in New York and then crushing them in a giant Whirlpool trash compactor—until he was left with the last one. My psychic friend said it was symbolic of the greed in the computer industry, that the executive was acting out only a childish fantasy of domination. I said nothing, having dreamed the exact same thing only two nights earlier.

Later in the dream, it was 1987 and the IBM bulldozer was still in charge, paving the way of PC compatibility right into the 1990s. All the top IBM execs proudly watched the PC parade, with all the clone makers goose-stepping to IBM's drum, tossing Big Blue its deserved royalties like flower petals.

The parade was comprised of giant flower-covered floats representing IBM's mainframes. Behind the mainframes, hordes of dancers, each wearing a cardboard PC that resembled those old dancing cigarette boxes from the golden age of television. Each dancer tried to plug into the mainframe float while singing something called "The Connectivity Song."

It was a glorious time for PC owners: Everyone had the same IBM-compatible mouse, and throngs of PC users waved them in the air at the parade, some spinning the mice wildly above their heads and knocking out lamps and the occasional eyetooth.

The killer part of the dream came when IBM announced the PS/2. The computer world fell on its collective kneecaps in homage. IBM stock soared 200,000 points. To celebrate, IBM bought Tokyo.

Friday, the 29th. In the final dream we monitored, our hapless IBMer stood in the middle of a misty room. From out of nowhere, Charlie Chaplin waddled over and whacked him with a bamboo cane. The jolt practically snapped our bluetiful dreamer out of his jammies. Charlie hobbled off into the mist, leaving our IBM executive standing there, holding his throbbing ear.

Next, the "M*A*S*H" gang from TV stopped by but was quickly replaced by the cast from "Gilligan's Island." The Skipper walked over to the IBM guy and asked politely, "How do you ever expect us to get off this island?"

The dream ended there, and we haven't monitored any activity since. Just clear and blissful sleep. ⊡

HOTWARE

SOFTWARE BESTSELLERS FROM AROUND THE COUNTRY

HOME LEARNING

1. Mavis Beacon Teaches Typing
Learn to touch-type.
Electronic Arts
Apple II, Apple IIgs,
Commodore 64/128, IBM, Macintosh

2. Learning DOS
Learn the ins and outs of DOS.
Microsoft
IBM

3. Math Blaster Plus!
Teaches basic math concepts.
Davidson & Associates
Apple II, Apple IIgs, IBM

4. Where in the World Is Carmen Sandiego?
Chase Carmen around the world.
Brøderbund
Amiga, Apple II, Commodore 64/128, IBM, Macintosh

5. Where in the USA Is Carmen Sandiego?
The chase moves to the USA.
Brøderbund
Amiga, Apple II, Commodore 64/128, IBM, Macintosh

6. Reader Rabbit
Helps children learn to read.
The Learning Company
Apple II, Commodore 64/128, IBM, Macintosh

7. Children's Writing and Publishing Center
A desktop publisher for kids.
The Learning Company
Apple II, Apple IIgs, IBM

8. Where in Time Is Carmen Sandiego?
Can you find Carmen in time?
Brøderbund
IBM

9. Think Quick
Children learn problem solving.
The Learning Company
Apple II, Apple IIgs, IBM

10. Mixed-Up Mother Goose
Kids fix jumbled rhymes.
Sierra
Amiga, Apple II, Apple IIgs, IBM, Macintosh

HOME ENTERTAINMENT

1. Flight Simulator
Head for the wild blue yonder.
Microsoft
IBM, Macintosh

2. The Duel: Test Drive II
Fast-paced car racing.
Accolade
Amiga, Apple IIgs, Commodore 64/128, IBM, Macintosh

3. F-15 Strike Eagle II
Fly the Air Force's hottest fighter.
Electronic Arts
IBM

4. 688 Attack Sub
Command a prowling sub.
Electronic Arts
IBM

5. Falcon
Air combat at its best.
Spectrum HoloByte
Amiga, IBM, Macintosh

6. ChessMaster 2100
Board strategy that isn't boring.
Electronic Arts
Apple II, Apple IIgs, Commodore 64/128, IBM

7. Tetris
Deceptively addicting falling-block game.
Spectrum HoloByte
Amiga, Apple IIgs, Commodore 64/128, Macintosh

8. Hardball!
Major-league action.
Accolade
Amiga, Apple II, Apple IIgs, Commodore 64/128, IBM, Macintosh

9. TV Game Shows
Compete in some of your favorites.
Share Data
Apple II, Commodore 64/128, IBM

10. King's Quest IV
Rosella must save her father.
Sierra
Amiga, Apple II, Apple IIgs, IBM

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1. The Print Shop
Make banners and more.
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Apple II, Apple IIgs, IBM; old version—Commodore 64/128, Macintosh

2. Calendar Creator Plus
Create many different calendars.
Power Up
IBM, Macintosh

3. WillMaker
Get help in writing a will.
Nolo Press
Apple II, IBM, Macintosh

4. PC PaintBrush IV
Paint in every graphics mode.
Mediagenic
IBM

5. Resume Kit
Help for landing the right job.
Spinnaker
IBM

6. PrintMaster Plus
Print posters, stationery, and more.
Unison World
Amiga, Apple II, Commodore 64/128, IBM

7. Print Magic
Design and print small documents.
Epyx
Apple II, IBM

8. PC Globe+
Explore world demographics.
Comwell Systems
IBM

9. Bank Street Writer Plus
Word processing for the whole family.
Brøderbund
Apple, IBM

10. Dinner at Eight
America's top chefs share their recipes on your PC.
Rubicon
IBM, Macintosh

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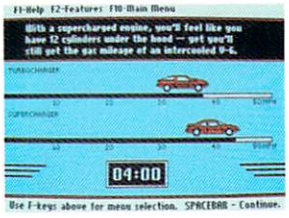

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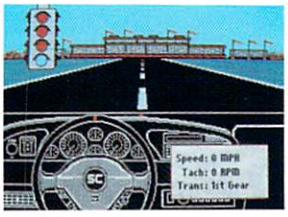

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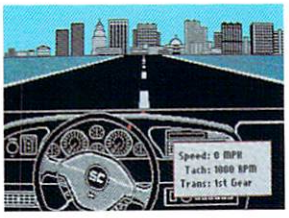

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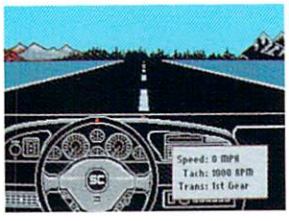

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Omnitrend's Universe 3

Taito's Operation Wolf

System requirements: IBM PC, XT, AT, or compatible with 256K RAM, DOS 2.0 or higher, CGA, EGA, or monochrome graphics adaptor, and headset or external speaker.

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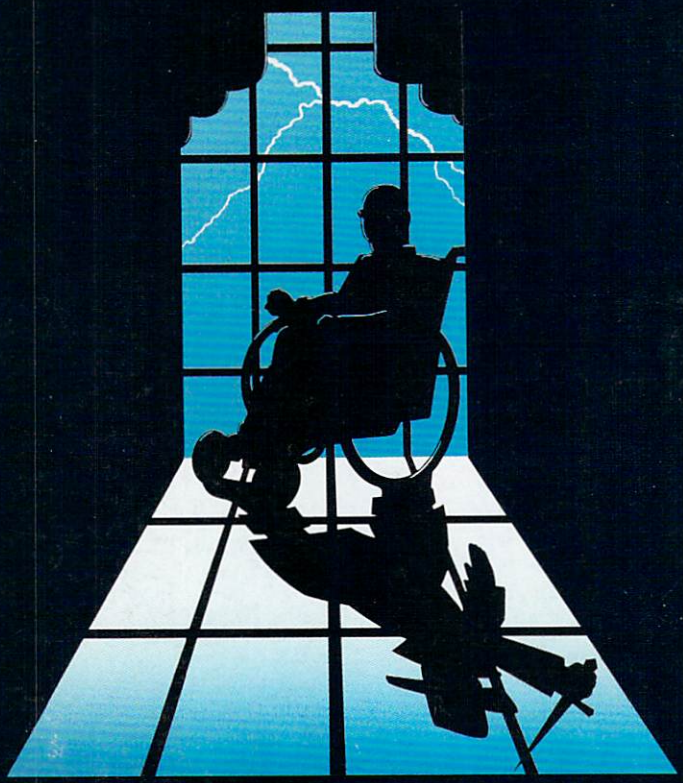

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