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(see page 52)

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October 1989

# COMPUTE!

THE CHOICE OF HOME PC ENTHUSIASTS SINCE 1979

## 1990 Home Computer Guide

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- Tips and Techniques to Raise Your Score

### Novel Uses for Your Home PC

- Practical Programs for Nursery to Wine Cellar

### 5 DOS Shells

- How They Work
- Which Is Best

### Children and Computers

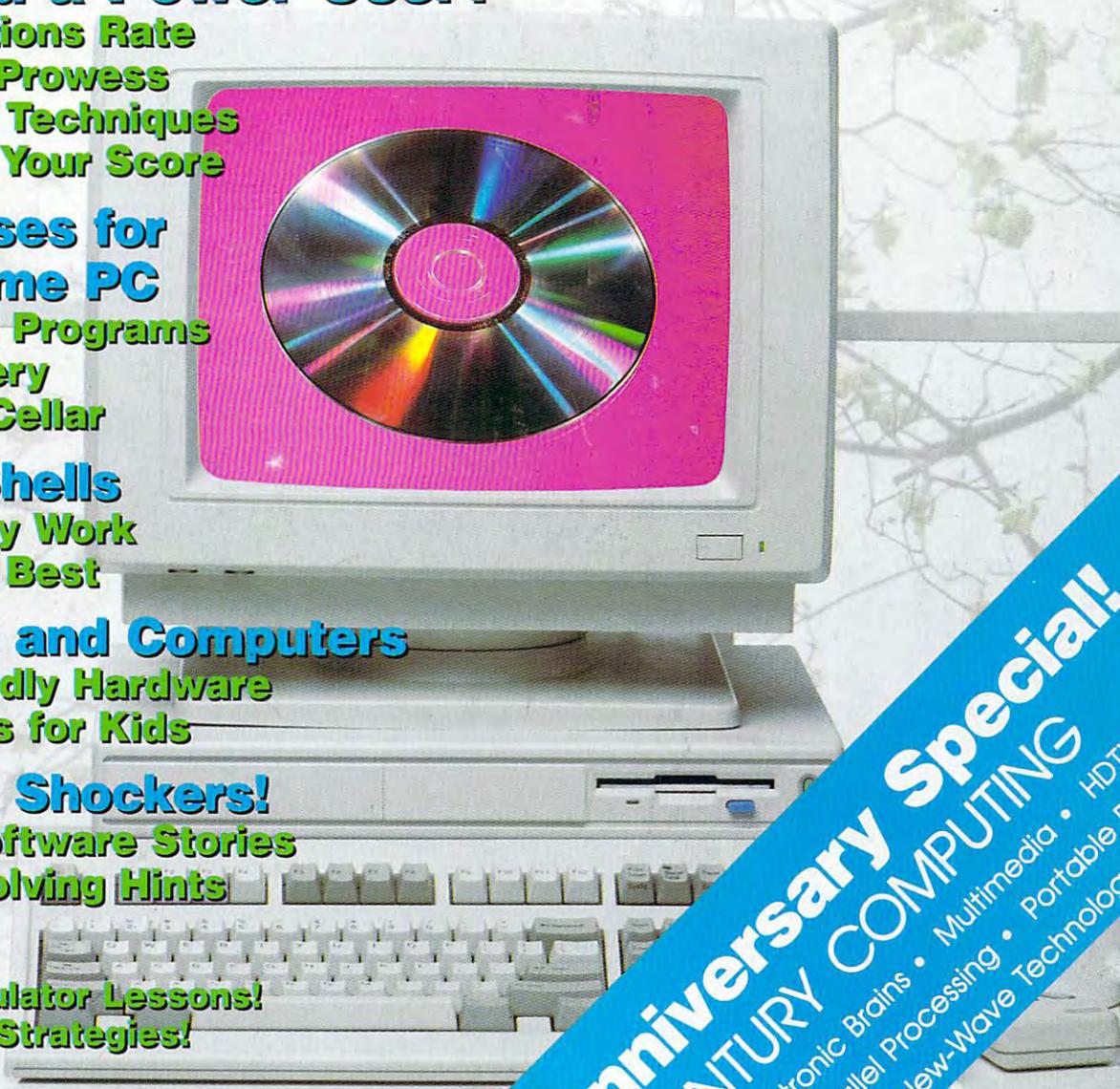
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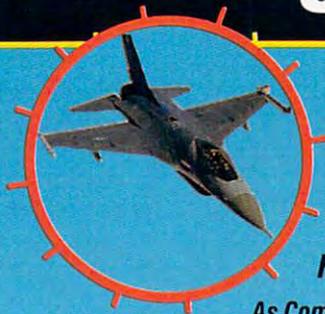
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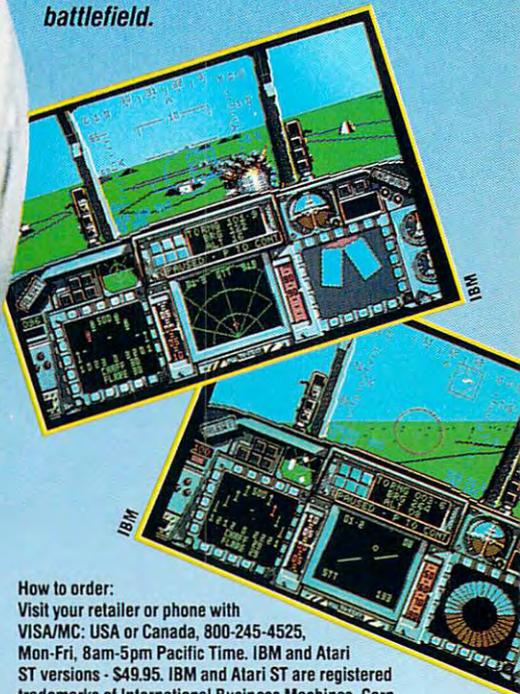


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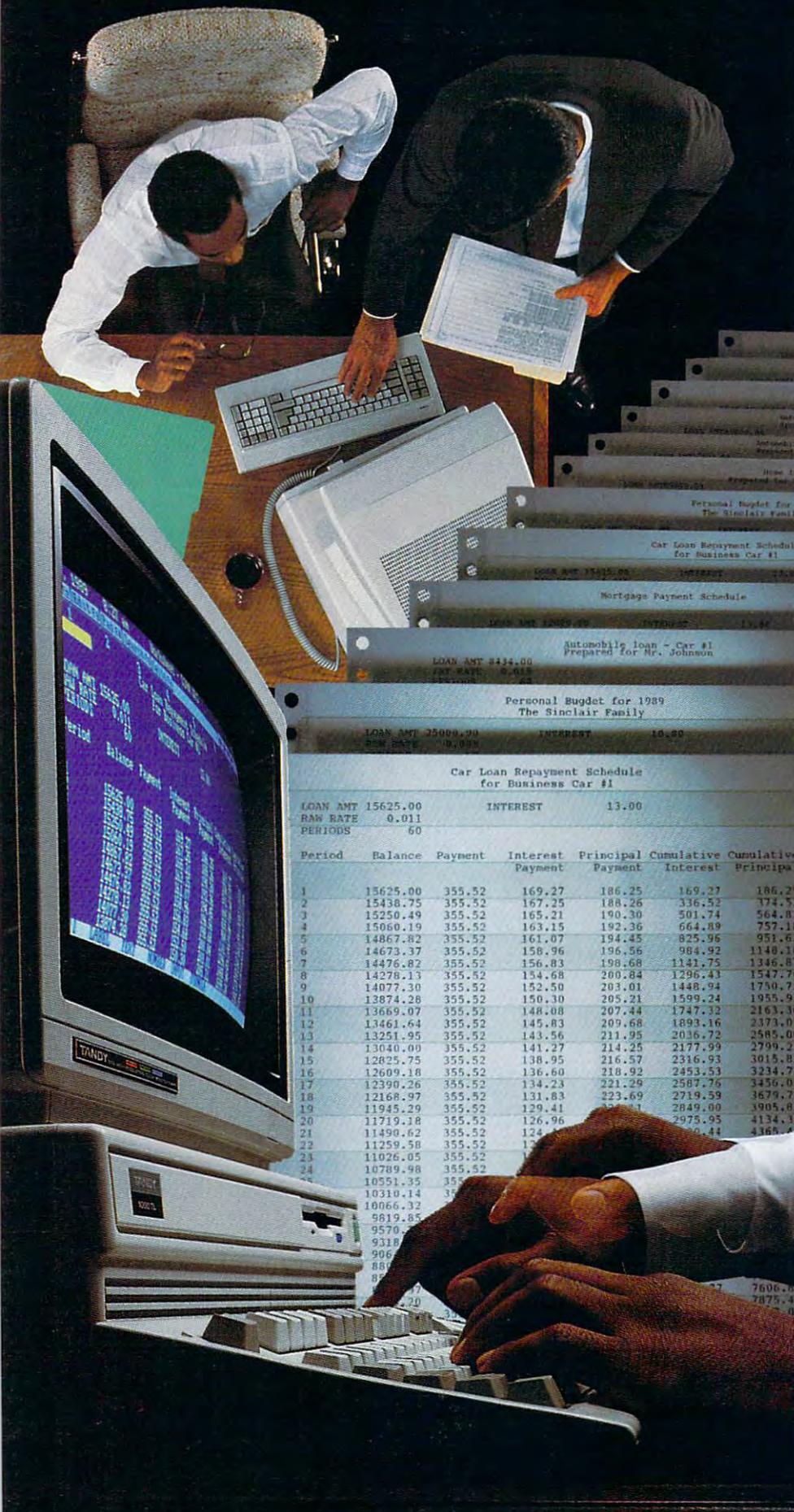


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# COMPUTE!

THE CHOICE OF HOME PC ENTHUSIASTS SINCE 1979

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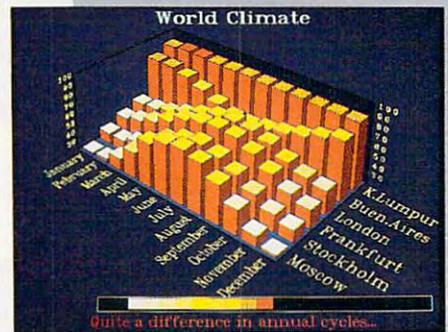
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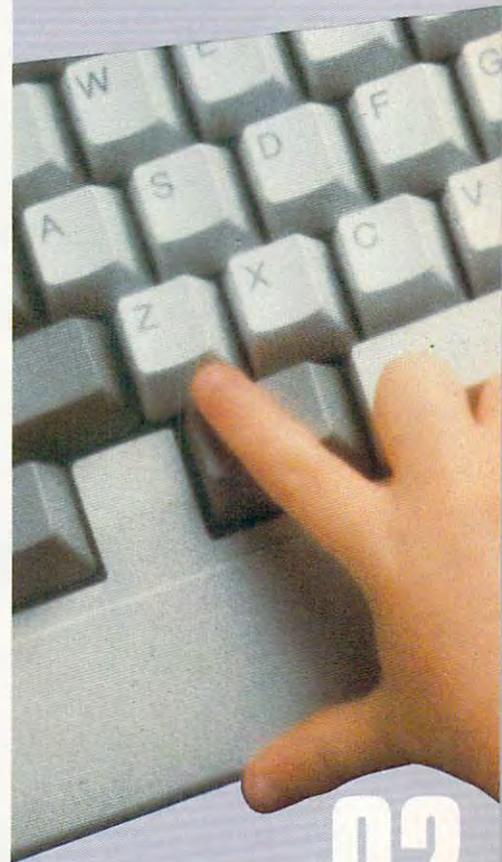
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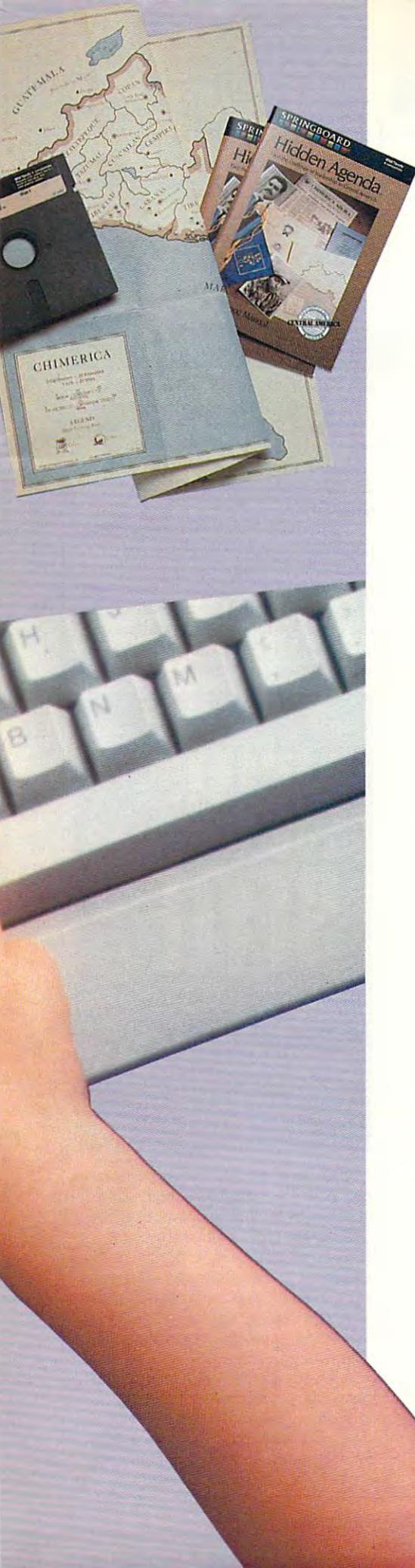
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P E T E R S C I S C O

**T**en years is a long time in the magazine business, an eternity in the computer business. Both enterprises boast more shakeouts than a Hollywood hair salon. A discriminating audience, computer-literate and future-bound, makes short work of any computer magazine that fails to fulfill its promise.

*COMPUTE!* is still here: strong, lively, and dedicated to the world of home computers. From the VIC-20 and the Atari 800, through the Commodore PET and the CoCo, into the days of the Commodore 64 and the Apple II, and finally to a world where IBM PC and compatible computers dominate in the home (80 percent of our readers use an MS-DOS machine), *COMPUTE!* has evolved as the computing community has evolved. We've embraced the new technologies and celebrated the old. We've written the stories and shared the perspectives that have made the personal computer the harbinger of the Information Age.

But time waits for no one, and if you've thumbed through this issue of *COMPUTE!*, you've noticed quite a change. A bolder palette with a much stronger presentation may catch your eye first. But look deeper. We've broadened our scope as well, bringing in special departments devoted to productivity, entertainment, and learning. And we're launching a special section dedicated to in-depth explorations.

No matter what you use your computer for, you'll find new uses inside our trio of departments. Parents and teachers alike can look to our Learning department for the products, strategies, and techniques that make the home computer an educational wonder. At a time when policy makers and self-proclaimed experts bemoan the mediocre performance of our schools, you can be sure that you and your children are prepared for the future because of the discoveries you

make at your home computer. The computer isn't a substitute for school, but a tool for moving beyond those walls and into the world of imagination. And we can help you, and your children, make that leap.

Game players can keep up with the latest toys through our Entertainment section, and they can put their computers to work with what they glean from our Productivity pages. And, for those of you who bought your computer for serious work, discover how truly productive your computer can be when it becomes a focal point of family fun and curiosity.

Each department not only offers informational features, but also profiles what we call a *COMPUTE!* Choice: a product representative of the best and the brightest in that area. This month we look at the updated version of *Better Working Eight-in-One*, an inexpensive integrated package that can help you be more productive; we cast our vote for *Hidden Agenda*, a game that uncovers the gray areas of diplomacy and should spark discussions at home and in school for some time; and *Omega*, a cybertank war game that gives group entertainment a new meaning and brings programming out of the basement and into the living room.

Another addition to *COMPUTE!* is our In Focus section, in which we expand upon a single topic—complete with features, guest columns, a buyer's guide, and a resource page for expanding your horizons. And don't overlook our monthly In Focus disk offer; the disk features a collection of outstanding shareware programs that exemplifies the special area of home computing we've covered in that issue. We've take special care to select packages that bring real value to your PC; each month you'll have a chance to increase your software library and expand the usefulness of your computer.

This anniversary issue of *COMPUTE!* doesn't close a book. It opens a new chapter. And to that end we look ahead in a special anniversary

story about the future of home computing—the products and ideas in development today that will shape the way you and your children will use computers tomorrow. No more pie in the sky; take a look at the reality of the 1990s.

But don't worry that we've completely abandoned our old ways. You'll still find our Specific section (now with two MS-DOS columns: one for beginners and intermediate users, the other for more advanced users) with news and views about your favorite system, our concise and honest

NEW LOOK  
**NEW  
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 COMPUTE!

reviews, our insightful columnists, plus new-product announcements and news about the home computing front.

*COMPUTE!* will continue to write stories that can help you get the most out of your computer, no matter what software you use or what hardware you choose. And it will maintain its place as the authority in the home computing field.

The magazine you're holding reflects several months of big dreams, long days, and hard work. A lot of enthusiasm went into it, and we think a lot will come out of it. So open your eyes to a new decade and enjoy. □



## Konami is bringing hot shots like you down to earth.

It's time to get your head out of the clouds. Because Konami is zeroing in on you with AJAX™ and Life Force™, two explosive new computer games.

In AJAX you'll command the world's hottest fighters, dogfighting to the death with planes, tanks, ships and an armada of UFOs loaded with surprise attacks. While in Life Force you'll duel with Zelos, an all-engulfing, planet-eating alien who's hungry to take a bite out of your plutonium-packed star cruiser.

So, if you think you're the hottest fighter jock ever to blister the skies with a heat seeking missile, take a shot at AJAX and Life Force.

But be warned. The first thing to go down in flames will be your ego.

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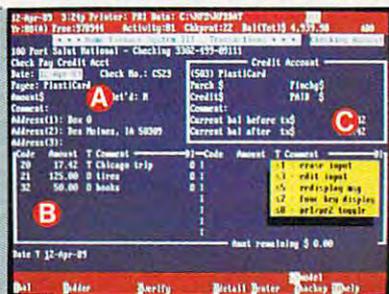
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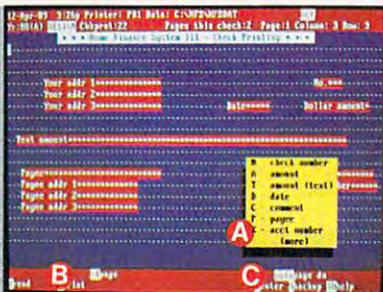
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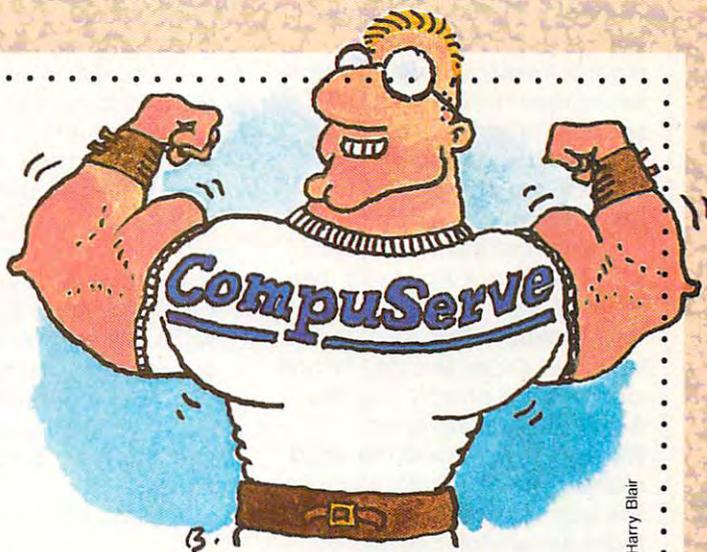
# NEWS & NOTES

## COMPUSOURCE?

**N**ot even online services are immune from the atmosphere of corporate takeovers, acquisitions, and mergers, as CompuServe's buyout of The Source illustrates. The two information services share many of the same features, but each has unique offerings. The combination of the two could result in an even better resource for subscribers.

CompuServe subscribers won't be affected, but Source subscribers will be converted to a CompuServe membership. CompuServe will send an ID number and a password to former Source subscribers and include an added bonus of \$20 worth of free time. The online cost will remain the same (\$6.00/hour at 300 baud; \$12.50/hour at 1200-2400 baud).

CompuServe expected to increase its subscription numbers significantly with the buyout. Source representatives estimated a 25-percent overlap between users of the two services, which would translate into an additional 39,750 clients for CompuServe.



Harry Blair

One of CompuServe's transitional tasks is to evaluate and consolidate its offerings. Overlapping services will be eliminated, and features previously unavailable on CompuServe (but sold on The Source) will be incorporated into the new service wherever possible. A new library of files for downloading is being created by merging the thousands of existing files from both databases.

— RICHARD C. LEINECKER

## Tandy to Lotus: Come Home

Tandy's DeskMate graphics interface received a major en-

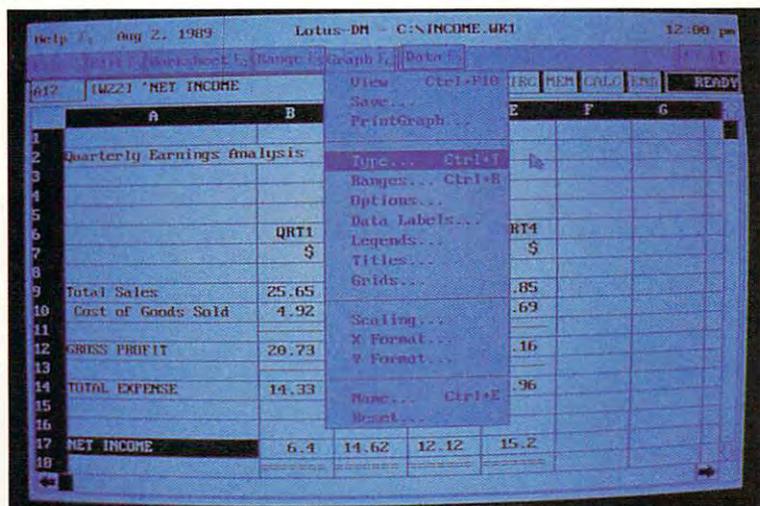
dorsement in August with the announcement of the *Lotus*

*Spreadsheet for DeskMate*, developed jointly by Lotus and Tandy.

The spreadsheet, scheduled to be available in the fourth quarter of 1989, combines features from *Lotus 1-2-3* release 2.01 with the Tandy DeskMate environment. *Lotus for DeskMate* requires 512K of memory and DOS 3.2 or higher, and it offers worksheets of 256 columns × 8192 rows. The program supports the .WK1 file format and is compatible with other Lotus spreadsheet products.

*Lotus for DeskMate* will be distributed through Tandy's 7000 Radio Shack stores at a suggested retail price of \$219.95. A runtime version of DeskMate's graphics interface is included with the spreadsheet.

— KEITH FERRELL ▸



Tandy's popular graphics interface, pull-down menus, and dialog boxes are part of *Lotus Spreadsheet for DeskMate*.

## Soft Sounds on the PC

You'll never confuse the clicks, buzzes, and beeps emanating from the IBM PC's tiny speaker with arcade-hall games.

But you might prick up your ears at Access Software's RealSound, a software technique that plays digitized sounds through a standard PC speaker. The realistic sounds are actual digital recordings.

The first games to use RealSound are Access's own *World Class Leader Board* and *Echelon*. The new version of *World Class Leader Board* adds sound effects like the swish of the ball flying through the air and the solid clunk when the ball rolls into the cup. *Echelon*, a space-flight simulator, has almost 500K of sounds, including an opening musical score; sound effects for the ship's engine, cannon, photon torpedos, and teleporter.

Owners of older versions of these program can get the RealSound updates by sending their original disks and \$10 to Access Software, 545 West 500 South #130, Bountiful, Utah 84010.

—DENNY ATKIN

## PC Glasnost

Personal computers soon may be significantly more available behind the Iron Curtain, thanks to a Commerce Department ruling in July that removed export restrictions on AT-class and similar computers.

The announcement came hot on the heels of President Bush's successful trip to Eastern Europe and was timed to coincide with negotiations of the Western allied 17-nation Coordinating Committee on Multilateral Export Controls. With American approval secured, the Committee removed all export restrictions to the Soviet Union and Eastern Bloc, effective August 15.

Most of the machines

covered by the Commerce Department ruling operate with Intel's 80286 microprocessors or their equivalent. The IBM PS/2 Model 30 and Apple Macintosh Plus are examples of machines affected by the decision.

The Washington-based Computer and Communications Industry Association hailed the move but said that more remains to be done. "This should have been done a long time ago and at higher levels with fewer exceptions," said the group's vice president and general counsel, Ed Black.

Laptops were excluded from the Commerce Department's foreign availability study at the Pentagon's insistence.

—RICHARD KELLEY

## TROUBLE IN THE APPLE ORCHARD

Responding to customer complaints, Apple Computer is offering a repair extension plan on some internal and some external 40-megabyte hard drives.

Installed in some SE's, II's, and Ix's, the drives don't start up properly, according to Apple spokesperson, John Cook. The hard disk icon doesn't appear on the desktop, and you have no access to your files. The affected drives are labeled with serial numbers 335507 through 1023016.

If you own one of these troublesome drives, you are eligible for free repairs through June 1990. If you've already repaired the drive, Apple will reimburse you for the service.

For more information, call (408) 252-2775.

—HEIDI E. H. AYCOCK

## Building a Better Mouse

If a three-button mouse seems like a luxury, try the PowerMouse 100. Its standard two buttons are surrounded by 38 small, programmable buttons.

By writing key-definition tables, you can assign macros and commands to the mouse. A table is loaded into the memory-resident portion of PowerMouse's software. When you want to change the way the buttons work, load a different key-definition table.

PowerMouse 100 requires an IBM PC or compatible with a graphics adapter card, DOS 2.0 or higher, and a serial port. It retails for \$195, and you can get more information from ProHance Technologies, 1307 South Mary, #104, Sunnyvale, California 94087; (408) 746-0950.

—HEIDI E. H. AYCOCK ▸



# How to build a high-paying career, even a business of your own, in computer programming.



**CARL BARONE,  
NRI PROGRAMMER/ANALYST**

**Start with training that gives you hands-on programming experience—at home and at your own pace. Training that begins with BASIC, then continues with Pascal, C, and COBOL—today's hottest computer languages. Training that even includes a powerful IBM-compatible computer, modem, and programming software you keep.**

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## Does It Play Eight-Tracks?

It makes stereos, televisions, and microwaves. Now it makes computers. Emerson, one of the leading home-electronics producers, has leaped into the personal computer market.

The company is counting on name recognition and its widespread home-electronics distribution network to

capture the mass market for computers, said

Al Abrams, an Emerson spokesman.

Emerson's PCs have some features that set them apart from the average PC clone. Among those attributes are a 32-voice Signetics sound chip, MS-DOS 3.3 in ROM, and an online MS-DOS help program that not only displays onscreen instructions, but *says* them as well.

The line includes three models, the 8000EC, a 10-MHz 8088 computer with 768K of RAM and four open expansion slots (\$999 retail); the 8286EC, a 16-MHz 80286 system with 1MB of RAM, SCSI hard disk interface, and four 16-bit and two 8-bit expansion slots (\$1,599 retail); and the 8386EC, which has all of the features of the 8286EC but uses a 16-MHz 80386SX microprocessor (\$1,999 retail).

Emerson will sell its computers through discount electronics and department stores, such as Fretter and Service Merchandise. For more information, contact Emerson at One Emerson Lane, North Bergen, New Jersey 07047; (201) 854-6600.

— DENNY ATKIN

## Conflict in the Classroom

From the safety of their classroom, students can examine the roots of conflict between the Israelis and Palestinians. Last month ABC News InterActive released *In the Holy Land*, an interactive educational videodisc package.

The cost is \$395 and includes a videodisc, *HyperCard* stacks, a printed directory of the videodisc, and lesson plans. The *HyperCard* interface requires a Macintosh with a hard drive and one megabyte of RAM, but the disc player can be operated without a computer. For more information, contact Optical Data, 30 Technology Drive, Warren, New Jersey 07060; (800) 524-2481.

— RICHARD C. LEINECKER

## SOUND-BOARD DUET

Brown-Wagh Publishing repackaged its Creative Music System several months ago as the Game Blaster, a PC music board aimed at computer gamers who want more than beeps and boops. But the company isn't stopping there. At June's PC Expo, it announced that it would also distribute a new music card, code-named "Killer Kard" from San Francisco-based Creative Labs.

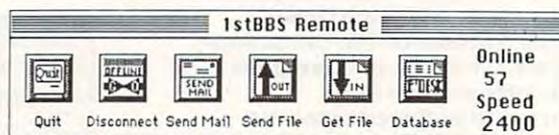
Brown-Wagh co-founder Richard Brown said the two products target different audiences. The 12-voice Game Blaster lists at

\$129, although Brown expected it to be discounted to \$85-\$95.

The Killer Kard, when bundled with the Creative Music System (CMS) software, is for the serious user who needs 23 voices on a stereo board. The number of voices is a combination of the Game Blaster's 12 voices and the 11 voices available on the popular Ad Lib card. Brown said the card is fully Ad Lib-compatible and will retail for \$195.

The Killer Kard uses DMA technology and a proprietary hardware compression routine to keep its memory demands to a minimum. It includes a microphone jack and amplifier jack, joystick port, and MIDI interface. With its editing capabilities, the CMS software synchronizes voice and graphics.

— PETER SCISCO



## MacAnswering Machine

*Hello. You have reached the office of . . .* reads the message on your Macintosh screen. Using 1stDESK Systems' new bulletin board program, you can turn your Macintosh into an answering service, a salesclerk, and a recordkeeper.

*1stBBS* helps you set up a bulletin board where people can log on and leave messages. The information is stored in a database-file format, so you can keep logs of sales, contacts, and appointments. Your associates can access your files, make changes, and add new information from remote Macintoshes.

The program is also designed for any organization that needs to be in contact with a lot of people at odd times.

To contact a Macintosh running *1stBBS*, you must use *1stBBS REMOTE*. If you own *1stBBS*, though, you have an unlimited license to copy the remote program.

*1stBBS* retails for \$195. For more information, call 1stDESK Systems, 7 Industrial Park Road, Medway, Massachusetts 02053; (800) 522-2286. □

— HEIDI E. H. AYCOCK



# LETTERS

## Computer Roots

In your August "Letters" column, Ron Madaras of San Leandro, California requested information concerning a family tree program for the Macintosh. I would like to recommend a program called *Personal Ancestral File*. It is a genealogical management system for home computers which is available for Macintosh and DOS compatibles.

It consists of four programs. The Family Records Program will help you record genealogical information for individuals and families; enter notes and sources for each individual; produce pedigree charts, descendants charts, family group record forms, and sorted lists.

The Research Data Filer Program will help you with your general research. You can document each source you have used, including details about where you found it, what it contains, and its publishing information. You can search, sort, or print your genealogical research information by event, place, date, name of person, or relationship to others.

The Genealogical Information Exchange helps you transmit all or part of your family records from one disk to another. It has a modem communications program for sending and receiving files.

LORRAINE TAYLOR  
PROVO, UT

*The Personal Ancestral File package retails for \$35 and is available for the IBM PCs and compatibles, Macintosh, and Apple II. For more information, contact The Family History Department, Ancestral File Operations Unit, The Church of Jesus Christ of Latter Day Saints, 50 East North Temple Street, Salt Lake City, Utah 84150; (800) 453-3860, extension 2584; or (800) 662-3756 in Utah.*

## Rotten Apple

I was surprised that you rated *PaperClip* for the Apple II (May 1989) so highly. After using the C64 version of the program (most satisfactorily) for

several years, I purchased *PaperClip* for the Apple IIe. There were several bugs, the most serious of which was the inability of the program to print properly. I tried the program on three different Apple IIe's and on a Laser 128 (using the Star PowerType, Apple ImageWriter, and Epson LX-80 and FX-80 printers and three different interface cards). In every case, printout was garbled or the program did not print at all. Upon contacting Electronic Arts, I received a letter stating that the program may be found unsuitable for "some users," and that EA would no longer be supporting the program. I was offered my choice of one of four games as a replacement.

I fail to see how anyone could suggest the purchase of a program that has such a defect, and I cannot understand how such a major bug could escape your observation. If you haven't actually used the program, please don't recommend or suggest it to anyone else.

TERRY MCCREARY  
MURRAY, KY

*The information on PaperClip for the Apple II computers appeared in "Buyer's Guide to Word Processors." The buyer's guides are not reviews, but listings of available products. We try to provide you with as much information about as many products as possible, but we cannot review every piece of software on the market. For this reason, we limit the buyer's guides to objective, fact-based information on a larger number of products and reserve more in-depth coverage for the reviews section, columns, and feature articles. At the time the buyer's guide was written, Electronic Arts was still supporting PaperClip for the Apple II.*

## PC Is Better

I own a Nintendo Entertainment System and an IBM Personal Computer. I enjoy the PC more than I do the NES. The PC seems to be more useful, and if you have one and know how to program, you can make your own games, not just play them.

SAMMY SMALL  
ROY, UT

## MARK 16

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# COMPUTE! SPECIFIC

## MS-DOS

### POWER UP

Laptops are different. They have special problems, and they need special hardware and software to address these problems. Here are ten of the most useful products I've found to keep my laptop running smoothly. If you don't have a laptop, don't stop reading. At least five of these essentials will improve the performance of any computer, desktop or laptop.

First, you'll need a carrying case. There are many available, but the *Traveling Attache* (Traveling Software, 18702 North Creek Parkway, Bothell, Washington 98011; 800-343-8080; \$59.95) has much to recommend it. With its vertical orientation, it fits easily under an airplane seat; it's well padded and sturdy; it's roomy (the external pocket is large enough to hold a portable printer); and it's inexpensive.

You'll need to carry your disks around, too, and an excellent choice is *The Easel Plus* (Innovative Technologies, 5649 La Jolla Boulevard, La Jolla, California; 619-456-0722; \$19.95). This durable carrier holds twenty 3½-inch disks and can sit upright—hence its name. A slot for a business or identification card tops things off.

A modem is a must for most laptop users, but it can be expensive to buy two of these wonders (one for your laptop

and one for your desktop). GVC has a first-rate solution with its 1200- and 2400-baud Mini-modems (GVC-Chenel, 99 Demarest Road, Sparta, New Jersey 07871; 201-579-3630; \$149—1200 baud, \$299—2400 baud). These fully Hayes-compatible modems are aggressively priced, they're sturdy and light (6½ ounces), they run on either battery or AC current, and they can be used with both your laptop and desktop computers.

When you start communicating from a remote location, you may need some help from the *Laptop Survival Kit* (Electronic Specialists, 171 South Main Street, Box 389, Natick, Massachusetts 01760; 508-655-1532; \$149.95). This 14-piece kit contains suppressors for power and telephone lines and an array of devices to help connect the determined communicator. Chief among these tools is a set of alligator clamps that allows you to connect to phones without RJ-11 plugs. You can purchase the entire kit or any of its parts separately.

Communicating by modem is only half of the average laptop's social life. When you're united with your big-iron desktop, you'll want to share files. To do this at high speed, you'll need a special cable and transfer software. There are

scores of transfer programs available these days, including the king, *LapLink*, but if you're interested in a bargain, look no further than *Rapid Relay Easy* (Systems Management Associates, 3325 Executive Drive, P.O. Box 20025, Raleigh, North Carolina 27619; 919-878-3600; \$69.95). This package installs in a snap, it's lightning fast, and it works flawlessly.

The majority of laptops are still floppy-based systems, which means they're slow. An excellent solution to the slow-floppy dilemma is *Floppy-DRIVER* (DTG, 23704-5 El Toro Road, Suite 348, El Toro California 92630; 213-987-2000; \$89.95), a device driver that dramatically increases the speed of your disk drives. This program is a TSR that takes from 18K to 40K of memory and has some interesting additional features. With *Floppy-DRIVER* installed, you can format disks in the background. And, if you try to read or write to an unformatted disk, the program detects this and formats it for you.

While on the subject of speed, every laptop owner needs a cursor enhancer. Even on an 80286, the PC's cursor limps along aimlessly. Here you have several choices. There are two public domain programs that are excellent:

*Quickeys* (for 8088-based systems) and *Turbokey* (for 80286 systems). And, for the ultimate in cursor control, there's *Cruise Control* (Revolution Software, 715 Route 10 East, Randolph, New Jersey 07869; 201-366-4445; \$49.95). If the thrill is gone, one of these programs can get it back.

Once your cursor is sailing along, the next step is to arrange things so you can actually see it. For this, you'll want Ken Skier's *No-Squint Laptop Cursor* (SkiSoft Publishing, Suite 79, 1644 Massachusetts Avenue, Lexington, Massachusetts 02173; 617-863-1876; \$39.95). *No-Squint* makes your cursor big and bold, and it allows you to control its blinking speed, too.

Almost all laptops run on battery power, and there's nothing more frustrating than running out of juice just as a bolt of inspiration strikes. *Battery Watch* (Traveling Software, 18702 North Creek Parkway, Bothell, Washington 98011; 800-343-8080; \$39.95) resolves this problem in an elegant way: It monitors your system and tracks the drain on your battery. Press a hot key and you'll see a gas-gauge-style display that shows you just where you stand with your laptop's power. This package is a must.

Finally, if you travel with your laptop, your screen is going to get scratched. As time goes by, scratches can actually make the screen difficult to read. The solution is *Ultraluculent EL* (Ultrasoft Innovations, 1 Transborder Drive, P.O. Box 247, Champlain, New York 12919; 514-487-9293; \$14.95). *Ultraluculent* comes with a four-ounce bottle of *Ultragloss* scratch remover, a two-ounce bottle of *Antistatic Finishing Cream*, a flannel cloth, and a page of instructions. This product is nothing short of amazing. Don't put up with those scratches any longer. Try *Ultraluculent EL*.

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*"... System Sleuth, an absolutely wonderful new utility... It shows an even better idea than IBM's on how to help the PC user and those who try to keep him up and running."*

—Jim Seymour, PC Week, Dec. 1988

*"... a Great Tool for technical analysis..."*

—Info World, Oct. 1988

*"... This is one of those programs that I didn't know I needed until I got it; now, what with all the hardware I try out around here, I use it all the time, and I can't think how I got along without it."*

—Jerry Pournelle, Byte Magazine, May, 1989

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—Info World, Vol. 11, Issue 7

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—Mark Brownstein, Info World

*"It lets you use unformatted disks with impunity, because it absorbs data into its buffer and lays that data on the disk as it formats... it lets you format floppies in the background, and even read and write them as they are being formatted... not a byte of data was lost."*

—Winn L. Rosch, PC Week

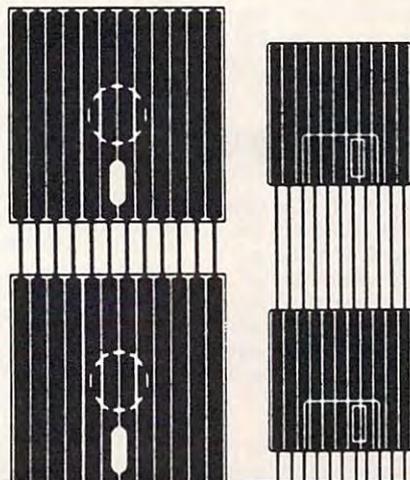
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## Whatta Show

PC Expo in New York boasts everything from glitzy million-dollar exhibits manned by giants like IBM to small, flea-market-style booths run by a company's combination president, chief software developer, and janitor. Amid an atmosphere of heavy wheeling and dealing, the show is traditionally the site for announcements of interesting and unusual new products, and this year's installment—held in June—was no exception.

The most exciting news at the show was IBM's AVC, the Audio Visual Connection. A hardware/software combination, AVC is an authoring system for the creation of digitized video and audio programs. The system can capture sound and graphics, digitize, and manipulate them with powerful tools. What is so impressive about AVC is the sheer ease with which sound and graphics can be captured and edited. If you want to make your own professional videos, this is the product for you. The software and hardware ring up at about \$3,300, but you'll need a PS/2 Model 70 with an 8514/A monitor to run the package, which adds significantly to the cost.

*All is forgiven.* That was Xtree's message at PC Expo. For a limited time the company is allowing users with pirated copies of Xtree, the popular file manager, to register their *pirated* versions. Users who send the company a dump of their Xtree screen and \$20 will receive the latest version of the program and a manual. These users will then qualify for free telephone technical support and upgrades at reduced rates. Code-named SAFE (Software Amnesty For Everyone), the program lasts only 120 days. If you have a shady Xtree hanging around, come in from the cold, send in your \$20, and kiss your guilt good-bye.

## Rated X

Each version of MS-DOS struts improvements and offers new, improved commands. Buried inside the documentation for DOS 3.2 or higher, you'll find one of the operating system's most powerful and useful commands: XCOPY. If you haven't taken a look at XCOPY yet, now's a good time.

When you want to copy the entire contents of one disk, including subdirectories, to another, COPY just won't do; it

only copies the files in one sub-directory. And, if the disks are different formats—a 5¼-inch and a 3½-inch or a ramdisk, for example—DISKCOPY won't work, either. DISKCOPY needs two disks of identical type because it goes through the data track by track, ignoring distinctions between files, subdirectories, and the like.

Here's where XCOPY comes in handy. To copy all files and all subdirectories from drive A to drive B, you'd give the command XCOPY A:\*.\* B:/S. DOS's COPY command would copy the files in the root directory, but not in the subdirectories.

XCOPY has another trick up its sleeve. It can select the files it copies by looking at the archive bit, which tells whether a file has been backed up or not. This means that you can use XCOPY to selectively back up files. The command XCOPY A:\*.\* B:/M copies files that have been changed since the last time you used XCOPY and resets the archive bit. It's easy to build a batch file that copies all altered files from each sub-directory on your hard disk that you normally use.

—Clifton Karnes

## DOS PROMPT

It's what you see when you first turn on your computer. It's the digital doorway that provides access to all those other amazing (and often confusing) things MS-DOS allows you to accomplish. It's a sign of how much a new computer owner needs to learn, as well as a symbol for everything the experienced user already knows. And now, it's the name of a monthly column on MS-DOS matters for beginning and intermediate users, a companion column to Clif's "Power Up," and an integral element of "COMPUTE! Specific." It's a good name. I hope you'll find it an entertaining and educational column.

But who is Jack Nimersheim? More to the point, why should you read him?

For almost as long as *COMPUTE!* has been published, I've been tinkering around with these magnificent machines we call personal computers. I bought my first personal computer, a 16K Atari 400, way back in 1980. It was, as the old saying goes, love at first sight.

That ancient Atari has long since assumed its rightful place in the Nimersheim Museum of Personal Computing, a small

room just off my office that also contains a Radio Shack Model 100 (one of the original laptop computers), an Atari 800, a Morrow CF/M system, a Tandy 1000, a Heath-Zenith PC XT kit I cobbled together with my own limited soldering skills (an incredible learning experience, I assure you), a 300-bps acoustic modem, and several dozen other electronic artifacts that undoubtedly will contribute more than a few paragraphs to the definitive history of personal computers, should someone ever attempt such a tome. Come to think of it, maybe I'll write that history myself.

## Where from Here?

As of now, it's my job to keep you posted on the latest developments in the wonderful world of MS-DOS. And, make no mistake about it, events in that world are moving at the same breakneck pace at which they have been moving ever since Bill Gates shipped his first copy of DOS, way back in 1981. All this despite the increasing attempts of media pundits and assorted other OS/2 oracles to convince us that DOS's days are numbered.

Don't you believe it! With an installed user base estimated at well over 25 million, MS-DOS still dominates the PC marketplace. Rather than drawing its last gasp, MS-DOS is more vital today than ever before in its eight-year history.

Consider the following: Microsoft Windows, largely ignored since its 1984 release, is suddenly stealing headlines from OS/2, as several software companies rush to deliver powerful applications designed to take advantage of this graphics DOS interface. Lotus 1-2-3, which single-handedly defined the lucrative MS-DOS spreadsheet market, now faces serious competition on a number of fronts and is adjusting its own marketing strategies accordingly. Personal Information Managers (PIMs) recently surfaced as the hottest DOS application—but what exactly is a PIM, and how can using a PIM help organize your life? These are just a few of the topics I'll be examining in future installments of "DOS Prompt."

## How You Fit In

Before I close, I'd like to make an observation: Writers rarely are afforded the opportunity of getting to know their audience.

Most of the time, we submit an article to a given magazine, several months later it gets published (if we're lucky), we get paid (if our luck holds out a little longer), and that's the end of it. When you write a regular column for a magazine like *COMPUTE!*, however, establishing a dialogue with your readers isn't only possible, it's unavoidable. After all, whenever I succumb to the temptation to express a personal opinion in this column, several of you will undoubtedly feel a similar urge to respond. That kind of give and take is part of what makes writing a column so rewarding.

If you have any questions, comments or suggestions for "DOS Prompt," I'd like to hear about them. Simply drop me a line, care of the good folks here at *COMPUTE!*. They, in turn, will forward to me each letter they receive. And I, also in turn, promise to read every one of them. Another way to express yourself is to leave me a message on CompuServe's EasyPlex (73017,1122) or DELPHI MAIL (NIMS). Every so often, I'll dedicate one month's column to some of the more interesting suggestions and/or comments you submit, along with any response I feel compelled to tender.

Let me know how I do. As if I had to ask.

—Jack Nimersheim



Games abound this month, and pretty good ones at that. Even though MS-DOS machines are growing in popularity as home computers, some games are still released first for the 64 and 128. That's what an installed base of over 7 million computers does for you.

From Taito (11715 North Creek Parkway South, Bothell, Washington 98011; 604-984-3344; \$29.95) comes *Qix*, pronounced "kicks." Based on the arcade game of the same

name, *Qix* is now billed as "The Computer Virus Game." According to its new description, you are trying to neutralize a *Qix* virus by surrounding it with a vaccine.

In fact, the virus stuff is just a gratuitous description to make the game seem contemporary. *Qix* is actually a puzzle game, albeit a clever and mind-boggling one. A viruslike collection of lines called a *Qix* runs unpredictably around a rectangle that takes up most of the screen. You draw boxes from the rectangle's perimeter in an attempt to color-in parts of the screen to trap the *Qix*. Fill in 65 percent of the screen and the *Qix* is trapped, and you're on to the next level.

The *Qix* will destroy you if it touches an unfinished box. Various other creatures also try to destroy you by chasing you around the perimeter. Screen 1 is easy; screen 2 begins to get tricky. Reach screen 5, and you're either a genius or a joystick whiz.

*Qix* has one very annoying aspect. After each game, the program reloads the title screen, a process that takes far too long. If you could skip this step, the game would be infinitely more playable. Don't developers test their own products?

## We Got a Convoy

*Destroyer Escort* is a new simulation from Microplay (180 Lakefront Drive, Hunt Valley, Maryland 21030; 301-771-1151; \$39.95). Graphically gorgeous, this game simulates the actions of a convoy escort on the Atlantic Ocean during World War II. Your duty as a destroyer captain is to make sure the convoy reaches port safely while you destroy as many enemy ships and subs as possible.

The game gives you a choice of three difficulty levels, depending on how much enemy resistance you want to face. Six missions are available. You can cruise from America to Great Britain, Great Britain to Gibraltar, Murmansk to Great Britain, or take any of these routes in reverse. Heading from America to Britain is the easiest because you have time to get used to the controls before meeting up with a concentrated enemy attack.

A map station yields a strategic map of the North Atlantic or the Norwegian Sea (depending on the mission), while a navigation station lets you guide your ship. At the five-

inch gun mounts, you can fire on the enemy as you see fit. From the anti-aircraft gun station, you shoot down enemy planes (when you aren't attempting to do away with enemy subs at the depth-charge station). The torpedo launch station is where you coordinate attacks against enemy ships, while the damage report and ship's status stations give you information about the condition of your ship and your mission's progress.

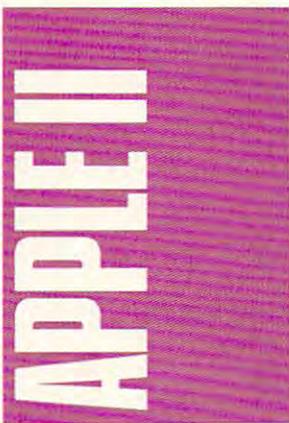
*Destroyer Escort* is a complete simulation that isn't inordinately complex.

## Having a Baal

Psygnosis (Century Buildings, Tower Street, Liverpool L3 4BJ, United Kingdom; \$29.95) has released *Baal*, another graphically rich arcade game. Following in the footsteps of *Barbarian*, this game has you guiding a figure across a series of screens, blasting away at enemies and avoiding obstacles. You are one of a squadron of time warriors, whose mission is to retrieve a stolen war machine from the enemy. Problem is, the enemy is led by the evil Baal, and before you can get the machine, you must destroy him.

Like *Barbarian*, this game is fairly addicting. Its considerable graphics appeal gets you into the game and keeps you going. Unfortunately, also like *Barbarian*, *Baal* is interesting only for a limited period of time. Not a bad game, but it lacks seasoning.

— Neil Randall



The biggest news of the summer for Apple II fans was Claris's announcement of *AppleWorks* 3.0, an impressive upgrade to the II's most popular productivity software package. Scheduled for release by the time you read this, 3.0

should make every *AppleWorks* user a happy camper.

The *AppleWorks* upgrade wasn't developed by Claris, but by another well-known company: Beagle Bros. Flushed from success with its TimeOut series of *AppleWorks* add-ons, Beagle Bros. was commissioned to create 3.0 under Claris's direction. The result is the most significant change to *AppleWorks* since the product's release in 1983.

All three *AppleWorks* modules have been changed. The word processor now sports a spelling checker (reportedly the most asked-for feature by *AppleWorks* users). Version 3.0's spelling checker is faster, is smarter, and uses a larger dictionary than *QuickSpell*, the Beagle Bros. TimeOut add-on upon which it is based. Even phonetic spellings are recognized by the checker, which offers intelligent alternatives. Right justification and an enhanced tab system are two other important additions.

The *AppleWorks* 3.0 spreadsheet offers 26 new functions, ranging from advanced trigonometric to useful financial functions. Even though most of these functions have long been part of nearly every other spreadsheet for nearly every other computer, their arrival in *AppleWorks* is a major event.

Database enhancements include the ability to recall up to 20 report formats and multiple sorting levels.

Some programwide improvements have also been made, particularly in the memory-management, printer, and clipboard areas. *AppleWorks* 3.0 now recognizes all popular memory cards, supports 22 new printers, and lets you directly transfer information via the clipboard between all three modules.

Even with all these changes, however, *AppleWorks* 3.0 still works on a 128K Apple II (though there's only about 40K left for the desktop). The new version can read existing *AppleWorks* files, so transferring data to 3.0 won't be a problem. But, once you've used a 3.0-specific feature in a file, you can't use it with an earlier version of *AppleWorks*.

If you are a registered owner of *AppleWorks* and haven't already been contacted by Claris, call (800) 544-8554 to get upgrade information. The cost to upgrade is only \$79, a bargain for the increased power and convenience of 3.0; the program carries a price tag of \$249 if you're buying *AppleWorks* for the first time.

Claris is to be commended not only for the program itself, but also for the confidence it shows in the Apple II's future.

For more information about *AppleWorks* 3.0, contact Claris at 5201 Patrick Henry Drive, Box 58168, Santa Clara, California 95052-8168; (408) 987-7000.

## Print Anew

Bröderbund Software made *The Print Shop* a name recognized by almost every Apple II owner. Now it's readying an improved version, *The New Print Shop*.

This isn't just an upgrade, but a whole new program. Ease of use has been greatly improved. Users can now backtrack through the design process to make changes. Multiple fonts and multiple graphics can now be placed on a page, freeing users from the simplistic designs of the original *Print Shop*. Other added features in *The New Print Shop* include a calendar feature offering four formats, extra-large poster printing (up to 9 feet X 6½ feet), gift tag-sized cards, and a what-you-see-is-what-you-get preview function.

*The New Print Shop* requires at least 128K of memory and runs on all Apple II machines (there's not a IIgs-specific version of *The New Print Shop*, but the IIgs version of the original *Print Shop* will still be sold). Suggested retail price is \$49.95.

Contact Bröderbund Software at 17 Paul Drive, San Rafael, California 94903; (800) 521-6263 for more information.

— Gregg Keizer



The Amiga could lay claim to being the most versatile personal computer on the market, even if there were no Amiga software. Amiga owners have access to MS-DOS software

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We recommend these two packages of ten disks for those of you who are relatively new to computing. New or inexperienced users should have no difficulty in running these programs, and they will provide fun and valuable utilities for your system without confusing or intimidating you.

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using the Transformer and Bridge Card; they can run Commodore 64 programs with either of two available emulators; and European Amigans can even emulate the BBC Microcomputer, the British government-approved educational computer.

Now ReadySoft (30 Wertheim Court, Unit 2, Richmond Hill, Ontario, Canada L4B 1B9; 416-731-4175) has added Macintosh software compatibility to the Amiga's résumé with A-Max. This \$199.95 emulator includes two disks and a cartridge that can be plugged into either the disk drive port or the back of an external floppy drive.

ReadySoft avoids the legal problems that would be involved with cloning the Mac's operating system by requiring you to plug a set of genuine Macintosh ROM chips into the A-Max cartridge. In addition to a set of 128K Mac Plus ROMs that will cost about \$140, you'll need a copy of the Macintosh system software, which can be purchased complete with *HyperCard* for around \$50 from your local Apple dealer. You probably won't have much luck buying the ROMs from your dealer—Apple sent a letter to its dealers mandating that Apple parts can only be used in genuine Apple products. However, a list of mail-order companies selling Mac ROMs is included in the A-Max package. You'll also need to purchase a Macintosh external floppy drive so you can read and write Mac disks, unless you have easy access to a real Mac for file transfer.

A-Max's software compatibility is excellent. Out of the large number of Macintosh programs I tried, the only ones that wouldn't work on my Amiga 1000 were *Falcon* and some copy-protected games. Because the Mac uses the same 68000 microprocessor as the Amiga, A-Max doesn't suffer the slowdown associated with software-only emulators. As a matter of fact, I found that some Macintosh programs seemed to run a bit faster on the Amiga than on a Macintosh Plus, probably because of the Amiga's display coprocessor.

A complete A-Max system with ROMs, disk drive, and operating system costs around \$550. A used Mac Plus will cost you about \$800. However, A-Max gives you a bigger screen and the ability to use your Amiga peripherals on your "Mac," with only a slight loss of compatibility. If you

have a need to run Macintosh software, give A-Max a look.

## 1.4 in the Distance

As Mac users drool over the upcoming System 7.0 operating system update, of which they've seen only spec sheets, Amiga developers are already working with early Alpha test versions of AmigaDOS 1.4. The 1.4 upgrade will give the Amiga many of the same features that have been getting the Mac upgrade rave reviews, including interapplication communications.

The Workbench will get a major overhaul in 1.4. It has its own window, so you can pull it to the front even with a shell open. The upgraded Workbench will show default icons for programs and drawers with no .info file, list files by name only, allow you to "lasso" icons to copy multiple files, and sport new gadgets, such as a parent gadget.

Other additions include the *ARexx* language for interapplication communications, support for higher screen resolutions using the Enhanced Chip Set and a multisync monitor, a standard file requester, and *FastFileSystem* for floppies.

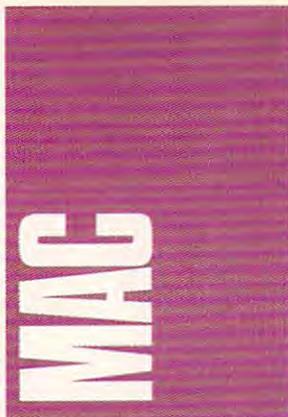
But don't start bothering your dealer yet; the update is in an early stage of development and probably won't be ready until at least early 1990. But as the first *major* operating system upgrade for the Amiga, it should be worth the wait.

## Overseas Invasion

Want the secret to financial success? Simple: Mount your Amiga and joystick in a stand-up arcade-style case, add a quarter slot, and invite your friends over to play *Elite's Ikari Warriors* and *Speed Buggy*.

These British Amiga conversions are extremely faithful to the coin-op originals. *Ikari Warriors* is a Rambo-esque "shoot everybody in sight" game. If you play with a friend, you can work as a team to escape from behind enemy lines. *Speed Buggy* is an arcade driving game. Maneuver your Dune buggy around five obstacle-laden courses in a race against time. The game's graphics are fast and smooth.

You'll need to save up \$39.95 in quarters for each game. For more information, contact Elite Systems, Eastern Avenue, Lichfield, Staffs, England WS13 6RX; (0543) 414188. — *Denny Atkin*



If you liked exploring *the Manhole*, take your next trip with *Cosmic Osmo*. Activision has released a new *HyperCard*-driven story, and it's even better than the first.

Fire up the engines of your spaceship and take off for outer space. To launch your ship, just click on one of the buttons on your control panel. The lights dim, the stars pass behind you, and a crater-pocked planet comes into view. Explore this world and others by clicking on objects such as craters, doors, and pages of books. As in *the Manhole*, each place is linked to others in unusual ways. You enter one room through a book on one planet and leave it through a giant space fish's mouth. The fish seems unrelated to the planet, but, somehow, you've passed through a cosmic portal.

Throughout the hyperjourney, the animation is whimsical and smooth. Click on the flag planted in the surface of the first planet, and the banner waves.

Besides the moving pictures, there's terrific sound. The guns go bang, the phone goes brrrring, and snare drums go rat-a-tat. The synthesized voices are very clear, and each character has its own sound.

*Cosmic Osmo* is good for young children because they don't need to know how to use commands or menus; they just click and go. It's also a fun story for older children and adults.

For information, contact Activision, a division of Mediagenic, 3885 Bohannon Drive, Menlo Park, California 94025; (415) 329-0500. *Cosmic Osmo* retails for \$69.95.

## Silly Rabbit

Math is for kids—and sometimes for talking rabbits. Take *Math Rabbit* for example. He's a whiz at numbers, and he can teach your children arithmetic

acrobatics, too.

The Learning Company has released its popular *Math Rabbit* program for the Macintosh. Using four circus themes, the program leads kids through the fundamentals of numbers: singing clowns teach kids to count, a tightrope practice teaches kids to identify groups, a circus train teaches addition and subtraction, and fortune-telling cards teach kids to match totals to equations.

Every time your child completes a game successfully, *Math Rabbit* leaps around, dances, turns flips, and celebrates in other funny ways. The animation is very good, and some adults might be enchanted by the friendly rabbit before their children get a glimpse.

The real charm of the game, though, is the sound. A woman's voice gives instructions for the game. The same voice says "Uh-oh" when your child makes an error. It's a gentler error message than the traditional beeps or buzzes that you hear in other programs. In the tightrope practice, you drop unneeded boxes into a swimming pool, and you can hear the water splash as they hit.

The program retails for \$59.95. Contact The Learning Company at 6493 Kaiser Drive, Fremont, California 94555; (800) 852-2255.

## From Other Worlds

Electronic Arts has just released *The Bard's Tale, Volume I*, a fantasy adventure game for the Macintosh. Your goal in the game is to assemble a party of adventurers and stop the evildoings of Mangar, a nasty wizard. Your characters have attributes and strengths that affect your progress. You fight battles and wield several magic powers. Of course there's a maze of dungeons, town streets, and towers. *The Bard's Tale* retails for \$49.95. For more information, contact Electronic Arts, 1820 Gateway Drive, San Mateo, California 94404; (415) 571-7171.

Now that *SuperCard* is available, you need a reference book to go with it. COMPUTE! Books has released *The Complete SuperCard Handbook* by Dan Gookin. It retails for \$23.95. You can get more information about this book from COMPUTE! Books, Chilton Book Company, Chilton Way, Radnor, Pennsylvania 19089; (800) 345-1214.

— *Heidi E. H. Aycock* □

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The evil genius Dr. Doom has stolen a U.S. nuclear missile, and threatens to detonate it over New York City if his demands aren't met. The lives of five million innocent people rest on Doctor Doom's two arch-enemies: Spider-Man and Captain America. But this time Doom has created an army of robotic guards, and assembled the most formidable group of Super Villains ever, including Electro, Machete and The Hobgoblin to carry out his sinister plans.

You play the part of both Spider-Man and Captain America, invading Dr. Doom's fortress to save New York from Armageddon. You'll see authentic-looking comic book pages "tear open" for actual combat scenes, where you'll use Spidey's wall-crawling and web-slinging powers — or Cap's amazing shield — to defeat Doom's emissaries. Should you survive all this, you'll then face the evil Doctor Doom himself, an armored madman obsessed with revenge.

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- Varying levels of difficulty keep the game constantly challenging!

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**A** typical morning in the year 2001: You wake up, scan the custom newspaper that's spilling from your fax, walk into the living room. There you speak to a giant screen on the wall, part of which instantly becomes a high-quality TV monitor. When you leave for work, you carry a smart wallet, a computer the size of a credit card. When you come home, you slip on special eyeglasses and stroll through a completely artificial world.

Incredible, but all very

**A WORLD OF  
TECHNOLOGY  
MAKES  
YOUR HOME  
COMPUTING  
FUTURE A  
VIRTUAL REALITY.**

possible. "In the next 11 years, you'll see incredible breakthroughs in the home," says Robert Simon, director of Lotus West, the West Coast R & D center of Lotus Development, maker of *1-2-3*.

Eleven years is an eon in computing. Take a look back to 1978. Apple was still a startup, *VisiCalc* didn't exist, and the average home com-

puter huffed along bravely with 48K of RAM. The IBM PC was three years away; most people had never even heard of personal computers. By 2001, our computers of today will seem just as ancient.

To some extent, the future is always dreamland. We tend to imagine that glamorous technology will arrive sooner, cost less, and run better than it really does. Meanwhile, less-heralded advances steal in and become part of our lives. No one can fully predict the future, but we keep trying. Some of the surer bets:

**PAUL FREIBERGER AND DAN MCNEILL**

## DESKTOP LIBRARIES



"Storage will probably be 50 times what we now have, for the same price," says Tom Lafleur, director of engineering at

Qualcomm, a San Diego, California, satellite communications firm. The secret is erasable optical disks.

These devices will hold vast amounts of data. The NeXT computer already offers an erasable optical disk that holds 656 megabytes of data. Optical disks will popularize desktop libraries, which in turn will alter our whole sense of computing. With instant referencing of thousands of volumes of information, computing will be like working with an army of electronic elves, all ready to fetch in a flash any tidbit you like.

"It'll also allow you to store audio and video," says Phillip Robinson, a computer consultant with Virtual Information of Sausalito, California. "You'll be able to capture segments of a show you like, cut them out, and put them in a video report for school. Look at the NeXT machine. I can see the equivalent of that for \$1,000."

## DISPLAY



High-definition TV (HDTV) offers exceptional resolution, as fine as a motion picture. It has 1125 lines, more than twice

the current 525, and promises photorealistic images and stunning 3-D. The screen is rectangular, rather than square, so you see movies as they were filmed. HDTV will eventually accept digital as well as analog input.

Japan has pioneered this technology, which will almost certainly lead to HDTV computer screens. "Its impact is close to the year 2001," says Paul Saffo, an analyst at the Institute for the Future, a research firm in Menlo Park, California.

Others predict even higher-quality resolution. "The display will be 1500 lines, seamless, with 35-millimeter resolution," says Marty Perlmutter, partner at The Green Street Gang, a San Francisco multimedia firm. But even this forecast may fall short, as MIT's Media Lab is now experimenting with displays of 2000 lines.

## PREPARING FOR 2001

Get a jump on the twenty-first century today by exploring the avenues likely to lead there. For some innovations, like HDTV and voice recognition, you'll have to wait. But other essential building blocks for future computing are here today. Here are some guideposts on your road to the future.

**CD-ROM is appearing** for a broad variety of computers. Several disks contain desktop libraries, hypertext encyclopedias, and video. If you plan to buy a CD-ROM drive, be aware that erasable optical disks will eventually preempt them.

**ISDN is some years away**, but you can already investigate the remarkable world of online services. If you're a novice telecommunicator, you may want to start with Prodigy (run by IBM and Sears), which is available in several metropolitan areas, including New York, Los Angeles, Washington, Baltimore, Atlanta, and Detroit. The service should reach 42 percent of American households by the end of this year and go nationwide by the early 1990s. Prodigy is easy to use and offers a panoply of features: online shopping, news, advertising, stock purchasing, electronic mail. You could sign on to a local BBS, or even tap into one of the giant databases such as DIALOG.

**Desktop video software** makes it easier to create full-motion graphics, an application that will grow in popularity as the power of home computers increases. The many animation programs already on the market provide excellent ground on which to learn the rules of moving pictures.

**Explore object-oriented programming** without waiting for a NeXT computer by learning *HyperCard* or some other hypertext programming application. Plain-English programming languages and graphics-oriented programming languages are setting the stage for the personal software applications of the future. If you want to try the NeXT, visit a local Businessland computer store and see if it has one on display. The year 2001 is still a ways off, but you can make an effort to meet it on the road.

## COMMUNICATIONS



The completion of a nationwide Integrated Systems Digital Network will throw this field wide open.

The data equivalent of the interstate highways, ISDN will simultaneously transmit voice, video, and computer data over existing phone wires. The first segment of ISDN is already in place: It shows the caller's number when the phone rings.

"It'll definitely replace the need to use modems," says Greg Simons, president of Primera Software in Berkeley, California. "The things we enjoy in an office where we hardwire computers, you'll be able to enjoy all around the world. You can have a voice-mail network all around the United States."

ISDN will make giant databases much more accessible. "If I'm going to Seattle and I wanted to read the Seattle paper, I could do it now," says Simons. "Or if I wanted to see what's on TV there, I could see it



HDTV (left) scans almost twice as many lines as current NTSC-standard TV (right) and uses a rectangular screen, resulting in film-quality images.

## THE NEW ELECTRONIC BRAINS

Although once tagged as *electronic brains*, digital computers have never been very brainlike. But research in two areas—*fuzzy logic* and *neural networks*—holds out the tantalizing vision of a more human home computer.

In 1965, Lofti Zadeh, a professor at UC Berkeley, invented fuzzy logic, a way of reasoning about ill-defined notions. It has since grown into an academic discipline with major implications for computers.

Traditional logic analyzes the statement *Bob is tall* by setting a cutoff line, such as 5 feet 10 inches, and matching Bob's height against it. If he stands 5 feet 11 inches, he's tall; if he's 5 feet 9 inches, he's not tall.

In real life, no cutoff line exists. Bob is "very tall," "somewhat tall," "a bit tall." Fuzzy logic captures such essentials by creating partial memberships in *fuzzy sets*. For example, if Bob were 7 feet 2 inches, he might receive a 1.0 membership in the set of tall people—that is, a full membership. If he were 6 feet 2 inches, he might have .80 membership, fairly complete. If he were 5 feet 6 inches, he might have .05 membership, very slight.

Fuzzy logic excels at judgment calls; the world's best chess programs use it. It's reviving expert systems and currently runs an ultramodern Japanese subway, cement kilns, and robots. NASA is exploring its potential for controlling extravehicular space robots and the Mars Rover.

Other scientists are approaching the brain more directly, attempting to mimic it with special machines called *neural networks*. Some have achieved startling results.

Neural networks are composed of numerous identical chips, with a web of synapselike connections between them. As in the brain, these links grow stronger or weaker according to use. They store data as patterns of cell-to-cell connections, as the brain apparently does, and scientists often do not even know where particular items are. But it doesn't matter because data is accessed by content, not by specific address: You reach one memory by stimulating another one associated with it.

Neural networks can perform tricks of association impossible on digital computers. They can function even after partial destruction, though their performance dims. Finally, to the surprise of scientists, they appear to need periods of rest, where they "sleep" and even "dream."

Neural network devices also improve their performance over time. One, called *NETalk*, learned how to read English prose aloud with 98-percent accuracy in only 16 hours and with no programming. Ultimately, these machines might perform such human feats as understanding and summarizing.

Neither fuzzy computers nor neural networks have fully proven their potential, but research is moving apace. If they continue to shine, they may well ornament our desktops by the turn of the century.

right now."

The potential for such hookups is obvious; the fallout, especially for non-computer industries, could be enormous. "Movies will probably be squirted into the home through the telecommunications lines and compressed into eight seconds on the erasable disk in your living room," says Perlmutter. "That'll wreak havoc with the corner video store."

## THE MULTIMEDIA CENTER



"Certainly, by the year 2001, we'll have an integrated home communications center," says Lee Felsenstein, inventor of the first

portable computer, the Osborne 1, and president of Golemic in Berkeley, California. "That will be the home computer, combined with the ISDN telephone connection; the HDTV, which will be happening; the

various information technologies ranging down to answering machines and fax; and general-information utility use."

"I'm frightened to use the term *home computer*, says Nat Goldhaber, a Silicon Valley venture capitalist who makes his headquarters in Berkeley, California. "The computer for the vast majority of people will disappear into this integrated telecommunications device that will be in the home."

Saffo agrees. "The personal computer as we know it will persist longer in the home than in business," he predicts. "But by 1996-1997, they'll start to disappear. They'll become a low-end commodity like the typewriter."

However, Saffo notes that a unified TV, stereo, and computer system will initially be only superficial, a matter of unified control. "Deep, true multimedia is where the computer knows everything that's on the screen. We'll be lucky to get that kind of depth by the year 2001."

## MULTITASKING



By the twenty-first century, multitasking will be everywhere. "A system will be absurdly obsolete without multitasking," says Robinson, "because the computer will be hooked up to a phone line that'll be delivering video images and fax information." It will be like having a pocketful of machines in a single device. Imagine your computer playing an aria in the background as you write, search an online database, or blast space blobs.

## VOICE RECOGNITION



The ultimate input tool, voice recognition could bring computers to almost every level of society. Many observers see it as inevitable by the year 2001. "You'll talk to your TV set, and it'll customize itself and pull things off the air in the categories you told it," says Perlmutter. "'Give me everything on Madonna, everything on Dan Quayle.' It'll look for that and grab it from the 2000 channels it's scanning."

Greg Simons of Primera goes even further. "You'll have the most powerful Sun computer for a thousand bucks retail, and that computing power will be used to give a better interface so [anyone] could use it," he says. "[You] could talk to it, and there'd be a huge flat-panel screen on the wall. It'd be just an appliance, a looking glass into a whole sea of databases, libraries, entertainment services, newspapers, and TV." Such a machine, he adds, could even recognize body input, such as waving hands or swinging a bat.

## INTERACTIVITY



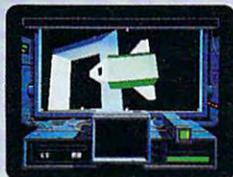
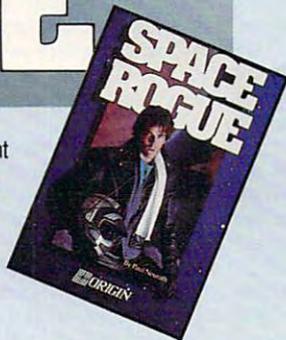
The fusion of computer, optical disk, and HDTV will produce dazzling interactive entertainment. "Instead of watching a movie about the Oregon Trail," Saffo says, "the kids will be able to play the role of a character."

Joel Pitt, senior software designer at JWP Information Systems in Old Bridge, New Jersey, suggests that old movies could be turned into

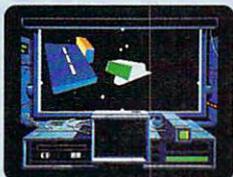


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the cinematic equivalent of adventure games. "I'm sure in some way you'll be able to redo *Casablanca*," he says, "so at the end you could have Colonel Strasser shoot Bogart. Or hold on to Ingrid Bergman."

## REMOTE CONTROL



"Remote control is a big item," Saffo says. "We'll see it on everything that should have it and on a lot that doesn't need it at

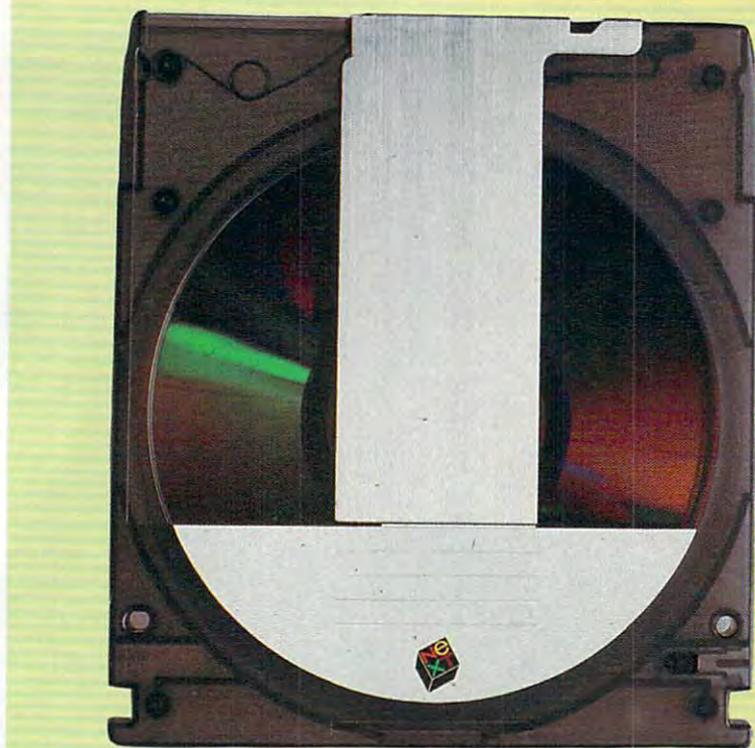
all." By 2001, computers should vaporize annoying VCR controls. "The VCR is much more difficult to use than it would be if a computer were controlling it," says Lotus's Robert Simon. "For instance, you could tell it to record all episodes of a particular series, rather than your preprogramming it." You could also store the shows on optical disk for direct random access, without rewinding.

## INTERFACES



"Software will get more and more humane," says Pitt. "It'll be easier to access, more obvious to the user, more fluent in

terms of its abilities to respond to the coarse level of communication which humans are used to." Icon-based interfaces will be everywhere,



Optical disk storage—like that used today in the NeXT computer—plays a central role in the home computer systems of tomorrow.

and hypermedia tools like *HyperCard* should be more common and simpler to use.

## EXPERT SYSTEMS



lems. For example, it's difficult to

Expert systems were once considered the golden chariot into the future, but they've been plagued by surprising problems. For example, it's difficult to

have a software application make a judgment call without a huge base of knowledge. That takes a lot of software, and a lot of money. But some observers predict a revival.

"I think expert systems will be woven into programs like those that access databases," says Primera's Simons. "Like *HyperCard* with real brains. The classic Alan Kay example is a system that's your buddy, your link to all this data, and it assembles a newspaper for you every day."

For example, such a system could note that when you read the paper you skip the local murders and astrology column, but always go to page 12 for over-the-counter stocks. With that knowledge, it would create a one-page summary of just the news you want every morning. It could also cast its net beyond any one publication, scanning the financial sections of all major papers, selecting the most interesting stories, and serving them up.

"They'll come into the home on something like a fax machine," Saffo says of customized newspapers. He also suggests that expert systems may appear in household appliances. "Servicing appliances is a problem, and I think they'll be increasingly designed with replaceable modules," he says. "We'll see onboard diagnostics, where a consumer can have the washer self-diagnose and indicate which black box to pull out and replace." >

## THE PARALLEL PROMISE

"Everything that happens at the high end is a harbinger of things that come to the desktop," says Phillip Robinson, computer consultant with Virtual Information of Sausalito, California. Right now, the most significant news at the high end is the advent of a long-awaited architecture: parallel processing.

Conventional computers work serially, sending one chunk of data at a time through a single chip. The most obvious route to more power is to place several processors in harness. Already appearing on supercomputers, parallel architecture may well reach the home by 2001.

Until recently, parallel processing has been snarled in the problem of synchronizing the chips. "Critics say, 'If you had to plow a field, would you rather do it with two oxen or a thousand bunnies?'" says Justin Rattner, director of technology at Intel Scientific Computers in Portland, Oregon. "The trick with a thousand bunnies is getting them all to hop at the same time."

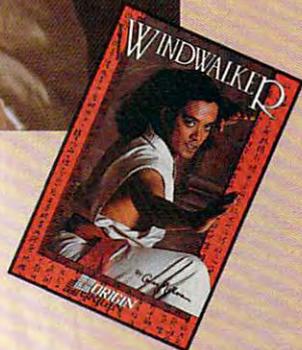
"It takes a lot of software intelligence to know how to split a job up into parts that multiple processors can [perform]," says Robinson, "particularly when the results of a second calculation depend on the first." But software designers are surmounting this obstacle, and observers say parallel processing will soon break into general acceptance at the high end. From there it could be a fairly straight ride to controlling the family's giant flat screen with a slew of processors.

"There will be a lot of information flowing into the home," says Andy Halford, director of software development at Alliant Computer Systems of Littleton, Massachusetts. "You'll be able to get video pictures in windows on your PC, and that might be games for kids, stock-market returns for the investor, video shopping. Travel agents would be able to show you a city. All that requires tremendous computer power, and the only way to achieve that is through parallelism."

# WINDWALKER™



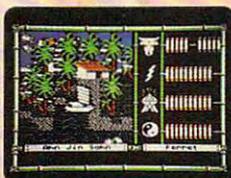
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## HOME CONTROL



"I think, by the year 2001, in some way or another, computers will be at the center of household control," says Pitt of

JWP. Already they're regulating home heating and lights. And with the right mechanisms, says Pitt, your refrigerator could register the food it contains."

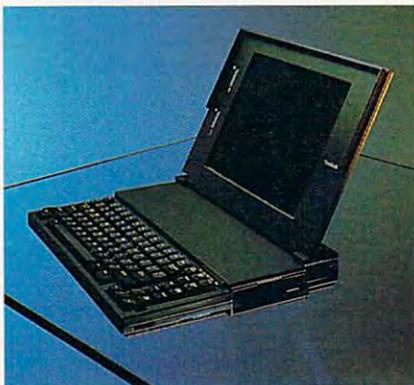
"I think there's going to be a million tiny computers controlling everything in the home that's now controlled mechanically," says John Golini, electronics consultant at Jay Gee Programming in Los Gatos, California. Door locks will be microcontrolled from a keypad; computers could also regulate cosmetic mirrors, changing the amount of magnification and light.

## PORTABILITY



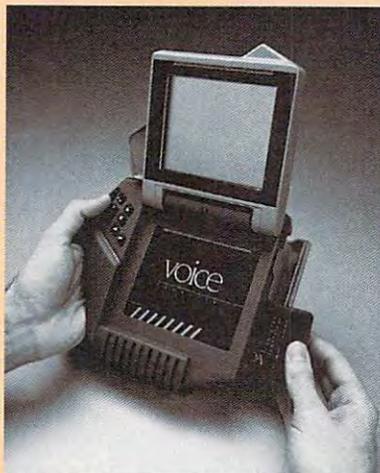
Instead of the notebooks we carried to school, our kids will be carrying computer notebooks. And instead of keyboards, students will use electronic pens and special tablets to jot down their lecture notes. Qualcomm's Lafleur expects we'll have wallet-size computers by the year 2001. "Look at the average wallet," he says. "A dozen credit cards and notes and car insurance information. I'd want something the size of or smaller than a wallet, and all that information available to me. You could call it a *smart wallet*."

students will use electronic pens and special tablets to jot down their lecture notes. Qualcomm's Lafleur expects we'll have wallet-size computers by the year 2001. "Look at the average wallet," he says. "A dozen credit cards and notes and car insurance information. I'd want something the size of or smaller than a wallet, and all that information available to me. You could call it a *smart wallet*."



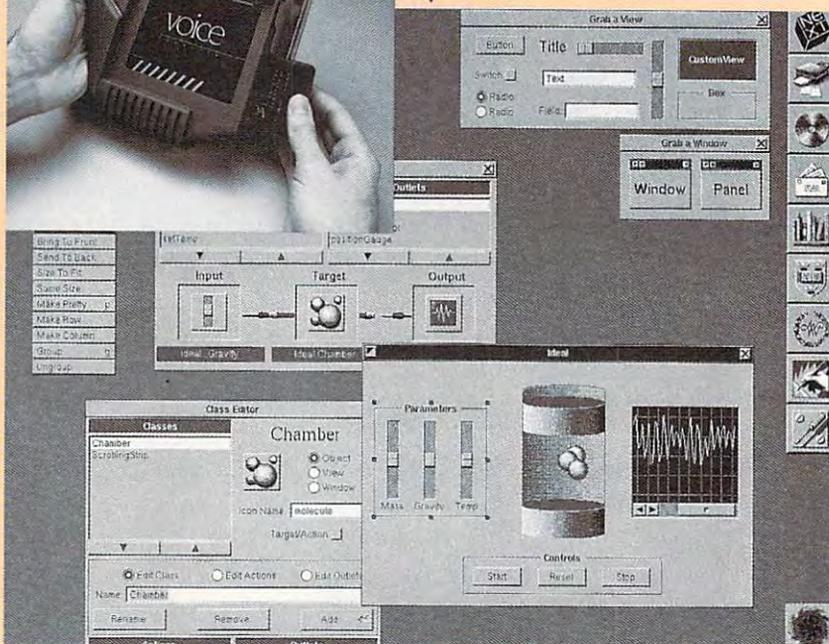
Spiral notebooks give way to notebook computers like the Dynabook, from Dynabook Technologies.

## FUTURE SPEAK



Advanced Products and Technologies' Voice speaks volumes.

Writing code becomes more intuitive with object-oriented programming.



If you want to move into the future, you've got to talk that talk. Here's a few terms to loosen your tongue:

**Compact Disc—Read Only Memory (CD-ROM)**—Compact discs that store hundreds of megabytes of data and can't be written to or erased.

**expert systems**—Customized computer systems that recognize and retrieve information based on the user's own preferences and a preprogrammed base of knowledge.

**fuzzy logic**—A system of logic that gives tangible parameters to normally fluctuating values and judgments.

**high-definition TV (HDTV)**—A motion-picture-quality television that boasts 1125 lines (instead of the conventional 525 lines) and a rectangular (not a square) screen.

**Integrated Systems Digital Network (ISDN)**—A nationwide network that will use existing telephone lines to transmit voice, video, and computer data.

**multimedia**—The integrating of audio, video, graphics, and communication technologies within a computer system.

**multitasking**—The ability to perform more than one function at a time.

**neural networks**—A series of identical chips with synapselike connections, similar to the brain, that strengthen or weaken according to use.

**object-oriented programming (OOP)**—A method of programming in which blocks of code are represented by icons and can be manipulated to create applications.

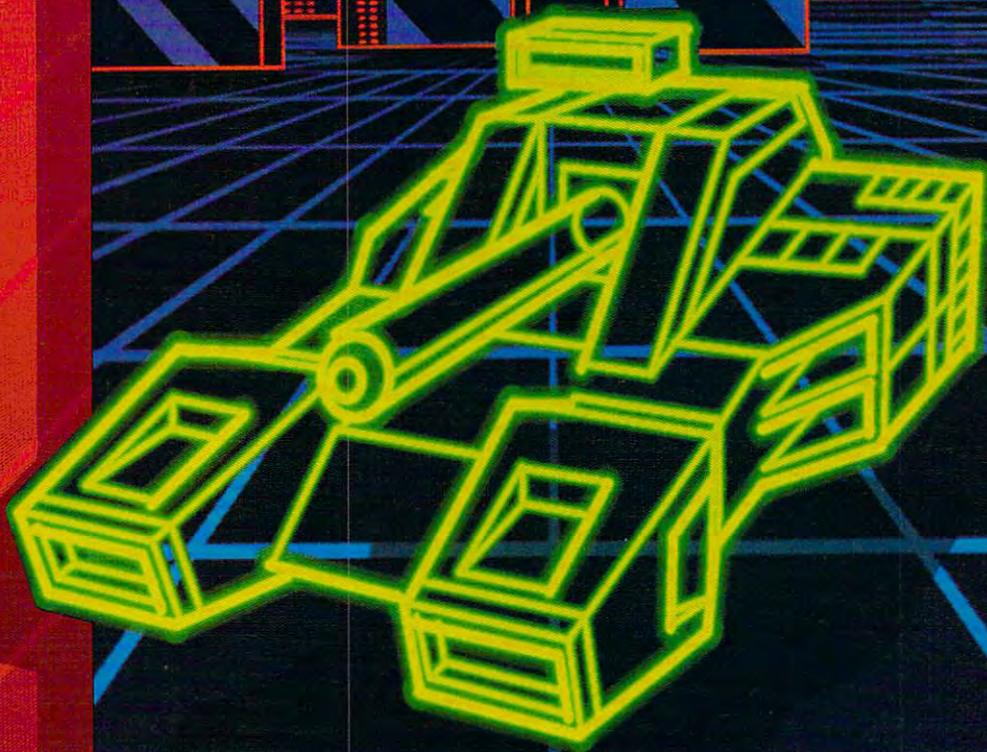
**parallel processing**—A method of computing in which multiple processors are assigned separate, interdependent pieces of a larger computing task.

**virtual reality**—An artificial world of experience created through use of computerized devices and controlled simulations.

**voice recognition**—A computer input method through which computing systems and electronic appliances are activated or controlled by voice or audio commands.

— Jeff Sloan

# OMEGA™



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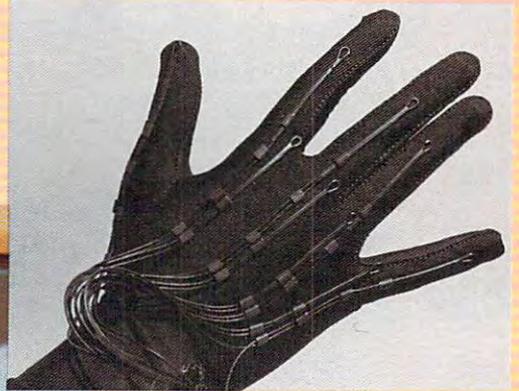
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## BRAVE NEW WORLDS



Virtual Reality: the creation of artificial worlds of experience. VR devices place you inside a controlled hallucination—the ultimate simulation.

"We've designed computerized clothing you wear over each of the sense organs," says Jaron Lanier, CEO of VPL Research in Redwood City, California. For example, EyePhones is a heavy pair of glasses, rather like a scuba mask. Put them on and find yourself transported to a new 3-D environment. Don a DataGlove, extend your hand, wiggle two fingers, and you can walk through that scene. If you want, reach down and pick up a virtual object.

Beyond entertainment, virtual reality could serve a variety of other uses, such as neuromotor training. "My favorite example is juggling," Lanier says. "You can make the balls move slowly at first, then speed them up as you get better. In education, you could pick up molecules and turn them around in your hand. If you want to shop from home, you could try out new houses, new cars." Lanier is currently working with Autodesk of Sausalito, California, maker of computer-aided design programs, by using

the glasses and glove to "walk" through *AutoCAD* files as if they were actual buildings.

Virtual reality has social aspects, too. "It's kind of like a costume party," Lanier says. "You can choose your own appearance and create shared worlds with other people. I see it as a social medium over the telephone, where people will have collective parties in virtual reality."

Author Stewart Brand notes that today's movie theaters provide a kind of immersion in a virtual reality, and people go to them partly for that experience. "But [VR] is as much of an immersion as you can get without piping into your nervous system," he says. The experience is so compelling that the threat of virtual addiction could itself become a reality.

Currently, the glasses and glove are very costly, though VPL Research has licensed the technology to Mattel for a low-level product called PowerGlove, which will act as a controller for Nintendo games. But Lanier expects VR to be common consumer technology in the next decade.

## O U T P U T



Declining prices will make laser printers a familiar feature in the home; dot-matrix printers will slip into oblivion. CD-ROM and other computer optical discs will equal audio compact disks in sound quality. But future computer output may be even more sophisticated than printing or sound.

Primera's Simons suggests an output device that resembles a pair of glasses that can be slipped on anywhere for instant access to information.

We can expect to see better scanners, faster chips, more special-purpose chips, optical wiring, software that encompasses several applications under one roof (the integrated packages we use today are the forerunners), hypertext encyclopedias, and an array of innovations far be-

yond the power of prognostication.

The future, as *The Amazing Kriswell* informed us in *Plan Nine from Outer Space*, is where we'll spend the rest of our lives. If our experts are right, it should be a remarkable sojourn. □

Paul Freiberger is coauthor of *Fire in the Valley*, one of the first books to detail the history of personal computing. Dan McNeill has written several books and articles on the development of personal computers.

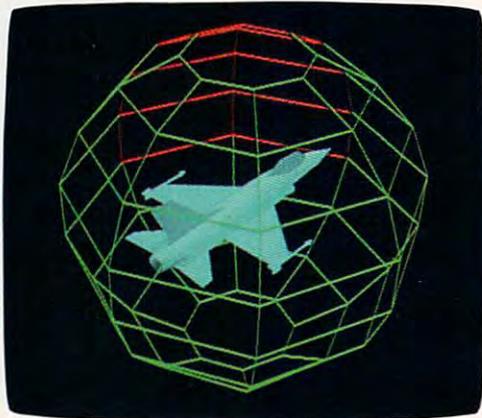
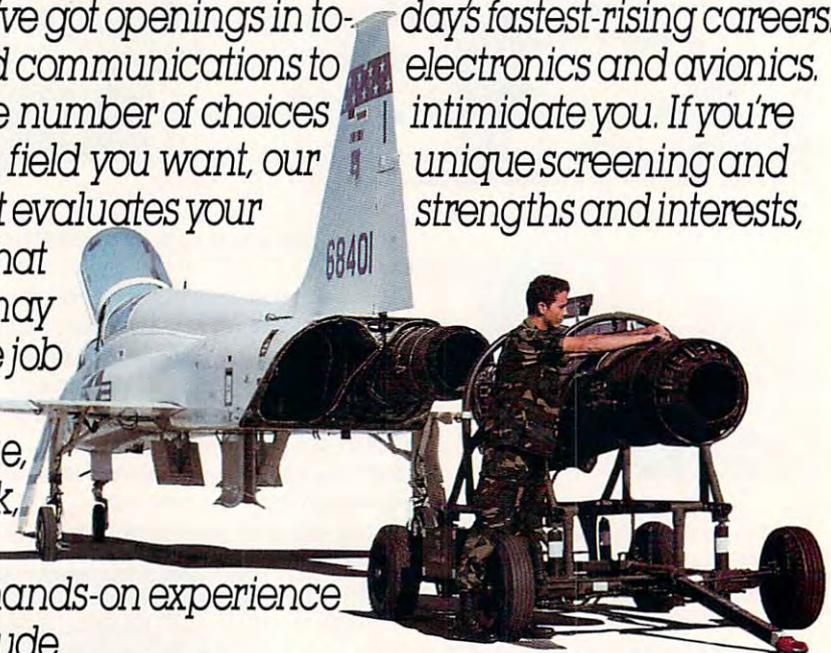


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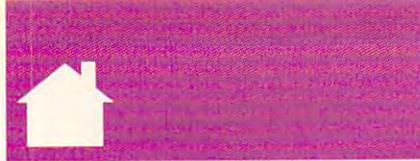
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# IN FOCUS

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# HOME COMPUTING EXPLOSION

AMATEUR

ROOKIE

PRO

ALLSTAR

# WHAT'S YOUR TYPE

Forget about how



user-friendly



your computer is.



How computer-friendly



are you?



Take this quiz



and find out.

Discover Your Computer Personality

Heidi E. H. Aycock

**A**ll of us have an alter ego, a secret identity. It's called the *computer personality*. You leave your computer on whenever you're home, but your neighbor shudders at the thought of turning on his printer. You have a five-command DOS vocabulary, but your 12-year-old daughter is already hardcoding EEPROMs.

There's no trick to using computers. There's no secret code, no special password. Experience, curiosity, and a little confidence are all you need to get closer to your silicon sidekick.

Find out where you stand in relation to your computer. Are you an 8088 double-floppy fidget fingers or an i486 32-bit bus burner? Maybe you fall somewhere in between. *COMPUTE!*'s home computing test can help you find your place. Some of our questions deal with how you use your computer; others refer to what you know about your machine.

For each question, pick the best response for you. Then, check out the scoring section. When you've finished there, you can explore our many suggestions that tell you how to move from your level to the next.

Hang on to this quiz. A few months from now, you can look at it again and see how much you've advanced. You'll be surprised at your progress.

### I'm OK. You're OK. My Computer's OK.

#### How Do You and Your Computer Get Along?

- How many times do you turn on your computer during the day?
  - I turned it on once, panicked, then shoved it into the attic.
  - A few hours, a few days per week.
  - If I'm home, my computer's on.
  - The last time my computer was off was during a blackout.
- What programs do you use?
  - A word processor and some games.
  - A word processor, some other productivity packages, some games, a graphics package, a memory-resident calendar, and a DOS shell.
  - All of the above plus a hard disk backup program, a memory manager, and a telecommunications program.
  - Modula 2, Turbo C, or some other high-level programming language, and a debugger.

- Do you read software manuals?
  - I read them all the way through before I try a new program. I keep it in my lap the whole time.
  - I use them to install programs. I check the table of contents for new concepts and read about the unfamiliar ones. Then I dive in, using the index when I need help.
  - Unless I'm stuck, I ignore manuals.
  - I don't look at manuals except to find out how to declare a data type.

- How do you deal with problems? For example, if you issue a print command and nothing happens, what do you do?
  - I issue the command again. If it doesn't work, I issue it again and again and again. I've replaced my return key four times this year.
  - I issue the command again. If it doesn't work, I start reading the manual.
  - I save my file; then I check the power switch, the online light, and the paper supply. If everything's in order and I still don't have a print-out, and I can't find the answer in my manual, I call tech support.
  - I save my file, check the switches, lights, and paper. Then I grab my tool kit and my printer specifications. The doctor is in.

- Your four-year-old son just hit the delete key and erased the entire directory of files. What do you do?
  - Not notice because I've never figured out what a directory is.
  - Pull out my backup floppy disks and copy their contents back onto my hard disk.
  - Boot up my trusty *Norton Utilities* and rescue the lost files.
  - Use the DEBUG command to reconstruct the RAM contents, and use EDLIN to write my own data-recovery program.

- How well can you use DOS?
  - What's DOS?
  - I can get a directory, start a program running, and copy files.
  - I use it when my DOS shell doesn't provide the tools I need.
  - DOS! I don't need no stinking DOS. I've got machine language.

- How many computers do you own?
  - One.
  - One, but I wish I had more.
  - More than one. An MS-DOS machine for serious work, a laptop for working on the road, and an old 8-bit whose CPU I know well.
  - More than one. I use PC clones or Macs because they're so common, Amigas or STs because they're so beautiful, and Commodores, Apples, or Atari 8-bits because they're so simple.

### KEEP ON LEARNING

In this article, we've explored several avenues that lead to the top of the computer-expertise ladder. But the list goes on. Everywhere you look, there's a way to get more involved with your computer.

Take classes at your local community college. Some computer-consulting firms offer courses, too. You can study microcomputers generally, delve into a new software package, or (go ahead, take the plunge) learn to program.

If you're an experienced computer user, take off in a new direction—artificial intelligence or robotics, for example. If you're an Amateur or a Rookie, take up desktop publishing or tax programs.

Amateurs and Rookies can tune in to "Computer Chronicles," a PBS series about information technology. Also, if you're ever in Boston, the Computer Museum presents a fine computer retrospective as well as a look into the future.

PC Pros and All-Stars can volunteer their time to a local service organization. Most groups need people to keep records, manage finances, produce literature, and so on. You could provide this help with your computer skills. At the same time, you would add to your own experience and broaden your perspective. After all, that's what computing is all about: expanding your personal horizons through the use of technology.

- How do you back up your data?
  - I don't.
  - On a regular basis, I copy all my files to a reserved set of floppy disks.
  - I use a commercial backup utility.
  - I use my own, home-brewed backup utility.
- Can kids use computers?
  - No; computers are too complex.
  - Yes; anyone can use a computer.
  - No; kids are too complex.
  - Yes; I'm a kid.
- What do you call your computer?
  - Sir.
  - Pal.
  - HAL.
  - I don't call it, it calls me—*master*.

### In the Know

#### How Well Do You Know Your Computer?

- What's DOS?
  - I don't know DOS, but I'm taking a tai chi class.
  - An acronym for Disk Operating System.
  - A list of computer commands that catalog programs.
  - A chip inside my computer. >



# HEAVY METAL HEAVY MENTAL

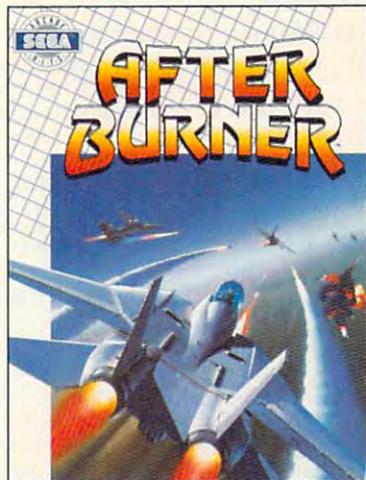


# AFTER BURNER

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?

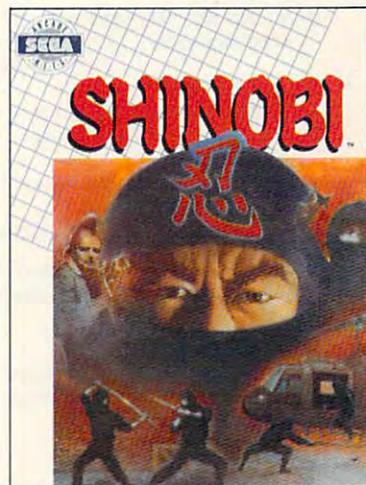


# SHINOBI

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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**AMATEUR**

12. What's an AUTOEXEC.BAT file?  
 A. A set of startup instructions performed by DOS each time I boot.  
 B. A DOS file of business contacts.  
 C. A set of configurations for my memory and hardware ports.  
 D. A set of rules for writing PC programs.
13. What's the difference between CGA, EGA, and VGA?  
 A. Each works on a different brand of computer.  
 B. The number of video ports required.  
 C. One's the Cruddy Graphics Adapter; one's the Expensive Graphics Adapter; and one's the easy-to-install Velcro Graphics Adapter.  
 D. The number of colors available, graphics resolution, speed, and price.
14. Can you share word processing files with friends who don't use the same software as you?  
 A. Yes, as long as the files were created on a PC compatible.  
 B. Yes, as long as I can save files in ASCII format or in another format compatible with my friends' word processors.  
 C. No. My files only work on my computer.  
 D. No. My files only work with my word processor.
15. What's a macro?  
 A. A keyboard vacuum cleaner.  
 B. A set of standards for video display.  
 C. A set of instructions activated by one keystroke.  
 D. A computer model of an edible fish.
16. What's the difference between an XT, an AT, and a 386 computer?  
 A. The microprocessing chip.  
 B. The keyboard.  
 C. Whether or not there's a mouse.  
 D. How many colors the monitor displays.
17. What's a DOS shell?  
 A. A program that saves electricity.  
 B. An interface that provides the power of DOS without the complexity of the A prompt.  
 C. A printer driver for color output.  
 D. A video standard for animation.
18. What's the best way to keep a power outage from destroying your data?  
 A. Save your work every 15-20 minutes.  
 B. Say a prayer before you turn on your computer.  
 C. Keep the Caps Lock key down while you work.  
 D. Plug your computer into a power strip.

**ROOKIE**

19. What are TSRs?  
 A. TSRs are printers that *take some risks*, meaning they're harder to use but give sharper output.  
 B. TSRs are games that *turn some radical*, meaning they instill left-wing sympathies in players.  
 C. TSRs are *tape system regulators*, meaning they manage backup tape-drive systems.  
 D. TSRs are programs that *terminate, but stay resident*, meaning they hang out in RAM, but they surrender control to DOS until summoned by a certain keystroke combination.
20. What's the difference between conventional, expanded, and extended memory?  
 A. Conventional memory is the 640K of RAM that DOS can access, expanded memory is bank-switched memory, and extended memory is available only with ATs and 386 machines.  
 B. Conventional memory stores common commands, expanded memory stores unusual commands, and extended memory stores user-defined commands.  
 C. Conventional memory stores information in groups, expanded memory stores information in large pieces, and extended memory stores information in long strips.  
 D. Conventional memory is stored in RAM, expanded memory is stored in ROM, and extended memory is stored on disk.

**Settling the Score**

In the first section, "I'm OK. You're OK. My Computer's OK," there are no right or wrong answers. Your responses simply show how comfortable you are with your computer, how often you use it, and how adventurous you are.

- For every A you chose, give yourself two points.
- For every B, give yourself four points.
- For every C, give yourself six points.
- For every D, give yourself eight points.

For every question in the test's second section, "In the Know," there's only one right answer among the four choices. For every correct response, give yourself five points.

11. B: On PC compatibles, the disk operating system is known as MS-DOS or PC-DOS. It acts as a translator between hardware and software.
12. A: A batch file is a series of MS-DOS commands that is executed when you type the batch file's name and then press the Enter key. An AUTOEXEC.BAT file is a special

**PRO**

kind of batch file because it's executed when you boot the machine.

13. D: CGA (Color Graphics Adapter) boards provide the lowest-quality color graphics on an MS-DOS computer, but they're cheaper than EGA (Enhanced Graphics Adapter) and VGA (Video Graphics Array) boards.

14. B: ASCII is a common code used for text files when they're shared between different programs or micro-computers. It doesn't retain special formats like columns and italics, but it gets the job done.

15. C: Macros are most useful for repetitive tasks that can be gen-

**ALLSTAR**

**TELECOMMUNICATIONS:  
Contact with the  
Outside World**

If you haven't yet stepped into the world of telecommunications, try connecting with a BBS or a communications service.

BBSs are electronic bulletin boards, forums for people with common interests. Using your computer and a modem, you can link up with other people who share your fascination with Brazilian mythology or stamp collecting or British mystery writers—whatever you're interested in. There are around 5000 BBSs in the United States.

Whether you're an Amateur or an All-Star, you can learn a lot from the other people who are logged on. If you're really confident with your computer skills—listen up Pros and All-Stars—you can start your own bulletin board with an old computer.

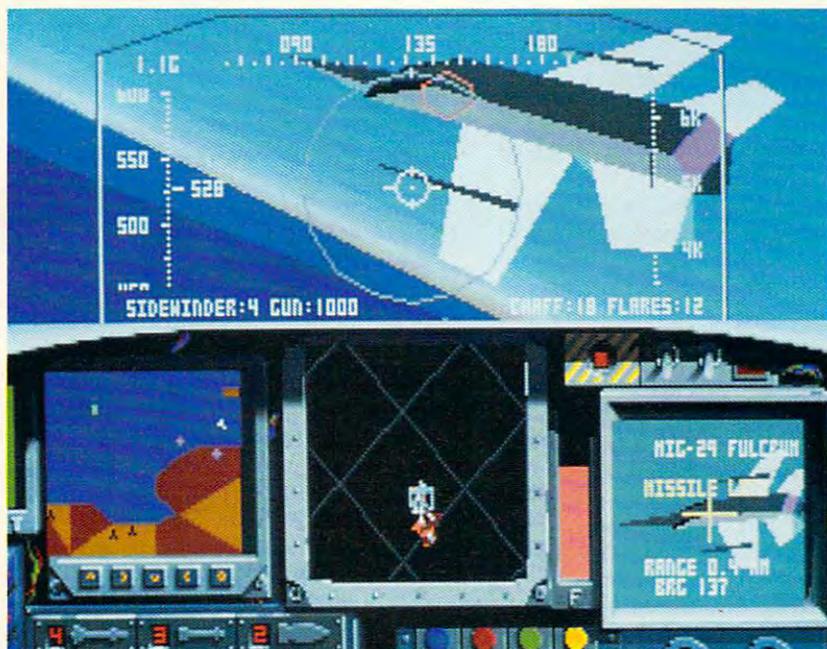
For a directory of BBSs, try the *1989 BBS Bible* from Bubeck Publishing, Box 104, Collegeville, Pennsylvania 19426; (215) 287-6356. For information on starting your own BBS, hook up with a sysop (system operator) on an established board and ask questions.

Besides BBSs, there are several communications services: CompuServe, The Source, GENie, PC-Link, and Prodigy. Each service has several forums about computers, as well as online groups that discuss noncomputer subjects. If you're a Pro or an All-Star, you can be a valuable resource for people who bring questions to these forums. If you're an Amateur or a Rookie, these forums offer valuable tips. A good BBS is also the place to find public domain software and shareware.

For a book about these services, try *Guide to Commercial Telecommunications Services*, by Jeffrey Hsu. Contact Prentice Hall Computer Books, Simon & Schuster Reference Division, One Gulf + Western Plaza, New York, New York 10023; (212) 373-8140.

# Introducing F-15 Strike Eagle II.

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An intelligent combat console lets you engage the enemy with the touch of just one button. And the optional "Director" mode

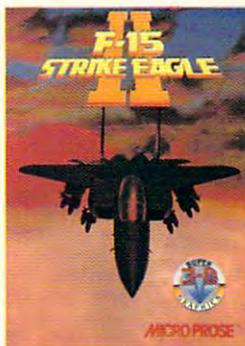
automatically selects your best camera angle. So you can concentrate on the action: scorching dogfights with bogies that swarm the sky!

And all the choices are yours. F-15 Strike Eagle II has four levels of difficulty, take-off and landing options, a no-crash mode for novice pilots, even a built-in combat training demo.

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Just For Fun.

## AMATEUR

eralized enough to work in many files.

16. A: An XT has an 8088 chip, an AT has an 80286 chip, and a 386 machine has—you guessed it—a 80386 chip. The chip dictates how fast a computer can process information. Among these three, the XT is the slowest and the 386 is the fastest.

17. B: DOS shells are designed for people who don't like the traditional DOS interface. You have access to DOS commands but information is presented in a friendlier way.

18. A: If the power goes out and you've saved your work every 20 minutes, at worst you'll have to reconstruct only 20 minutes worth of work.

19. D: TSRs are designed for convenience. With a keystroke, you can call up an address book, a thesaurus, or some other nifty program. Although they add power to your computer, they also eat up RAM.

20. A: Conventional, expanded, and extended memory are all types of RAM, dynamic memory that temporarily stores information while your computer is on.

## Find Yourself

**If you scored 0–25 points, you earn the rank of PC Amateur.**

An Amateur presses the return key with great trepidation, convinced that one of the computer's function keys engages the self-destruct sequence. To the Amateur, DOS is a dark and loathsome beast, lurking somewhere in the computer's housing. Manuals are cryptic riddles and RAM chips are rune stones.

To graduate from Amateur status, you have to experiment. Create disposable files. Try to destroy them. Try to lose them. Save changes that you've made one time and don't save changes the next. As long as you don't use a hammer or a bucket of water, you won't do any permanent damage to the computer.

Learn to view DOS as a file manager, not as some evil force to be reckoned with. Learn the difference between software and hardware, operating systems and applications, the A drive and the C drive. When you stop to consider what a manual's instructions mean, instead of just following its orders, you're ready to move on to Rookie status.

## ROOKIE

### Recommendations:

PC Amateur books (See "Resources" on page 66)

Online tutorials (See "Resources" on page 66)

Computer classes (See the sidebar on page 33)

User groups (See "Resources" on page 66)

Computer-oriented television shows (See the sidebar on page 33)

**If you scored 26–85 points, you qualify as a PC Rookie.**

You know where to look for information. You know how to boot up new software. You know what to check when your printer doesn't work. In short, you understand your computer, even if you don't feel particularly secure with other systems and other software.

Moving up from PC Rookie status requires a deeper understanding of all computers and all software. If you have a favorite word processor, try a new one and see how the commands parallel each other. If you and your friends have computer questions, try to find the answers together, rather than asking a more experienced user. Find out which PC configuration is best suited for the kind of work you do. Learn to customize your system with AUTOEXEC.BAT and CONFIG.SYS files.

If you remain forever in the PC Rookie stage, you'll be OK. But you'll find computers can be more fun and more helpful if you increase your knowledge of them.

### Recommendations:

PC Rookie books (See "Resources" on page 66)

Experimentation with new applications and utilities (See the sidebar on page 33)

Classes on specific applications (See the sidebar on page 33)

User groups (See "Resources" on page 66)

**If you scored 86–114 points, you qualify as a PC Pro.**

You understand the whole system, and you can usually sit down at any computer and make it whir and hum—from PCs to Macintoshes to Suns to NeXTs. You're a good resource for the less-experienced users. To you, the computer is a helper, happily exploited.

To be a PC Pro is to reside in computer Nirvana. You're seldom lost or confused, novices look to you for guidance, the boss thinks you're

## PRO

on the fast track. However, there's always more you could learn.

### Recommendations:

Read reference books (See "Resources" on page 66)

Take a leadership role in a user group (See "Resources" on page 66)  
Join a special interest group (SIG) in a user group (See "Resources" on page 66)

Volunteer your computer skills to a service organization (See the sidebar on page 33)

Log on to a bulletin board for advanced users (See the sidebar on page 36)

**If you scored 114–130 points, you qualify as a PC All-Star.**

Unless you live near a research facility, you may never have seen a PC All-Star in person. They go from their computers at work to their computers at home, quick as bits through a bus. Their pasty white complexions belie their comments about their latest picnic in the park or their tennis game. While the rest of us are living, the PC All-Star is hacking away in a basement lab.

We need our All-Stars. They write the software that we use. They design the research tools we use to fight disease. They work with raw numbers that would devour even the most confident PC Pro.

But listen up, All-Stars: Computing isn't everything. If you spend more time with your computer than with anything else, develop some new interests. Find a team sport. Donate some time to a children's group like Special Olympics or Girl Scouts. Shop at the mall, for crying out loud—you might find out who Tiffany is. Your computer needs human input, sure; but you need it even more.

### Recommendations:

Start a bulletin board for advanced users (See the sidebar on page 36)  
Become a guide for new members of a user group

Try a new operating system

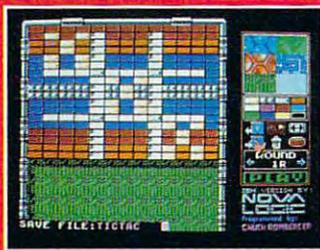
Try a new language

Take up neural networks as a hobby

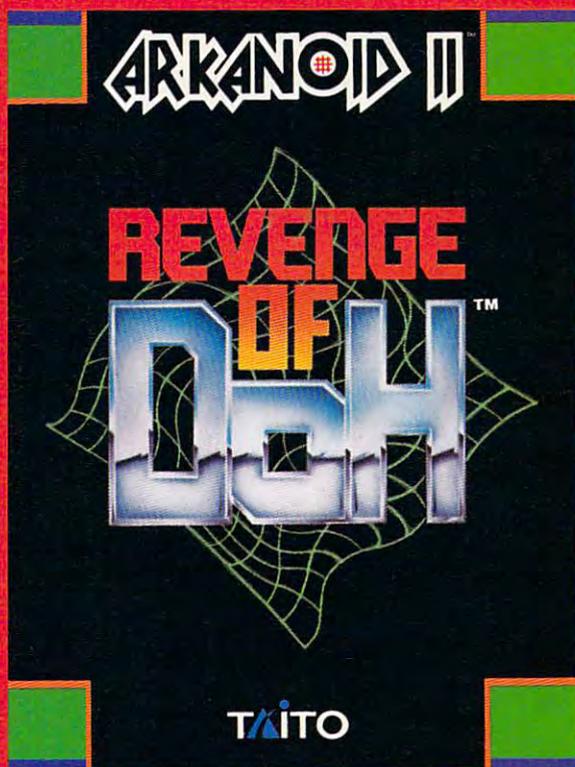
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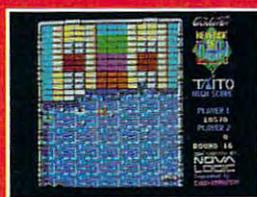
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# MY VIEW

L A R R Y B L A S K O

## A DECADE INTO THE BIG BANG

### COMPUTERS BECOME THE HOME APPLIANCE OF THE 1990s

**B**ack in the beginning, Apple, PET, and TRS-80 frolicked through the Garden of Home Computing. And there were simple, gentle games for simple, gentle computers and simple, gentle hobbyists.

Now it's 1989, and the Garden has been paved. Games have become "simulations" with 100-page technical manuals. The IBM PC AT and MS-DOS are as simple and gentle as a combat jet. Is this progress?

It is if your definition of progress means home computers are less a novelty and more an accepted household tool. For five years as a home computing columnist, I've received a steady flow of letters from across the nation; most ask how to get a computer to do some particular chore. These people don't want to hear how the computer does what it does any

more than they want to hear how their refrigerator keeps food cold. In short, they see home computers as household appliances.

Look at the numbers: It's estimated that there is one computer for every five citizens. A home computer inhabits one of every five households. The *Computer Industry Almanac 1989*, by Egil and Karen Juliussen (Brady Books: New York), projects that more than 10 million personal computers will be sold in the United States this year. Compare that with the estimated 50,000 in 1970—mostly IBM mainframes.

Those numbers represent an intensely competitive industry. When asked how many Tandy computers were in the hands of PC users, CEO John Roach said, "4 or 5 million," a deliberate bit of imprecision.

Personal computers may be almost as common as appliances, but they're infinitely more powerful. And we take that power for granted. The up-and-coming home computer is an AT-class clone, which just five years ago was the corporate muscle machine. We're also taking lower prices for granted; for example, you can spend around \$150 for a second 3½-inch floppy drive (adding 720K of storage), or you can get 20 times more storage from a 20-megabyte hard disk for just twice as much.

So what do we do with all that power? Mostly, we play games. The Software Publishers Association says 57 percent of last year's consumer software sales were in the recreation category. The balance of the \$465 million in sales were split almost evenly between general home productivity software and educational programs.

Competition, lower prices, and more power provide a wealth of good vibrations in the home computing arena. But it could be better.

First, there has to be a better user interface for home computers. At best, MS-DOS demands some understanding of what's happening inside the box. Home users don't care. They just want to make it happen. Tandy's

DeskMate interface is beginning to make some inroads, but it's still a small bucket bailing a sea of hostile A: prompts. A user interface goes far beyond any one machine. Anyone who uses more than one of the mass-market telecommunications services would welcome a single and simple means of navigation.

Another area needing improvement is standards. Never mind operating systems and bus architectures; we would all curse less and compute more if standards for keyboards, mice, monitors, cables, printers, modems, and other peripherals were as enforced as big-city parking laws.

Let's also please fix the documentation, which is an engineer's word for *instructions*. About 20 percent of the nongame software I get for review comes with manuals guaranteed to baffle the average user.

Finally: lower prices. Even though you can get more and more computer for less cash, it's still hard to put together a good system for less than \$1,000. That's three times the cost of a color TV, five times the cost of an intelligent typewriter.

Almost ten years ago, my personal computer had 4K of memory and used a cassette tape for storage and a color TV as a monitor. I'm writing this article on a Tandy 1000 SX, with 160 times the memory, a 20-meg hard drive, and an RGB color monitor. And that's not state of the art. After ten more years, my current rig will seem as quaint as a Model T on a Ford dealer's showroom floor. And the explosion of home computing will

be an echo heard everywhere.



Larry Blasko writes "Compu-Bug," a weekly computer column distributed by the Associated Press. He's the author of ABCs of Computing, A Plain-English Guide. □



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You can keep track of your personal belongings for insurance and other purposes with this program. It stores a list of items such as furniture, jewel-

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#### **Organize Your Collection**

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*Organize Your Collection* is a series of customized databases, each specifically designed to track baseball cards, records, books, videos, jazz albums, comic books, or classical recordings. Fields in the databases are already set up, so all you have to do is enter the data. Data can be edited, searched, and printed. HomeCraft also offers to create custom databases for almost any type of collection.

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#### **FamilyCare Software**

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Available for the IBM® PC/compatibles, and the Commodore 64.\*



**DATA EAST MVP Sports Sweepstakes Official Rules—NO PURCHASE NECESSARY**

How to enter: Simply take the prize symbol "game piece" in this ad to your participating retailer. Exactly match the prize symbol on your game piece with one of the prize symbols found on specially marked packages of Data East MVP Sports' ABC's Monday Night Football games and you win the prize indicated. You may also obtain a match and win prize symbol game piece (while supplies last) and a copy of the winning prize symbols by sending a stamped, self-addressed envelope by December 31, 1989 to Data East MVP Sports Sweepstakes Requests, P.O. Box 8455, Beaverton, OR 97076. WA and VT residents need not affix postage to return envelope. If you are a prize winner, claim your prize by sending your winning prize symbol game piece with your signature and your name, complete address and phone number in the spaces provided via certified or registered mail to Data East MVP Sports Sweepstakes Winner, P.O. Box 8456, Beaverton, OR 97076. All winning claims must be received by January 10, 1990. Any official game piece or package symbol which is forged, tampered with, mutilated, contains printing errors or is obtained through other than approved distribution, is void. Decision of judges is final on all matters. All unclaimed prizes will be awarded in a Second Chance random drawing. If you are not an instant winner, print your name, complete address and phone number in the spaces provided on your prize symbol game piece and mail to Data East MVP Sports Second Chance Sweepstakes, P.O. Box 8458, Beaverton, OR 97076. Second Chance Sweepstakes entries must be mailed separately and received by January 10, 1990. If there are any unclaimed prizes, Second Chance winners will be randomly drawn on January 15, 1990, by ACS Marketing Services, Inc., an independent judging organization whose decisions are final. Odds of winning Second Chance Drawing depend on the number of unclaimed prizes and valid entries received. Not responsible for lost, late, misdirected, incomplete or illegible entries. Winners will be notified by mail. One Grand Prize winner will receive a trip for four to Super Bowl XXIV in New Orleans. Trip includes round trip coach airfare (or reasonable ground transportation if applicable), three nights lodging, tickets for four to the Super Bowl XXIV game, transfers to and from the game, pre-game brunch and \$500 cash for expenses, approximate retail value (based on furthest point of departure) \$8,500. One First Prize winner will receive \$5,000 in cash. Two Second Prize winners will each receive a Sony Entertainment Center, approximate retail value \$3,500 each. Three Third Prize winners will receive a Data East ABC's Monday Night Football Pinball game, approximate retail value \$3,000 each. 1,000 Fourth Prize winners will each receive an ABC Sports Monday Night Football 20th Anniversary Commemorative video, approximate retail value \$20 each. Total approximate retail value of all prizes \$49,500. Odds of winning instantly are: Grand Prize—1:2,000,000, First Prize—1:2,000,000, Second Prize—1:1,000,000, Third Prize—1:666,667, Fourth Prize—1:2,000. Sweepstakes open to residents of the U.S. except employees and families of Data East USA, Inc., its affiliates, subsidiaries, advertising and promotion agencies and printers. All prizes will be awarded. Limit one prize per family/household. No substitutions or cash equivalents. Taxes are responsibility of winners. Sweepstakes void where prohibited, taxed or restricted. Winners may be required to sign affidavit of eligibility and publicity and travel releases. To obtain an official winners list, send a stamped, self-addressed envelope by March 1, 1990 to Data East MVP Sports Sweepstakes Winners List, P.O. Box 8460, Beaverton, OR 97076.



**1st Prize:** \$5,000. **2nd Prize:** A complete entertainment center featuring big screen TV, stereo and CD (VCR not shown). (2 Winners!) **3rd Prize:** ABC's Monday Night Football pinball game from Data East Pinball. (3 Winners!) **4th Prize:** ABC's Monday Night Football 20th anniversary videocassette featuring the greatest plays from the past two decades. (1,000 Winners!)

**NO PURCHASE NECESSARY**

If the prize symbol shown here exactly matches one of the prize symbols found on specially marked packages of Data East MVP Sports ABC's Monday Night Football Games, you win the prize indicated.

If you are a prize winner, claim your prize by filling in the information below and sending via certified or registered mail by January 10, 1990, to Data East MVP Sports Sweepstakes Winner, P.O. Box 8456, Beaverton, OR 97076.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_

Signature \_\_\_\_\_

prize symbol



See Official Rules for details.

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[www.commodore.ca](http://www.commodore.ca)

\* ABC Sports and ABC's Monday Night Football are registered trademarks of ABC Sports, Inc.  
\* Data East MVP Sports is a trademark of Data East USA, Inc.  
\* Sony is a registered trademark of Sony Corporation.  
\* IBM is a registered trademark of International Business Machines.  
\* Commodore 64 is a registered trademark of Commodore Business Machines, Ltd.  
\* Super Bowl is a registered trademark of the National Football League.



You can create and print your own checks with *Dac-Easy Light*.

# FINANCIAL MANAGEMENT

## College Financial Planner

Randle, Coray, and Associates  
IBM PC and compatibles  
\$69.95

With this program, you can create a financial plan for your children's education. Each child's data may be updated each year as inflation, costs, and other circumstances change. Costs such as tuition, room, books, and transportation can be itemized, and the program automatically adjusts the costs for inflation. The program provides three plans for saving the needed capital. A manual and forms for gathering data are included in the package.

## Dac-Easy Light

Dac Software  
IBM PC and compatibles  
80-column printer required  
\$69.95

Designed for both home and office, this accounting package tracks credits and debits, creates financial statements, and prints checks and invoices. It offers a chart of accounts for recording deposits, withdrawals, customers, and vendors. The program can be used to generate up-to-the-minute financial statements and monthly balance sheets.

## Dollars and Sense

Monogram  
IBM PC and compatibles,  
Macintosh  
80-column display required (IBM)  
512K required (Macintosh)  
\$179.95 (IBM)  
\$149.95 (Macintosh)

Create budgets with as many as 120 accounts, print checks, pay bills, perform automatic transactions, estimate taxes, and monitor your financial condition with *Dollars and Sense*. Using five hypothetical scenarios, you can experiment with different liability options and see the outcomes in color graphs. A portfolio manager tracks stocks, and telecommunications software links you to online services. Double-entry accounting functions are computed automatically. Data can be exported to *Lotus 1-2-3* and other spreadsheet programs. Onscreen help is available.

## Managing Your Money

MECA Ventures  
Apple II, IBM PC and compatibles,  
and Macintosh  
128K (Apple)  
256K (IBM)  
Two disk drives (Macintosh)  
\$149.95 (Apple)  
\$219.98 (IBM and Macintosh)

This package comprises nine integrated programs covering major aspects of home financial planning such as check-book management, budgets, tax planning, insurance and retirement planning, and portfolio management. It incorporates the new tax-law changes and contains a full-featured word processor. You can store memos on its electronic calendar. Financial data can be exported to *Lotus 1-2-3*.

## Money Counts 6.0

Parsons Technology  
IBM PC and compatibles  
\$35.00

This money-management software handles as many as 999 accounts and 100,000 transactions per year. It monitors cash, credit cards, and checking and savings accounts. It also prints checks; determines interest rates, loan payments, and amortization schedules; prints reports; displays graphs based on your financial information; estimates taxes; and analyzes financing options. It's menu-driven, it's not copy-protected, and it provides password protection and on-screen help.

## Personal Portfolio Manager

Abacus  
IBM PC and compatibles  
384K, two disk drives required;  
modem recommended  
\$150.00

This program manages your portfolio. You can update your portfolio by typing in stock prices or by accessing Dow Jones News/Retrieval or the Warner Computer online services via modem. Some report formats are provided, but you can also create custom formats. Onscreen help is available at all times.

## Quicken

Intuit  
IBM PC and compatibles,  
Macintosh  
512K (Macintosh)  
\$49.95

*Quicken* features check-writing and financial-management options, along with a bill minder that reminds you to pay your bills. The program automatically writes recurring checks, and financial records are updated whenever a transaction occurs. You can generate several kinds of reports, such as budgets, income tax, and expenses. Free telephone support is provided.

## Your Personal Financial Planner

Timeworks  
Commodore 64 and 128, IBM PC  
and compatibles  
\$49.95 (Commodore 64)  
\$69.95 (Commodore 128)  
\$99.95 (IBM)

Through onscreen instructions and an illustrated manual, this program guides you through financial planning for your home. It also features an electronic checkbook that prints checks, maintains balances for five checking accounts and ten credit cards, and performs monthly reconciliations. The program also monitors personal financial holdings, helps prepare tax forms, and generates financial statements.

## Your Personal Investment Manager

Timeworks  
IBM PC and compatibles  
512K required  
\$149.95

This program tracks, analyzes, and manages investment transactions, portfolios, taxes, and retirement investments. It can notify you of upcoming deadlines and help you plan your investment strategies. Other features include context-sensitive help, swiftkeys to quickly access information, customized reports, graphing and charting, and a sideways printing option. The package gives you one hour of prime time on Dow Jones News/Retrieval Service. The software works with *Lotus 1-2-3*, *Framework*, *dBase II*, and other major applications. >

# LEGAL FORMS

## Microlawyer Legal Forms

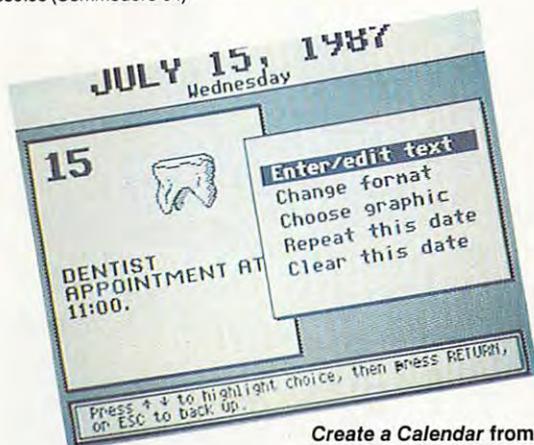
Progressive Peripherals & Software  
Amiga, Apple II, Atari ST, Commodore 64, IBM PC and compatibles  
\$59.95

*Microlawyer* is a collection of more than 100 legal documents for personal and business use. The forms can be used with a word processor to create wills, powers of attorney, premarital contracts, leases, loans, and other legal papers. The forms can be used by anyone but are not designed to replace legal advice.

## WillMaker

Nolo Press  
Apple II, Commodore 64, IBM PC and compatibles, Macintosh  
128K required  
\$59.95 (Apple, IBM, Macintosh)  
\$39.95 (Commodore 64)

Unless you live in Louisiana, *WillMaker* can help you write a legal will. Provisions are made for spouse, children, grandchildren, friends, charities, guardian and alternate guardians for children, trust accounts, and an executor and alternate executor of the estate. Updates can be made to your will as your financial or personal status changes, and the program makes the legal adjustments required by each state. The accompanying 200-page manual explains the fundamentals of writing a will and estate planning. Nolo Press also provides an update service to keep track of changes in the law.



Create a Calendar from Epyx reminds you of important dates and appointments.

# STATIONERY

## Award Maker Plus

Baudville  
Amiga, Apple II, Atari ST, Commodore 64, IBM PC and compatibles, Macintosh  
256K required (IBM)  
512K (Macintosh)  
\$49.95 (Amiga, IBM, Macintosh)  
\$39.95 (Apple, Atari ST, Commodore 64)

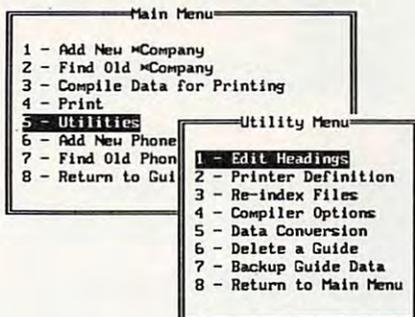
Parents, teachers, coaches, and best friends can create customized awards, certificates, licenses, coupons, and other documents. You can choose the text style, a personal message, border style and color, and hi-res pictures to add to the predesigned awards. The program supports

class-name files and includes gold-embossed press-on seals. Baudville offers a 90-day limited warranty.

## Create a Calendar

Epyx  
Apple II, Commodore 64, IBM PC and compatibles  
Printer required  
\$29.95

Daily, weekly, monthly, and annual calendars can be designed with this program. Over 100 graphics, borders, and fonts are included; or images from *Epyx Graphics Scrapbooks* and *The Print Shop* can be imported. You can add notes and graphics to any day



MyBase lets you print address books and quick-reference files in convenient formats.

# ORGANIZERS

## Address Book Plus

Power Up!  
IBM PC and compatibles  
256K and DOS 2.0 or higher required  
\$69.95

You can organize and print address books, mailing lists and labels, file cards, and more with *Address Book Plus*. Each file can contain up to 1500 names (with 640K), and the number of files is unlimited. You can sort and search on fields, and you can print address books on laser or dot-matrix printers in four sizes: pocket size, organizer size, standard size, or custom-designed size.

## MyBASE

Useful Software  
IBM PC and compatibles  
384K required  
\$89.95

*MyBASE* stores and prints address books and quick-reference guides. Each address record includes fields for company name, three individual names, five phone numbers, fax numbers, two addresses, and comments. Another format stores other kinds of information, such as recipes, collections, or memos. Print files in many formats, such as checkbook-size notebooks, billfold-size fanfold, and Rolodex-size cards. The program also supports mail merge, labels, and searches.

and automatically schedule regular events. The program makes calendars for any year from 1753 through 9999.

## Print Magic

Epyx  
Apple II and IBM PC and compatibles  
384K and a graphics card required  
\$49.95 (Apple)  
\$59.95 (IBM)

Home artists can design and print cards, flyers, certificates, stationery, and banners with this program. It combines text and graphics and shows the document on the screen just as it will print out. You can import images from *Epyx Graphics Scrapbooks*, *The Print Shop*, and other paint programs, or you can use the library of artwork that's included in the package. The program provides 24 paint brushes, geo-

metric shapes, zoom, six levels of enlargement, and automatic flip and invert. The program supports dot-matrix and Hewlett-Packard Series I laser printers. ▶



# Advanced Dungeons & Dragons<sup>®</sup>

Computer Products

## *The Real Stuff.*



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[www.ssi.com](http://www.ssi.com)



When it comes to fantasy games, the ADVANCED DUNGEONS & DRAGONS® system is the real stuff. In fact, AD&D® designed fantasy role-playing gaming as we know it today!

Only AD&D games provide the incredible richness of detail that makes vast and mysterious worlds come alive, filled with characters, monsters, weapons, spells and encounters of incredible diversity and depth.

Now SSI uses this legendary system to take fantasy gaming one step beyond: A line of AD&D computer games set in the immense world known as the Forgotten Realms.

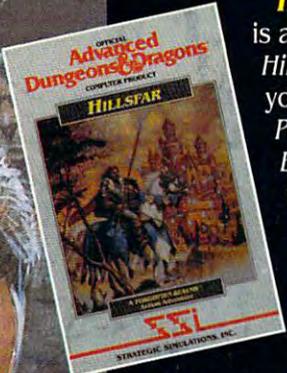
Every game in this exciting series



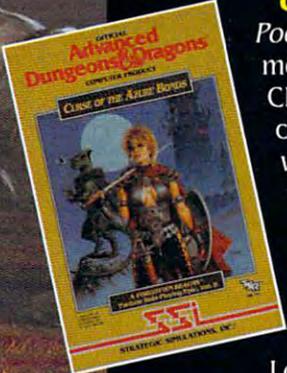
can be enjoyed by itself. However, the beauty of SSI's FORGOTTEN REALMS™ epics is that they are intricately woven together. The more you play, the more you'll discover the glorious wonders of this mystical domain.



**POOL OF RADIANCE:** the first and now classic AD&D computer role-playing game. In the fabled ruins of Phlan and around the northern shore of the Moon-sea, your band of six Player Characters fight an unending wave of monsters and strive to unmask their mysterious leader.



**HILLSFAR:** An action-adventure game that is a crucial stopping point in your travels. Hillsfar serves as the training grounds for all your heroes. Transfer your characters from Pool of Radiance or Curse of the Azure Bonds and increase their skills through vigorous workouts that include combat, maze-running, lock-picking, archery and horseback riding. Succeed in Hillsfar and some of your characters' statistics will actually improve. They will emerge from Hillsfar more prepared than ever to survive your dangerous journey.



**CURSE OF THE AZURE BONDS:** the sequel to Pool of Radiance, with deadlier monsters, more powerful spells and new Player-Character types. In this game, you find your characters' arms mysteriously imprinted with azure blue symbols. When they glow, they ensnare your will — you must do as they command! Search the realms for members of the New Alliance who forged these chains of enslavement and remove the Curse of the Azure Bonds.

Look for AD&D games from SSI at your favorite retailer. A wondrous universe awaits you.

TO ORDER: Visit your retailer or call 1-800-245-4525 to charge on VISA/MC. To receive SSI's complete product catalog, send \$1.00 to: SSI, 1046 N. Rengstorff Ave., Mountain View, CA 94045.

# TAX-PREPARATION

## Personal Tax Preparer

Parsons Technology  
IBM PC and compatibles  
256K required  
\$29.00

*Personal Tax Preparer* can calculate and print your federal income tax on Form 1040 and Schedules A, B, C, D, E, R, SE, and others. It features online, pop-up help screens, IRS-approved pin-feed forms, amortization and accumulation schedules, a pop-up calculator, and a pop-up notepad. A financial calculator figures interest rates, loan payments, balloon payments, loan balances, interest earned, and savings and investments values. There is also a section to help you plan for the next year's taxes. Updates are available each year.

## TaxView

SoftView  
Apple IIs, IBM PC and compatibles  
512K, printer required  
\$119.00

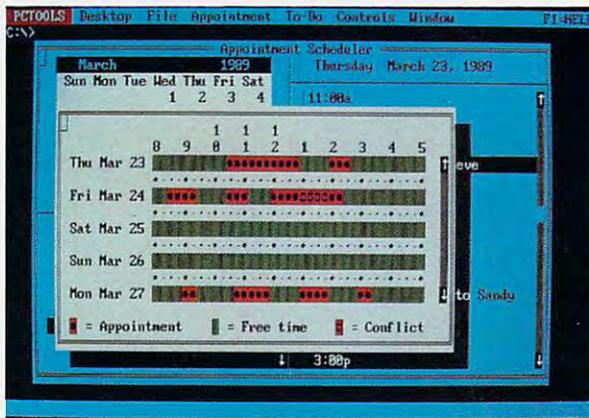
*TaxView's* onscreen forms help you figure your income tax, and you can print completed forms. Forms and sched-

ules can be linked, and data can be imported from text files. The program checks for errors and IRS violations. Versions are also available for the tax forms of some states, including California and New York, for \$65. Annual updates to the federal tax package are \$55, and state updates are \$35. The IBM version operates under Microsoft Windows; a runtime version of Windows is included.

## TurboTax 1989

ChipSoft  
IBM PC and compatibles  
Two disk drives required  
\$75.00

*TurboTax* is a recordkeeping, tax-preparation, and tax-planning package. Online help and telephone support are available. The program tells you if you've left anything off of the form and displays your current tax status. The next year's tax laws are built into the planning mode of the program. The data can be printed onto supplied 1040 forms. There are 26 integrated state-tax packages available for \$40 each.



Using *PC Tools Deluxe*, you can move quickly among the different modules.

# UTILITIES

## The Norton Utilities, Advanced Edition

Peter Norton Computing  
IBM PC and compatibles  
\$150.00

*The Norton Utilities, Advanced Edition* features utilities for data recovery and disk management, including UnErase;

Disk Test; Directory Sort; a disk optimizer; file-allocation-table editors; and a format-recovery utility to restore a formatted hard disk. The Norton Integrator runs all the utilities and provides online help. The Norton Change Directory constructs a visual tree of the directories,

## PUBLISHERS' NAMES AND ADDRESSES

### Abacus

5370 52nd St. SE  
Grand Rapids, MI 49508

### Baudville

5380 52nd St. SE  
Grand Rapids, MI 49508

### BDL Homeware

2509 N. Campbell Ave.  
#328  
Tucson, AZ 85719

### Central Point Software

15220 NW Greenbrier Pkwy.  
#200  
Beaverton, OR 97006

### Chipsoft

5045 Shoreham Pl.  
San Diego, CA 92122

### Dac Software

17950 Preston Rd.  
Suite 800  
Dallas, TX 75252

### Epyx

600 Galveston Dr.  
Redwood City, CA 94063

### Family Care Software

Division of Lundin Laboratories  
29451 Greenfield Rd.  
Southfield, MI 48076

### FreeSoft

150 Hickory Dr.  
Beaver Falls, PA 15010

### Gamma Software

17730-15th Ave. NE  
Suite 223  
Seattle, WA 98155

### Homecraft Computer Products

P.O. Box 974  
Tualatin, OR 97062

### Intuit

540 University Ave.  
Palo Alto, CA 94301

### MECA Ventures

355 Riverside Ave.  
Westport, CT 06880

### Micro-Systems Software

12798 W. Forest Hill Blvd.  
Suite 202  
W. Palm Beach, FL 33414

### Monogram

8295 S. La Cienega Blvd.  
Inglewood, CA 90301

### Nolo Press

950 Parker St.  
Berkeley, CA 94710

### Oxxi

1339 E. 28th  
Long Beach, CA 90806

### Parson's Technology

Dept. COM  
375 Collins Rd. NE  
Cedar Rapids, IA 52402

### Peter Norton Computing

100 Wilshire Blvd.  
9th Floor  
Santa Monica, CA 90401-1104

### Power Up Software

P.O. Box 7600  
San Manteo CA 94403

### Progressive Peripherals and Software

464 Kalamath St.  
Denver, CO 80204

### Publishing International

1209 W. Knickerbocker Dr.  
Sunnyvale, CA 94087

### Randle, Coray, and Associates

Box 1228  
Utah State University Post Office  
Logan, UT 84322

### Softview

4820 Adohr Ln.  
Suite F  
Camarillo, CA 93010

### Timeworks

444 Lake Cook Rd.  
Deerfield, IL 60015

### T/Maker

1390 Villa St.  
Mountain View, CA 94041

### Useful Software

22704 Ventura Blvd.  
#145  
Woodland Hills, CA 91364

and File Info lets you use up to 65 characters to describe a file. ASK creates interactive batch files.

## PC Tools Deluxe

Central Point Software  
IBM PC and compatibles  
\$79.00

*PC Tools Deluxe* contains a number of utilities for data security and management. The Compress utility unfragments data files, a disk-caching routine speeds up disk access, and Undelete recovers lost

data. There's also a notepad for quick editing of files, a non-relational file manager, a calculator, an outline editor, a macro editor, a telecommunications program, and an appointment scheduler. □

# SWORD OF ARAGON™

AN EPIC FANTASY STRATEGY GAME

- ❖ Lead an army of warriors, knights, and mages to conquer the mystical land of Aragon.
- ❖ Move across the strategic map and zoom into highly detailed tactical combat against deadly foes such as evil humans, orcs, trolls, giants, cyclops, dragons, and minotaurs.
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Strategic map showing a knight scouting the road to Paritan.



Tactical map showing an assault on the fortified city of Marinia.



Deadly combat between your forces and a dragon.

❖ IBM PC

COMING SOON FOR:

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❖ AMIGA



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**SPECIAL  
10th ANNIVERSARY  
OFFER**

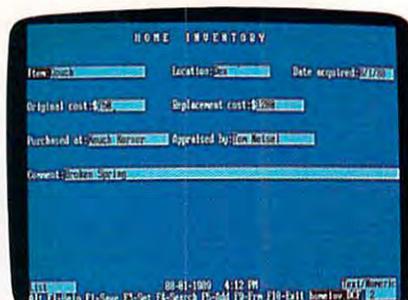
**FREE\***

# COMPUTE!'s SHAREPAK for IBM PC and Compatibles

Compiled by Don Watkins

Each month, *COMPUTE!* brings you top-quality shareware, hand-picked for your home-computing needs. All required documentation is on the disk. You pay just one low price for the complete package—and this month, to celebrate *COMPUTE!*'s ten-year anniversary, it's **FREE!**\*

*COMPUTE!*'s October disk offers three extremely useful applications: a file viewer for browsing text, a spreadsheet with a twist, and a simple-to-use database manager.



## LIST64

Looking for that story about alligators in New York City sewers? Boot up *LIST64* and find it. This file viewer lets you search files for text, mark and write selected text, and clean up files created in nontext format. Move around documents with commands such as page up, page down, left and right cursor, and go to top or bottom. You get EGA/VGA 43-line-mode support, online help, ruler, hex display, freeze top line, customization of colors, and more. Requires 64K RAM and DOS 2.0 or higher.

## QubeCalc

Store data for everything from personal finances to baseball statistics in a row/column/page format where you calculate across, up, down, and through spreadsheets, called WorkQubes. For larger projects, link as many as 64 WorkQubes together. Features 60 built-in functions, macros, sorting, context-sensitive help, and graphics if you have graphics hardware. Supports *Lotus 1-2-3*, *DIF*, and *dBase II* and *III* formats. Requires 256K RAM and DOS 2.0 or higher.

## PC Data Control

Dig yourself out of an avalanche of information. Build databases with 32,767 records in each file, 250 fields in each record, and 80 characters in each field. Sort, calculate totals, create reports, and search as many as 25 parameters at once using wildcards, values, ranges, and case-sensitive options. Use a serial port and modem to dial phone numbers from your phone list. Requires 256K RAM and DOS 2.0 or higher.

Take advantage of this special introductory offer—all three of the above programs on one 5¼- or 3½-inch disk **FREE!**\*

\*You just pay shipping and handling charges.

Mail the coupon today to receive your **FREE\*** *COMPUTE!* disk.

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

**YES!** Send me the *October 1989 COMPUTE! SHAREPAK* for my IBM PC or compatible. I pay only shipping and handling charges to receive this **FREE\*** offer.

Please indicate how many disks of each format you'd like:

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Shipping and handling \$1.95 per 5¼-inch disk

\$2.95 per 3½-inch disk

Total amount enclosed \$ \_\_\_\_\_

Mail coupon with payment to

COMPUTE!'s SHAREPAK  
P.O. Box 5188  
Greensboro, NC 27403

Payments must be in U.S. dollars by a check drawn on a U.S. bank.

Please allow 4-6 weeks for delivery. For delivery outside the U.S. or Canada, add \$1.00 for surface mail or \$3.00 for airmail.

## 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 who 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.

Don Watkins is the sysop of CompuServe's IBM NET. He can be reached at CompuServe 76703,750 or P.O. Box 919, Forestville, California 95436.

[www.commodore.ca](http://www.commodore.ca)

# TRACON™

Air  
Traffic  
Control  
Simulator

## Break the Sound Barrier!

"I was a nervous wreck after watching the 15-minute demonstration." - NY Times  
 "Now I appreciate what the guys down there go through!" - C.B., instrument pilot  
 "[TRACON™] adds up to hours and hours of enjoyment." - PCM Magazine  
 "I recommend it for training our ATC students" - Air Force officer  
 "An absolutely realistic simulation. First class!" - LAX controller  
 "More Than Just a Game" - PC/Computing  
 "stunning VGA graphics!" - T.S., Wis.

With reviews like these, you'd think our programmers would relax after creating the world's most realistic Terminal Radar Approach CONTROL simulation. Instead, they did the impossible - they broke the PC's sound barrier!

Now TRACON™ version 1.5 "talks" through your PC's internal speaker - **no special hardware required**, same low price. Your keystrokes or mouse commands are spoken in proper ATC phraseology in one voice, while pilots reply in their own individual voices.

Are you ready for the ultimate aviation challenge? Can you guide a volatile mix of airliners and private planes safely to their destinations in a simulation so comprehensive that the FAA, military, and aviation universities use it for real-life ATC training? (Upgrades and sector disks available to registered owners at \$19.95 each - call us!)

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Requires IBM PC compatible with 256K, one disk drive, graphics monitor. Mouse optional. Includes 5¼" and 3½" disks, manual, on-disk samples and an audio cassette tape demonstration scenario. Unconditional 30-day money-back guarantee. Texas residents add 8% tax.

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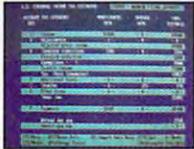
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# MONEYCOUNTS 6.0

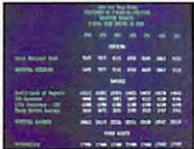
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MONEYCOUNTS' smart account balancer makes fast work of even the toughest bank statements.



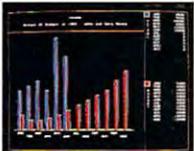
MONEYCOUNTS' Tax Estimator helps you quickly size up your federal tax situation.



All reports can be displayed to screen and easily viewed using vertical and horizontal title locking.



3-D pie charts let you quickly visualize your complete financial picture.



3-D bar charts let you easily compare your actual and budgeted results.

	<b>MONEYCOUNTS*</b>	<b>QUICKEN*</b>	<b>MANAGING YOUR MONEY*</b>	<b>DOLLARS &amp; SENSE*</b>
<b>Version</b>	6.0	3.0	5.0	3.1
<b>Manufacturer</b>	Parsons Technology	Intuit, Inc.	MECA Ventures, Inc.	Monogram Software, Inc.
<b>Suggested Retail Price</b>	<b>\$35.00</b>	<b>\$59.95</b>	<b>\$219.98</b>	<b>\$179.95</b>
<b>Account Balancer</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
Automatic Error Finder	<b>YES</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>
<b>Accounts Can Be Added</b>				
When Entering Transactions (Data)	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>NO</b>
<b>Financial Reports</b>				
Actual Financial Results	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
Month and Year to Date	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
All Months On One Report	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
Budgeted Financial Results	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
Actual Compared to Budget	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
Actual Compared to Prior Month	<b>YES</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>
General Ledger Report	<b>YES</b>	<b>YES</b>	<b>NO</b>	<b>NO</b>
Accountant's Trial Balance	<b>YES</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>
Net Worth Computation	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
<b>Inquiry Reports</b>				
Check and/or Deposit Register	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
Account Analysis	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
All Transactions with Party	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
Cash Requirements Forecast	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
Aged Invoices Payable	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>
<b>Reports Export to Lotus or Quattro</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
<b>Graphics</b>	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>
Bar Charts	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>
Pie Charts	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>NO</b>
<b>Optional Password Protection</b>	<b>YES</b>	<b>YES</b>	<b>NO</b>	<b>YES</b>
<b>Financial Calculator</b>	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>
Prints Amortization Schedules	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>
Prints Accumulation Schedules	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>
<b>Mail List Manager</b>	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>
Prints Address Labels and Index Cards	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>
Prints Telephone Directory	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>NO</b>
Mail Merge with Word Processor	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>
<b>Check Writer</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
Prints Laser Checks	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>NO</b>
Prints Any Pin-Feed Check	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>
<b>Personal Income Tax Estimator</b>	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>
<b>Pop-up Note Pad</b>	<b>YES</b>	<b>NO</b>	<b>YES</b>	<b>YES</b>
<b>Pop-up Math Calculator</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
<b>Optional Canadian Features</b>				
International Dating	<b>YES</b>	<b>YES</b>	<b>NO</b>	<b>NO</b>
International Terminology	<b>YES</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>
<b>Capacity</b>				
Total Number of Accounts Per File	999	255	**	120
Total Number of Open Transactions	100,000	65,535	**	4,000



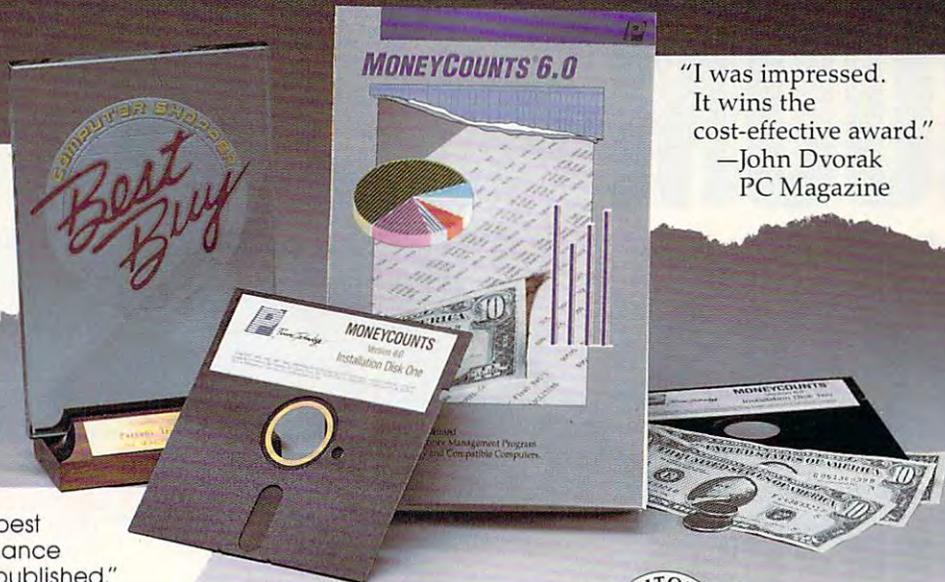
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"Comes with perhaps the friendliest user interface of any financial program . . . an excellent value."  
—Compute! Magazine

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"I was impressed. It wins the cost-effective award."  
—John Dvorak  
PC Magazine



## GUARANTEED.

"MONEYCOUNTS is one of the finest examples of just how good inexpensive software can be."

—Leonard Hyre, PCM Magazine



We invite you to examine MONEYCOUNTS. *It's the clear choice for home and business.* MONEYCOUNTS is CPA designed, easy-to-use, menu-driven with on-line help, and requires no accounting experience. You'll appreciate the ease with which MONEYCOUNTS...

- Manages your cash, checking, savings & credit cards.
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- Prints eight types of financial statements (including net worth) and six types of inquiry reports.
- Prints general ledger and accountant's trial balance.
- Lets you optionally save any report to disk or display it on screen. *You can even export directly to Lotus 1-2-3\*, or Quattro.\**
- Prints any type of pin feed (or laser) check.
- Handles up to 999 accounts and 100,000 transactions a year.
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MONEYCOUNTS 6.0 requires an IBM\*/Tandy\*/Compaq\* or compatible computer, 384K or more RAM, DOS 2.0 or higher, 2 disk drives (or a hard disk). Works with all printers and monitors. Add \$10 shipping/handling outside North America. Iowa residents, please add 4% sales tax.

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# ROOM BY ROOM

IN FOCUS

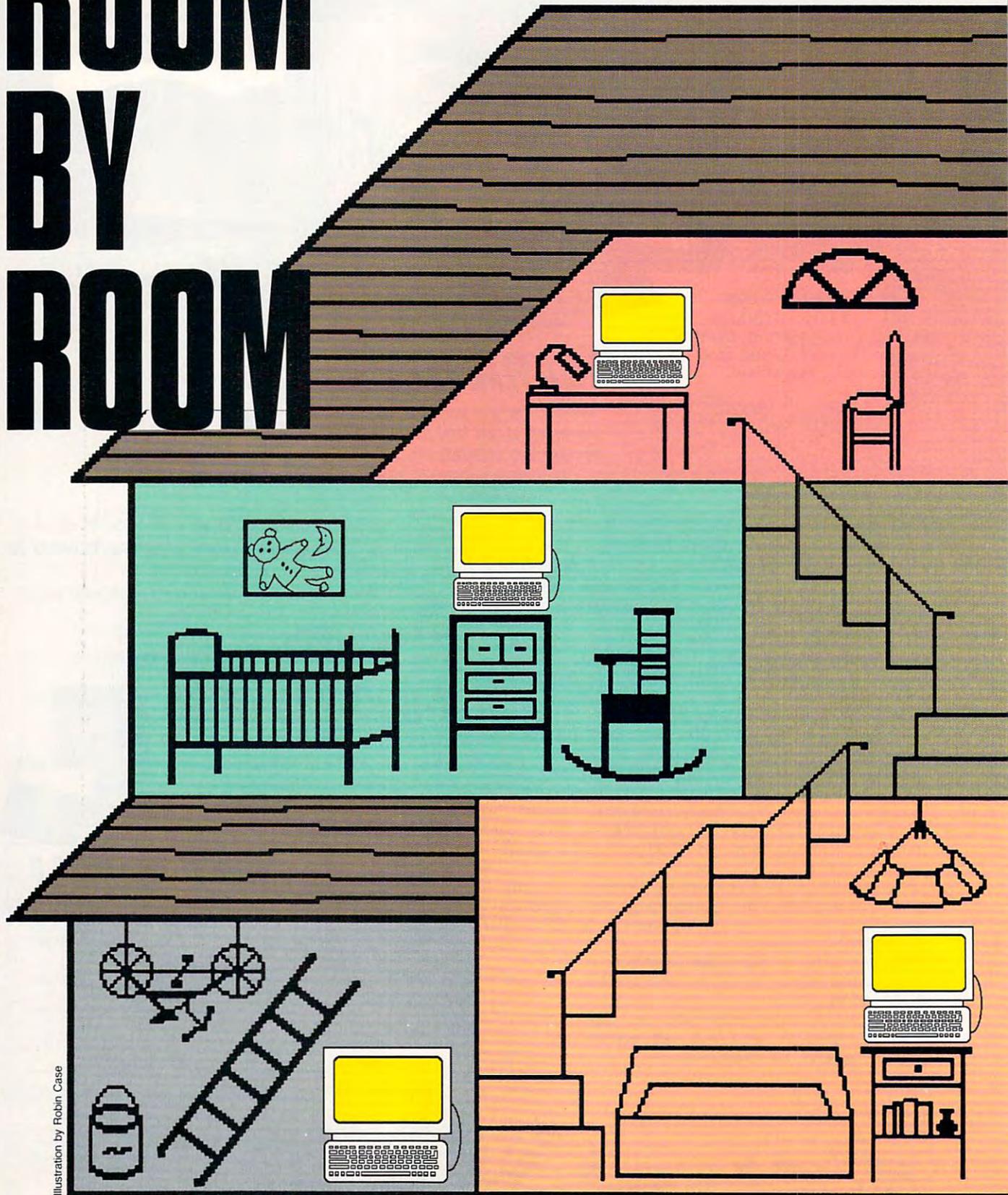
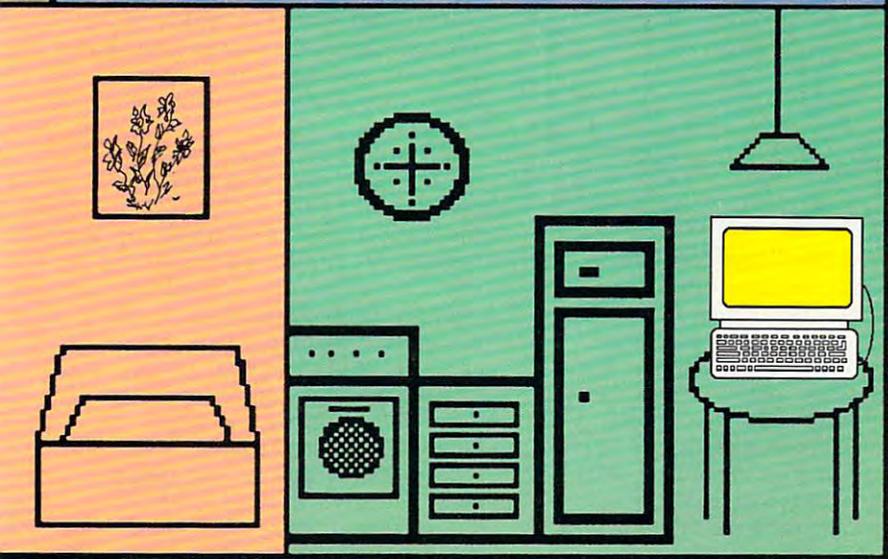
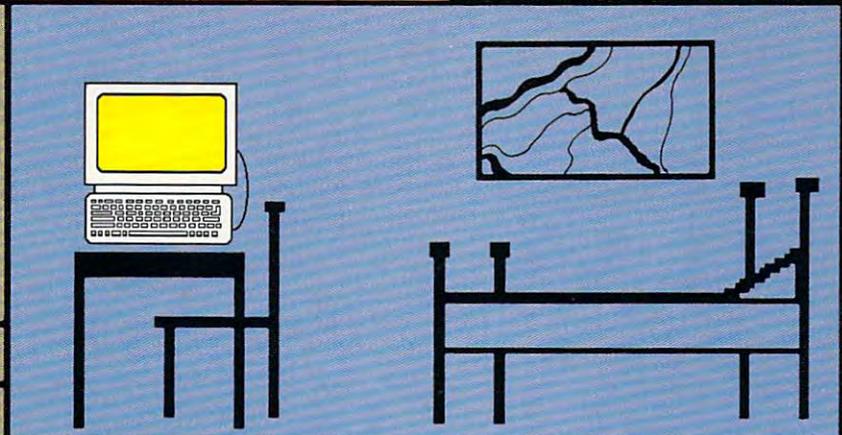
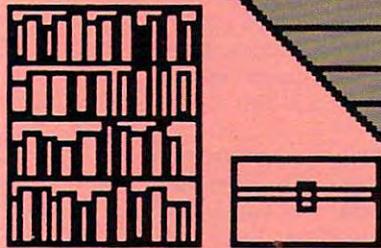


Illustration by Robin Case



# USE YOUR HOME COMPUTER IN EVERY ROOM OF YOUR HOUSE



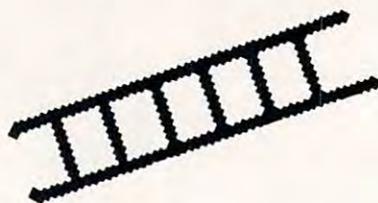
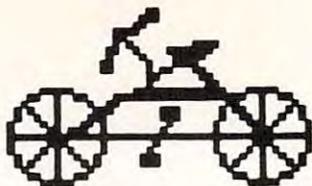
**A**mazing as it may seem, some people still don't know that the computer is the most utilitarian appliance in their house. These unenlightened souls think toasters, blenders, and dishwashers are more useful. They consider the home computer a toy, only good for blasting aliens or exploring dungeons.

Not so, and I'll prove it. Imagine for a moment that you have a computer in every room in your house and an unlimited budget for software. We're going to take a little house tour and see how the computer fits in each room just as well as a table lamp or a bedspread.

We're not talking about word processing and spreadsheeting here. Everybody knows you can do those things with a computer. Instead, I'll focus on unusual, often ignored, but frequently useful software. Maybe you'll see some new applications that have never even crossed your mind before.

D A N G U T M A N

# ROOM BY ROOM



## On Your Left—The Dressing Room and the Nursery

Let's start upstairs, in the master bedroom, first thing in the morning. Here we find Dad in front of his PC compatible running *Looking Your Best*, from 1 Step Software. The old guy has occasionally matched a paisley tie with a polka-dot shirt, so someone gave him a special Father's Day gift this year: an image and fashion consultant on a disk. Dad simply tells *Looking Your Best* what kind of body type he has, and the program searches through 400 million choices for the clothing styles and colors that would look best on him. The whole process takes about ten minutes. And 1 Step makes a version for Mom, too.

Now, down the hall into the baby's room. Infants are probably too little to use computers, but Gerber—the baby-food people—make a PC program called *Your Baby's Nutrition: From Infant to Toddler*. Using the program, new parents can evaluate their baby's food intake in relation to the U.S. Recommended Daily Allowances. Besides analyzing baby's diet, the program charts your child's growth and compares it to statistics from the National Center for Health Statistics. When the first tooth breaks through, when baby takes those first steps, when the chicken pox invades the peace and quiet of the nursery, you can also record those special moments in *Your Baby's Nutrition*.

As we move to the other children's rooms, the computer action gets more creative. Kids love making things with their computers. Using Publishing International's *Hometown U.S.A.*, they can print and assemble houses, banks, and churches—whole villages for all kinds of games and projects.

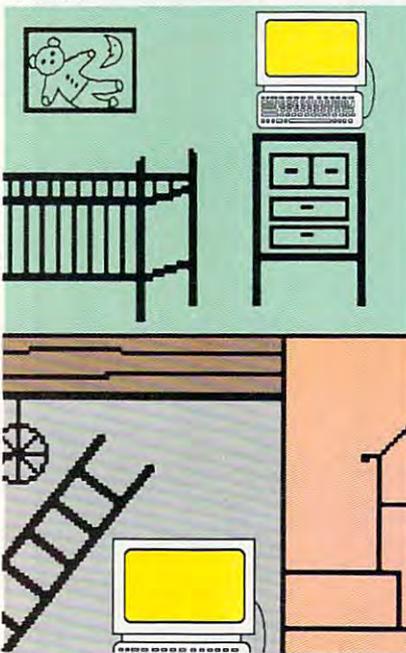
## On Your Right: The Study and the Career Counseling Office

Our next stop is the teenager's room. Ambitious high school students can use their computers to prepare for the future. Plenty of well-known programs help prepare students for the dreaded Scholastic Aptitude Test. After their scores come in, students still need to pick a college. Two programs worth investigating are *College*

*Explorer*, from The College Board, and *The Perfect College*, from Mindscape. Use these programs to find a small Midwestern school with a polo team and a desirable mix of male and female students.

On the other hand, work may be the best path after graduation. In the quest for a good job, high school students can turn to *The Perfect Career*. As kids list their personal interests and skills, *The Perfect Career* narrows down a list of 650 jobs and finally presents them with a few ideal occupations.

Whatever job a young adult chooses, a good résumé is essential, and a computer can help. *The Resume Kit*, from Spinnaker, asks questions about work experience, education, and skills; then it automatically puts the information into any of nine common résumé formats.



## Across the Way: The Office

Step into the home office, where Mom may be running *Family Matters*, from Springboard Software. This program is the ultimate home organization tool. It records the family's medical, educational, and employment records, as well as crucial information about automobile maintenance, household appliance warranties, and even breeding data on family pets.

When Mom's sick or Dad's hurt, the kids can run to the home office and boot up *FamilyCare*, from FamilyCare. This doctor-on-a-disk asks questions about the patient's symptoms, searches its database to determine the most likely malady, and suggests a remedy. This is artificial intelligence in practical use. The program was designed by three doctors at Wayne State University in Detroit.

It may be a bit morbid to think about, but Mom and Dad may also be bequeathing all their earthly goods with *WillMaker*, from Nolo Press. Two-thirds of us never bother to make a will, which puts a burden on loved ones. With this user-friendly program, writing a will is simple and fast; and, you'll save hundreds of dollars in legal fees. Just make sure you're of sound mind and body.

## And Downstairs: The Pantry and Living Room

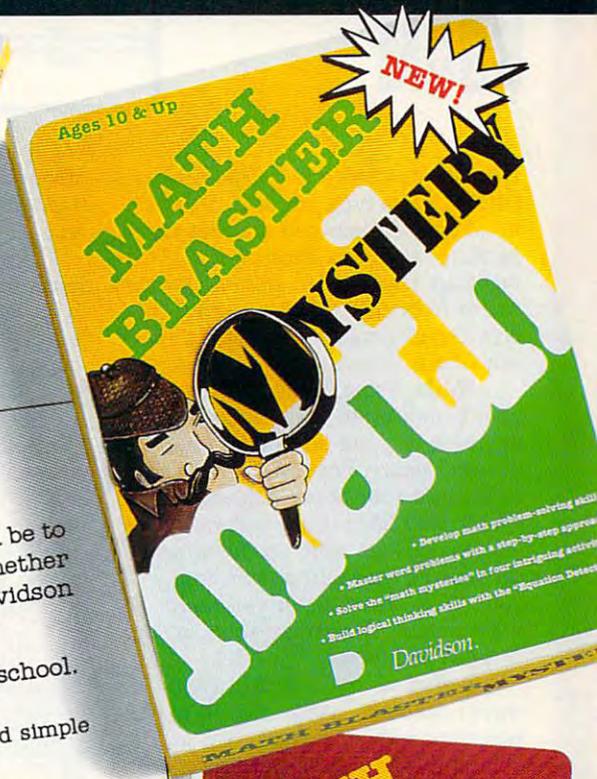
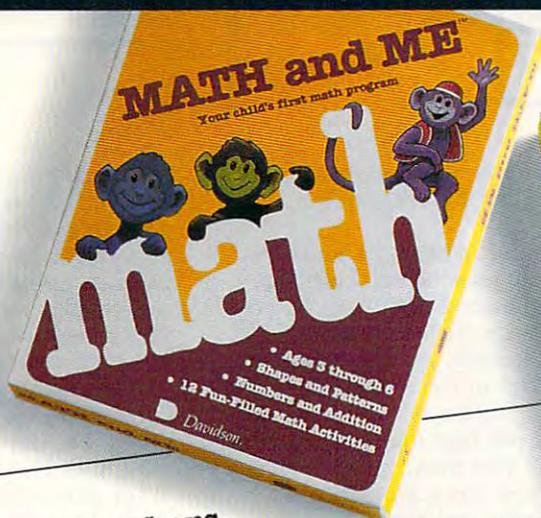
Look in the kitchen. In place of the stacks of cookbooks, this household stores favorite recipes on the chef's computer. Recipe programs are often cited as examples of overkill in home computing, but a major publisher like Broderbund doesn't release *Variable Feasts* unless there's a significant market.

This program features 260 recipes from the Time-Life Foods of the World series. Besides offering recipes, *Variable Feasts* suggests matching side dishes, soups, appetizers, desserts, and wine. The computer also recalculates the recipes to serve the crowd you're feeding. *Variable Feasts* even prints out a shopping list for you.

Now that the menu is settled, you can figure out the nutritional content of the food. With a diet program such as *Food for Thought*, from Sunburst, or *The Food Processor II*, from ESHA Research, you tell the computer every morsel you put in your mouth, and the computer adds up all the calories, protein, carbohydrates, sodium, and various artery cloggers. If you're on a diet, this information is invaluable.

For a beverage, may we suggest *Hugh Johnson's Wine Cellar*, from the vineyards of Simon & Schuster? You may not know the difference be-

# Teach your children well.



## Dear Parents and Teachers,

As a parent and former teacher, I know how challenging it can be to instill in your children a positive attitude towards math. Whether your child is finishing pre-school or beginning high school, Davidson offers math software to teach your children well.

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- Designed for ages 3 through 6
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Watch your children track the "Equation Detective" through a variety of problem-solving math mysteries with **new Math Blaster Mystery™**.

- Designed for ages 10 and up
- Builds confidence as children master word problems and develop critical thinking skills

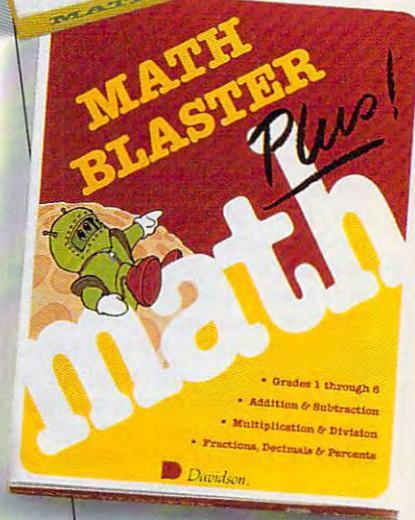
Animated characters, printed Certificates of Excellence, and words of encouragement provide the positive reinforcement children need to be successful.

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Founder and President, Davidson & Associates, Inc.

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Problem Solving	A



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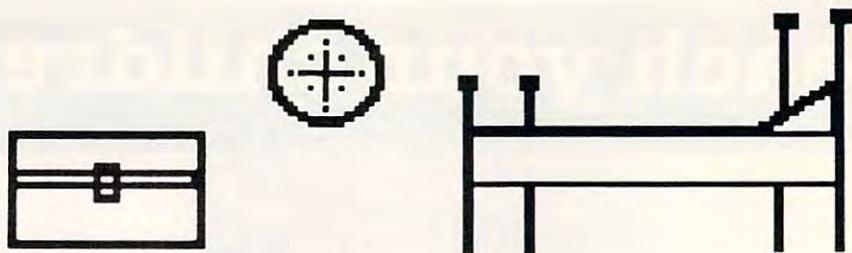
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# ROOM BY ROOM



tween a muscatel and a Château Lafitte, but this program does. It lists hundreds of wines and matches them perfectly with your meal. For a nightcap, boot up *Mr. Boston Official Micro Bartender's Guide*, from Concept Development. It includes directions for a thousand drinks. Cheers!

In the living room, you can use your computer to customize virtually anything that can be printed on or even off paper. For some jazzy title screens on your home videotapes, try *Video Title Shop*, from Software Toolworks. Just whip up the screens on your PC and dump them into your VCR. You'll be mixing words with pictures faster than you can say *Stephen Spielberg*.

Before we call it a day, it's always relaxing to putter around in the basement awhile. If you've got a computer down there, you can use it to keep track of your league's bowling averages with *The League Secretary*, from Bowling Computer Systems. This program turns a weekly eight-hour chore into a fun job you can knock off in a few minutes. If you play softball, tennis, or another league sport, you can set up next year's schedule for all the teams with *Sports Scheduler*, from Sports Software Association.

Maybe you're not into sports; you're more the sedentary type. If you have albums of rare stamps, boxes of mint-condition baseball cards, or cases of Early American coins, try *Compu-Quote's* software series. The programs catalog, organize, and calculate the current market value of any collection.

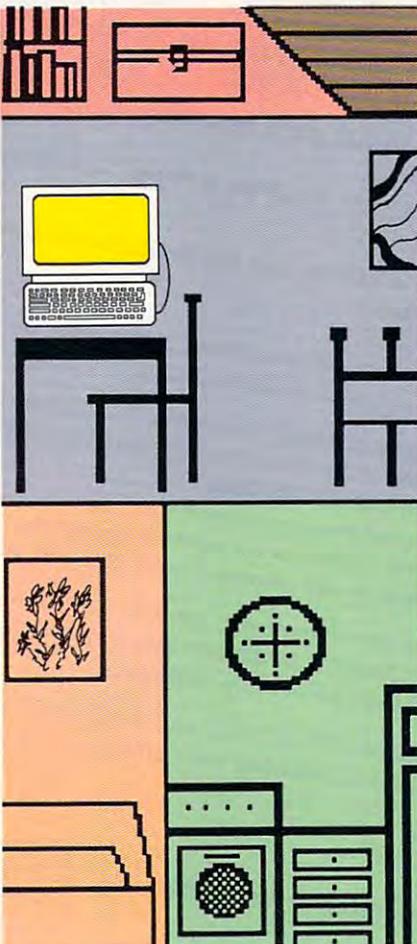
## Through This Door: The Garage, the Gardens, and the Heavens

It's been a busy day, but our tour wouldn't be complete without a peek outside.

In the garage, for instance, you'd feel better about your car if you knew your 16-year-old was running *Keys to Responsible Driving*, from Mindscape. Developed in consultation with the National Safety Council and AAA, the program is a prep course for passing the written driver's test. Did you know that a car moving 50 miles per hour will travel

about 75 feet in one second? That's just one fact this program can teach you.

License in hand, let your teenagers help plan the next road trip with *Roadsearch Plus*, from Columbia Software. Tell the program your current location and your planned destination in the United States, and *Roadsearch Plus* will figure out the shortest practical route. The program also tells how many miles you'll travel, how much time the trip should take, and how much gas you'll need.



Look, in the backyard among the weeds and you'll see Mom running *Ortho's Computerized Gardening*, from Chevron Chemical. She plugs in her ZIP code, and the computer tells her which plants are most likely to thrive in her area. The program also records when to plant, fertilize, weed, and prune.

Is there a jogger in the family? A glance at the classified ads in a recent issue of *Runner's World* magazine turned up eight software packages designed specifically to help runners plan their training schedules. Check the back of any special-interest magazine for related software.

The family golfers can even use the computer to improve their games. Dr. Lou Riccio, a member of the USGA Handicap Research Team, has created *Golf Analyzer*. It points out weak points in your game so you can use your practice time more efficiently.

There's just one more place where we might find some interesting software: up on the roof. On cloudy nights, astronomy buffs can take their computers to the roof and boot up *Tellstar*, from Spectrum Holobyte. Not only does this program accurately display constellations, stars, and planets, but it also shows the appearance of the sky at night from anywhere on Earth on any date through the year 3000.

## Beyond This Old House: The Architect's Quarters

To top it all off, you can create your next house on a computer with a computer-aided-design program. In *Design Your Own Home*, from Abracadata, you arrange basic geometric shapes to form buildings. Special disks are available for creating Colonial, ranch, Cape Cod, Tudor, and Victorian styles, as well as offices and interiors.

Once you've designed your dream house, you can control all the electronics from your computer keyboard. With an X-10 Home Control Interface, from X-10, you can program your house lights to switch on and off at specific times, you can automatically activate your appliances, and you can even start brewing your morning coffee before you wake up.

That wraps up our tour. Does anybody still think there's nothing to do with a computer in the home? See product box on page 62. □

Dan Gutman is the author of a weekly syndicated column, *I Didn't Know You Could Do That with a Computer!* (COMPUTE! Books), and a book about baseball due out next season from Penguin.



## ARE YOU READY TO STEP INTO INDY'S SHOES?

Move larger-than-life exploits from the movie screen to the computer screen, and the results are often small potatoes.

Not so with *Indiana Jones and the Last Crusade*.™ Games that capture the action, excitement, and special effects of the greatest *Indy* movie of them all. And *Indy* the game character has all the style, wit, and resourcefulness that make the big lug so lovable in the movie.

### Too much for one game.

One game can't do *Indy* justice. So we designed two very different game experiences: *Indy the Action Game*, and *Indy the Graphic Adventure*.

And in both cases, it seems that

Nazi Germany has just declared war on the Jones boys.

### Red hot, slam-bam action.

*Indy the Action Game* delivers classic arcade thrills on a hell-bent chase for the greatest treasure in history—the Holy Grail. As *Indy*, you'll use your whip, your fists, and your wits. Escaping grave-robbing cutthroats. Pulverizing Gestapo goons. And surviving the lethal trials of the Grail Temple itself.

### How's your I.Q.?

In *Indy the Graphic Adventure*, you'll find out if you can keep up with the guy with the whip and the hat. Maybe you'll make the same decisions *Indy* made in the movie. Or score higher I.Q. (*Indy Quotient*) points by finding subtle or ingenious alternatives. All the while exploring a stunning world of sights, sounds and characters—

many of which you didn't see in the film.

Use Lucasfilm's acclaimed—and enhanced—point n' click interface to toss off a sarcastic one-liner, sweet talk your way out of a tight squeeze, or just haul off and slug the sucker. And thumb through Henry Jones'



Knocking Nazis off precarious Zeppelin catwalks is all in a day's work in *Indy the Action Game*.



The trail to the Grail is strewn with rats, skeletons, and much, much worse in *Indy the Graphic Adventure*.

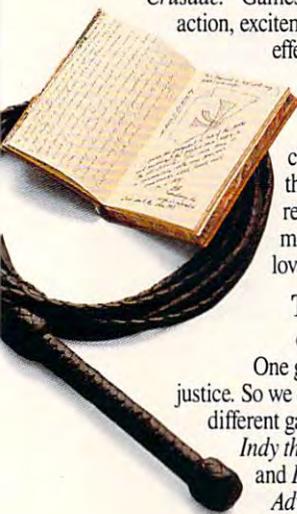
64-page Grail Diary for precious and fascinating clues.

### We made a spectacle of ourselves.

Both games bring you the great graphics, exciting camera angles, and stirring soundtracks that made the *Indiana Jones* films so special.

Of course, our development team had the advantage of working with the people who made the movie. And that's how we made sure that when you step into *Indy's* shoes, your feet are planted firmly in the fire.

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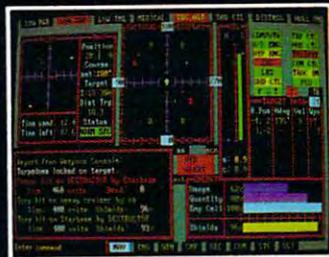
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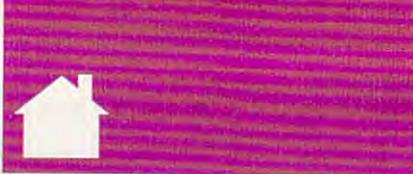
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# RESOURCES

## LEARN MORE ABOUT THE EXPLOSION IN HOME COMPUTING

### User Groups

To find local user groups, first check with area computer dealers. They often maintain a list of groups and contact numbers.

There isn't a central resource for PC user groups, but here are some of the bigger organizations: Capital PC User Group in Washington, DC (301-762-6775 or 301-738-9060); Boston Computer Society (617-367-8080); Houston Area League of PC Users (713-524-2572 or 713-524-8383); and the BMUG in Berkeley, California (415-849-HELP or 415-849-9114).

Apple computer owners can call the Apple User Group Connection (800-538-9696, extension 500, or 408-974-6343 in California). *COMPUTE!'s Amiga Resource* magazine publishes a list of Amiga groups in October, and *Commodore 64* and 128 owners can check the similar list published in the May and June issues of *COMPUTE!'s Gazette*.

### Online Tutorials

The best cure for computer fear is to form an alliance with your computer and let it do the teaching. Below, is a list of DOS tutorials. Online tutorials are available for many different programs. Check with the company that publishes the software you use. Also check with the companies who publish these DOS tutorials.

*DOS Step-by-Step*; Info-Designs, 445 Enterprise Ct., Bloomfield Hills, MI 48013; (313) 334-9790

*DOS Tutor*; Design Software, 1275 W. Roosevelt Rd., W. Chicago, IL 60185; (800) 231-3088

*Teach Yourself DOS*; American Training International, 12638 Beatrice St., Los Angeles, CA 90066; (213) 823-1129

*Learning DOS*; Microsoft, 16011 NE 36th Way, Box 97017, Redmond, WA 98073; (206) 882-8080

*PC Crash Course and Survival Guide*; Scandinavian PC Systems, 51 Monroe St., Suite 1101, Rockville, MD 20850; (800) 288-SCAN

### BOOKS

You can find a computer book for just about any occasion: the elementary approach for children, the gentle approach for beginners, the hard-boiled approach for the power user. Check the following list.

#### For the PC Amateur

*ABCs of Computing: A Plain-English Guide*, by Larry Blasko; Compubug, P.O. Box 626, Summit, NJ 07901

*Easy DOS It*, by Ron Bauer; The Easy Way Press, Electronic Publishers, P.O. Box 12041, Birmingham, MI 48012; (313) 651-9405

*MS-DOS: The Basics*, by David A. Lien; CompuSoft Publishing, San Diego, CA 92128; (619) 461-1580

*PC/MS-DOS Made Easy*, by Tony Dowden; COMPUTE! Books, Chilton Book Company, Chilton Way, Radnor, PA 19089; (800) 345-1214

#### For the PC Rookie

*Running MS-DOS*, by Van Wolverton; Microsoft Press, 16011 NE 36th Way, Box 97017, Redmond, WA 98073; (206) 882-8080

*Inside the IBM PC*, by Peter Norton; Brady Utilities Software, Simon & Schuster Reference Division, One Gulf + Western Plaza, New York, NY 10023; (212) 373-8140

A quick reference such as *DOS Instant Reference*, by Greg Harvey and Kay Yarborough Nelson; Sybex, 2021 Challenger Dr. #100, Alameda, CA 94501; (415) 523-8233; or any COMPUTE! Books Quick & Easy Guide; COMPUTE! Books, Chilton Book Company, Chilton Way, Radnor, PA 19089; (800) 345-1214

#### For the PC Pro

*PC Magazine DOS Power Tools: Techniques, Tricks and Utilities*, by Paul Somerson; Bantam Computer Books, 666 Fifth Ave., New York, NY 10103; (212) 765-6500

*Supercharging DOS*, by Van Wolverton; Microsoft Press, 16011 NE 36th Way, Box 97017, Redmond, WA 98073; (206) 882-8080

*DOS Power User's Guide*, by Kris Jamsa; Osborne McGraw Hill, 2600 Tenth St., Berkeley, CA 94710; (800) 227-0900

#### For the PC All-Star

*The MS-DOS Encyclopedia*, by various authors; Microsoft Press, 16011 NE 36th Way, Box 97017, Redmond, WA 98073; (206) 882-8080

### MISCELLANEOUS

Try adding templates on your keyboard. They remind you which commands go with which keys. Several companies make templates; one is FuncKey Enterprises, Route 1, Box 639G, Sanger, Texas 76266; (817) 482-6613.

Wheel Ease Software Guides are also helpful accessories. You look along the outside ring of the wheel and find the task you're trying to accomplish—create a new directory, for example. Next, line up the inner wheel's window with the name of the task, and the command you need appears in the command-code window. Contact Wheel Ease Reference at 1075 Bellevue Way NE, Suite 369, Bellevue, Washington 98004; (206) 583-0642.

If you roam the telecommunications services or electronic bulletin boards, look for a DOS help program. *COMPUTE!'s PC Magazine* has included *DOS Help* on its disk. The shareware program, created by John Crouch, is like an index to DOS. There are other similar programs available in shareware circles.

Finally, subscribe to a computer magazine that speaks your language. You'll keep up to date on news, learn about new technologies as they emerge, and find out which products live up to their promises. □

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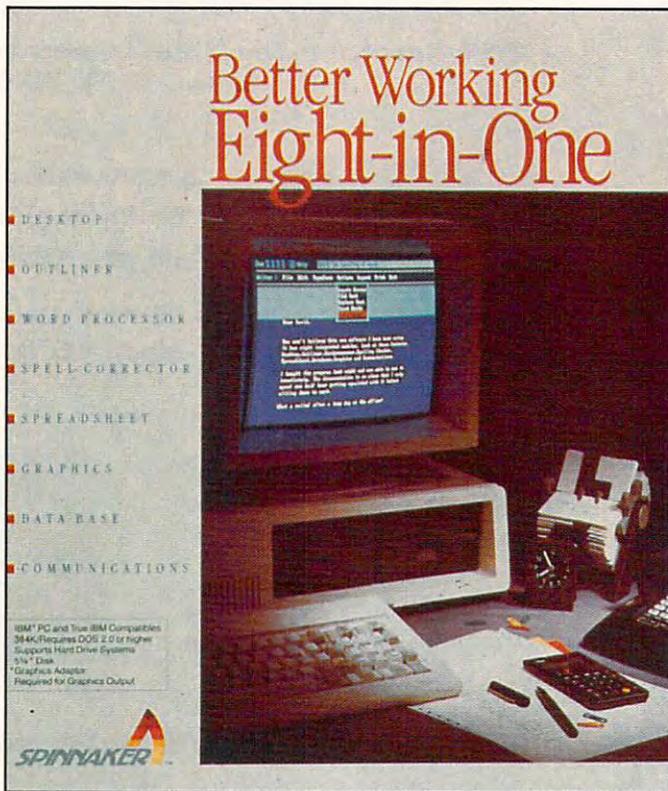


# ACTIVISION

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# PRODUCT



One of the most convincing arguments for multipurpose software is price. With a list price of just under \$300, *AppleWorks GS* costs less than \$50 per application. MS-DOS fans on tight budgets can purchase *Works* from discounters for just under \$150. Triple-digit software isn't cheap, but everyone knows that low prices mean poor quality. Well, surprise! The newest version of Spinnaker's *Better Working Eight-in-One* delivers a desktop full of utilities, an outliner, a word processor with a spelling checker and a thesaurus, a spreadsheet, a graphing program, a database, and a telecommunications program—all for \$59.95. And it's definitely not a low-budget affair.

Anyone familiar with menu bars, drop-down windows, and dialog boxes will instantly feel comfortable with *Eight-in-One*. From its main menu, you can select applications, access desktop accessories, manipulate files, format and copy disks, and configure the program to suit your computer. Once inside an application, the Quit menu offers options for returning to the main menu or moving directly to other applications. Onscreen help is available from any screen.

For keyboard input, you use a combination of arrow and function keys. Use the left and right arrows to move across the menu bar. Press the down arrow to open the highlighted menu window; pressing it again moves you through the options list. The up arrow will move the cursor up the list and will ultimately close the window. These same techniques work anywhere in the program and soon become second nature.

Except where numeric or textual input is specifically required (as in word processing, for example), the program accepts mouse input as an al-

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# TIMTY

ternative to most keyboard commands. For example, if the message "F1 for Help," appears on the screen, you can click on F1 to access Help. The same intuitive approach to mouse control works equally well in most situations.

Novice MS-DOS users will appreciate the clarity and completeness of Spinnaker's manual. It explains everything you need to know to get *Eight-in-One* up and running. In addition, it includes a glossary of commonly used computer terms, as well as several appendices about the basics of hardware, software, and DOS.

*Eight-in-One's* word processor provides most features included in similar programs from other publishers. In addition, it includes many surprising extras not commonly available elsewhere.

Its 100,000-word spelling checker will check and correct an entire document or verify the spellings of individual words. The program also lists suggested spellings, automatically replaces misspellings when necessary, and permits users to personalize their dictionaries by adding words they commonly use.

Numerous other features contribute to the word processor's overall effectiveness. Two documents can be held in memory at the same time, allowing you to switch between them with the ALT-D command. A printer queue lets writers work with one document while printing another. The word processor can import text files produced by other Spinnaker applications, and it can load and save text files in ASCII format for exporting to other programs. A View option displays final documents the way they will appear on paper, and users can import graphics (PCX and PCC formats) into their word processor files.

*Eight-in-One* doesn't support WYSIWYG (What You See Is What You Get) displays or customized

fonts. But once you've configured the program, you can use double-wide pica, condensed text, superscripts, subscripts, and other available fonts. If your printer supports italics, bold-face, and underlining, you can use those, too. For writers who frequently mix fonts of different widths, *Eight-in-One* automatically adjusts line lengths to show exactly how many words will appear on each line. A status section at the top of the screen displays the active typeface and style along with other pertinent information.

If you want help organizing your thoughts before committing them to disk, try out the program's outliner. Because rearranging entries is so easy, outliners encourage you to keep working until you get things right.

*Eight-in-One's* outliner shares many of the word processor's features. What makes the outliner different is its organizing capabilities. You can arrange and rearrange headings and sub-headings. If you promote or demote an entry, the items under them will automatically adjust to maintain perfect outline form. With this outliner, you can choose from Roman numeral format, Arabic numeral format, or a

special format that indents subheadings but omits level indicators entirely. After you've completed an outline, you can save it as an outline file or export it as an ASCII file.

Writing is a big part of any integrated package, but a good database is worth its weight in floppies. Although *Eight-in-One's* database module offers considerably less power than today's advanced stand-alone products, it can handle many tasks well. Since the program stores individual records on disk, rather than maintaining an entire file in memory, hard disk owners can create files with thousands of records. Each record can contain an undefined, but large, number of fields distributed over 55 screen lines. You can define your fields as character, numeric, date, logical, and memo. Numeric fields can hold literal values or formulas that manipulate other numerics within each record.

When the time comes to produce reports, the database's report generator performs nicely. It's versatile and easy to use. You can write short form letters and merge appropriate data; you can generate mailing labels; and you can design and save as many as



ten customized reports for each database file. If you wish, you can save an ASCII version for use in a word processor.

One deficiency in the database module requires mention: The Find function acts on only one field at a time. For example, a simple search can find all records that contain the last name *Locklin*. And, it can uncover all entries that mention Toronto, Canada. It can also locate all individuals under 18 years of age. However, the program can't scan for a combination of matching fields: all Locklins under 18 who live in Toronto, Canada, for example.

*Eight-in-One's* spreadsheet is also a strong asset. Although memory restrictions limit each file to about 4500 cells (on a 640K computer), the actual space you can work with spans 32,768 rows  $\times$  10,000 columns. The program can import and export documents in *Eight-in-One*, *Lotus 1-2-3* (versions 1A and 2.0), and *DIF* formats. The print routine automatically handles extra-wide spreadsheets for side-by-



Write on with *Eight-in-One*.

side display. The spreadsheet even has its own graphing component.

In the spreadsheet, mouse control really struts its stuff. A click-and-drag motion highlights a block for easy copying, cutting, or pasting. Clicking the rightmost mouse button alternates between menu and edit screens.

In most respects, this spreadsheet works much like any other. Column widths can be adjusted. Cells can contain text, literals, or formulas. You may format them to display data in a wide variety of ways (dollars or percents, for example), and the usual array of predefined functions is available. You can also lock titles onscreen both horizontally and vertically, thereby providing necessary guidance when scrolling through large files.

*Eight-in-One's* graphics module confines itself to the creation of charts and graphs. Six types are available: bar charts, line graphs, shaded line graphs, pie charts, exploded pie charts, and scatter points.

You can enter data directly from the keyboard or import it from the program's spreadsheet or database module. Define the low and high ranges to be displayed, or, alternatively, the computer will calculate reasonable ranges and use them. With a few quick keystrokes, you can change a bar chart into a line graph or pie chart. Save your completed graphs to disk, print them, or export them for use in other applications.

On balance, the graphics module is adequate for creating simple, two-dimensional graphs, but it can't do much else. Serious users will require something with more muscle.

When it comes to communications software, simplicity is often better than an impressive list of confusing options. From this perspective, *Eight-in-One's* communications program has much to offer.

With all settings left at their defaults—COM1, 1200 baud, full duplex, no parity, eight data bits, and one stop bit—the program should be ready to work with most computer configurations and the vast majority of commercial services and local bulletin boards (provided you've installed a modem). Choose Communications from the main menu, enter a phone number in the directory, and select Dial to activate autodialing.

The communications module also provides sufficient flexibility to satisfy

many intermediate and advanced users. It supports transmission speeds from 300 to 9600 baud. The software can address any one of four serial ports, and its phone book can hold up to ten numbers. Users can create ten short macros to simplify log-ons. Four terminal-emulation modes are available (Standard, Teletype 930, DEC VT-100, and IBM 3101), and the program supports XMODEM and ASCII protocols for uploading and downloading to and from remote terminals.

All of these applications would be enough for any integrated package, but *Eight-in-One* doesn't stop there. Its Desktop menu includes six short utilities: Memo Pad, Address Book, World Clock, Calendar, Do List, and Label Maker. These aren't memory-resident pop-ups of the *SideKick* sort, nor are they true desk accessories in the Macintosh tradition. Instead, accessing these utilities requires closing the current application. Though somewhat inconvenient, the

process works pretty smoothly.

With Memo Pad, you can write notes, save them to disk, and recall them later. Address Book stores up to 200 names, addresses, and phone numbers. Calendar keeps track of your appointments, and the Do List will remind you of as many as 45 important chores. And Label Maker makes printing a mailing label a snap.

The Desktop's World Clock, besides displaying the time in 16 major cities around the world, boasts a handy alarm clock, which will notify you at the preset time no matter where you are within *Eight-in-One*.

Another convenient extra is the pop-up calculator, available anywhere at the touch of the ALT-K keypress combination. You can paste the results of the calculations into any *Eight-in-One* document.

The key to any integrated product is its ability to pass information between modules. True to form, *Eight-in-One* permits a wide range of file-sharing possibilities. The word processor can import files written by the spreadsheet, database, and memo pad. ASCII files that you receive through the communications module can be loaded into the word processor for editing. In addition, you can export word processing files for use by the database or communications programs.

Is this a perfect program? Of course not. When using the thesaurus, I had some trouble scrolling with my mouse (but not with the arrow keys). Similar problems with mouse control occurred within the database and other applications. I encountered a few isolated inconsistencies between the documentation and the program itself. However, none of these errors were fatal to the program.

The spelling checker is a bit slow, and some users might gladly exchange the program's limited graphing module for a full-featured paint program. And, since word processing files are entirely memory-resident, document size is limited to 50 pages or so on a 640K computer.

Every software product contains compromises, which inevitably open the door for criticism. Overall, *Better-Working Eight-in-One* delivers more power, more versatility, more value for the money than any other integrated package designed for the home. □

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# 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.

Imagine having a collection of robust applications, poised in a single program, ready to tackle all of those tasks you always thought that a computer should be good for . . . to put a graph into a letter and have it finished three minutes later . . . to instantly check your next appointment, or automatically dial a customer on the telephone while you're in the middle of working on a spreadsheet.

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.

What's more, the best integrated packages are lightening 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.

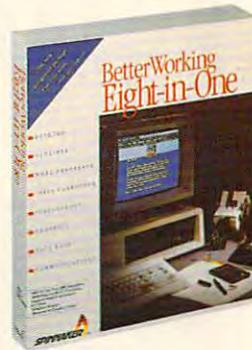
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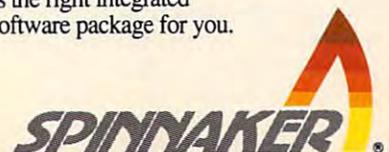
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D A V I D D. T H O R N B U R G

**T**hough it's hard to accept, I remember a time in my life when I didn't have my own computer. My first machine, a Commodore PET, had a whopping 8K of RAM—an amount that no one would dream of living with today. I spent endless hours creating word processors, games, and other small programs that only hinted at the real power of personal computing.

Those were wild days. The personal computing field was dominated by Apple, Commodore, and Tandy, but that didn't keep others out of the fray. Many truly innovative computers never became commercial successes. Names like Interact and Kentucky Fried Computer (later to become Northstar) are just memories. Last week I was rummaging through a closet and came across some of these relics—antiques less than ten years old!

By the time IBM joined the fray with its lackluster entry, things had gotten serious. Word processors had 300-page manuals; the public had been brainwashed into thinking that computers should be hard to use, serious tools for business, not playthings for the mind. In this relatively conservative phase of the industry, companies like IBM established themselves with a "serious" product. The Atari 800, with its rich palette of colors and sounds, was clearly a "game" machine. The underpowered and overpriced entries from the giants were the "business" machines. They had few colors and only functional sound, and the more cryptic the commands, the better.

Fortunately, some companies continued to see the computer as a powerful tool for creativity. When Apple introduced the Macintosh in 1984, I felt the excitement return. For all the ink that has been spent on this computer over the years, the one point that's forever underreported is that working in the Macintosh environment is fun. Not "ha-ha" fun, but fun

like the early days of personal computing. The difference is that we controlled the hardware in the early days, but now we can control our programs, too. The hardware revolution is now a software revolution. The Macintosh shows that powerful applications can be mastered by people who think operating systems are surgical instruments. The "natural" user-interface metaphors such as windows, menus, and icons, as implemented on the Macintosh, greatly changed people's perceptions of this technology.

The core of the software revolution has nothing to do with the metaphor of the user interface; it has to do with simplicity. In 1984 I wrote a book using *MacWrite* and a 128K Macintosh. Today I've moved to

*MacWrite* to incorporate multiple columns, mail merge, spell checking, footnote generation, and text/graphics manipulation, but when they finally managed it, they didn't compromise the simple operation that characterized the program's first version. The same can be said for numerous other applications for the Mac and other computers. There's no legitimate reason for any program to be hard to learn and cumbersome to use.

All of this leads me to make a few observations about the way things will go in the world of personal computing. If you've followed my columns in these pages for the past decade, you've seen some predictions that haven't come true. But I'll stick my neck out.

The last decade has shifted the focus of personal computing from the hardware to the user, and this trend will continue in the foreseeable future. The public will judge computers by their ability to support the natural way human beings work. Any attempts to mess with this fundamental idea will, over the long term, meet with commercial failure.

In meeting that goal of human-interface comfort, several developments will take place. First, the connection between our computers and our phone systems (long talked about) will grow firmer because of the facsimile machine.

Also, just as slow cassette tapes gave way to 5¼-inch disks, which in turn are giving way to 3½-inch high-density disks, today's hard disks will surrender themselves to erasable optical media with gigabyte capacities.

The computer's overall form might change as well. For example, as the cost of video projectors drops, the CRT may be replaced by a projection screen that can be used up close for personal work or placed far away when the computer is being used in a group setting.

None of these changes will occur overnight. But slowly they will make their way into our lives, simplify the computing process, and guarantee the future of home computing. □



*MacWrite* 2.0 running on a Mac SE. Over the years, the basic operating environment has stayed simple and easy to use.

In the interim, I've looked at other word processors, many of which had features I thought I wanted. Each time, I decided that the trip wasn't worth the fare. When features come at the expense of simplicity, the cost in user frustration is too high to bear.

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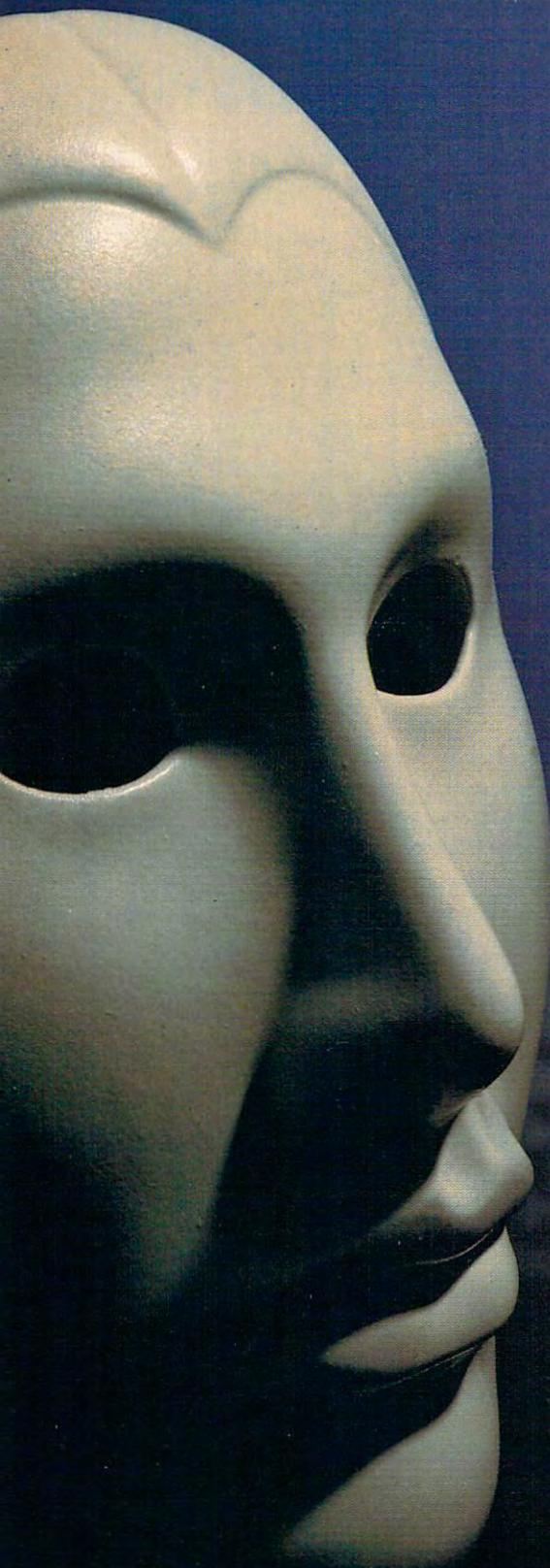
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**ON DOS**

Dan Gookin

**P**eople agree: MS-DOS isn't the prettiest part of a PC. But don't put all the blame on Microsoft and IBM. DOS borrows its unpleasant approach from early microcomputer operating systems, all of which were designed before graphics interfaces became popular and before *user friendly* became a catch phrase. Except for typing cryptic commands and complicated codes, there wasn't any other way to use a personal computer.

Yet, the unfriendly face we associate with DOS has had an interesting side effect: It has spawned shell programs that insulate us from the command line interface and present a more attractive face to our eyes. Quite a few computer-age entrepreneurs have made their fortunes by getting between you and DOS. If you haven't looked at some of their efforts, now's the time.

### The Shell Game

DOS shells are those nifty programs that give you access to DOS's features in a simple, friendly manner. Gone are the command lines and enigmatic phrases. Say hello to one-key commands, easy-to-follow graphics interfaces, and a simpler way of doing things.

Before you rush out to buy a shell program, however, take some time to learn how DOS works. You don't have to use it; just know the basics. It's like learning how to operate a car and to make minor repairs, but not calling yourself a mechanic. You're just a conscientious owner.

With that in mind, there are five DOS makeovers covered in this feature. They are Tandy's DeskMate, IBM's DOS 4.0, Delta Technology's *Direct Access*, Peter Norton's *Norton Commander*, and PC Dynamics' *Menu Works*. That list isn't complete, by any means. An argument can surely be made for Microsoft Windows and GEM, but for our purposes we will classify them as more complete operating environments in themselves, rather than as handy DOS shells.

Generally speaking, to use any of these packages, you need only an IBM-compatible computer. If you have a color monitor, these DOS shells will look better. With a color monitor, it's that much easier to see what the programs are doing. Your PC should also have more than enough memory, either 512K or 640K. A mouse is also a handy addition. And you need a hard disk. You can use a few of these applications with a floppy-only system, but that adds overhead to your basic computer operations.

### DeskMate

Just because DeskMate comes from Tandy doesn't mean that you need a Tandy computer to use it. This wasn't always the case, but Tandy has made some adjustments to make DeskMate compatible with other PC clones. There's a lesson there somewhere.

Overall, DeskMate (version 3.0) is oddly interesting. It works best if you have a mouse and a color display, though neither are required. If you do use a mouse, you may notice some sluggish-

ness. You do need DOS 3.2 or later, and 640K of RAM really helps. There's no installation program; you can move the same application to a different computer and DeskMate will figure out which computer you have and how to configure itself to best serve that hardware. I like that.

DeskMate is only about 40-percent DOS shell, however. The rest of the program consists of an operating environment where you can use other, built-in applications, such as a mini-word processor, a spreadsheet, a database, and the standard programs you find in most integrated software packages. It's a jack of all trades, designed primarily to whet your appetite for more powerful and capable software.

But let's confine ourselves to DeskMate's DOS shell. It's not as graphic or intuitive as are some other shells. The "tree mode" is cumbersome, and file management offers little more than scattered menu options. It lacks file utilities and does little in the ease-of-use category. In short, there's not much to brag about.

Still, the shell does boast several fine attributes. You can, for instance, install your own applications into DeskMate. This excellent feature lets you bring in your own software, along with some data files, for quick launching from DeskMate's desktop. It runs slick and is enough to keep DeskMate on your PC even after you tire of its built-in applications.

Overall, DeskMate is an excellent first-time application for the home user. In fact, it will probably last you for several months (until you decide whether or not you need a more complete software application). As a shell, DeskMate lacks character. But as your first introduction to computers, it's nice. And you can continue to use DeskMate, installing new applications and so forth, as long as you own your computer.

### DOSSHELL

PC-DOS 4.0 has many interesting trivial aspects about it. It's written totally by IBM (a good job, too); it lets you format a hard disk larger than 32 megabytes as one drive; you can use EMS memory with some of the DOS commands; its simple installation procedure lets you upgrade from older DOS versions (very nice); and it comes with an interesting, customizable, graphic, mouse-driven shell program called DOSSHELL (*that's* original).

But don't run out to your nearest computer dealer to pick up a copy of PC-DOS 4.0 so you can upgrade your old PC-DOS—there's no hurry. Version 3.3 is the version you should use. Until more software supports DOS 4.0, or something miraculous happens with DOS 4.1, the only reason to look into it is for its shell application.

DOSSHELL blows DeskMate away, as far as usefulness is concerned. It's full of utilities, it's configurable, and it has plenty of valuable features, including password protection and the ability to install your own programs into its menus. Its only major stumbling block is that it's not intuitive. There is no "feel" to it.

Presently, DOSSHELL only recognizes offi-

# A NEW FACE



cial IBM hardware. Though there's a driver for the Microsoft Mouse, there's no Hercules video driver, nor is your favorite Epson or Panasonic printer likely to be listed among the IBM-only options. However, considering that DOSSHELL comes free with PC-DOS 4.0, and that it provides an effective and comfortably interesting environment, it's not that bad of a deal.

## Direct Access

Now *this* is a DOS shell. In fact, it's one of the most popular DOS shells on the market. *Direct Access* beautifully uses the PC's uncomplicated text-based abilities to make using DOS simpler. It doesn't use graphics to trick you into thinking your PC is a Macintosh, but what it does, it does well.

The program is easy to set up. In fact, you

can just copy the files over to your hard drive. If you use the INSTALL program that comes on the disk, watch out—it will modify your AUTOEXEC.BAT file whether you tell it to or not. (I hate it when programs do that.) To be safe, make a directory for *Direct Access* and copy its files to that directory.

Anyone can use *Direct Access*. Office computer gurus can use it to quickly set up a menu system for the less wizardly. Even the most computer-fearful will understand and enjoy using it because it beats the pants off writing batch files.

To set up *Direct Access*, you create menu categories for things like spreadsheets, databases, word processors, and all your major hitters. Adding and manipulating menu items is a snap and is intelligently done. Once everything's in place, you're ready to use your system. Press a key and—zap!—you're using that application. If you're a complete computerphobe, you can stick *Direct Access* into your AUTOEXEC.BAT file so that you never have to see DOS.

Aside from running applications quickly and quietly, *Direct Access* also has password access/protection (ideal for use in education environments), and it performs some time-management functions, tracking computer usage according to user and project. A very clean system.

The only drawback is the program's lack of real utilities. You can't create a directory, move files around, or manipulate them in any way. But you can use the program to run other utilities that do all those things. Delta Technology claims only that *Direct Access* is a hard disk menu manager—and it's a good one.

## The Norton Commander

From Peter Norton, the Utility God of the computer world, comes the *The Norton Commander*. It's most definitely a DOS shell, but it's also overflowing with interesting utility features, probably stemming from Norton's reputation for programs that do everything. In that respect, it doesn't disappoint.

*The Norton Commander* has all the standard features of a DOS shell: handy menus for performing DOS tasks, quick launch of programs, the ability to make your own menus, and an interface that's simpler to use than the old cryptic DOS command line. On top of that, *The Norton Commander* adds several features *Norton Utilities* lovers have come to cherish, including the ability to search for files; view files in either text, 1-2-3, or *dBase* formats; select groups of files for manipulation; or perform a host of other nifty computer jobs.

As if that weren't enough, *The Norton Commander* even supports the 43- and 50-line mode of EGA or VGA graphics (as well as the Microsoft Mouse). But it doesn't operate in graphics mode and, unlike some other utilities, you can't change the default colors. It presents a pretty busy screen, but you can turn everything off if you just want to look at the boring old DOS prompt. At a touch of a key, *The Norton Commander* snaps back to attention. ▸

## Today's Menu

### DeskMate—\$99.95

Tandy  
1400 One Tandy Center  
Fort Worth, TX 76102  
(817) 390-3011

### Direct Access—\$89.95

Delta Technology  
1621 Westgate Rd.  
Eau Claire, WI 54703  
(715) 832-7575

### Menu Works—\$24.95

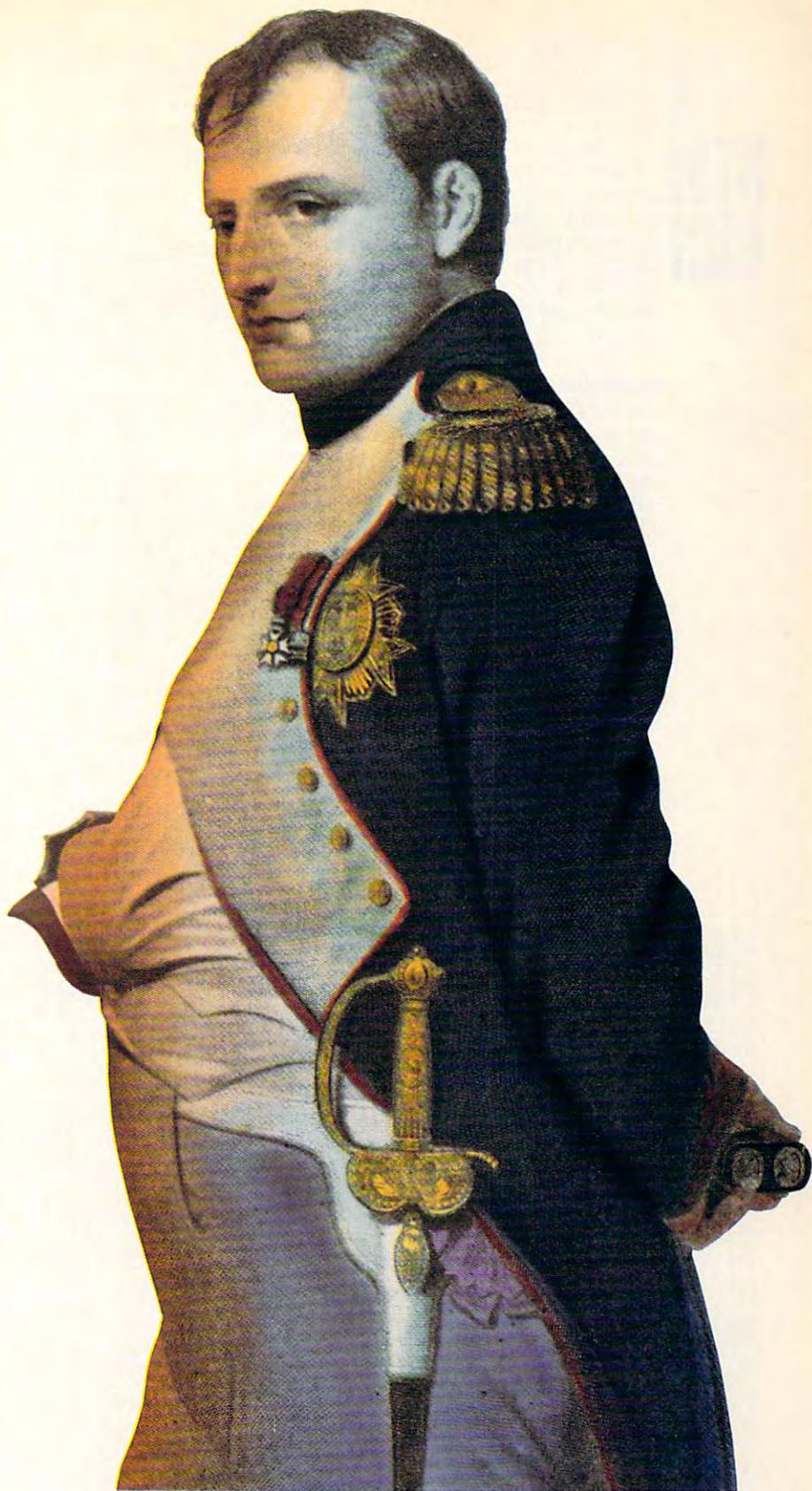
PC Dynamics  
31332 Via Colinas  
Suite 102  
Westlake Village, CA 91362  
(818) 889-1741

### The Norton Commander—\$89.00

Peter Norton Computing  
100 Wilshire Blvd.  
Santa Monica, CA 90401  
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### PC-DOS 4.0—\$150.00

IBM  
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# A NEW FACE

The only problem you might have with *The Norton Commander* is its overabundance of utilities and display formats, or panels. All that stuff makes the program a bit cumbersome. You really need to sit down with the manual to learn how things are done. I know what you're thinking: *Oh no, a whole new set of commands to memorize.* But once you get them down, *The Norton Commander* does its job effectively.

## Menu Works 2.1

Unlike *Direct Access*, *Menu Works* does most of the setup work for you. Its amazing INSTALL program will search your entire hard drive for the nearly 1000 software applications it recognizes; then it will assign them to proper menu categories, create custom menus, and send you off on your merry way. There's nothing else to mess with, no reason to.

Unfortunately, the INSTALL program will modify your AUTOEXEC.BAT file unless you tell it not to during the installation process. (Stubbornly, it ignored my request and stuck three extra lines in there anyway.) On my computer it also put a blue border that I didn't want on my screen. I had to reboot to get rid of it.

Other than that, I found *Menu Works* immediately useful. It recognized a whole slew of files I had on my system, even such bizarre ones as old *Norton Utilities*, *PC Magazine's* Benchmark series, and shareware like *PC-Style* and *List*. It got confused by my two versions of

*WordPerfect* (4.2 and 5.0; I still haven't gotten used to 5.0), but other than that everything worked smoothly.

You can customize *Menu Works* by adding your own menus with optional passwords and original names. You also get some disk utilities and mouse support. All in all, it's a nifty package for beginners, and not a bad deal for power users, either (although they might frown at the pretty windows and zippy sound effects).

## Out of My Shell

Developers have blessed us with a delightful assortment of makeup to cover those unsightly DOS blemishes. For those getting started, there's *DeskMate* and its easy graphics access to DOS, plus its own set of starter programs. Next comes *DOSSHELL*, which, if you own PC-DOS 4.0, you should investigate (everyone else, don't bother). *The Norton Commander*, with its bounty of DOS utilities, occupies the high end of the DOS-shell spectrum. Or, there's *Menu Works*, with its intelligent INSTALL program. My own favorite is *Direct Access*. It's what a DOS Shell should be: easy to use, easy to customize, and a clean presentation.

You can choose your favorite DOS shell based on your needs. With the variety available, there are plenty of ways to hide DOS's ugly face. If all else fails, you still have batch files. □

When he isn't taking a serious look at DOS, Dan Gookin writes *COMPUTE!'s* "Off Line" column.

## Shelling Yourself

The DOS shell software market is big. Besides the major hitters, dozens and dozens of smaller companies market their own shareware and public domain shell programs.

Although some people consider them second-class citizens in the DOS shell world, these programs have lots of variety, serve many purposes, solve many problems, and oftentimes fill a special niche.

Nearly every program listed below gives you the ability to create a custom interface, complete with some type of menu for displaying common DOS commands. A few of them have utility features, and some of them offer funky sounds, fancy text, and fun graphics like exploding color windows. If you're interested in the shell game, you might want to check some of them out.

### AUTOMENU

Magee Enterprises  
2909 Langford Rd.  
Suite A600  
Norcross, GA 30071-1506  
(404) 446-6611  
\$50.00

### DESKTEAM

Public Brand Software  
P.O. Box 51315  
Indianapolis, IN 46251  
(800) 426-DISK  
\$30.00

### Express PC Menu System

Information Resources  
210 Lorna Sq.  
Suite 117  
Birmingham, AL 35244  
(205) 823-5777  
\$79.95

### 4 DOS

J. P. Software  
P.O. Box 1470  
E. Arlington, MA 02174  
(617) 646-3975  
\$35.00 (\$50.00 if you order the printed manual)

### HDM III

Public Brand Software  
P.O. Box 51315  
Indianapolis, IN 46251  
(800) 426-DISK  
\$25.00 (\$50.00 if you order the printed manual)

### NIFTY & MOE

California FREEWARE  
1747 E. Avenue Q  
#C-1  
Palmdale, CA 93550  
(805) 273-0300  
\$50.00

### QuickMenu

Crescent Software  
11 Grandview Ave.  
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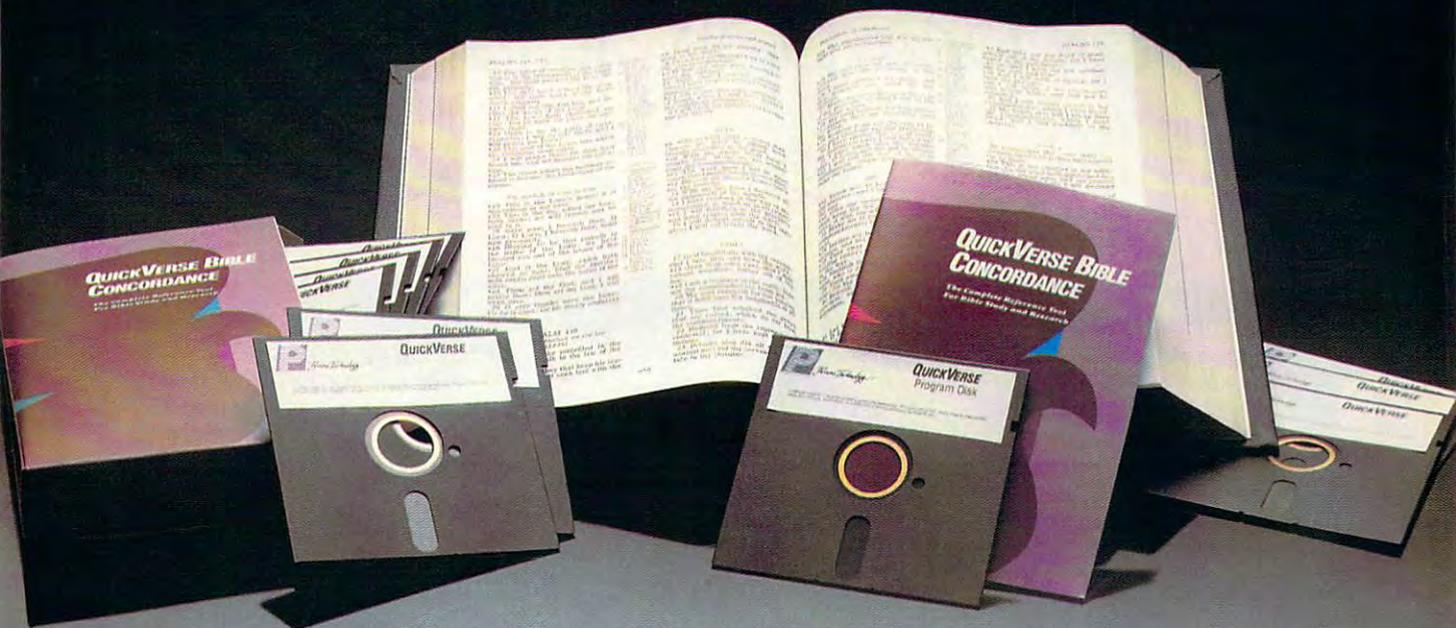
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Palmdale, CA 93550  
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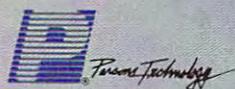
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**T**he newest personal computers blaze along at dizzying speeds, their hard disks whirring in response to your every whim.

But not everybody can afford this year's or even last year's PC model. We all would like blinding speed, mass storage, and megabytes of RAM. We all would like the luxury of an edge-of-technology system. But some of us get along quite well with a double-floppy 8088 machine and 512K of RAM. With a little know-how, we can make our system sing with the best of them.

If, for example, you covet your neighbor's hard disk, here's a plan for making your old double-floppy system a more effective computing tool.

For applications that require a lot of data files (like word processing), nothing beats a combination boot/data disk. Not only can you use the disk to start your application, but you'll also have room on it to hold the data you work with most often. If, like me, you have one 3½-inch drive and one 5¼-inch drive, use the 3½-inch disk to hold the application and the 5¼-inch disk as your boot/data disk.

To construct a boot/data disk, first format the disk you want to use with the `FORMAT A:/S` command. (You'll need your DOS disk in drive B. You can substitute another drive letter for A:, but since most IBM PC and compatible computers load from the A drive, I'll use it as the example.) The /S switch transfers the hidden system files to your boot disk. On your screen, it looks like

**B:FORMAT A:/S <Return>**

After the format is complete, copy `COMMAND.COM` from your DOS disk to your boot disk using the `COPY` command. By including `COMMAND.COM` on your boot/data disk, you can get back to the A: prompt after you leave your applica-

tion. Type

**B:COPY COMMAND.COM A:  
<Return>**

If you like, you can give your boot/data disk a label with the `LABEL` command:

**B:LABEL A: <Return>**

Follow the onscreen directions for entering a name for your disk (a maximum of 11 characters; you might call your word processing boot disk `WPBOOT`). You can also label your disk during the formatting process with the /V switch. If you choose this route, your screen will look like this (provided you're making a boot/data disk in drive A from B):

**B:FORMAT A:/S/V**

Just follow the onscreen instructions

**BOOT YOUR  
DOUBLE-FLOPPY  
COMPUTER INTO  
THE BIG LEAGUES  
WITH A STARTUP  
DISK THAT'S  
LOADED  
FOR  
ACTION**

for labeling the disk.

Now that you have your boot disk ready to run, you may want to add a few items to its arsenal. For example, my boot disk includes a screen-saver program, a cache program, and a utility that speeds up my cursor. My application disk, which goes in drive B, holds my working copy of *WordPerfect* (the writing program, the printer driver for my Panasonic 1080i, the dictionary, and some font files). As an added bonus, the application disk comes in handy when I'm on the road with a laptop.

If you have some TSRs you want to load before you start your application, copy them to the boot disk (my screen-saver and cursor-control programs are good examples). Then, use your word processor or any other text editor that saves files in ASCII format and write an `AUTOEXEC.BAT` file to jump-start your system at the touch of a switch.

On my boot/data disk, my `AUTOEXEC.BAT` file looks like this:

**SAVESC RN <Return>  
FLASHKEY <Return>  
FLASH 128 <Return>  
B: <Return>  
WP**

That's all I need. I just hit the switch and DOS loads, my TSRs load, the computer switches to the B drive, and—bang!—*WordPerfect* is up on the screen.

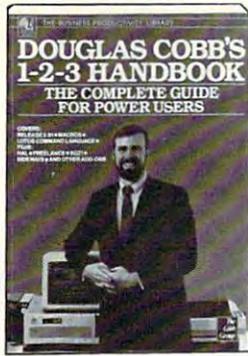
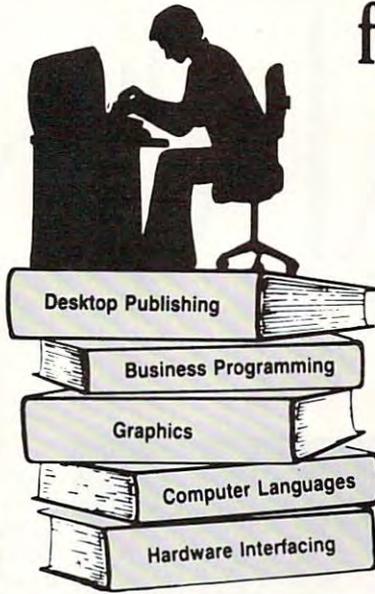
Using boot disks that load applications and double as data disks can greatly increase the efficiency of your double-floppy computer. It plays on the first rule of computing: Let the machine do the work.

*Peter Scisco*

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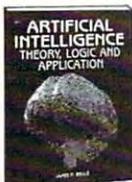
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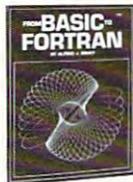
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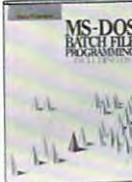
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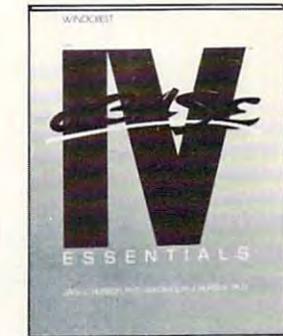
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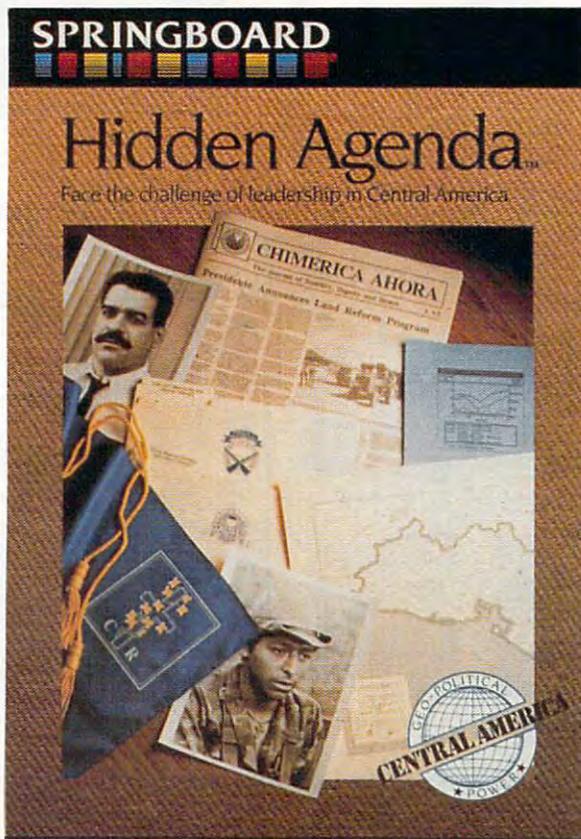
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Against this background of conflict, your object is to remain in power for three years. Against these considerable odds, you try to establish some economic stability and to improve social conditions.

Your first official act in *Hidden Agenda* is to hold a press conference where you define the goals for your presidential term. Then you ap-

point your cabinet. After inspecting representatives from the three political parties, you should choose the ministers who will give you the best advice.

As you play *Hidden Agenda*, you consult with them and other influential Chimericans. Most of your decisions aren't simply influenced by these people; rather, your decisions are controlled by these people. To take action in this game, you must encounter either your ministers or your people. Each encounter centers around a problem raised by one of these people. Your ministers propose solutions, and the people involved propose other solutions. For every crisis, you can choose from many re-

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KRISTEN STERNBERG

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Your cabinet might back you on important issues—then again, they might not. There's the laborers to pacify, but there's the elite crying out for their just desserts, too. Balance the budget. Maintain friendly relations with the superpowers of the world. Stay in power. Stay alive. A president's work is never done.

# G

sponses, but you can't offer any original ideas. You ask for advice, and you either take it or leave it.

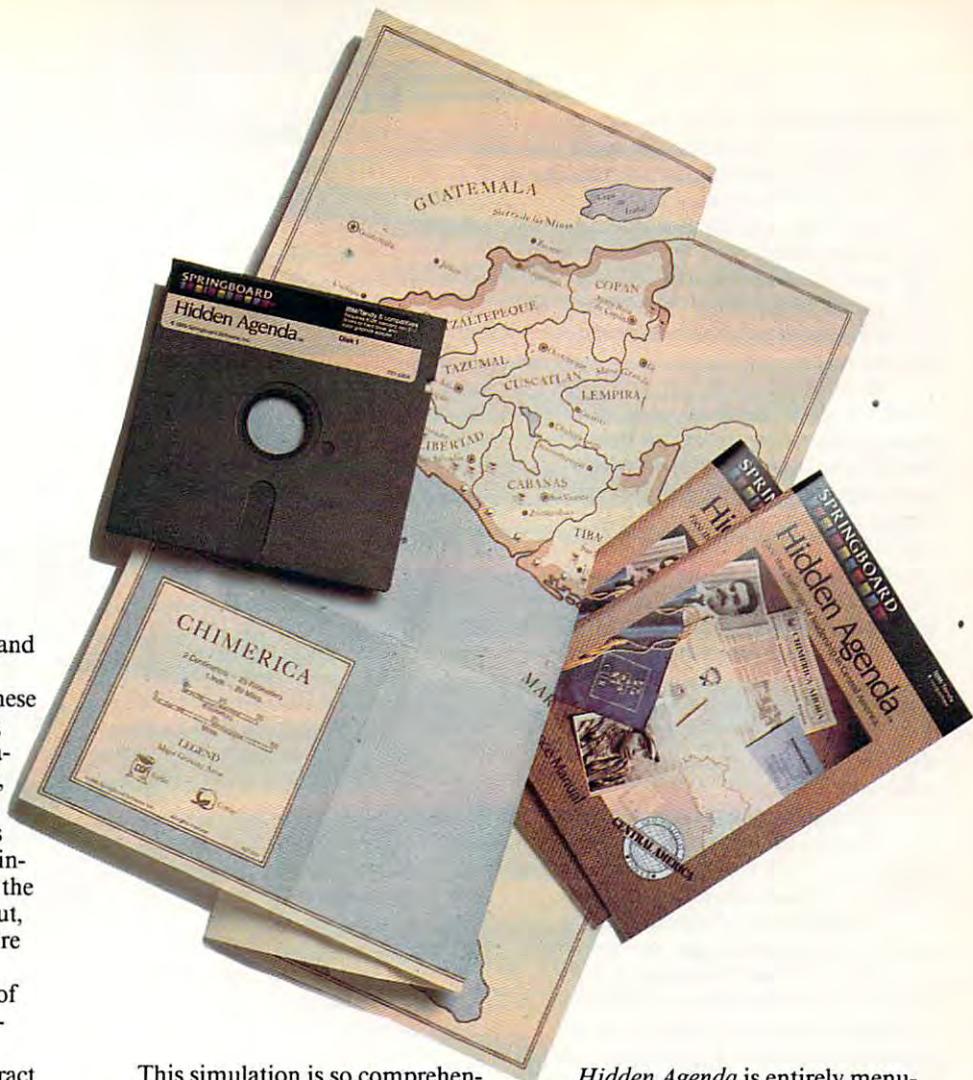
Each time you act on one of these proposals, you've made one move; every nine moves make up one season. Three seasons make up a year, and, if you make it through three years, you win. (With the sacrifices you've had to make to survive, "winning" becomes a relative term.) In the beginning, your tasks seem easy. But, later, when the pace quickens, you're forced to make snap decisions.

You won't always be notified of problems until they escalate, sometimes dramatically. While dealing with one character, others can interact with each other and even make their own decisions without your knowledge. At times, you'll be confronted with proposals that directly contradict each other. Compromise is tough when no one will give an inch.

You judge your progress in several ways. You get feedback from the people you encounter, and the newspapers evaluate your work, too. You can also check out the progress charts. Your ministers will of course have something to say about each decision you make. If you don't pay attention to their feedback, you might find that you've lost control.



Preserve popular support by responding to each crisis quickly.



This simulation is so comprehensive that I found few limitations. For instance, although the characters didn't change each time I played, they never became stale. I found that knowledge of the positions they represented increased my interest and my strength in decision making. I knew that I could count on certain people to back me, and I knew when others were likely to become restless. This doesn't mean that each character says the same thing every time, either. As you progress through the game, you'll find that their propositions vary quite a bit depending on the time of year and on your previous actions.

These people are varied and interesting, and each has one or more pet issues. Realism is the name of the game here. At first, in my ignorance, I simply chose to meet with people whose viewpoints interested me or people who might address the problems I anticipated during my term. For example, I thought the Cuban consul was one of the least of my worries—until I ignored him; and he shipped out in disgust, taking with him badly needed economic assistance from that country.

*Hidden Agenda* is entirely menu-driven, but this program can be fast-paced, exhilarating, and full of surprises. The screens are more diverse than in any program I've seen. You'll get to know the various icons, the many charts, and the photos of each person you contact. There are even animated screens. You'll always find something new to look at—or to worry about.

Your cabinet members are a real challenge. For one thing, they are very quick with their disapproval if your decision goes against their advice. Also, choose those ministers that will offer solutions you can live with, otherwise you may be forced to fire some of them. You can always replace a bad minister with a new one, but there's a limited pool of choices. One other thing: A cabinet member can turn on you. One of mine decided to lead her own revolution. From this experience I got a lot of practice bargaining with people. I also ordered my first execution.

For a complete description of the simulation and gameplay, you can read the extensive manual and the reference guide. The reference guide includes an extensive glossary of terms from the program and from the real world. The manual explains how to

interpret charts and gives you some background on Chimerica. Both are full of diagrams and sample screens. A separate teacher's manual is also available. Although the documentation is very helpful, you can also jump right in. Online help guides you through the preliminary operations and tells you about each feature as you use it.

Some of your best help will come from a specially designed desk. Instead of paperweights and address books, your desk is equipped with icons representing different aspects of the game. Under the Reports icon, you'll find several national and international newspapers. I found the articles really valuable because they kept me in touch with events I might have otherwise unknowingly neglected. If you read the newspapers as soon as you get in office, you'll be rewarded with a detailed synopsis on the state of the country, and you can use the information to make intelligent decisions. Remember that each press has its own point of view and its own interest to serve. A newspaper can be as biased as a union activist.

To keep track of your decisions, consult your logbook, another icon on your desk. Choose the progress charts for a wealth of statistics on important issues such as crops, exports, and infant-mortality rates. For finding your way through the countryside, a map is included.

You'll need a graphics adapter and either two 5¼-inch floppy drives, one 3½-inch drive, or a hard disk to run the game. *Hidden Agenda* is not copy-protected, and you are urged to make working copies of the original or

to install it on the hard disk before you start.

Even though the world of Chimerica was well constructed, a few problems with the mechanics of the game caused me some minor dismay.

First, although the manual and quick-start reference guide instruct you to type *ha* to load the game, that didn't work for me. I inspected the disk's directory and then typed *agenda*, which gave the proper results.

A second problem was more troublesome. When I inspected my logbook during the game, I selected an option that prints the entire log. The program froze, and I had to re-boot—just because I had forgotten to turn on my printer.

The third problem is more serious still. When I wanted to go back to a previous screen, I thought the logical step was to press the escape key. It wasn't. *Hidden Agenda* jumped me all the way back to DOS, and I lost all the time I had put into the game. I wish there had been the familiar *Are you sure you want to quit (Y/N)?* prompt.

A fourth problem makes *Hidden Agenda* compelling by forcing you to play the game all the way through at one sitting. Although there are instructions for saving a game in progress, I never successfully restored one from a floppy disk. I tried, but although the saved screens came up, they were filled with gibberish. It was

impossible to continue. I contacted the company for advice about this problem, and after extensive testing they assured me that the bug only showed up when you load *Hidden Agenda* from a floppy disk. There seems to be no problem running it from a hard disk. Springboard assured me that they would begin working on a revision at once. They also told me that anyone who runs into the same trouble should contact the company for a free replacement disk. Until the revision is available, however, plan to spend an hour or two completing your

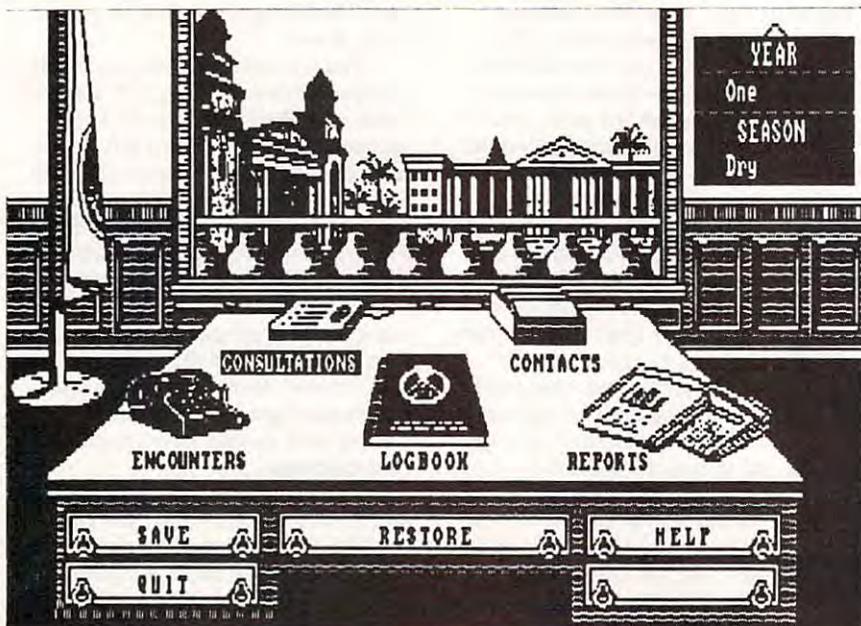


Choose four ministers to advise you on important issues.

presidential term.

Still *Hidden Agenda's* strong points far outweigh its faults. This absorbing game is very detailed and intricate. You'd never guess how involved the plot is and how much information the program is storing.

For instance, I didn't realize the extent to which the program kept track of my every move until I reached the end of my first game. When I read the encyclopedia excerpt that analyzed my performance during those three years in office, I was amazed at what was mentioned. The analysts saw fit to discuss every moment of indecision I ever had. It was a fascinating and sometimes embarrassing evaluation. The report of my years in office mentioned details I had already forgotten, and I learned that you can't fool—or please—all of the people all of the time. After the encyclopedic judgment of my performance, I had to start over again. That's a chance most leaders don't get. □



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### Hidden Agenda

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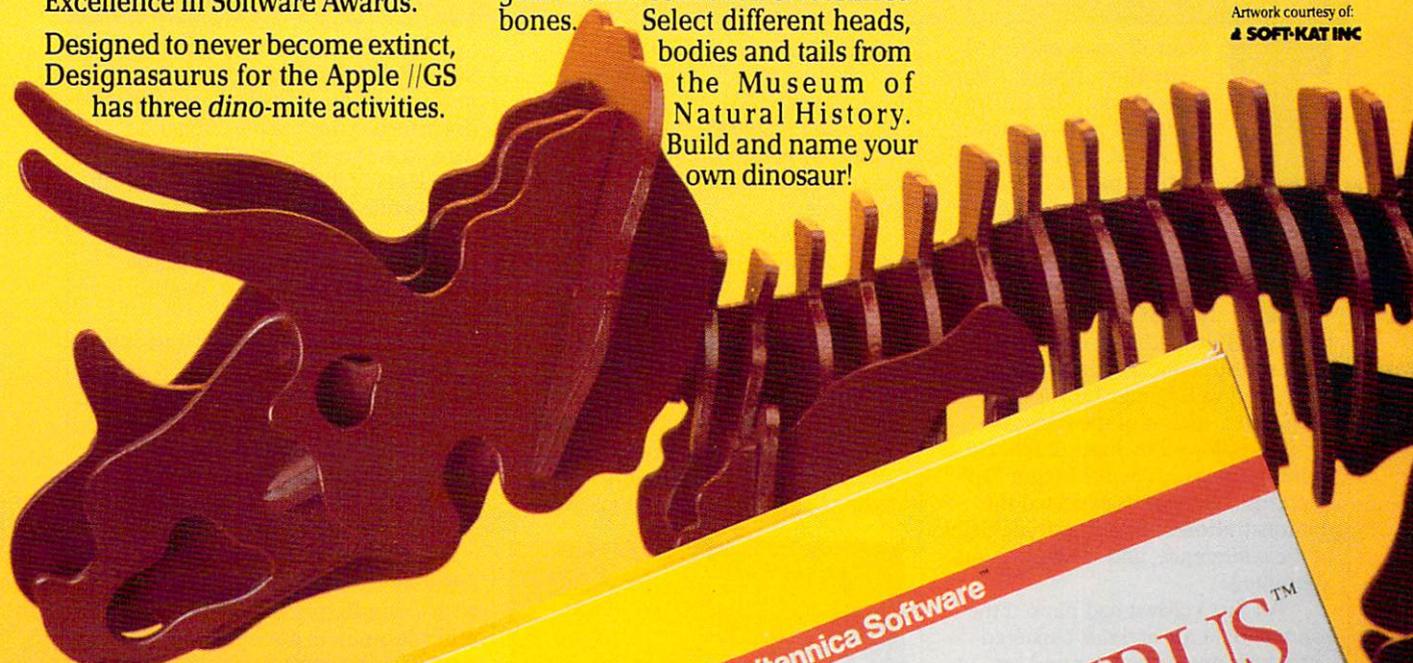
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# DISCOVERIES

DAVID STANTON

**T**he droll voice entreated: "Attention, please. Attention, please. The fire department is investigating the alarm. Stay calm. Attention, please."

Everyone glanced around, looking incredulous. If panic showed anywhere, it reflected more a fear of missing the Spotlight on Multimedia session than it did a serious concern for physical safety and well-being. This session promised a review of the Palenque Project, followed by Fred D'Ignazio's presentation from Multi Media Productions. Many of us expected the demonstration to be a major highlight of the conference, and we weren't disappointed.

An SRO crowd had packed the room early. Late arrivals clustered outside doorways to hear and see what they could. None of us, seated or standing, wanted to sacrifice our places; consequently, the first alarm went unheeded. It is unlikely that anything less than palpable proof of an emergency—smoke, flame, maybe torrents of water shooting from fire hoses or dripping from above—could have moved us. Multimedia, after all, had captured the imaginations of computer-using educators all over the country. It was certainly the hottest topic in Boston's Hynes Convention Center during the June 20-22 National Educational Computing Conference (NECC). It would not easily be upstaged.

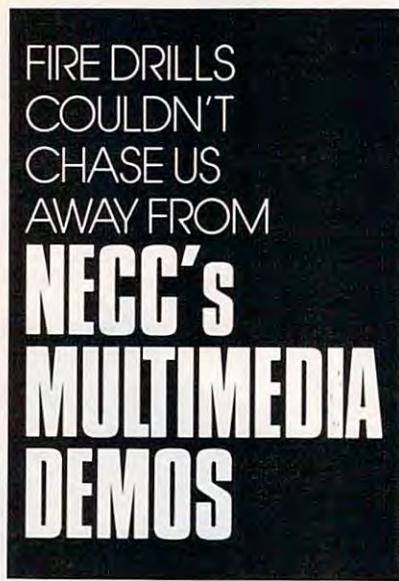
So what's multimedia? Essentially it refers to the integration of several audiovisual devices in a single presentation. We didn't call it multimedia in those days, but any teacher with ten years' experience understands it well. "Just turn to the next slide when you hear a beep," we instructed, and our student assistants became multimedia experts, too. Such commonplace teaching tools would hardly evoke sincere and spontaneous applause from a crowd of today's educators. Kathleen Wilson's much more sophisticated

multimedia presentation did.

Picture this. You're sitting in front of your IBM AT. A special video card hides inside the computer. A CD-ROM player and miscellaneous other gadgets sit alongside. You boot *Palenque*.

Suddenly you find yourself at the site of a Mayan ruin on Mexico's Yucatan Peninsula. Your monitor turns into a movie theater displaying real footage of the location. A familiar menu bar tops your screen. Clearly, this is no everyday theater. Here, you control the movie in surprising ways.

"What a beautiful pyramid!" you exclaim, as you run toward it with a slight joystick twist. "And look how



tall!" Joystick adjustments pan up, down, and across. "I wonder how old it is." A few points and clicks provide the answer. "What's that over there?" And the movie continues—starts and stops, pans, speeds up or slows down at your command.

Want a little narration? Just call on the young tour guide who pops up whenever you need him.

Don't worry about losing your way. A map shows exactly where you are. Just activate it whenever necessary. And there's more.

Bank Street College of Education's Palenque Project illustrates multimedia at its finest—difficult to describe but impressive enough to earn admiration from all who see it. This level of technology probably will take awhile to reach most American schools, but it certainly offers a glimpse of what education may be like—and sooner than we might expect.

If multimedia falls into two categories (expensive and relatively less so), Fred D'Ignazio specializes in the second type. He calls it *scavenged multimedia*. In practice, that means multimedia projects that can run on computer systems that schools and families already own.

He insists that kids can create some pretty exciting presentations with Commodore 64s, Apple IIs, and other computers not on the leading edge. He demonstrated several projects that prove his point. They included student-produced movies with computer-generated title and credit screens, software/video combinations using Apple's new Video Overlay Card and Scholastic's *Slide Shop*, and several quick-and-dirty 30-second educational videos. His advice for those interested in trying it themselves? "KISS: Keep It Simple to Survive. Keep It Simple for Success."

Multimedia fever hit vendors, too. IBM heralded the virtues of Linkway, its *HyperCard* counterpunch. Commodore's entire Amiga line ran desktop video demonstrations non-stop. Apple's lab bristled with activity as educators jockeyed to experiment with the Video Overlay Card and similar products for Macs.

But multimedia wasn't the only news at NECC. Broderbund announced *Where in Time Is Carmen San Diego?* and *The New Print Shop*. Terrapin demonstrated *Terrapin LOGO Plus*, a version that comes with interface, motors, and Lego blocks for building and controlling robots. Jeffrey Gold debuted *Cyberlearn*, his new program that helps teachers and students create personalized tutorials. □

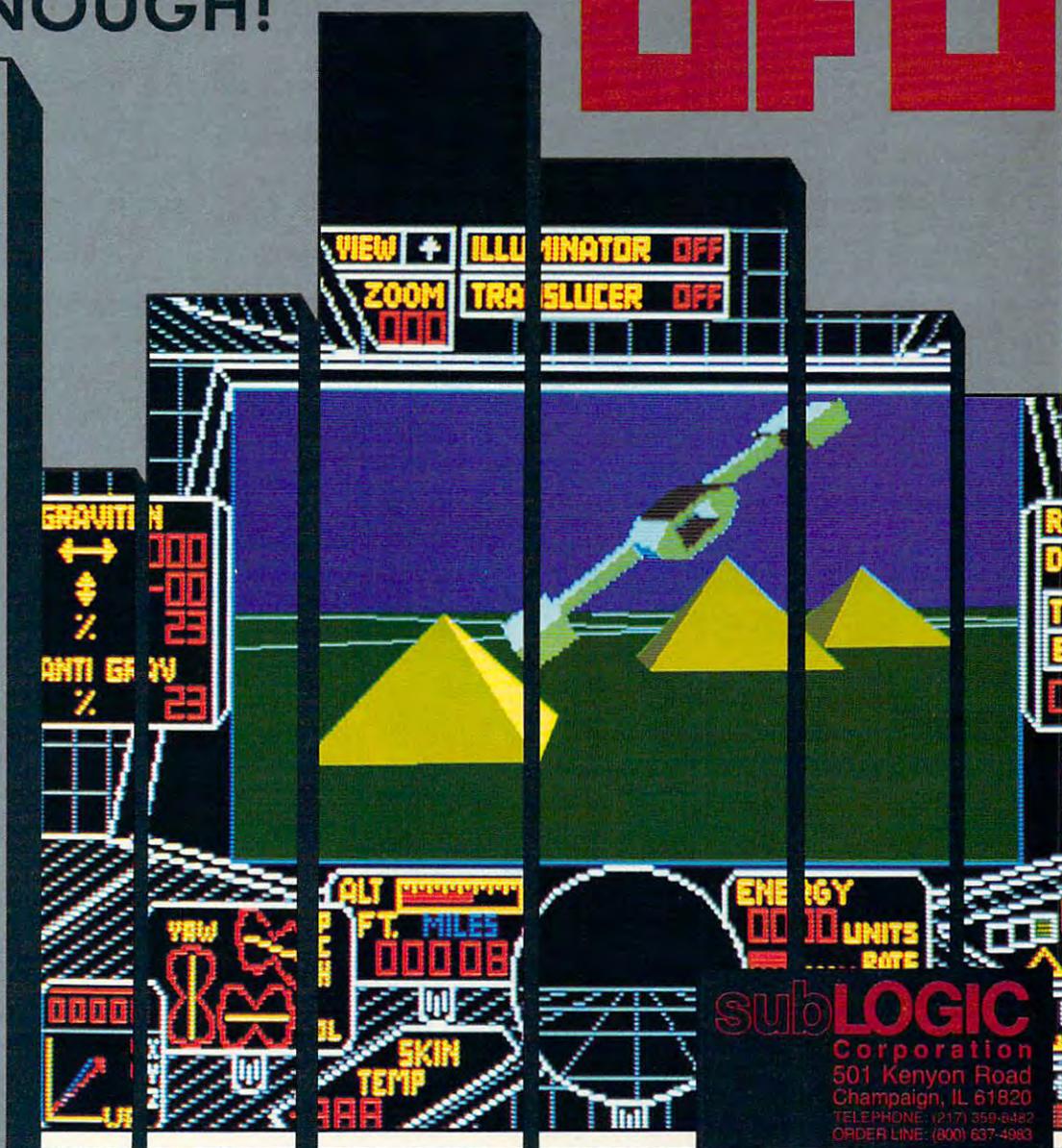
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## Flight notes



# 11

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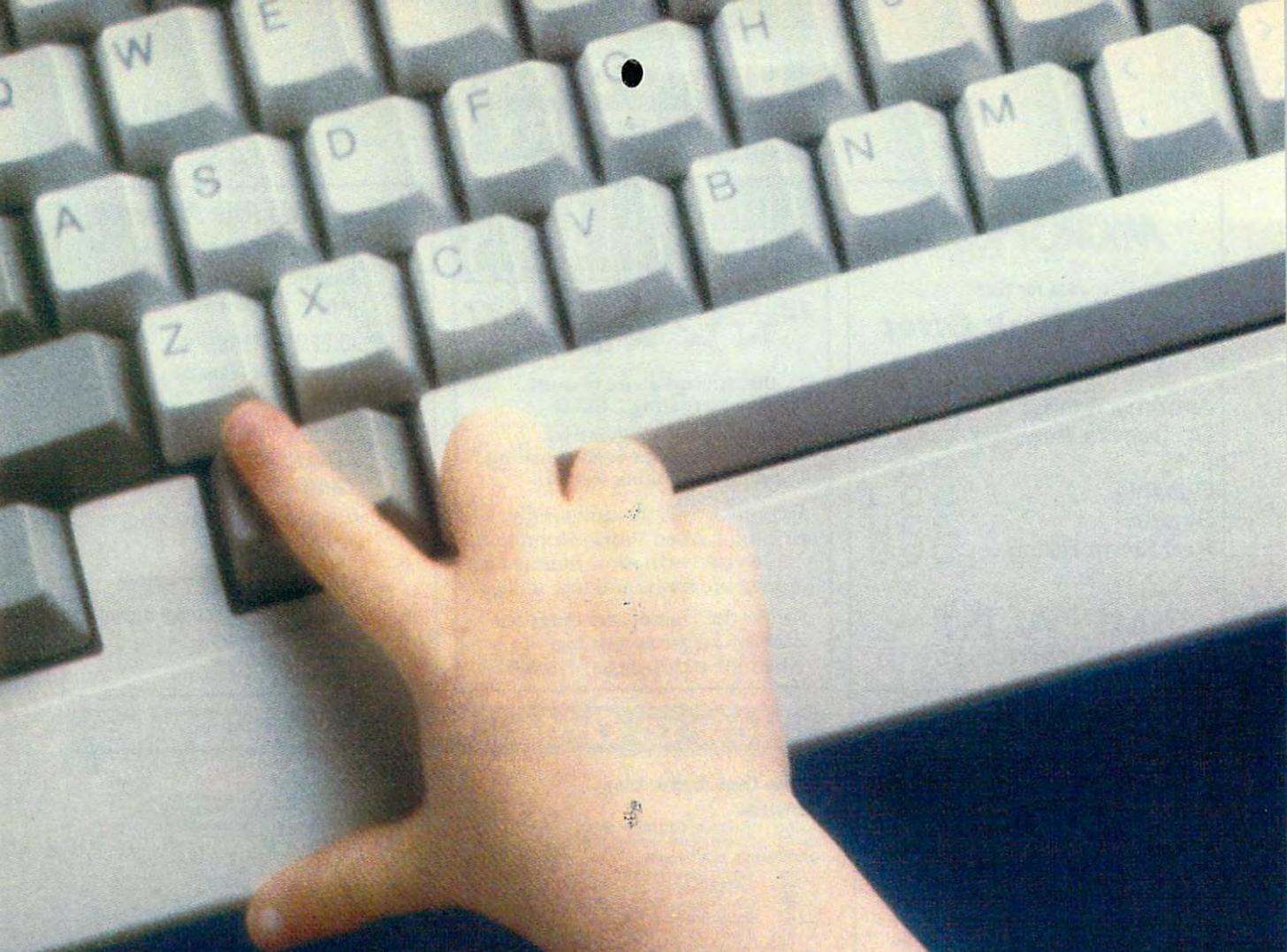
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### SPECIAL NOTE

The following Demo Disks have special requirements: Disks B1 and B2 require EGA graphics; Disk L1 requires 512K; Disk S1 requires a high-density disk drive; Disk S3 requires 512K (640K for Tandy 16-color) and two disk drives or a hard drive. Disk S4 requires 512K (640K for Tandy 16-color).



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# KIDS' TIME

Leslie Eiser

**S**haring the home computer with your preschooler can be a wonderful experience. Just as good books do, computers open up a world of enjoyment that is fun and educational at any age level. To gain access to this world, just put a disk into a disk drive and flip a switch. Making the most of this new world will require more planning, but the rewards are well worth the extra effort. The home-tested guidelines that follow are designed to help you and your children get the most out of your home computer.

### Getting Started

The preschool educational programs that have been developed for the Apple II far outnumber those available for other machines. However, most of the best programs are available in several different formats. A little shopping around yields a good-sized roster of excellent programs for almost every machine. So don't feel limited in your choice of which computer to buy.

Put a color monitor at the top of your shopping list if you really want your youngsters to learn from your computer. And buy the best one you can afford. Many of the most interesting educational programs rely on color, and, even if color isn't required, it's definitely much more attractive. While quality makes the difference in the long run, capturing your child's interest at the beginning is often critical, and that's exactly when color counts the most.

### Choosing the Location

The physical location of the computer may be the single most important factor to children in the three-to-five-year-old age group. If it's locked up in your office or sitting in a cold basement, they'll know it's there, but they probably won't use it without considerable encouragement. Put the computer in a highly visible location—near the kitchen or another family area where your children can see you using the computer. That will make computing much more attractive to them.

Put a good chair near the computer, preferably one wide enough to hold two people—you and your child. For very young people,

using the computer is a chance to spend time with an adult they admire. They will expect either you or an older sibling to stay nearby, providing instant help and positive reinforcement. Besides, you'll want to share their joy of discovery when they learn something new and their satisfaction when they give correct answers.

### Not All Input Devices Are Created Equal

To very young children, the least appealing input device has to be the standard keyboard. The keys are tiny and, from a child's point of view, the letters aren't laid out in any particular order.

Nonetheless, the keyboard is definitely the path of least resistance. After all, every computer comes with one, and almost all commercial programs support them. To simplify using a keyboard, pull it right up to the chair. You can even put the keyboard directly on your child's lap. Try tilting the keyboard so that the up arrow matches the direction up. This will make it easier for kids with perception problems to relate a keypress with an action on the screen.

If your youngster will be using the computer often, consider investing in an alternate keyboard. Among the many styles, the Muppet Learning Keys from Sunburst and the PowerPad from Dunamis have been particularly well accepted. Both of these products are lap-sized, touch-sensitive pads, and plenty of software supports them. DIL alone offers over 20 different programs for the PowerPad, and Sunburst has published another 20 for the Muppet Learning Keys.

Since the active surface of the PowerPad is flat and plain, each program comes with at least one plastic overlay. The popularity of the PowerPad in special-education circles is clearly reflected in the design of software that supports it. Interface consistency is carefully maintained, color is used selectively, and the illustrations on the overlays are oversized, making it easy for physically handicapped children to press the appropriate spot. Dunamis and Mobius have also developed and modified software for the PowerPad. The materials from Mobius include a DOS shell designed to take advantage of the graphics and sound capabilities of the IBM PS/2 Models 25 and 30.

On the other hand, the Muppet Learning Keys has been targeted at a more traditional environment. It's more colorful, and the keyboard design is more involved than the Power-

Pad's. The pressure-sensitive keys are laid out in alphabetical order. There are several special function keys and a paint box, too. The programs available from Sunburst range from preschool materials like *Muppets on Stage*, to problem-solving games like *Teddy & Iggy*. There's even a simple word processor called *Muppet Slate*.

If you can't afford an alternate keyboard or if the software your child loves doesn't support either of these pads, consider this bargain-basement alternative: homemade stickers. Be sure to choose the kind that stick only to paper. These may not be as pretty or as permanent as the gummed ones, but they won't make a terrible mess on your keys, either. Use colored pens to make the labels more attractive and to create a more consistent interface.



Your children might prefer a kids-only keyboard like the Muppet Learning Keys.

Also consider a mouse or a trackball. While there are plenty of notable exceptions, many children will find using a mouse or a trackball difficult at first. The relationship between up (on the screen) and back (on the tabletop) is particularly difficult for children with perception difficulties. Programs like *NumberMaze* or anything in the Electric Crayon or Sesame Street Crayon series can be used specifically to teach mouse/screen cause-and-effect relationships.

### Protecting Your Computer

Computers are generally hardy, and it takes a truly dedicated child to break one. Nevertheless, it took my five-year-old only two minutes of unsupervised play to figure out how to move files into the trash can on a Macintosh. PCs should be safer, but some of the new DOS shells make it almost as easy to delete files.

If you have the time, lock up your files before letting your youngster loose on the computer. Alternatively, never let your children boot directly from the hard drive. If they learn to insert a disk before turning on the computer, you can hope that they figure out how to switch drives only after they have learned the importance of your files. Some publishers hide the Quit command. This makes it harder for kids to leave the confines of the educational program in pursuit of new—and usually im-

portant—territory on the hard disk, but kids will invariably catch on.

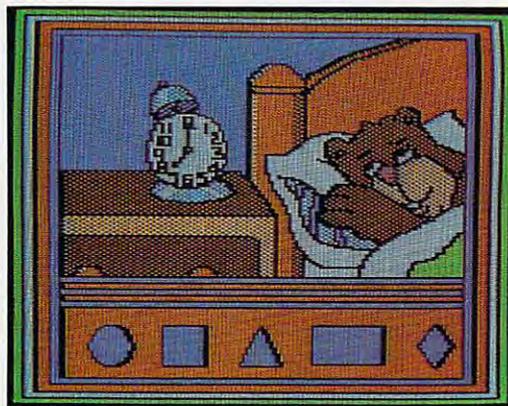
Less devastating, but equally irritating, is what children can do to your monitor. Fingerprints on the keyboard are bad enough, but right in the middle of the screen, they're infuriating. Unfortunately, pointing to objects on the screen is an important component of the concrete stage of learning, and you don't want to dampen your child's enthusiasm. If your monitor has a smooth glass screen, just make it a practice to wipe the screen with a slightly damp cloth after each session.

You might want to invest in a second monitor, but that's an expensive solution. You'd get the same results with a snap-on screen sold at most computer stores. Attach the screen before your children use the computer, and then remove it when it's your turn to work. You can throw it away when your children get past the grimy-finger stage.

### Getting Acquainted

The simplest software familiarizes children with the keyboard—both the letter keys and the number keys. Programs such as the *Stickybear Alphabet*, *Alphabet Blocks*, and *Muppets on Stage* reward children for simply pushing a key on the keyboard. As a child's first exposure to a computer, these games are entertaining and fun. Typically, the graphics are well drawn and animated, and the computer reacts to the keypress with an appropriate sound. In the newest versions of these programs, including *Talking Tiles* and *The New Talking Stickybear Alphabet*, the computer actually says the letter or repeats the correct phonic sound. Parents with a little bit of programming experience may want to write their own versions of these programs. The graphics and sound may not be as sharp as those on commercial programs, but the excitement of sharing a computer with Mom or Dad is reward enough.

One of the best programs of this type is actually an old standby that has been upgraded recently. *The Golden Edition of Facemaker* from Spinnaker lets children build funny faces from a supply of parts. Children can then animate the faces or play a pattern game, trying to



*Stickybear Shapes* teaches kids to recognize circles, squares, and triangles.

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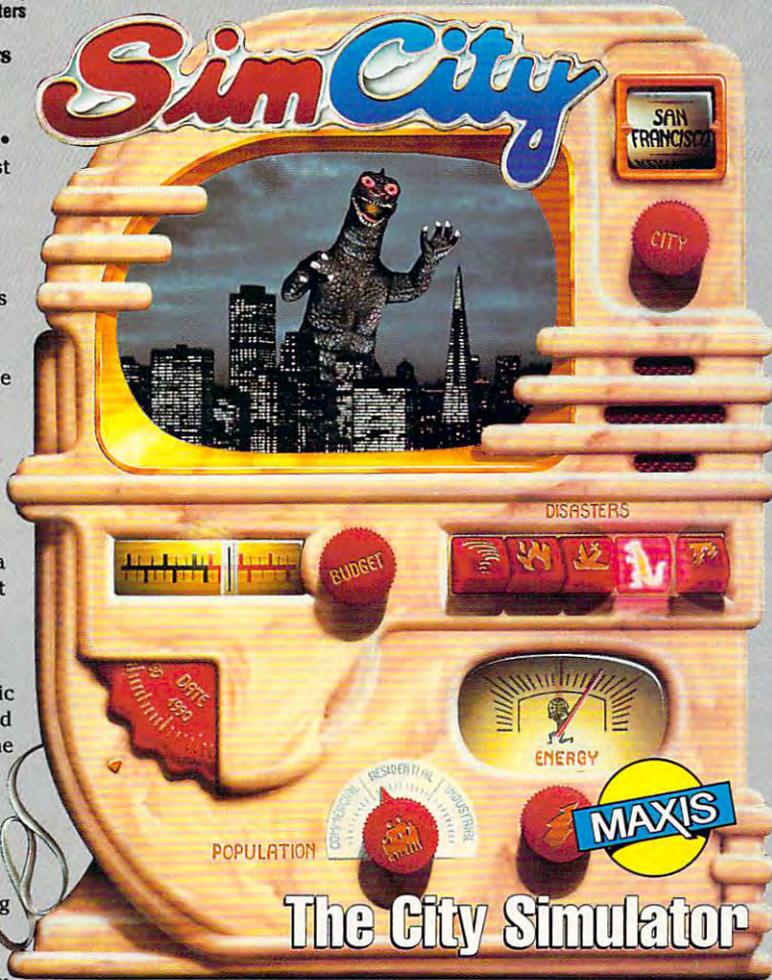


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## Satisfied SimCity players say it best...

Great game! I'm hooked • I've got SimCity syndrome! • I find SimCity to be the most addicting, educational, and the best game I have ever played! • Amazing! • I may quit my job so I can play more... well, nah • You guys are Maximum Pinheads • SimCity is not just a game, it's a way of life • Simply the best computer game I've ever played! • SimCity should be outlawed!! It's addictive • Fantastic! I've been playing almost non-stop for 4 days! • Excellent game! But I've been losing a lot of sleep since I bought it • Wow!! • It's a blast! • TERRIFIC! FANTASTIC! • Awesome!! • Super!!! • The airplane pilots are psychotic • Amazing—all mayors need to understand this too; mine doesn't • It's like an electronic ant farm • Outstanding! • What a fantastic program! • My 4 year old loves it too! • Excellent program! Learning can be fun and addicting • Best game ever for the Amiga • My wife and I really love this software • I stay up until 2 a.m. playing it everyday! • Thank you for a piece of intelligent, educational and thought-provoking software • Absolutely wonderful idea and program • Excellent product, I wish I'd thought of it!! • I've never seen a program like this • Make more Sim games, nothing even comes close • On a scale of 1-10 this one's a 20!!! • This is a totally different, stimulating, engrossing and visually enjoyable program. • Spiffy! • Great, Great and Great! •

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



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INFOWORLD -	May 15
WHOLE EARTH REVIEW -	Summer 1989

recall the sequence of animations that the computer uses.

The Electric Crayon and Sesame Street Crayon series from Polarware are electronic coloring books. They're perfect for introducing children to the computer in general and the mouse in particular. With wonderful colors and a marvelously simple interface, these programs are easy to use, and they provide attractive results. By encouraging kids to talk about their pictures and to write down simple stories, you can turn these programs into doorways to communication.

For story time, you and your children can create illustrated storybooks with just about any program that combines pictures and text.

*KidWriter* from Spinnaker uses a sticker approach to merging art with words. Older children can even get involved by writing the story for their younger brothers and sisters.

If you want yarns spun by other people, try *Jack and the Beanstalk* and *Flodd, the Bad Guy* from Tom Snyder Productions. These are two extremely well-drawn and quite humorous storybooks that are as entertaining to the adult reading the tale as to the child listening. After the first exposure to these stories, even two-year-olds will catch on to the trick of turning the pages, and they can start making up their own versions as they go along. Sprinkled through these stories are various choices, and, as you reach these choices each time, you can really see the importance of ritual and predictability. Very young children will want to make the same selections over and over, comforted by the repetition. Older children will experiment with different endings, excited by their control over the plot. Both of these are wonderful introductions to the computer for very young children, and a nice excuse to sit down with your child on your lap.

### Drill-and-Practice Programs for Little Kids

Young children find drill-and-practice programs very reassuring, and they quickly learn to use these programs independently. There are counting programs, like *Number Farm* or *Astro-Grover*, that reward children when they count objects and type in the right number. Simple math programs, like *Stickybear Math I and II* or *NumberMaze*, let children demonstrate their growing proficiency. By offering a variety of levels, from basic addition to division, multiplication, and word problems, the life of these programs extends from preschool almost all the way to high school.

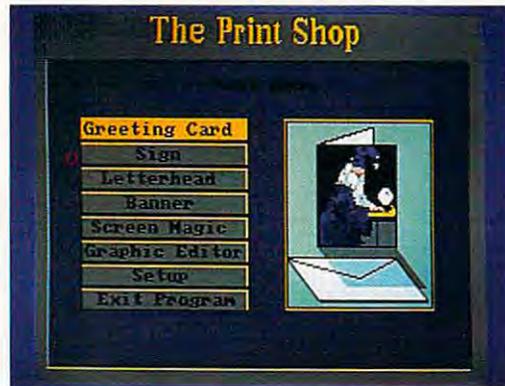
Simple letter games like *Alphabet Circus* reinforce letter recognition by responding appropriately when your child pushes the right key. At the next level up, there are prereading games, like *Reader Rabbit* or *Muppet Word Book*, that build the skills of letter discrimination and simple word recognition. Programs like *Ernie's Magic Shapes* and *Stickybear Shapes* teach shape recognition and discrimination through a combination of drill, positive reward, and repetition.

Despite any concerns you might have about their usefulness, all of these programs are very attractive to children. They love the positive reinforcement, and the certainty of success makes them continue to play. Try to relax when your child seems to move too slowly. It takes time for young children to synthesize the cause-and-effect relationship between the keyboard and the screen. When drill-and-practice software is used in an appropriate environment, accompanied by plenty of parental support and reinforcement, it can make the time spent sharing the computer with your preschooler very enjoyable. And programs like these will also form a positive foundation on which to build up to more challenging programs.

Besides the drill-and-practice software, you can also find programs that teach problem-solving skills. These skills are harder to define, tougher to teach, and very valuable. Programs like *Muppetville* and *Gertrude's Secrets* require more parental involvement, and they can frustrate young children because they're harder to win. Designed to challenge rather than lead children, problem-solving programs develop thinking skills that complement rote learning.

### Open-Ended Results

Art programs and simple word processors are wonderful ways to introduce children to computers and to writing and drawing. Packages such as *The Print Shop*, *The Children's Writing and Publishing Center*, *Muppet Slate*, or *KidWriter* combine text and graphics.



Using *The Print Shop*, your children can learn to enjoy writing projects.

In my house, *The Print Shop*, from Brøderbund, has long been a favorite. Available for almost every computer, there's plenty of clip art, and the interface is easy enough for just about any child to master. Using the sign option with a large font, your children can create big books. Read them together to build vocabulary skills or just for fun. Let your child decorate the pages by hand and color in the attractive graphics. Then send the results to friends and family. When your kids have more to say, they'll graduate to one of the more standard word processors, already knowing what fun it is to write.

## Bringing It All Together

When a computer first arrives in your home, everyone will want to take a turn on it. Maintaining that enthusiasm isn't simple.

Encourage your children by helping them define their own goals. Challenge them to explore the environments a computer can provide. Take the time to sit beside them while they explore and create. The positive reinforce-

ment that only you can provide is critical, so take an active role in their projects.

Support your children's interests with a variety of software. Try to pick out some programs that can be used independently and others that must be shared. By demonstrating your interest in their efforts, you will encourage your kids to become more responsible for their results. And you'll have fun in the process. □

## THE CHILDREN'S HOUR

### Alphabet Blocks

Macintosh with 1MB—\$59.95

### Talking Tiles

Macintosh with 1MB—\$49.95

### Bright Star

1450 114th Ave. SE  
Suite 200  
Bellevue, WA 98004  
(206) 451-3697

### Alphabet Circus

Apple II—\$32.95

Commodore 64/128—\$32.95

IBM PCs and compatibles with 256K and CGA—\$32.95

### Number Farm

Apple II—\$32.95

Commodore 64/128—\$32.95

IBM PCs and compatibles with 256K and CGA—\$32.95

### DLM

P.O. Box 4000  
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(800) 442-4711 (in Texas)

### AstroGrover

Apple II—\$24.95

Atari 400—\$24.95

Commodore 64/128—\$24.95

IBM PCs and compatibles with 256K and CGA—\$24.95

### Ernie's Magic Shapes

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Commodore 64/128—\$24.95

IBM PCs and compatibles with 256K and CGA—\$24.95

### Hi-Tech

584 Broadway  
New York, NY 10012  
(212) 941-1224

### The Children's Writing and Publishing Center

Apple II—\$59.95

IBM PCs and compatibles with 384K and CGA, EGA, VGA, MCGA, or Tandy 16-color—\$69.95

### Gertrude's Secrets

Apple II—\$39.95

Commodore 64/128—\$39.95

IBM PCs and compatibles with 256K and CGA—\$39.95

### Reader Rabbit

Apple II—\$39.95

Commodore 64/128—\$39.95

IBM PCs and compatibles with 256K and CGA, EGA, VGA, MCGA, or Tandy 16-color—\$39.95

The Learning Company

6493 Kaiser Dr.  
Fremont, CA 94555  
(800) 852-2255

### Electric Crayon

Apple II—\$9.95 (5¼-inch), \$14.95 (3½-inch)

IBM PCs and compatibles with 256K and CGA—\$9.95 (5¼-inch), \$14.95 (3½-inch)

### Sesame Street Crayon

Apple II—\$14.95 (5¼-inch)

Commodore 64/128—\$14.95 (5¼-inch)

IBM PCs and compatibles with 256K and CGA—\$9.95 (5¼-inch), \$14.95 (3½-inch)

### Polarware

1055 Paramount Pkwy.  
Batavia, IL 60510  
(800) 323-0884

### Flodd, the Bad Guy

Apple II—\$34.95

IBM PCs and compatibles with 256K and CGA, EGA, or VGA—\$34.95

### Jack and the Beanstalk

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IBM PCs and compatibles with 256K and CGA, EGA, or VGA—\$34.95

### Tom Snyder Productions

90 Sherman St.  
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(800) 342-0236

### The Golden Edition of Facemaker

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Apple II—\$39.95

### KidWriter

IBM PCs and compatibles with 256K and CGA—\$39.95

Apple IIGS—\$49.95

### Spinnaker Software

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### KIDWARE KIT

IBM PS/2 Model 25 or 30—\$2,440.00

### Mobius

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Alexandria, VA 22314  
(800) 426-2710

### Muppet Learning Keys

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Commodore 64/128—\$129.00

### Muppet Slate

Apple II—\$75.00

### Muppets on Stage

Apple II—\$65.00

Commodore 64/128—\$65.00

### Muppetville

Apple II—\$65.00

### Muppet Word Book

Apple II—\$65.00

### Teddy & Iggy

Apple II—\$65.00

### Sunburst Communications

39 Washington Ave.  
Pleasantville, NY 10570  
(800) 431-1934

### The New Stickybear Alphabet

Apple IIGS—\$49.95

### The New Talking Stickybear Alphabet

Apple II—\$49.95

### Stickybear Alphabet

IBM PCs and compatibles with 512K and EGA or VGA—\$49.95

### Stickybear Math I

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IBM PCs and compatibles with 256K and CGA—\$39.95

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### Stickybear Math II

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### Stickybear Shapes

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IBM PCs and compatibles with 512K and EGA or VGA—\$49.95

### Optimum Resource

Weekly Reader Software  
10 Station Pl.  
Norfolk, CT 06058  
(203) 542-5553

### NumberMaze

Macintosh—\$49.95

Great Wave Software  
5353 Scotts Valley Dr.  
Scotts Valley, CA 95066  
(408) 438-1990

### PowerPad

IBM PCs and compatibles with 256K and CGA—\$199.95

Apple II—\$199.95

### Dunamis

3620 Highway 317  
Suwanee, GA 30174  
(404) 932-0485

### The Print Shop

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Apple IIGS—\$59.95

Atari 400—\$44.95

Commodore 64/128—\$44.95

IBM PCs and compatibles with 128K for monochrome or 256K for CGA—\$59.95

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# HOMework

H I N T S   A N D   T I P S   F R O M   O U R   R E A D E R S

**R**emember Mad Libs? You and your family or friends gathered around a book of funny, fill-in-the-blank stories. Your big brother would say "Give me an adjective," and all the others would holler out a color or a size, aiming for the most outrageous descriptive word they could come up with.

Mad Libs is great for learning parts of speech. You've got to know a noun from a verb if you're going to get your word included in the story. And you have to be creative. An adjective like *squiggly* is a lot better than *fast*.

Use your computer to create your own Mad Lib stories. With an integrated package or a word processor with mail-merge capabilities, you can write the story in one file and store the answers to word requests in another.

You shouldn't have any trouble using the following instructions with your word processor or integrated package, even if it's different from the one I used in my examples. Just check your manual for information on form letters, mail merge, or linking files.

Start up your integrated package and create a new word processing file. Begin your story, and identify the blanks' names in all caps so you can find the names easily when it's time to link them to database fields.

Here's a short example:

*Once upon a time, there was a(n) ADJECTIVE1 NOUN1 that lived in a(n) ADJECTIVE2 NOUN2. This NOUN1 loved to VERB1 ADVERB1. Today was the NOUN1's birthday. More than anything this NOUN1 wanted a(n) ADJECTIVE3 NOUN3.*

Next, create the database that will hold the responses. Name each field for those in the story. If your word processor supports mail merge, you'll create a data file instead of a database. Usually, that means linking the files with a special code and listing the field names in the exact order that



**Create a database that will hold responses to your fill-in-the-blanks story.**



**Link the database with the story; then let your family pick the missing words.**

they appear in the text file.

For the example story, your database or data file would have eight fields: NOUN1, NOUN2, NOUN3, ADJECTIVE1, ADJECTIVE2, ADJECTIVE3, VERB1, and ADVERB1.

Some fields are repeated; depending on your story, you may need to list those fields only once in the database. Merging the two files—word processor and database—will take care of filling in all the blanks. Check your manual to be sure you don't have to repeat the field name for each time it appears in the story.

For the final step before playing, link the files. Most integrated packages have a feature that lets you insert database fields into your word processing file. To find this feature in your manual, look up *form letters*, *mail merge*, or *linking files* in the index. Follow the directions for setting up placeholders in form letters.

If you use *Microsoft Works*, for

example, select the word *ADJECTIVE1* in the word processing file and choose *Insert Field* from the *Edit* menu. Click on the name of the associated database, and you'll see a list of the fields. Click on the *ADJECTIVE1* field and a placeholder named *ADJECTIVE1* replaces the word *ADJECTIVE1* in the word processing file.

When it's time to play, gather your family together and start filling in the blanks. You must have both files open for the merge to work, but make the database file active. You know what to ask for from the field names in the database. You ask for an adjective and, from the cries of "hot!" "fast" and "purple," choose the first one. Or, let the group agree on one. Type the word into the database under *ADJECTIVE1*. Do the same for all the other blanks.

To see the results, print-merge the two files. For instructions, look again under *form letters*, *mail merge*, *linking files*, or *printing*.

Finally, read the story aloud and enjoy the laughs. You can use the story again or create more.

If your children are too young for parts of speech, change the names of the blanks to animals, colors, or names. For children of all ages, you might ask for the part of speech but limit it by giving a second category—*NOUN/ANIMAL*, *ADJECTIVE/SIZE*, and *VERB/ACTIVITY*, for example. This way, children learn what a noun is, and they also find out what kind of noun would be appropriate for the story.

This simple Mad Libs program can teach parts of speech and introduce your children to the computer. But most of all, it teaches children to be creative.

Heidi E. H. Aycock

*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. ☐*