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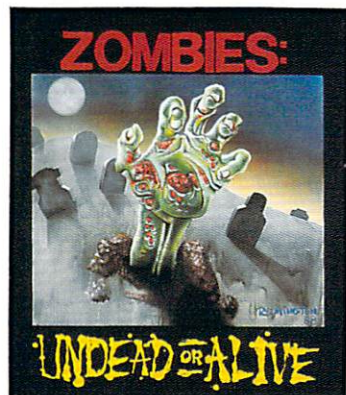
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COMPUTER!

FEBRUARY
1989

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The Leading Magazine
of Home, Educational, and
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5					
6	Materials, Subcontractors	25,000	35,000	55,000	80,000
7	Labor, Inc. Fringe Benefits	10,000	15,000	30,000	40,000
8	Manufacturing Overhead	5,000	10,000	15,000	20,000
9	COST OF SALES	\$40,000	\$60,000	\$100,000	\$140,000
10					
11	GROSS PROFIT	\$30,000	\$60,000	\$100,000	\$180,000
12					
13	Marketing	8,500	12,000	20,000	25,000
14	Administration	6,500	8,000	10,000	15,000
15	MARKETING AND ADMIN	\$15,000	\$20,000	\$30,000	\$40,000
16					
17	OPERATING INCOME	\$15,000	\$40,000	\$70,000	\$140,000
18	Less Interest	2,000	4,000	4,000	6,000
19	INCOME BEFORE TAX	\$13,000	\$36,000	\$66,000	\$134,000
20	State and Federal Tax	3,000	4,500	10,000	22,000
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GREGG KEIZER



“Pay Less, Get More” Is Our Rallying Cry

Computers cost too much. Way too much.

With Christmas still a month away, there's no way I can know how many personal computers we'll buy in the 1988 gift-giving season. There's no way I can even know which computers we'll decide on. But I can promise this—when the holiday spending is tallied, we'll all have paid too much for the big boxes under the tree.

Computers range widely in price, of course, but no matter which one you choose, you're going to be laying down a lot of cash at the cash register. An Apple IIGS system—printer, monitor, and two disk drives included—costs over \$3,000. This is a home computer? An MS-DOS system equipped for home use—and that means at least EGA graphics for games and home education—runs around \$1,200–\$1,500. Machines like the Amiga 500 and the Atari ST hover in the \$800–\$1,000 range.

Even that's too high. Unless you are working there at least part of the time, it's hard to justify buying a computer for the home. The continued high price of home computing hasn't made it any easier. After the initial enthusiasm in the early part of this decade, home computer ownership growth has gone flat. Why? Not because of any decrease in functionality—computers have picked up more and more duties as the productivity software tidal wave washes ashore. And it's not because computers are harder to use. Graphic interfaces on the Macintosh, Amiga, ST, and IIGS; shells such as DOS 4.0 and DeskMate for MS-DOS; consistently designed software on more and more systems all have made the machines more accessible to more people.

I suspect it's the big-buck entry point into home computing that's turned people away. Consumer electronics, of which home computers are but a part, competes for a finite number of our dollars. Buy a new television and you won't pick up a CD player. Purchase a stereo and you can forget a new VCR. Spend your money on a dedicated cartridge-based game system and you won't have the dollars for a computer.

But the one thing that all these other high-tech items have in common, and one thing that distinguishes them from personal computers, is their price. For less than \$300, you can buy a good color TV, CD player, stereo, VCR, or game unit. Try to put a home computer system together for that price. Good luck.

What prodded me to say all this was the NeXT computer rollout in October. We

reported on it last issue in “News & Notes,” as did every other computer publication. Associates and writers wondered what I thought of the machine. I shrugged my shoulders, literally or not, and said I thought it was a fascinating machine, but that it certainly was not, nor would it ever be, a computer for the home. A bewildering opinion to some, it seemed, as if I had to embrace every new turn of high tech, no matter what the price. Although the NeXT computer undoubtedly gives us a glimpse of what our own computers will be like in five years or so, it's certainly not a home computer. I can't get behind the idea of home computers costing more than a year of college or a small car.

A NeXT in the home is only the most glaring example of computer one-upmanship. For home computing to break out of the narrow niche it's won for itself—less than 20 percent of American households—it must be on a price level nearer its consumer-electronics competition.

That will take a savvy computer manufacturer, one willing to roll back prices and then roll the dice and shoot at the home computer craps table. A simple, stripped-down machine at a stripped-down price would do it. Since MS-DOS has the software world at its beck and call—for the next few years, at least—it could be a plain-box, 8086-based, one-drive system with EGA graphics capabilities (or something akin to the Tandy 16-color format). Complete with a monitor and an inexpensive 9-pin printer, the system should run no more than \$400–\$500 tops. Depending on the markup from maker to retailer, such a computer could be sold direct or through electronics mass merchandisers. Support would be tenuous at best (about what you get when you ask how to hook up a VCR to your TV), but a DOS shell and bottom-line basic software could temper the need for support.

At that price, volume means survival. To sell in volume, this computer company would need to sell at a low price. It's nearly a Catch-22 scenario at first glance, but I'm convinced it's an idea whose time has come. It wouldn't be the first time that a low-cost computer caught on and made its manufacturer lots of money—Commodore did it in the first half of this decade with the 64.

But \$6,500 home computers? Forget it. We need numbers to take the home computer revolution out of its opening days and onto the long, hard road toward computers by the people, for the people. “Pay less, get more” should be our slogan. □

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If your ears perk up at the idea of adding even more excitement to your computer, listen to this.

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And remember, with the Ad Lib card, you've got one serious sound synthesizer. In fact, it uses the same digital sound technology as the best electronic keyboards, so you hear rich, rumbling base, crystal clear highs, and true up-front mid-range. It also has up to 11 discreet channels for up to 11 different instruments and game sounds playing at once. And the built-in amplifier and output jack let you listen with headphones, bookshelf speakers, or even your home stereo.

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Space Quest III from Sierra (top) and Ad Lib Visual Composer/MIDI Supplement (above).

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news & notes

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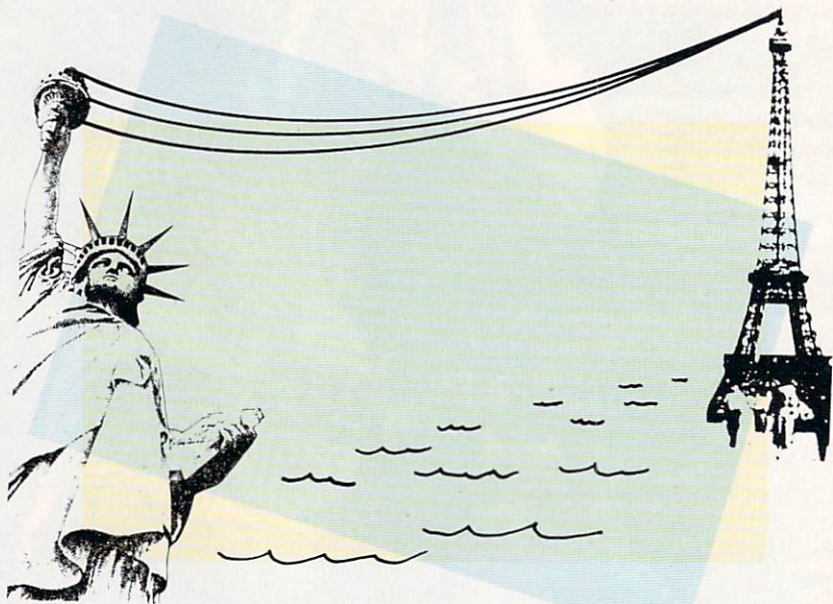
In France, Minitel is everyman's network. Whether as electronic liaison to countless clandestine affairs or as consumer clearinghouse for informational intrigue, the French network crackles like an autumn brushfire. And now the French hope that Minitel will be as welcome in the United States as brie and Perrier.

Minitel USA and Infonet have launched a joint venture called Minitel Services (MSC) to bring videotex services to American personal computer owners. "Everything is in place now," said MSC president Joseph Mazzeo.

In France, Minitel's network of kiosks, equipped with special terminals, allows consumers spontaneous access to information. More than 8000 vendors offer their products or services on the French Minitel network.

MSC has no plans to provide public Minitel terminals in the U.S., but consumers can buy dedicated Minitel terminals from other sources. For those who own an IBM PC or compatible, Apple II, Macintosh, or Commodore 64 computer, MSC will send free terminal-emulation and communications software. Mazzeo cited studies that show those four models making up the majority of home computers. The communications package—no matter which version—requires only 64K of RAM.

The Minitel network doesn't charge a subscription fee, nor is there a minimum



charge. The service costs about 17 cents per minute (\$10.20 per hour) for most services, which can be billed to a credit card. "We have met no resistance at that price," Mazzeo said. When gateways are established through local phone companies, customers may be able to have the charges put on their phone bills.

In addition to services like airline bookings, car rentals, and home shopping, the U.S. Minitel network offers an interactive chat service for computer-to-computer communications. "Everybody in this business is trying to guess what the consumer wants,"

Mazzeo said.

Already, through Infonet, Minitel is available in 150 American cities. Mazzeo expects to have 45,000 users by the end of 1989. He said the company only needs 20,000 users in order for it to be profitable.

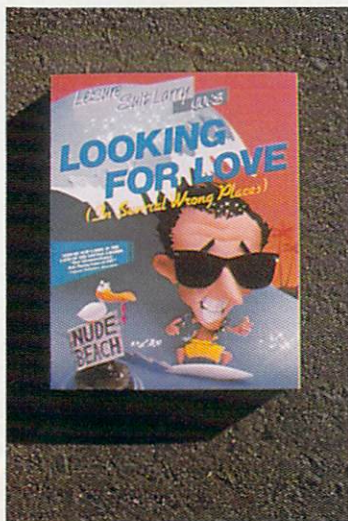
To get the free communications software, call or write Minitel Services, 707 Westchester Avenue, White Plains, New York 10604; (914) 683-5320. The software can also be downloaded from Infonet; Mazzeo said MSC will also make it available through selected bulletin boards.

— Peter Scisco

Larry Has the Last Laugh

Larry, the nerdy star of Sierra's *Leisure Suit Larry in the Land of the Lounge Lizards*, is back on the make-out track. This newest tongue-in-cheek adventure has Larry on a hot streak.

In *Leisure Suit Larry Goes Looking for Love (in Several Wrong Places)*, Larry strolls through dating the way Sherman marched to the sea. This time, though, it's not all Larry's fault. He unwittingly walks into the taping of "The Dating Connection," wins a trip on a cruise ship, and stumbles onto a tropical plot reminiscent of a bad Bond movie. The MS-DOS version, first out the door, comes on six disks and includes a parser that recognizes over 5000 words and their derivatives. Higher-quality graphics and vastly improved



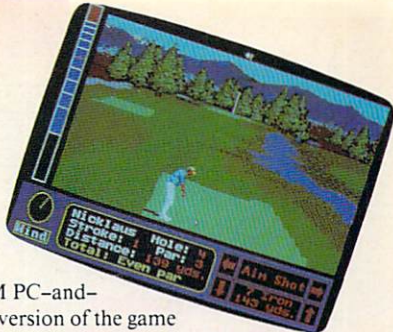
sound are two other differences from Larry's first escapade. Separate versions for the Apple IIGs, Macintosh, and Atari ST are planned.

But as in *Lounge Lizards*, this episode's plot is secondary to the adult puns, double entendres, risqué humor, and out-and-out outrageousness that made Larry an instant hit amongst his (mostly male) fans.

Larry has spawned an entire industry. His creator and mentor, Al Lowe, is reportedly working on *Leisure Suit Larry's Party Games*, a 3-D nongame product. Lowe is also busy with another game, this one called *Polyester Patty*, which unlooses Larry's female counterpart on an unsuspecting world.

I shudder to think what would happen if they got together and had kids.

— Gregg Keizer



Take On the Golden Bear

Polish up your clubs and get new shoelaces for your golf shoes—you've got a date with Jack Nicklaus, the Golden Bear of golf.

Accolade, publisher of the best-selling *Mean 18* golf simulation, and Jack Nicklaus, winner of almost every major PGA tournament, have announced that they will co-develop a line of home computer golf simulations.

The first project is *Jack Nicklaus' Greatest 18 Holes of Major Championship Golf*. Based on Nicklaus's favorite golf courses, the game includes two new Nicklaus-designed courses: Castle Pines, in Colorado, and Desert Mountain, the Cochise course in Scottsdale, Arizona. Players can compete against a computerized Jack Nicklaus or against a combination of live or computer opponents.

"We've patterned the computer golfer after Jack's own game," said Ralph Giuffrè, vice president of marketing at Accolade. "All of his club distances are patterned after real-life distances that he hits on tour."

Nicklaus was away working on some real golf courses he's designing, but Terry Jastrow, president of Jack Nicklaus Produc-

tions, explained that the golfer has been pleased with Accolade's work.

"What he has seen has blown him away," said Jastrow. "Accolade has shown us what they've done, and we've been really impressed. It's an authentic representation of the 18 greatest holes of major championship golf."

The IBM PC—and-compatibles version of the game is already out. Amiga, Commodore 64/128, and Apple IIGs versions are planned for release by the winter holidays. The price will be \$49.95 for the PC, Amiga, and Apple IIGs versions; \$29.95 for the Commodore 64 game.

— Heidi E. H. Aycock ▸

WOC This Way

World of Commodore is a Commodore-specific trade show notorious for bringing in hordes of loyal Commodorians from miles around. Last year in Toronto, 46,000 Commodore users brought hundreds of thousands of dollars to the show.

On November 3, the first U.S. World of Commodore was held in Philadelphia. The four-day show supported all current Commodore computers, although the lion's share of interest went to the Amiga. This frustrated some of the many loyal Commodore 64 and 128 users. Commodore's PC compatibles were practically out of sight (and mostly out of mind).

Held just a few days before COMDEX (the huge Computer Dealers Exposition), WOC was a show of rumors. When was the long-awaited Amiga 2500 going to be announced? What about Commodore's hot new VGA AT compatible? (Both computers, in fact, made their debut at COMDEX.)

Amiga products were announced left and right. One of the best was *Dragon's Lair*, a popular arcade game featuring graphics that best those of many Saturday morning cartoons.

For more news on the World of Commodore show and some of the Amiga products shown there, see this month's "COMPUTE! Specific" Amiga section.

— Rhett Anderson



Why radar makes mistakes. How to protect yourself.

It's hard to believe, but traffic radar does not identify which vehicle is responsible for the speed displayed. It shows only a speed number. The radar operator must decide who to blame.

How radar works

The radar gun is aimed at traffic and it transmits a beam of invisible radar waves. Moving objects reflect these waves back to the radar gun. Using the Doppler principle, the radar calculates speed from the reflected waves. But there's a problem.

The best guess

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Just Another Pretty Storage Option

You're not likely to see a magneto-optical disc drive in your next home computer, but this latest mass-storage technology has found a home in the NeXT computer and will probably take up residence in future workstations.

Erasable optical disks have enormous storage capacity—between 256 and 650 megabytes—and excellent data integrity. Developers expect to see the new disks used to hold large operating systems, store intricate hi-res graphics, serve as buffers for image processing, hold large collections of electronic documents, and replace large tape drives.

Canon U.S.A. manufactures the drive used in the NeXT computer and makes disk cartridges in 256- and 512-megabyte capacities. Sample prices for evaluation packages of the Canon M-O system range from \$6,000 for the drive to \$200 for a disk cartridge.

Sony already has a drive on the market. Priced at around \$4,600, the drive faces little competition, according to



Stephen Burke, manager of Corporate Communications at Sony. Sony's 650-megabyte cartridges cost around \$250.

The only storage device that would compare with erasable optical disks is Tandy's Thor-CD disk drive; its disks hold about 550 megabytes. Tandy hasn't set a price for the disks and drives, but has said the cost will be comparable to that of CD-ROM disks and

drives.

Erasable optical disk operations depend on something called the *Curie point*, the temperature at which heated magnetic particles change. The Curie point is quite high for the magnetic material on erasable optical disks; the particles resist change well. This protects stored data and allows for very-high-density storage.

When the magneto-

optical drive writes to the disk, information is recorded as 0s and 1s. A laser beam heats a disk sector to its Curie point, changing all the crystals in the sector to 0s. Then the laser passes through the sector again and heats only those magnetic particles that should be changed to 1s. The laser makes a third pass to verify the accuracy of the data.

The same laser reads the disk. As the light reflects from the disk, it's polarized by the crystals in the magnetic material. The intensity of the polarization indicates whether the particle is set to 1 or 0.

Because nothing physically touches the disk, head crashes rarely occur. The cartridge's protective plastic layer is out of the laser's focal length, so scratches and dust don't affect the stored information.

If it all sounds like something out of the twenty-first century, remember that it may be that long before you have an erasable optical disk on your desk at home. But be prepared—future shock usually comes first to personal computers.

— Heidi E. H. Aycock

COMPUTE! Reader Survey

Here's your chance to tell us what you *really* think. We need to know more about you (and what you want) to make *COMPUTE!* magazine as valuable and informative as possible.

Please take a few moments to complete and mail this short survey to *COMPUTE! Reader Survey*, P.O. Box 5406, Greensboro, North Carolina 27403.

What computer(s) do you own or use at home?

- IBM PC
- IBM PS/2
- Tandy
- Other IBM PC compatible
- Commodore 64/128
- Commodore Amiga
- Apple IIe or IIc
- Apple IIs
- Macintosh 512K, 512Ke, Plus, or SE
- Atari 8-bit
- Atari ST
- Other (please specify)

Do you use a computer outside the home?

- Yes (please specify type of computer and location)
- No

How long have you been using a computer in your home?

- Less than 1 year

- 1 year
- 2-5 years
- More than 5 years

What types of software do you own?

- Word processor
- Spreadsheet
- Database
- Integrated package
- Other business applications
- Telecommunications
- Education
- Games
- Graphics design
- Other

How many software packages have you purchased in the last 12 months?

- None
- 1-4
- 5-10
- 11-19
- 20 or more

How long have you been regularly reading *COMPUTE!* magazine?

- 6 months or less
- 7-12 months
- 1-2 years
- 3-4 years
- 5 years or more

Which part of the magazine do you like most? (Check no more than two.)

- Features
- Reviews
- News & Notes
- COMPUTE!* Specific
- Buyer's Guide
- Conversations
- New Products!

Which columns do you read regularly?

- Editorial License
- Gameplay
- Impact
- Discoveries
- Levitations

Pencil Me In

The search for the world's most comfortable computing metaphor continues. A passing parade of folders, windows, menus, pointers, and sundry other devices, perspectives, and icons have nearly numbed us. As yet, no single point of view has stepped from the crowd. The latest entrant, Wang Laboratories' Freestyle computer system, uses an extremely familiar concept—a desk cluttered with paper. Right now, its pricing and marketing put it strictly in the business world. Few home users will see Freestyle in action, though the interface may come to a screen near you in the future.

Freestyle is a hardware/software combination designed for IBM PC AT compa-

tibles, including, of course, Wang's own 200/300 Series. Freestyle includes an electronic pencil and tablet that let users add handwritten comments to displayed information and manipulate onscreen data; typed comments can be added with the keyboard. The program captures data as a Freestyle page but doesn't affect the program or data file itself.

If, for example, a user wants to add a signature to a Freestyle page, he or she can expand that page to fill the screen and then write on the tablet with the electronic pencil. The writing is added to the document, which can be shrunk back to icon size. Users can erase comments with the other end of the pencil.

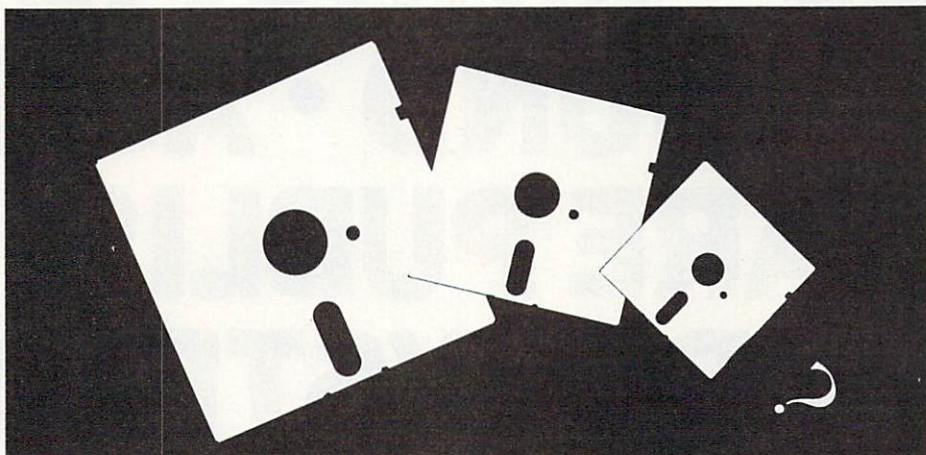
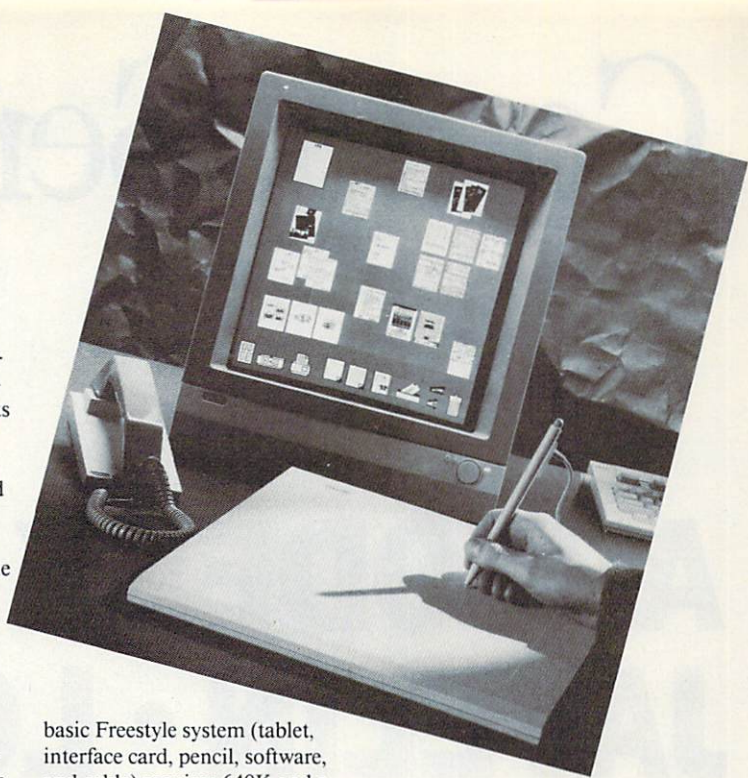
The tablet's controller takes up one slot in the PC; the

basic Freestyle system (tablet, interface card, pencil, software, and cable) requires 640K and a standard-resolution Hercules-graphics-compatible monitor. Its price is steep—\$1,995.

Freestyle options include electronic mail and the onscreen display of fax docu-

ments. An optional telephone-like handset and accompanying voice board even let users add spoken comments to documents.

— Peter Scisco



The Incredible Shrinking Disk

Smaller is better in the disk market, an easy observation when you consider that even though the 3 1/2-inch format currently represents only 20 percent of total disk sales, estimates mark 1991 as the year the format will take the majority of sales.

In 1983, the first computer shipped with 3 1/2-inch drives—Hewlett-Packard's now-defunct HP 150. The 3 1/2-inch format gained ground as the smaller size, better reliabil-

ity, protective housing, and higher storage capacity won converts. It picked up momentum in 1984 with several 3 1/2-inch-based laptops and the introduction of Apple's Macintosh. In a final blow to the 5 1/4-inch disk, IBM chose the 3 1/2-inch for the PS/2 in 1987, ending production of its 5 1/4-inch-based PC line.

In this time of transition from 5 1/4-inch to 3 1/2-inch disks, what are software companies doing to accommodate

the dual, and dueling, formats? From a buyer's perspective, the box should include both disks, or the store should carry two separate packages. Buyers shouldn't have to wait for a usable disk by return mail and certainly should not have to pay for the exchange. On the other hand, it's more expensive for the software companies to include both disks (especially prohibitive with less expensive programs). And since stores have limited shelf

space, they're not eager to stock two versions of the same program.

Software publishers have responded—each with a different strategy. Davidson and Associates (an educational-software publisher) supplies 5 1/4- and 3 1/2-inch disks in separate packages. A disk swap to the other format is also available at no extra charge. Borland International (productivity and language) sells its IBM software only in the 5 1/4-inch format, offering a coupon for a free 3 1/2-inch disk. Mediagenic (productivity and entertainment) has a separate policy for its IBM and Apple products. MS-DOS packages contain both formats, with a small increase in price to cover the extra costs. Apple products, however, are available only in the 5 1/4-inch format.

In a changing market, it's difficult to please everyone. Check the box carefully before you buy, and ask your dealer or software company about the turnaround time for disks by mail.

— David English ▸

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news & notes

Pocket Dictionary

I write using a \$200,000 editing system, and it doesn't even have a spelling checker. A thesaurus? Forget it.

That's why there's a WordFinder on my desk, right beneath my monitor. The pocket-sized box from Selectronics uses linguistic technology licensed from Microlytics, the company that publishes a disk-based thesaurus for the IBM PC and Macintosh lines under the same Word Finder name. Inside the black case, which is slightly smaller than a 3 x 5 inch index card, is a single 256K chip that holds a 100,000-word dictionary and a 220,000-word thesaurus.

Using the WordFinder is simple. Turn it on; then enter the word in question on the

calculator-style keyboard, which is laid out in QWERTY fashion, a recent improvement to the device. Now, press *Spell* or *Synon*, and wait for WordFinder to find the word. If you're checking a word's spelling, WordFinder tells you whether your spelling is right or offers its own guess if your spelling is wrong. Looking for just the right word? The thesaurus is organized in a hierarchy (had to look that one up) in which words are grouped under relatively direct synonyms. Under the word *friend*, for instance, are two groups, one headed by the synonym *advocate*, the other led by the word *associate*. Move to the latter group with the press of a key and you'll find synonyms ranging from *accomplice* to *supporter*.



The stand-alone WordFinder isn't much different from a spelling checker/thesaurus used in conjunction with a word processor on your personal computer. If you're working with words on your computer, WordFinder will be a waste—an integrated spelling checker is far more convenient and costs about the same.

But not everyone writes with a computer. Paper and pencil, believe it or not, are still used by millions. Typewriters still inhabit millions of

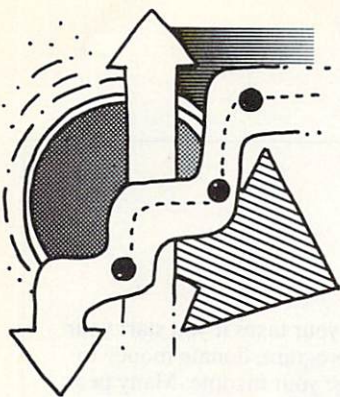
offices. Nonelectronic writing may be likened to cave walls and charcoal by some, but for many it's the way of the word. An electronic dictionary and thesaurus like WordFinder replaces tattered desk references with an intelligent aid for the wordsmith.

For more information about WordFinder, contact Microlytics at Techniplex, 300 Main Street, East Rochester, New York, 14445; (716) 248-9151.

— Gregg Keizer □

gameplay

ORSON SCOTT CARD



Classic Game Concepts Get Better the Second Time Around

Isn't it a little early in the history of computer games for us to start getting nostalgic?

Maybe not. Like rock music, computer gaming has a youth-dominated audience; three years is a long time in this field, and five years is a generation. Look at it that way, and *Breakout* is three generations old.

Heck, if they can revive Peter Frampton songs from 1977, why shouldn't some game designer "cover" a classic like *Breakout*?

Blockbuster (Audiogenic Software/Mindscape) claims that it "takes up where the arcade classic *Breakout* left off!" Oh yeah? I used to play the Atari 800 version of *Super Breakout* till my brains fried. Hours after playing, I could still see the ball moving geometrically around the screen whenever I closed my eyes. No way could anybody surpass the classic videogame that started it all.

Well, somebody did. *Blockbuster* is the same paddle-and-ball contest, but the bricks are now arranged in interesting patterns on the screen; no two screens are alike. Aliens float down from the top—you get points when you hit them, but the ball is also deflected. Some bricks have to be hit twice, and some drop tokens—catch the tokens and you can use them to buy special features that make it easier to wipe out the brick walls.

Best of all, the game designers have included a build-your-own-screen option that makes this game literally inexhaustible. *Blockbuster* is as compulsive as *Breakout*, but not quite as mind-numbing; the pattern of ball movement isn't so relentlessly repetitive.

If *Breakout* is being "covered" with a fancy new souped-up version, can *Space Invaders* be far behind? *Better Dead than Alien* comes from a British game company called Electra, and while I've got to admit that I was never a fan of the marching morons of the original *Space Invaders*, I do like this game.

You'll recognize the concept—rows of aliens marching back and forth—but this game refuses to be boring. After every other standard round, you get a single monster alien floating down at you, like the giant bomber in the movie *1941*. The first one you meet is like a giant jellyfish; the next one, a great stone head (remember that film *Zardoz*?).

Then, all of a sudden, instead of aliens you get meteors. No, let's be honest: You get asteroids, as in the targets in the videogame

Asteroids. Like the old anthology game *Zork*, it seems that no familiar concept is off-limits to game designers.

Is *Better Dead than Alien* a great game? Look, it won't change your life. It's fun, though, the way those old games were fun—but with graphics that make your hotshot, up-to-the-minute, state-of-the-art computer stand up and dance.

I played *Better Dead than Alien* on the Amiga, a game machine so sweet that you have to work overtime *not* to get beautiful graphics out of it. But *Blockbuster* even managed to look good in CGA graphics on an IBM PC, proving that if you take the trouble, you *can* make a silk purse out of a sow's ear.

So why did Epyx botch its IBM graphics so badly with *Street Sports Basketball*? For reasons passing understanding, the company used the bland, low-contrast, purple-and-green CGA screen, with the result that you can't possibly tell the teams apart at a glance. In a fast-moving sports simulation like this one, a glance is all you have time for without giving your opponents an edge.

Such a shame, too, because when I played *Street Sports Basketball* on the Amiga, I discovered that it's the first game in this genre that's good enough to make me forget the old Atari 800 basketball simulation.

The concept, for once, is more than mere decoration. The setting is an integral part of the game. You can choose your playing field—city, alley, suburban driveway, schoolyard. The game titles are graffiti on a brick wall. You really flip a coin to decide who gets first pick, and then you choose up teams from a group of kids, each with different strengths and weaknesses.

Play moves fast; watch out for oil slicks. Challenging? I'm still at the easy level and having fun.

I really like this street-sports idea, and the Epyx game designers are doing a good job of using it in other games, too—*Street Sports Soccer*, *Street Sports Football*, and *Street Sports Baseball*. On the Amiga, the graphics are superb, and they really add to the fun of the game.

The game really has the *feel* of childhood pickup games. At crucial moments, you have to decide whether you want to pass the ball to Dana, who has a bad habit of dropping it, or give it to Ralph with the hot hands. Just like the schoolyard. Good stuff. Just don't bother with the ugly IBM version. □



impact

DAVID D. THORNBURG

Doing Your Taxes on the Desktop—No Computation Without Human Interpretation

In a month or so, millions of Americans will start preparing their 1988 tax return. For some people it's a pleasure. Perhaps you are among those who find tax time a highlight of your year. I know one person who loves to work on his taxes. He makes a big sandwich, opens a bag of potato chips, stocks a cooler full of drinks by his desk, and works nonstop through the night finishing all the forms. He's almost sad when the job is done.

I don't fall into his camp, however. Like most Americans, I find taxes a necessary evil and think the calculation of taxes should be done as quickly and as painlessly as possible. As the president of two small companies, I have a lot of forms to fill out. Fortunately, I'm able to use a computer to help me. By using database and spreadsheet programs, I'm able to keep a running record of my businesses that lets me quickly generate a financial statement. My computer provides two benefits of great value: First, it saves a tremendous amount of time; second, it provides me with accurate calculations and flexible report formats.

Saving time is tremendously important for most small companies. Time spent on recordkeeping takes away from time better spent making sales calls or developing products. If computers did nothing more than save time, they would be indispensable to most businesses. The second computer benefit, accurate reporting, is also important. No matter how many times I try, I can never seem to add a long list of numbers on a calculator without making a mistake. On the other hand, when I have a table of numbers on a computer display screen, I find them easier to proofread and edit.

It takes a special talent to decipher tax code, a talent that I've never developed. When I see instructions like *Subtract the greater of line 16 and 17 from the product of your age and the phase of the moon and add the result to the number of birthmarks on your left leg*, my eyes glaze over.

I know that there are some great tax-preparation programs on the market, but I still want the benefit of a fellow human to tell me my options. I have my final tax calculations done by an expert in the field rather than risk misinterpreting the rules and incurring the wrath of the IRS.

Even though in the end I rely on human guidance, the computer is still a wonderful tool. To start with, the ease with which data can be manipulated allows you to play what-if games. For example, you can calculate

what happens to your taxes if you start your own retirement program, donate money to charity, or average your income. Many people overpay their taxes each year because they don't take the time to explore various legal opportunities for tax reduction.

It occurs to me, however, that there are some possible risks and rewards associated with the increased use of personal computers for tax calculations.

One of the greatest risks is that if everyone had access to personal computers, the tax code could be made tremendously complex. Congress could decide that the computer's ability to handle tricky calculations allows for the creation of new types of tax-calculation rules that are beyond the capacity of most people to perform by hand. If you doubt the capacity of the tax code to become complex, just look at the confusion resulting from the last two years of "tax simplification."

On the plus side, personal computers may someday allow taxpayers at all income levels to have the benefit of expert advice in the preparation of their tax returns. Through the use of computer-based expert systems, the tax laws *du jour* could be stored as a set of rules—for example, *IF your income exceeds \$50,000, THEN throw a party*. The user would sit down with his or her box of receipts and income statements and then enter all the needed information. At this point, the computer could calculate the lowest legal tax payment and (best of all) cite the relevant sections of the tax code in case you were audited.

The problem with creating expert tax-preparation systems is that they must be recreated each year because the tax code is continually modified. Also, I've been told that there are major sections of the tax code that are in conflict with each other. We humans can deal with ambiguity and apparent conflict; computers can't.

My accountant has attended seminars at which experts disagreed with each other on the interpretation of certain nuances in the law. Many people have received opposing interpretations from the IRS on some aspects of tax law. Obviously, such ambiguities have to be resolved before a good expert system for tax calculations can be created.

Still, when you think about it, it could be worse. The simplest tax calculation I've seen looks like this:

1. How much money did you make?
2. How much do you have left?
3. Send it to us.

□

Letters

Football, Eh?

I grew up in the Pacific Northwest, right near the border with Canada. Because of this, I have always been as big a Canadian Football League fan as I have been an NFL fan. Do you know of anybody who publishes a CFL game along the lines of Avalon Hill's *Super Sunday* or other NFL- and college-style football games for the computer? I realize there wouldn't be much of a market for a game like that here in the United States, but perhaps a Canadian company has done one.

Ken O'Dell
Canton, GA

After searching a directory of Canadian computer products—among other resources—we couldn't find any CFL games. Anyone know of any football games from the Great White North?

TAPS Update

Just wanted to drop a line to let you know how much I enjoy your magazine and to address the article on Tom Clancy (November 1988), specifically the few questions and answers about TAPS.

I was involved with the early evolution of TAPS. It was originally named TAP, and it stood for Target Analysis and Planning. The S was added later to stand for System.

Representatives from the Defense Nuclear Agency and the software authors, BDM Corporation, brought the system to Europe in 1980. TAPS was originally written in Apple Pascal.

TAPS was beta-tested using an Apple II+ with a whopping 64K of RAM. A Corvus 5-megabyte hard disk was our first hard drive; it grew to 10 megabytes and finally 20 megabytes. All of this equipment was strictly "off the shelf"; none of it was militarized. We moved the hardware in its original boxes to and from field exercises. In two years of packing and moving in an army 2½-ton truck, I had one hard disk crash. I think this says a lot for the ruggedness of Apple and Corvus hardware.

The program had two primary missions. The artillery community used

TAPS for target analysis and battle damage assessment, both conventional and nuclear. The intelligence community used TAPS to assist in determining possible target locations and target types.

The poor Apple II eventually became overtaxed, and TAPS migrated to a Corvus Concept computer. The Corvus Concept used many of the same controller cards used by the Apple II, as well as the same hard drive.

It's been a few years since my involvement with the program, but I have been told by the department director in charge of the Nuclear and Chemical Analysis Course at Fort Sill, Oklahoma, that TAPS is alive and well. Currently TAPS is "officially" only at Corps level and is being used to process Emergency Action Procedure messages as well. The U.S. Air Force is pushing the program into a new field—communication nets.

Dale McIntosh
Lawton, OK

Pet Pals

William S. Hough writes about the RAM Intermittent problems with the early PETs. He might try mounting a small cooling fan inside the cabinet. It'll save lots of wear and tear.

When I bought my PET, only the printer was functional. I owe a great deal to Alice Feeny at Commodore Customer Service in West Chester, Pennsylvania. She dug around the office and was able to help me get parts and even some manuals. If it hadn't been for Alice and some back issues of *COMPUTE!* magazine, I'd have never gotten my winter project off the ground.

Another possibility is Kasara Microsystems in Spring Valley, New York. Call the order desk and ask to speak directly with Joel Kravitz. He'll tell you to write him a letter explaining what you want, and he'll take care of it. Joel, like Alice, has been very helpful. Both of them should be commended.

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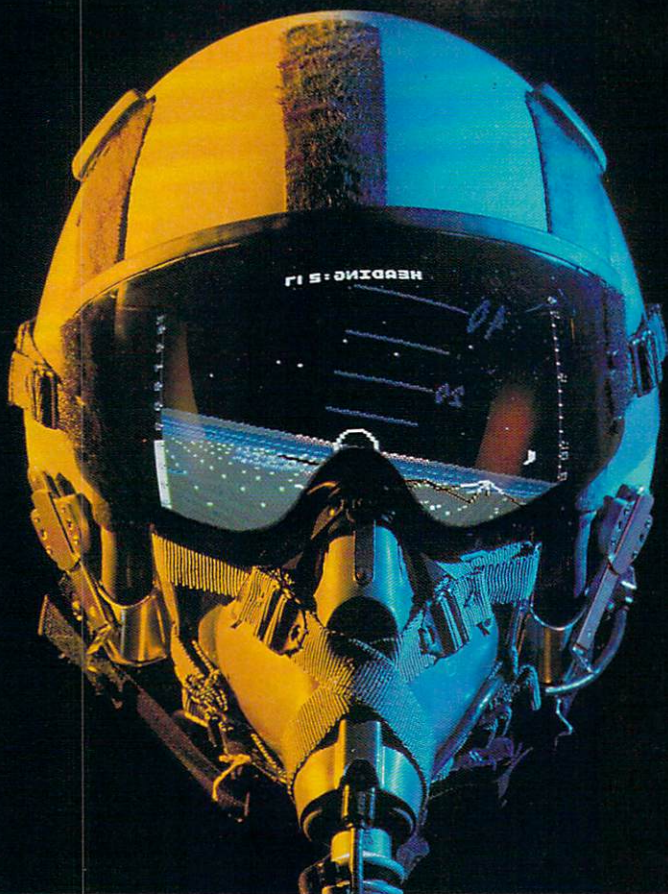
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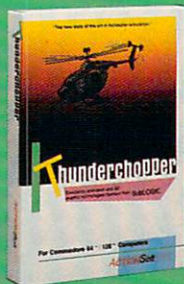
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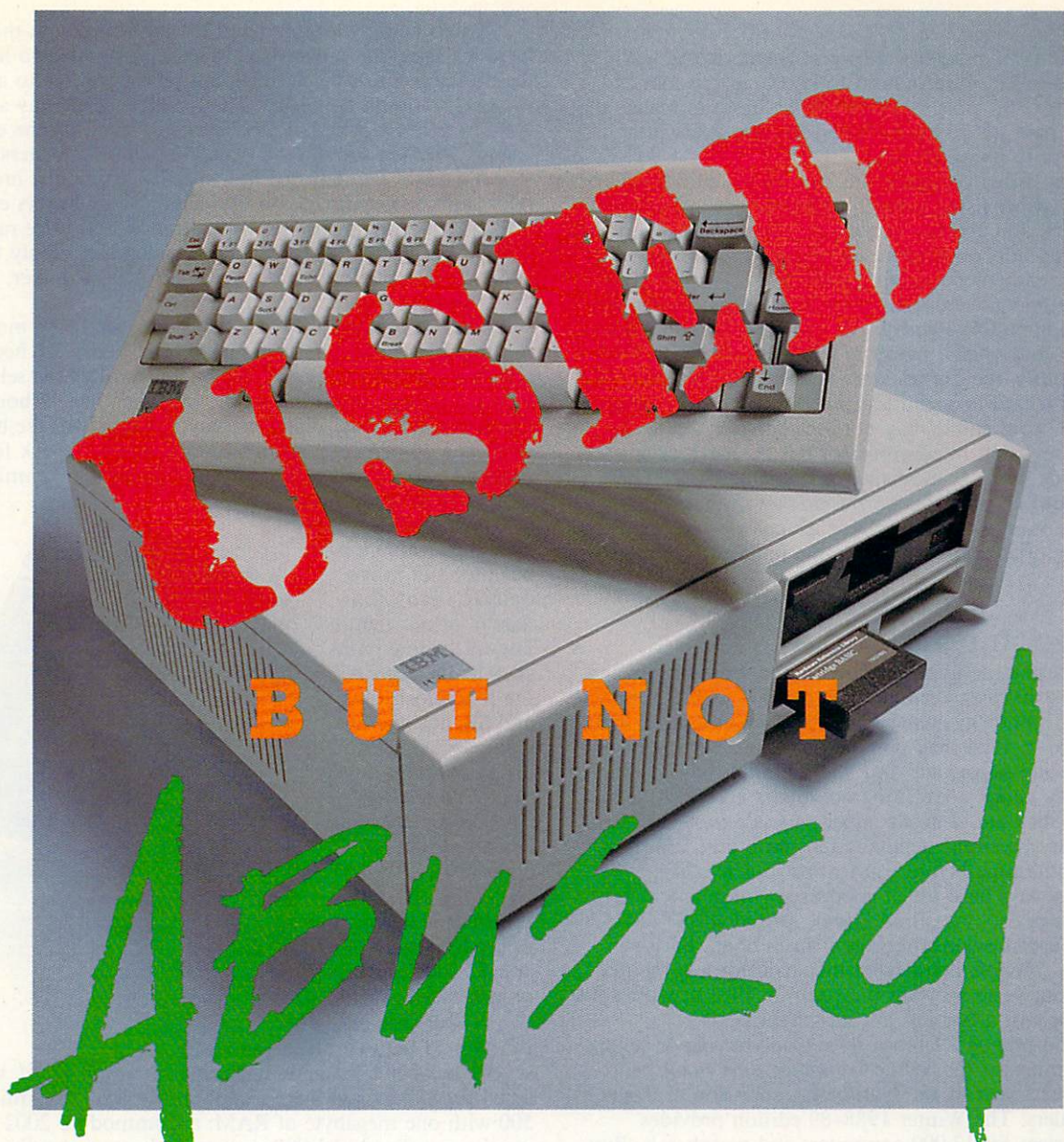
ThunderChopper, available for the Commodore 64/128 and Apple II computers. Coming soon, a great new IBM version!

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ActionSoft
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Suite 711
Champaign, IL 61820
(217) 398-8388





Photos by John Schneider/Creative Concepts

Late-night pitchmen aren't hustling used personal computers during the midnight movie—yet. But it's only a matter of time.

Millions of computers have been sold over the past ten years. That means millions of computers are now years old, and that some of those millions are ready to be passed on to new owners. If you're looking for a good computer at a bargain price and you're willing to invest some time

Yesterday's computers can be today's bargains—but you have to know where to look.

And what to look for after you've found them.

Tom Netsel

and effort in finding one, don't overlook a used, but not abused, machine.

Locating that used computer may be as easy as turning to the classified section of your local

newspaper. Most newspapers have columns devoted to used computers and peripherals. These listings can be quite extensive, but lots of listings doesn't necessarily mean lots of bargains. Prices can be outrageous. ▸

What's Fair?

Arriving at a fair price is the biggest hurdle facing both buyers and sellers. Buyers need to know current market prices before they start shopping. Sellers need to realize that what they paid for a system three years ago bears little resemblance to its worth today.

The classified computer ads in a recent edition of a St. Louis newspaper listed a dozen different personal computers, printers, and accessories for sale. One seller, advertising a six-month-old Commodore 64 equipped with a printer, disk drive, and color monitor, asked \$900. Further down the page, someone else was trying to sell a six-month-old IBM PC compatible—with 640K of RAM, two disk drives, a monitor, and several pieces of software—for only \$795.

Obviously, the Commodore system price was way out of line—it's hard to spend that much for a new 64 setup. But the PC compatible may not be a bargain, either. The ad didn't say what microprocessor the PC used, or whether the machine was a brand-name or no-name clone. There are new IBM compatibles on the market in that price range. The monitor—especially if it's color—and the software being offered could sweeten the pot and make the difference.

The Machine's Market Value

Before entering the used-computer arena, both buyers and sellers must have an accurate idea of what used equipment is worth. Technology changes rapidly—the computer that cost \$2,500 in 1986 may now sell for \$500. Yet when some owners decide to upgrade and thus sell their old system, they simply knock a few hundred dollars off the original price and stick an ad in the paper. If you're not familiar with the used-computer market and jump on the deal, it may be some time before you realize your mistake.

"It's always hard to get good used computers at a reasonable price," says Brad Naegle, president of Micro Xchange, a computer brokerage firm in Santa Barbara, California. "People know what they paid for a computer three or four years ago, but they don't realize new ones just like it only cost a fraction of that amount."

A good pricing reference for anyone buying or selling used computers is the *Sydex Computer Blue Book*, published twice a year by the National Association of Computer Dealers. The Winter 1988-89 edition provides realistic prices for 13,000 computers and peripherals. Buyers of new equipment will also find the book useful since it includes suggested retail prices, dealers' wholesale prices, and actual retail prices of new items. The book also provides the addresses and telephone numbers of 277 used-computer dealers.

Subscribers to CompuServe or Delphi have access to another source of current used-equipment prices. Each week, the Boston Computer Exchange, a nationwide brokerage firm for used mainframes, minis, micros, and peripherals, publishes a list of its current closing prices of selected models on those telecommunications services. Values are based on prices of items sold during the previous week. The Boston Exchange also lists hundreds of used computer items that can be purchased online through the telecommunications services.

Computer Middlemen

Computer brokerage firms, such as Micro Xchange and the Boston Computer Exchange, are middlemen who bring buyers and sellers together. Micro Xchange limits its services to customers in the Santa Barbara area, but the Boston Computer Exchange, which calls itself the world's largest computer brokerage house, deals on an international basis. Both firms handle transactions in a similar manner.

Sellers contact a broker and list the equipment they have for sale. The broker has pricing information to help them establish a realistic price, but sellers are free to ask whatever amount they like. (That could explain why a used Commodore 64 priced at \$175 was still listed on the exchange after ten months—a new 64 often sells for less.)

If a buyer is interested in a specific listing, the broker refers him or her directly to the seller. (Some buyers call a broker requesting a specific configuration and price range. The broker then tries to find a seller who can supply that system.) After the broker has put the parties together, the buyer and seller agree on a final price.

Once they come to terms, the buyer sends the money to the broker. After the funds have been verified (check cleared—that sort of thing), the broker notifies the seller to ship the equipment to the buyer, who then has 48 hours to check out the items. When the buyer is satisfied, the broker deducts a 10-percent commission and sends a check for the remainder to the seller. The buyer never pays a commission.

Some items, more in demand than others, hold their value longer, but they still move quickly—provided they're priced right. Top-of-the-line items, such as the IBM AT, the Macintosh Plus and SE, and the Compaq Desk Pro, are in constant demand, brokers say. The Boston Exchange recently listed an early-model IBM AT for \$1,650. Newer, updated models carried prices between \$2,300 and \$3,500, depending on accessories included.

A four-year-old IBM PC with 512K, two drives, and several software packages, including *Microsoft Word*, was listed for \$800. Clones are usually much less. An Amiga 500 with one megabyte of RAM, a Commodore 2002 color monitor, an Epson LX800 printer, and assorted software—including *WordPerfect*—was going for \$1,000. These are just a few of the Boston Exchange's recent listings of more than 600 personal computers. Most prices are negotiable, and items usually sell for less than their asking price.

Boston Computer Exchange publishes a printout of its database each week. If you don't have access through one of the telecommunications services, you can order a printout for \$10 by contacting the exchange by telephone or mail.

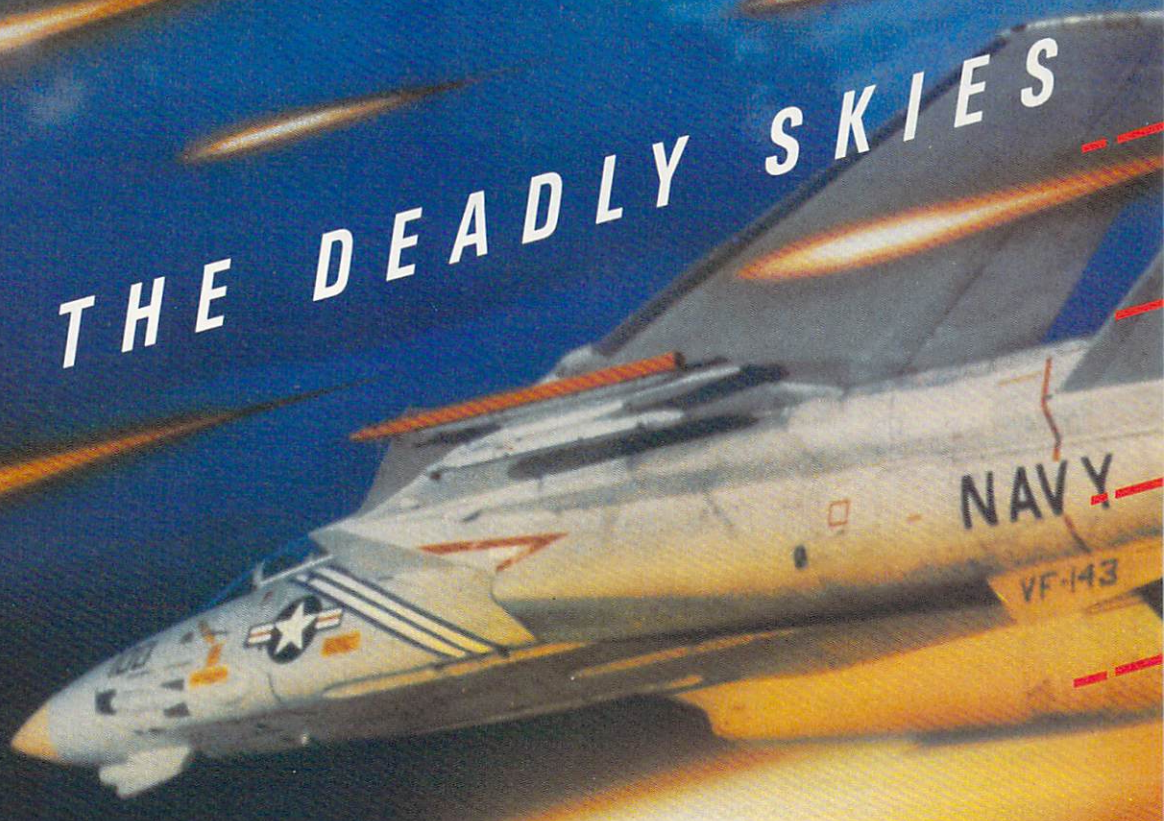
Micro Xchange charges the same commission and operates in a similar fashion, but Brad Naegle serves local clients only. He feels most people want to get their hands on equipment before buying, so they prefer working with a local broker and local sellers. "You wouldn't buy a used car without seeing it first, would you?" he asks.

Micro Xchange has the same procedure as Boston Computer Exchange for holding funds until the buyer is satisfied, but Naegle says his customers don't buy that way. Packing equipment, shipping it, and returning an unsatisfactory item can be more trouble than it's worth, Naegle says. "Who wants to go through all that hassle?" Still, many people don't mind the hassle when it comes to saving money, and they're willing to invest the time and effort required to search for a bargain.

Brokers usually arrange sales between two parties, but



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some also buy equipment outright, refurbish it, then resell it. Thomas Business Systems in Boca Raton, Florida, does just that. Paul Seeler, a consultant at Thomas, says the firm deals primarily with business clients and office computers. If a company has a computer it no longer needs, Thomas buys it rather than taking it on consignment. After cleaning or refurbishing, Thomas typically offers used clones for about 30–35 percent below the cost of a new system. All equipment comes with a 30-to-90-day guarantee.

Like many purveyors of used equipment, Thomas Business Systems sees its inventory fluctuate daily. A phone call is the best way to locate an item. "Call us up and give us the configuration you'd like," Seeler says. "We'll put together a nice package for you and, hopefully, be the most competitive."

Thomas doesn't handle Commodore, Atari, or other 8-bit machines. "They're not that expensive to begin with," Seeler says, "so their resale value is going to be very nominal, which means little margin."

Used-Computer Dealers

Richard Harold, owner of Shreve Systems in Shreveport, Louisiana, isn't that particular. "I'll buy anything if it's cheap enough," he says.

Harold, who normally handles Apple equipment, has a number of corporate clients, but he also takes trades and buys used equipment—even orphans—from individual



computer owners. One client is an avid Coleco Adam user. The customer has several daughters in different colleges around the country, and they'd each like to have a Coleco to keep in touch.

Harold says he even buys things he shouldn't, a habit that means he often has used equipment other dealers don't handle. One businessman used a Franklin 1000 for a number of years—had all his accounts on it—when it suddenly died. A call to Shreve Systems put him back in business.

Shreve Systems publishes a monthly flier, listing trade-ins, used equipment, and new specials, but Harold finds it's almost impossible to keep it up-to-date.

"We would have to make up a flier three times a day to stay current with what we have," he says.

Look Here

If you don't have a copy of the *Sydex Computer Blue Book* and you'd like to contact other brokerage firms or used-equipment dealers, try the Tuesday edition of the *New York Times*. The *Times* publishes a "Computer Services Guide" in its business section that lists computer brokers and dealers, plus other computer-related products and services.

Local user groups are additional sources of used computers. Because the people who frequent user groups often update their equipment, they're anxious to unload older items. They make announcements at meetings, post fliers on club bulletin boards, or place classified ads in the

Computers to Charity

Selling on the open market isn't the only way to get some mileage from your used computer. Combine economic and altruistic rewards with a charitable contribution; then give away your used hardware and software.

Getting a tax break for donating your computer means completing some paperwork on your 1040 tax form. The new tax laws say you have to file an itemized return to claim any charitable contribution as a deduction. You can still donate your computer even if you don't or can't itemize—just don't expect a thank-you from Uncle Sam. If you do itemize, the first thing you have to do is determine the fair market value of your computer.

You can do that by noting the prices of similar systems as they appear in the local classified ads. If you use this method, be sure to keep a copy of the ads so you can document your figure should the IRS question it. You can also get a price from a used-computer broker, if there's one in your city. Ask the broker to send you a letter, on letterhead, stating the fair market value of your system.

Next, you have to make sure your recipient qualifies, in the eyes of the IRS, as an organization worth getting something for nothing. Telling the revenueurs that you gave your computer to your niece isn't going to cut it. Look around your town—a school or local library will do, as will other nonprofit service centers such as a shelter or food bank.

If the fair market value of your computer is over \$500, you and your recipient must complete IRS Form 8283. Part of that form defines what type of organization you're donating to, and another part states the value of your donation.

If you don't have a local recipient in mind, there are other organizations who'll gladly take your contribution. Two examples are Computers & You and Global Technology. Both of these organizations seek to put computing power into the hands of people who otherwise might go without.

For Computers & You, that means empowering the residents

of San Francisco's Tenderloin district. From a room in the community's Glide Memorial Church, a longtime shelter-counseling-education-meals-spiritual outpost, Computers & You proposes to create a computer education center that will help Tenderloin residents become computer-literate. That means children who might not normally have the opportunity will be able to play with educational software. It means underemployed and unemployed adults will get the chance to learn job-landing skills like word processing or data entry.

If you're interested in donating hardware/software to Computers & You, if you want to donate time or money, or if you just want to find out more about it, write to Computers & You, c/o Corporate Development, PCW Communications, 501 Second Street, San Francisco, California 94107.

Global Technology acts as a worldwide channel for used computers. The computers you think of as obsolete, underdeveloped countries see as advanced engineering. Working through several international organizations, Global Technology has supplied computers to a hospital in Bangladesh, an orphanage in Honduras, and a Native American reservation here in the United States.

Global Technology receives hundreds of requests every week and is strapped to match supply with demand. It's looking hardest for IBM PCs and compatibles and Apple computers. If you want to donate your used equipment, or if you'd like to make a cash contribution, write to Global Technology, P.O. Box 4861, Boulder, Colorado 80306.

A big part of the personal-computer mystique is the communal feeling it promotes among users. Novices and sophisticates alike share common experiences, frustrations, and solutions. Donating your used computer can bring others into the fold and open a door to the future for those unable, for whatever reason, to open that door alone.

— Peter Scisco

Tandy® Computers: The broadest line of PCs in America.



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The Tandy 1000 TL is a powerful computer for personal and business use. Its 80286 microprocessor gives you extraordinary speed and processing power. Plus, the 1000 TL comes with MS-DOS and the DeskMate Graphical User Interface built in, so you can be up and running in seconds, using plain-English commands.

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The 640K Tandy 1000 TL comes with a 3 1/2" disk drive and has room for an additional 3 1/2" and 5 1/4" drive. A parallel printer adapter, RS-232 serial port, two joystick ports, a clock/calendar and five expansion slots are all standard. You also get a 101-key enhanced keyboard for the ultimate combination of power, ease of use and affordability.

The new generation Tandy 1000 TL. From the best-selling family of PC Compatibles made in America.

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group's newsletter. Even if you don't see an ad for the equipment you want, go to a meeting and make your needs known. Someone may have just what you're looking for.

Area electronic bulletin boards are also good places to contact individuals about buying and selling equipment. Most boards have special-interest groups devoted to major computer brands; callers often list items they have for sale. Some boards even have sections reserved for the buying and selling of computer equipment. If you want to deal with a larger base of callers and don't mind dealing directly with an out-of-town seller, browse through the classified listings on the national telecommunications services, such as CompuServe, GENie, Delphi, QuantumLink, and The Source.

Buyer Beware

Since selling used equipment isn't a high-profit area, most dealers can't offer extensive telephone support. As a result, buyers not familiar with computers shouldn't rely on out-

of-town brokers or used-equipment dealers as their primary equipment sources. Novice users may want a local dealer who can afford to provide the support they need, both before and after a sale. Several brokers say they cringe when people call and say, "I need a computer but I'm not sure what kind; what have you got?"

In used equipment deals, it's not unusual for someone to sell a complete system—computer, disk drives, monitor, and printer. Sellers are often reluctant to part with items separately, so they usually set one price for the lot. In addition to knowing the value of used computers, buyers need to know the prices of different monitors, printers, and ex-



10 Ways to Sell a Used Computer



Jim Patterson

Your classified ad isn't doing the job. You're spending 15 bucks a week on a half-inch of ink, and your old computer is gathering dust. Don't give up hope. Here are ten ideas for giving your used computer sale a shot in the arm.

Tell ya what I'm gonna do. . . . Go on the air with your local-access cable channel and sell your PC just like the folks on Home Shopper's Network. Spice up your offer with a handful of cubic zirconia and maybe a porcelain statuette of Elvis. Oh, and remember the four-word mantra of professional TV hucksterism: *Time is running out.*

Strip that chip. With the price of dynamic random access memory chips hovering somewhere near the price of weapons-grade plutonium, you might want to sell only the chips from your old computer. Don't even bother to take them out of the machine—just advertise the chips as coming in an "attractive carrying case."

Hold a yard sale. Next to the battered toys, the blackened pots and pans, the plaid polyester slacks, and the moosehead your wife's uncle willed to you, your used computer will shine like the gold from a pharaoh's tomb. You might consider offering a buy-one-get-something-free approach: Whoever buys the computer gets something free, like . . . the moose head. Now you're cooking.

An offer you can't refuse. Dress as Indiana Jones and stand in a darkened downtown alley. Whisper furtively to passersby until you catch someone's attention; then lead that person past the trash cans and fire escapes to where you've stashed your little treasure. You might not sell the system, but your arrest on loitering and trespassing charges will make a great story for your grandchildren.

Do I hear seven twenty-five? It's hard to beat the pandemonium of an auction for sparking the impulse buy. Salt the audience with relatives who can bid the price up should interest go soft. But don't let them off the hook. If your cousin is seized by a paroxysm of auction hysteria and shouts out "Seventeen fifty!", by all means let her

have the darn thing. A deal's a deal.

Brother, can you spare a dime? Times are tough. Where are you going to get the jack to buy that new graphics card you covet? A quick trip to the Salvation Army or Goodwill store can outfit you for surefire street sales. Stand around a busy intersection and hang a sign on your used computer that reads: "Will sell for VGA."

A bird in the hand. Hold a lottery by selling, for a dollar apiece, chances to win your used computer. The key here is to blanket your hometown with fliers advertising the raffle as a once-in-a-lifetime chance to step on that bridge to the future, an electronic paradise of wonder and hope. Your arrest on gambling charges will make yet another terrific tale for your grandchildren.

Piecemeal piecework. If you can't get one buyer, try for several. Sell the monitor to somebody with a dedicated videogame system. The keyboard is a perfect toy for a 13-month-old with future-shocked parents. Unload the system unit on somebody who's learning computer maintenance from one of those back-of-a-matchbook universities. External disk drives make dandy bookends. As for the cables, you're on your own.

Mondo exotica. As any professional will tell you, there are three cardinal rules to selling: location, location, and location. Pack up that used computer and hit the road. Offer it at a fire sale in Yellowstone National Park. Cruise to Jamaica and advertise it at a price that'll blow them away. This idea might never sell your computer, but it'll get you out of the house.

The big hardware giveaway. Take a hint from IBM and DEC. The big boys know that the real money is in software, and they work their fingers to the bone to ensure that today's mainframe software will be obsolete with the computers they release tomorrow. You can do the same thing, but on a smaller scale. Offer your computer free to anyone who will buy your software programs.

— Peter Scisco

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



**CARL BARONE,
NRI PROGRAMMER/ANALYST**

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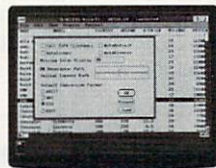
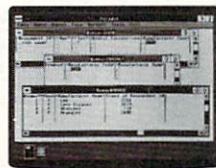
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ternal drives. A package price may seem fair, but the buyer should add up the prices of the individual items to see if the total still sounds like a bargain.

Two systems that appear similar may have prices that are only a few dollars apart. Don't reach for your check-book until you've determined exactly what's being offered, because the less expensive package is not always the better deal. Both systems may come with printers, monitors, and drives, but computer peripherals vary in quality. If the higher-priced system includes a 24-pin printer, it could be a better buy than a slightly cheaper package that comes with a 9-pin printer.

Never assume anything from a used-equipment listing. Some sellers quote a price that sounds good until you discover it covers only the computer and built-in drives. The asking price may not seem so attractive by the time you add a keyboard, monitor, and accessories. If you already have some equipment, make certain the hardware you're considering is compatible. A low-priced computer is no bargain if it won't work with the rest of your system.

Take a Test Spin

Computers normally are reliable pieces of equipment, but things can go wrong. Used equipment bought through a dealer usually carries some guarantee, but hauling or shipping a defective unit back to the store is still an inconvenience. If you have the opportunity to examine a used computer before buying it, test the keyboard and all switches for obvious defects. Mechanical components such as these are often the first to fail.

Heat is the big enemy of computer chips and power supplies. A computer may work perfectly when it's first turned on, only to have glitches appear after it has warmed up. If possible, turn the computer on and leave it running for several hours; then see if problems develop.

It's a good idea to test the computer with several different software packages before giving the equipment an OK. A word processor or spreadsheet may perform and print flawlessly, but boot an arcade game to test the

For More Information

Boston Computer Exchange

P.O. Box 1177
Boston, MA 02103
(800) 262-6399
(617) 542-4414 in
Massachusetts

Computer Surplus Store

715 Sycamore Dr.
Milpitas, CA 95035
(408) 434-1060

Micro Xchange

1727 State St.
Santa Barbara, CA 93101
(805) 687-1320

Shreve Systems

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machines's sound chips and joystick ports before you take possession.

In today's computer marketplace, technology is still on the upswing. New features, increased power, and competitive prices continue to make new equipment attractive to many buyers. Yesterday's computers quickly lose their appeal—and their value—in such a volatile market. It may be some time, therefore, before used-computer dealers turn to television to lure buyers into their stores with promises of fantastic deals, free financing, and hotdogs. But if you don't need state-of-the-art equipment to handle your computing chores and you're willing to ferret out a great buy, or if you're just the kind of shopper who loves a bargain, don't overlook those low-mileage models available in the slightly used, but not abused, computer market. □

Tom Netsel is an assistant features editor with *COMPUTE!*.

Software—The Second Time Around

You've been aching to get your disk drive around a copy of *SuperSpread*, a top-of-the-line spreadsheet that can do just about everything. But you know the first thing the \$500 program will do is bust your budget. If \$500 is a little steep for a new copy, would you be willing to spend \$100 for a slightly used demonstration model?

Roger W. Jones is betting a lot of people would. Jones, president of Mastertronics (P.O. Box 574575, Orlando, Florida 32857; 407-282-8213), says his company is one of the few in the country dealing in used software. His firm handles only IBM-compatible programs at the moment, but Jones says Mastertronics probably will add Apple, Macintosh, and Commodore titles to its inventory of used software in the near future.

Mastertronics acquires its software in a variety of ways, and not all the titles suffer from heavy use. Being a computer consultant, Jones purchases packages to evaluate for clients. After a few hours of testing a product, Jones may decide it won't meet his client's needs. The software then gets added to Mastertronics' inventory of used software, even though it's almost brand-new and has never been registered. Selections and quantities are limited, depending on which products clients ask to have evaluated.

Software comes from other sources as well. If a computer dealer goes out of business or a company auctions off its computer supplies, Mastertronics often picks up the software at greatly reduced prices. Jones also buys software packages from individuals and even takes them in as trade-ins on new products.

Special orders that clients never pick up are another source of software. These items are often unique products that may not have wide appeal. Jones marks them down and moves them as used, even though the shrink-wrap hasn't been broken.

While it's possible to pick up a \$100 package for \$20, your timing has to be good if you're going to find what you want. Jones has tried publishing lists of available titles, but because he may have only one copy of a certain title, the list is often out of date by the time it's mailed. Jones encourages customers to call with their requests. If he has an item, he'll hold it for ten days or until a check or money order arrives.

Ever read the fine print that comes with software? Some companies sell their programs; others grant users only permission to use the product. If a company grants users a license, it may or may not say whether the license is transferable. There are many variations of this policy, and it depends on the legal jargon found in the license. Some software companies permit the resale of their products; others do not.

Identifying which products can and which cannot be resold legally often presents a problem. "We're not attorneys, but we try very hard to determine if a company will permit the resale of the product," Jones says. "If the company has actually *sold* the product to the user rather than *licensed* the product to the user, then it's our interpretation that the product can be resold."

Copyright laws protecting software are similar to those protecting books, record albums, cassette tapes, and compact discs. In practically every city, there are stores selling used books and used records; even municipal libraries raise money by selling books. If government and corporate attorneys who are familiar with copyright laws feel it's legal for their clients to sell used books and records, that's good enough for Jones. "If we see used books, used record albums, then why not used software?"

— Tom Netsel

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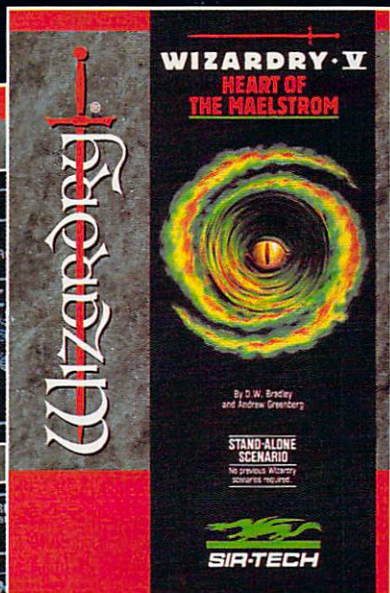
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Screens from Apple II version of the game.
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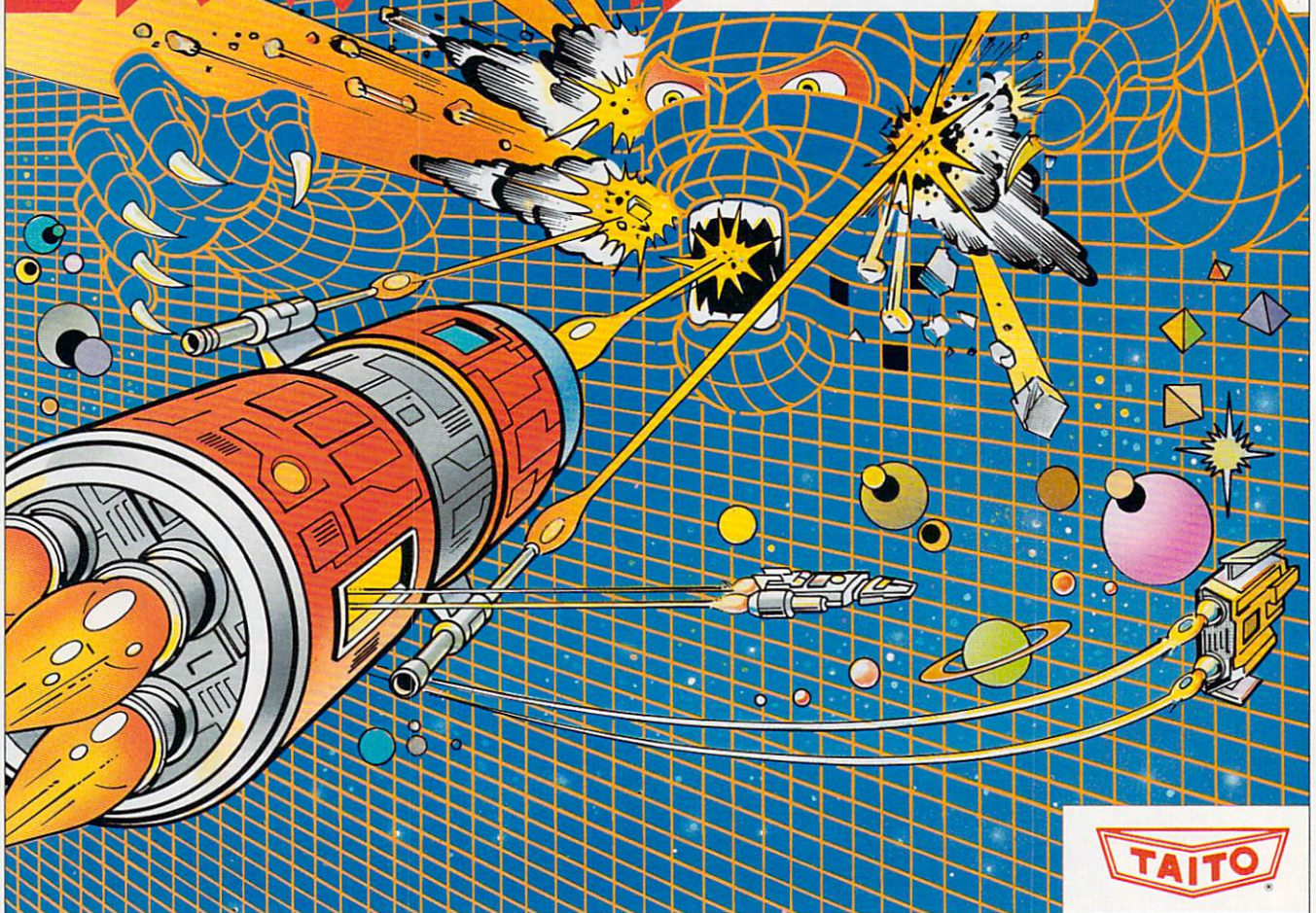
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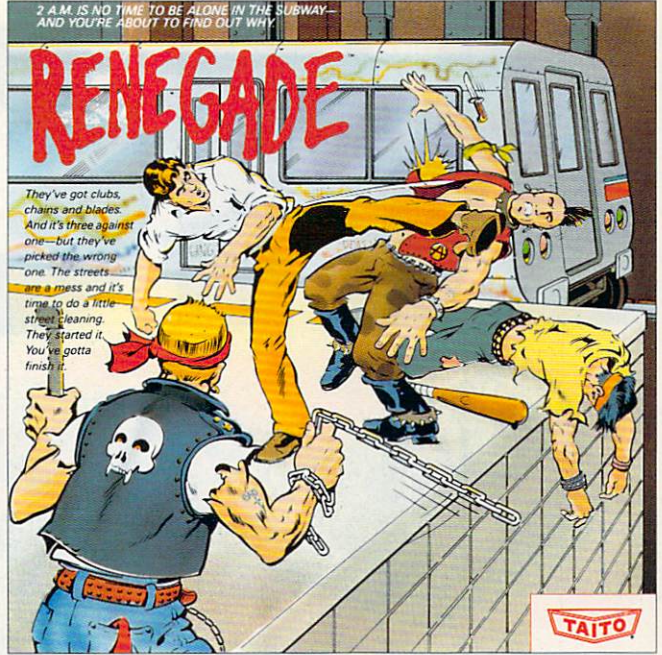


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Money



The computer can help keep your money yours. Six recommended personal financial management packages put a money maven in your machine.

Neil Randall

Money



Money

Buying a computer costs money. Buying software costs as much or more. Then there's the printer, and the color monitor, and the second floppy drive, and the hard drive, and, just when things seem a bit easier, more and better software. Before long, the indispensable machine has become an indefatigable money hog. So why not have it manage the money it's costing?

The Balancing Act

Computerized money management is far from new—businesses have been doing it for a couple of decades. But for the home computer user, financial management software has had to overcome two major obstacles. First, the early programs were difficult to use. Second, they seemed to offer little that couldn't be done with a pencil, a notebook, and a bank statement.

In the last few years, software publishers have responded to both objections. The six packages examined here—*Dollars and Sense*, *Managing Your Money*, *On Balance*, *Smart Money*, *Your Personal Financial Planner*, and *MoneyCounts 5.0*—all claim ease of use. To varying degrees, that claim is valid. The second objection, more difficult to overcome, has been addressed in a variety of ways—automated bank reconciliation, integrated programs, and future financial planning are just some of the features now part of such programs.

Most importantly, though, software designers no longer treat homes and businesses alike. While the accounting principles used in personal finance software are identical whether home or business accounts are selected (most packages offer both), the home accounts “feel” much less technical. Personal financial management, simply put, is not the same as business financial management, any more than balancing the nation's budget is the same as balancing your budget.

In the past, the question might have been “Who will use this software?” Now, with software capabilities up and difficulty down, the question has changed to “Who does *not* need such software?”

Few people, actually. Those who must spend all their income on basic essentials, those who already have a thorough, workable financial management system, those who never suffer from cash-flow problems, those who spend wisely but have no money available for investment—these are the people who have little need for a financial management program.

But if you have more than one loan, more than one credit card, more than one bank account, more than one income, a record of cash-flow difficulties, or extra money to invest, you'll do well to explore one of these packages. And if you own a small business, particularly if it's run out of your home, you'll find one of these financial management programs essential.

The Reign of Double-Entry Bookkeeping

All six financial packages are based on the double-entry bookkeeping system. In this system, all transactions affect a minimum of two accounts. Using your Visa card to buy a \$200 suit not only adds \$200 to your clothing account, for instance, but also adds \$200 to your Visa bill. Thus, the increase in assets (you now have a \$200 suit to your name) means a corresponding increase in your liabilities (you have \$200 more to pay off in your Visa account). Double-entry bookkeeping is the financial equivalent of Newton's second law.

So how do you ever get ahead? Basically, by buying items whose value outlasts the time it takes to pay for them or, preferably, whose value increases over time. In the above example, a transaction next month might show \$200 disappearing from your checking account to eliminate the \$200 in the Visa bill account. Your checking account has decreased by \$200, and your Visa account is now empty, but you still have the suit (a \$200 asset). Better still, the acre of land you spent \$2,000 for two years ago has suddenly jumped in value to \$4,500; your net worth should show an increase of \$2,500.

The purpose of all these packages is to calculate your *net worth*. In financial terms, net worth is defined as the difference between your assets and your liabilities. If you have more assets than liabilities, you have a positive net worth; the reverse gives you a negative net worth. Your goal is not only a positive net worth, but a constantly increasing one. The differences among the six packages is, to one degree, the sophistication with which they calculate and track net worth.

All six programs begin by having you prepare your accounts. You'll need account categories for such things as income, expenses, assets, and liabilities. Income accounts include salaries (often called *paycheck accounts*), royalties, commissions, dividends, and so on. Expenses are, of course, everything from the phone bill to the dental visit. Assets include your car, your house, and your computers, while credit cards, loans, and your mortgage will show up under liabilities. Several of the packages have account lists already prepared, which you can easily alter, add to, or delete from. This is a welcome feature because setting up the accounts is the single most time-consuming aspect of these programs. ▸

The success of each program, without exception, depends on your entering financial transactions regularly and on a timely basis. Practically speaking, this means every two weeks or, better still, weekly. Entering a transaction, in all six packages, means specifying which account to add to and which to subtract from. All programs support automatic (or recurring) transactions, those which occur regularly and rarely vary. Paycheck deposit and mortgage or rent payment fall into this category. Transactions such as buying a jug of milk need not be recorded separately; each package lets you work with a kind of petty-cash account.

All six programs also offer the option of printing reports and graphs.

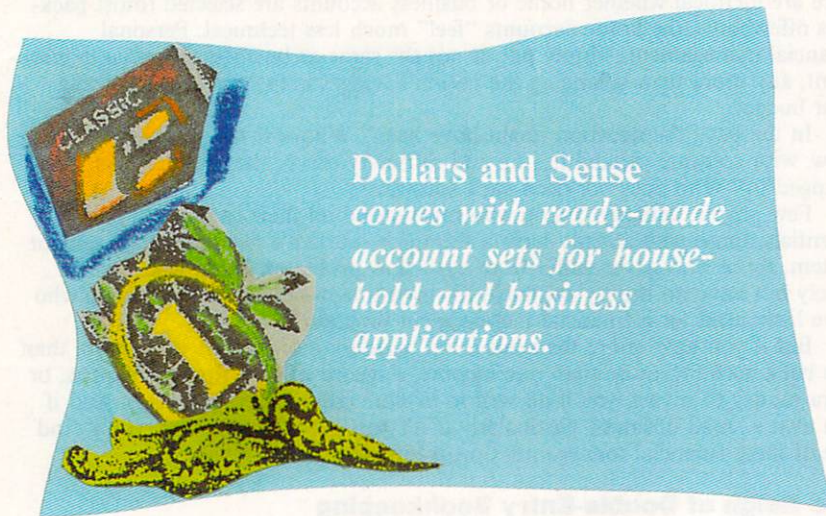
from program to program, to the way in which the package handles the financial information you provide. Other unique features include the ability to handle small businesses or the method of predicting your monetary future. For the most part, the differences are the result of the purpose of each package: Some are designed to report your financial situation as accurately as possible, while others strive to advise you in your monetary transactions.

Choosing a financial management package will depend, to a large extent, on the features you want. Pick the program with the functions and features you need, and you'll be well on your way to financial organization, if not security.

Organize!

Organizing your finances takes time. Assembling the information you need is the first step; learning to use the program is the second. Here's a ten-point program for getting started:

1. Get your checkbooks, bank statements, credit card statements, receipts, and any other records of this year's financial transactions.
2. Find your insurance policies, loan contracts, and mortgage contracts, as well as information about stocks and bonds.
3. Dig out recent paycheck information for you and your spouse. Include with this any other information about this year's income, from royalties to dividends to student grants.
4. Take a household inventory. List the approximate value of such things as jewelry, clothing, computers, stereos, musical instruments, furniture, lawn mowers, and your comic-book collection. These are your assets; without this information, no program will be able to calculate your net worth.
5. Separate all the information into envelopes or, if you want to be traditional about it, shoe boxes. Categorize the items under assets, liabilities, income, or expenses. If you wish, keep stocks and bonds separate.
6. Go through the tutorial for the financial program you've just purchased. Make sure you understand how to create new accounts, set up opening balances, and enter transactions. Experiment with the examples provided. Then prepare your data disks.
7. Enter information into your asset and liability accounts, creating new ones as need dictates. Then trace your income back over the year to date, entering information as accurately as possible. Do the same for your expenses, although you'll probably want to estimate some items here. Remember that your goal is to track your finances from this point forward, not to relive the past ten months.
8. Go through the accounts on the computer, checking that you have all the categories you need. Delete those accounts you won't need over the next few months, including ones you think you might need later (they can be added when they are necessary). In other words, make sure you've customized the database to *your* financial concerns.
9. Print out your financial statements to get an idea of where you stand right now. If you discover you're bankrupt, recheck your calculations.
10. Set up a schedule for entering transactions each week. If you're married, get your spouse to help. Make sure you have a place to store all receipts, bank statements, bills, and so on. Finally, make sure you use the software regularly; catching up is time-consuming.



Dollars and Sense comes with ready-made account sets for household and business applications.

Reports begin with income and expense statements and profit and loss statements, with each program offering a series of its own specialized reports. Graphs provide visually oriented information about several areas of your financial status; bar charts are the most common type, but pie and line charts are available with some programs.

Each program also contains a relatively painless means of reconciling bank statements when they arrive. *Relatively* is the operative word here, because if you dislike reconciling your statements now, you won't find the computerized process much more enjoyable. But by tagging the cleared checks and then letting the computer do the reconciliation work for you, you'll have a much better idea of your banking situation.

Individuals, All

Despite their common features, each of the packages is uniquely designed and targeted toward a specific audience. This uniqueness extends from the user interface, which differs widely

Dollars and Sense

Dollars and Sense comes with ready-made account sets for household and business applications. Adding to, altering, or deleting from these sets is easy and encouraged. On the Macintosh version, accounts are indented on the screen to reflect the various levels of account types (a hierarchy). On the IBM PC version, additions, deletions, and other commands are accomplished by using the function keys; the Apple version has a key-selection menu.

The Macintosh version makes use of separate windows, while the PC version uses pop-up windows. Pressing F6 on the PC version, for instance, lets you enter and update information in a pop-up window for each checking account. *Dollars and Sense* uses this information at check-printing time to help you verify that the checks for the correct account are in the printer. Pop-up menus let you define variable budgets and multiple-account transaction information as well. In the Apple version, all transactions are handled on a ledgerlike transaction screen. >

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**AIR
FORCE**

The consolidation feature demonstrates the sophistication of *Dollars and Sense*. When you use separate account files (a different set of books, in essence) to keep track of different financial activities, you can use consolidation to merge data from as many as 40 account files into one large file. Thus, you can track and chart how much each file contributes to your overall financial picture. Consolidation might be useful if you have income from, say, several sources—salary, portfolio, rental property, and freelance work—that you want to keep separate for tax reasons. At some point, though, you'll want to know how much each activity is contributing toward your millionaire-hood.

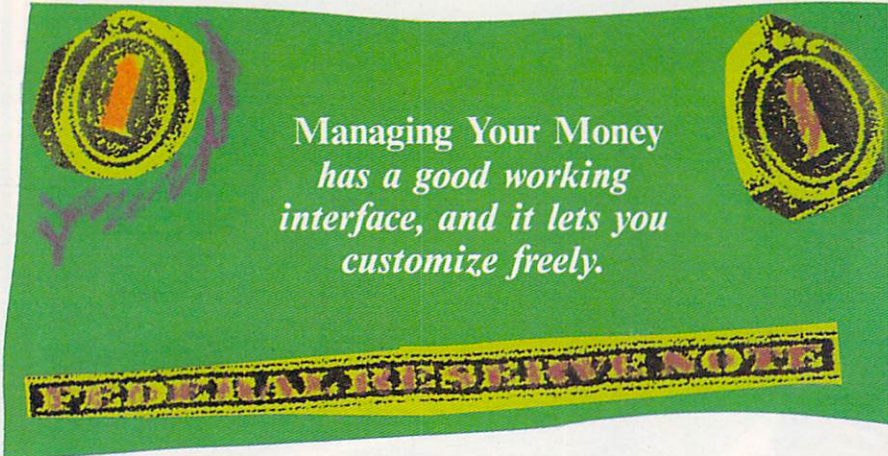
Reports in *Dollars and Sense* let you analyze your financial situation from almost any angle. An account

clicked from a window.

Dollars and Sense devotes 44 pages of its manual to its forecast feature, and 50 pages to its portfolio management section. Both are designed for people serious about watching their money. Forecast helps you organize finances to keep your federal tax bill as low as possible (but still legal); the package's upgrade policy keeps new tax laws in the program. Portfolio management is for those who play the stock market. Here you can work with open or closed trades, define selected portfolios, enter dividend information, update split shares, and produce a series of reports that let you track your progress.

Andrew Tobias' *Managing Your Money*

If you want a program that's more a



Managing Your Money
has a good working
interface, and it lets you
customize freely.

year-to-date summary lists the number of entries, the total dollar amounts, budget information, and a tax balance for each account. Monthly budget totals are also available, along with their corresponding monthly actuals totals as well as a report comparing the two. Income statements compare your income and expense accounts, while balance sheets compare assets and liabilities to calculate your net worth. Cash-flow reports help you plan necessary changes in spending patterns, and account reports (which you can customize) show the activity for an individual account. A series of graphs offer a visual description of the information.

To minimize duplicated work, *Dollars and Sense* makes use of *descriptors*, macrolike creations in which one keypress does all. When you enter a regular transaction (paying the phone bill, for example), you can assign that transaction to a descriptor. The next time the transaction occurs, you need only type the first one or two letters in the descriptor box, and the information appears. In the Macintosh version, descriptors can also be

financial coach than a bit of software, this might well be your choice. I say *coach* intentionally because *Managing Your Money* is the most loquacious program I've ever seen. The 270-page manual (Macintosh; longer for the IBM and Apple versions) is written in a chatty style, as are the help screens in the program. The good news is that, right from the beginning, Andrew Tobias himself seems to be with you.

Tobias' goal, like Sylvia Porter's (see below), is to assess your current monetary situation and help you plan your financial future. He also makes the assumption that your financial management package will be a frequently used piece of software. To that end, *Managing Your Money* includes a reminder pad and a card-file (IBM and Apple) word processor. The word processor can be used independently—by pressing Ctrl-W from anywhere within the program—or as a tool to add information to a particular activity in the program. The reminder pad lets you list reminders, appointments, and to-do lists, and it can even be set to appear when you boot the program.

Only one chapter of the manual—

Expert Advice

Ron Trace is national coordinator for personal financial planning at the accounting firm of Peat Marwick in Toronto. The author of the "Personal Financial Planning" column in *CA* magazine, he also teaches a course in personal financial planning at the Canadian Institute of Chartered Accountants.

Trace's approach to personal financial planning software is simple and complex at the same time. He advises, quite simply, using a good spreadsheet package rather than an off-the-shelf financial package. The complex part, he realizes, is learning to use a spreadsheet program effectively enough to put it to work as a financial planning assistant. That requires a major time commitment.

But commitment, Trace insists, is what financial planning is all about. "One of the biggest problems I have," he said, "is that clients come to me asking for help with their finances, but they don't realize the commitment it takes to put their finances in order."

Using a good spreadsheet, he continues, will force them to learn how to perform financial calculations such as tax formulas. Understanding these calculations is essential to true financial control.

Peat Marwick clients use a software package the firm has designed, but it isn't available to nonclients. According to Trace, the firm designed the program because there are no satisfactory commercial packages that use Canadian taxation laws. Furthermore, because commercial packages are aimed toward ease of use, the programs sacrifice the flexibility and customizability available with a spreadsheet. Several excellent packages are available to U.S. users, he explains, but at prices far higher than those of the packages examined in this article.

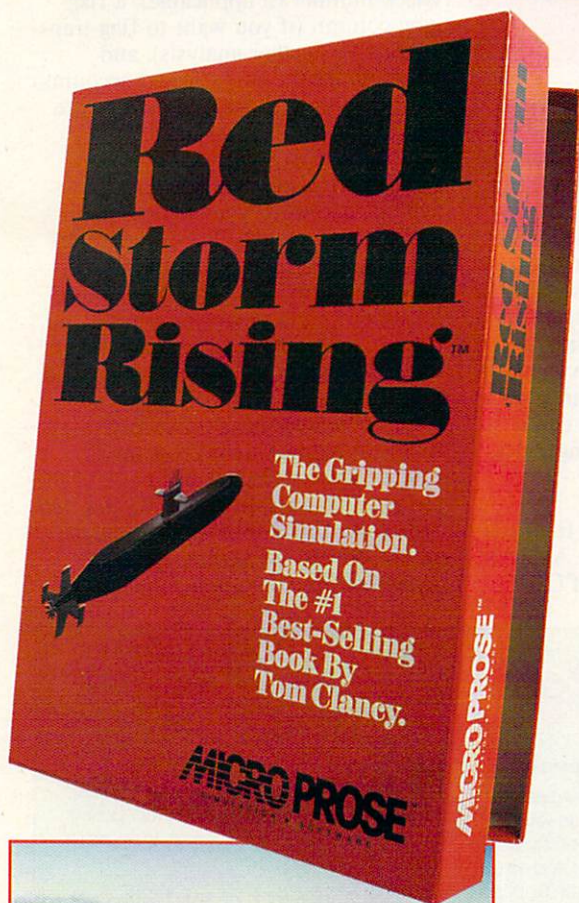
Trace's message is clear: There are no quick fixes. Use an off-the-shelf, inexpensive package to get a feel for your finances, but viable financial planning comes only with the investment of time and effort. Working with your money, he says, must become a labor of love.

38 pages—is devoted to setting up a budget and entering transactions. To some extent, the manual assumes that the program is at least partially self-explanatory, an assumption that makes learning the software somewhat difficult. The information you need, though, is on the help screens, not in the manual.

Managing Your Money has a good working interface, and it lets you customize freely. Its strengths, however, are in its extras. For example, the included tax estimator lets you plan for next year's tax expenses. The process is simple: Press F4 in the PC

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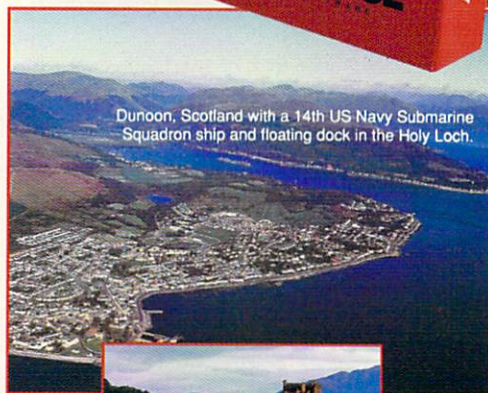
In September, 1989, the *Red Storm Rising Admiral of the Fleet* and a companion will embark on a 7-day expense-paid trip to Dunoon, Scotland, home of the US submarine base at Holy Loch from which *Red Storm Rising* players operate. Then they will visit London for the international Personal Computer Show. The *Admiral of the Fleet* and nine Runners-Up will receive other terrific prizes as well.

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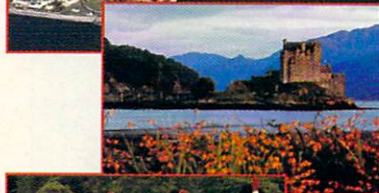
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The *Rules*, included with your *Official Log Form*, explain the details.



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Contact Screen



On Balance is as no-nonsense a financial management program as you're likely to find.

version or Open Apple-3 in the Apple version, and the numbers are drawn from the appropriate accounts (the Macintosh version puts a Form 1040 onscreen with the numbers in the right places). Another keypress explains the numbers, while a third lets you change the tax laws for a different year. The help screens guide you through the process.

The 48-page chapter on portfolio management corresponds to a separate section of the program, one which tracks your investments. Along with a description of how to record puts and calls, zero-coupon bonds, mutual funds, mergers, and so forth, there is also a brief four-pronged approach to investing.

Included in all versions of the package, but as a separate chapter in the Macintosh manual, is a section on planning for the future. It begins with a simple calculation about life expectancy (but without guarantees), then proceeds into insurance and retirement planning, planning for sending your children to college, mortgage refinancing, loans and annuities, and bond yields. The idea is to give you an idea of where you will stand in your financial future and how you could start saving for various contingencies.

On Balance

On Balance is an easy-to-use financial management program for the Apple II. Included in its relatively brief (104-

page) manual is a section on getting started, another on using the program, a lengthy reference section, and an appendix on exporting data to *AppleWorks*. This extremely clear documentation provides solid instructions on setting up the program and your databases, and it offers eight fully explained examples of transactions.

The transactions screen looks more or less like a checkbook register. On the screen you'll see the date, the check number (if applicable), a flagging column (if you want to flag transactions for further analysis), and columns for the two affected accounts and the amount. All transactions are handled through this screen.

Four possible reports are available, offering information on transactions, accounts, your net income, and your net worth. The first two reports can be viewed in either text or bar-chart form. Data can be searched for according to whatever criteria you choose, including flagged items. *On Balance* also includes a calculator and a memo pad.

On Balance is as no-nonsense a financial management program as you're likely to find. It has none of the businesslike complexity of *Dollars and Sense*, nor the emphasis on financial advice offered by *Managing Your Money* or *Your Personal Financial*

Money Talk

Money may make the world go 'round, but its jargon can also make your head swim. If you're not a CPA and the most advanced financial terminology you use is *Charge it* when you're at the department store, browse through this short glossary.

Account. The basic building block for all bookkeeping activities. Basically, you put a monetary value into an account or take it out. Every transaction involves at least two accounts, often many more.

Assets. Things you own: your house, car, diamond watch, thoroughbred racehorse, Learjet, property in Manhattan. If your assets exceed your liabilities, you have a positive *net worth*.

Budget. The plan you make for spending and saving your income. The important thing is to be realistic. Budgeting your loan payment at only 75 percent of the real amount might balance your budget on paper, but your bank manager won't buy it. And don't forget about the little things—clothes, spending money, supplies. They add up quickly.

Credit. A credit changes the balance of an account. In an asset account, a credit reduces the value of the account. In a liability account, a credit increases the value of the account. You'll always find credits recorded on the right side of a ledger no

matter what kind of account is being kept.

Debit. Like a credit, a debit changes the balance of an account. In an asset account, a debit adds to the value of the account. In a liability account, a debit decreases the value of the account. Debits appear on the left side of the ledger.

Expense. Any of the things that eat your money: the phone bill, the electric bill, the kids' dancing lessons, the new exhaust system for the car, groceries, computer disks.

Financial statements. Reports that detail your financial situation. The two most important are the *income and expense statement* (a.k.a. profit and loss statement), which shows how you've spent your income, and the *net worth statement* (a.k.a. balance sheet), which compares your assets and liabilities. In both cases, a positive balance is the goal.

Income. The money you bring in: salary, hourly wage, contract income, royalties, interest received, dividends, tips and gratuities, scholarships, and so on. If income exceeds expenses, you've made a profit.

Investment. Purchases you make with the intention of reselling at a higher price sometime in the future, or purchases that will earn you interest. Your house is an

investment, your car isn't (unless it's a collector's item). Stocks are an investment, even though they might fail. Bonds are an investment because they earn interest.

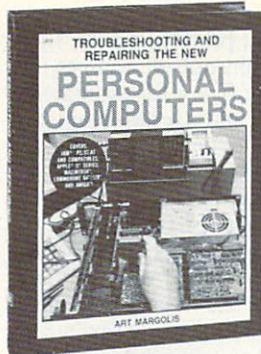
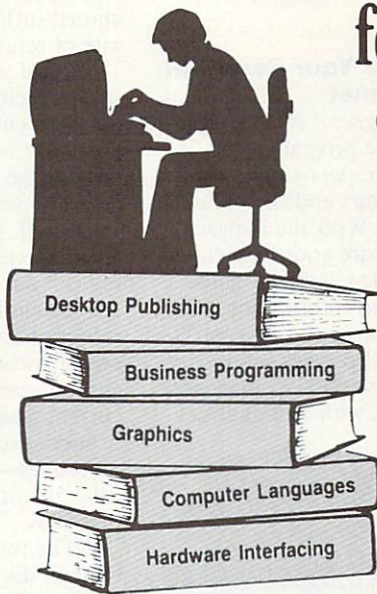
Liability. A long-term or short-term debt. Loans and mortgages are liabilities, even though the car and house you bought with them are assets.

Reconciliation. The process of checking your bank statement for errors at the end of the month. Your balance won't equal the bank's balance, because some checks will not have cleared at the time the bank sent the statement. Reconciling means accounting for these outstanding items, as well as adding service charges and the like, to see if the bank has made a mistake. If it has (it happens), phone the bank and have the mistake corrected.

Transaction. An activity that changes the balance in at least two accounts. Buying groceries decreases the cash account and increases the grocery account. Taking out a loan increases your checking account but also gives you a new liability account. And so on. Every time you bring money in or spend it, a transaction has taken place. Note that some transactions (receiving your paycheck, for instance) affect many accounts at the same time.

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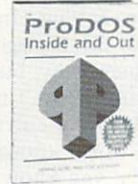
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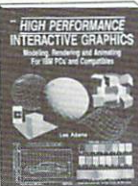
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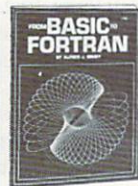
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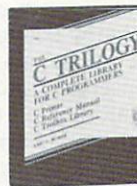
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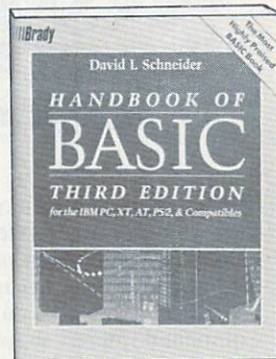
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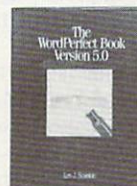
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2939 \$24.95

Planner. On Balance makes financial tracking straightforward and matter-of-fact. For those with an Apple II computer who want to get started as quickly as possible, *On Balance* is worth checking out.

Smart Money

Like *On Balance*, *Smart Money* sticks to basics in its financial management. The transactions screen is not as useful or as appealing as *On Balance's*, but the icon-style interface (accessible with cursor keys on both IBM and Apple systems) is a strong idea. What sets this program apart from the others is the ease of use of its financial-computations function.

By performing financial computa-

tion, it gives you a solid current financial picture as long as your finances themselves are not especially complex.

Sylvia Porter's Your Personal Financial Planner

Your Personal Financial Planner consists of six separate programs. Its transaction manager lets you enter financial transactions and then search and modify them. With the budget manager, you prepare your budget, create graphs to view budget figures pictorially, and load information from the transaction manager. The asset/liability manager also takes information from the transaction manager, then lets you work with and analyze

available for that project (if any), figures of funds from outside sources, and a percentage figure for estimated annual inflation and average annual rate of return.

Once you've set up all your work sheets, including one for each college-bound child, one for the business you want to start, one for retirement, one for the motor home you want to buy, and one for the house you want to pay off, you do the same for insurance policies; then you ask for a print-out of your financial plan. The package responds with several pages of information. It establishes where you are financially at this time, what your current resources are, and what your current assets and liabilities are. Then it offers two lists of your financial objectives—one arranged chronologically, the other ordered by your priorities.

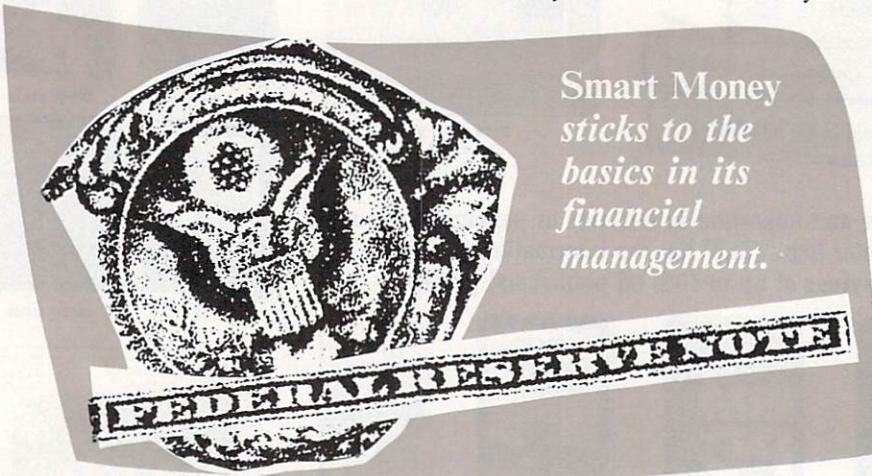
The program offers advice about what to do if it calculates that you won't meet your financial goals. Among these points of advice: Eliminate some of your objectives altogether (there goes the Ferrari!), target some objectives for later, invest in different ways, and plan to balloon contributions to savings and investments. None of these suggestions is particularly noteworthy, but finding out that you simply can't meet your monetary goals under current conditions is well worth knowing. The purpose is to let you know exactly where you stand and whether or not your objectives are realistic.

MoneyCounts 5.0

MoneyCounts is certainly one of the most widely advertised of the personal financial-management packages. Full-page ads boldly proclaim it to be a superb value at a bargain price. The question, of course, is Just how valuable is *MoneyCounts*? Low price and high quality, after all, do not usually go hand in hand.

As it turns out, the claim is well substantiated. *MoneyCounts* not only offers nearly all of the features the home user needs, but it also comes with perhaps the friendliest user interface of any financial program. Not that the manual helps—its first 18 pages come close to alienating the user with deadening information about response conventions, DOS system prompts, installation instructions, and password protection. The best approach to starting *MoneyCounts* is simply to load the program and follow the prompts.

The first time you use *MoneyCounts*, a menu appears which lets you specify the current accounting month and year, the first and last month of the fiscal year, one of five



Smart Money sticks to the basics in its financial management.

tions, you can plan your future finances. Loan-amortization calculations show you how much interest you pay on a loan over a given period of time (and at a given interest rate); you can use it before you take out a loan. Compound interest shows you how much to deposit in savings and other accounts to meet a specific financial goal at a specified point in the future. If you need cash for a specific purpose in the future (your children's college education, for instance), the annuities function helps you plan. Also included is an interactive net-worth calculation that shows what happens to your net worth under certain spending and investment circumstances. Finally, the program tracks appreciation and depreciation.

Equally accessible are the reports. *Smart Money's* reports include a balance sheet, a profit and loss statement, an accounts chart, a transaction journal, a budget report, and more. Graphs showing actual figures or actuals versus budget figures are also available.

Smart Money is less sophisticated than *Dollars and Sense*, *Managing Your Money*, or *Your Personal Financial Planner*. But it's also less intimidating and considerably easier to

your assets and liabilities. The income-and-expense-statement program creates that report—again, by taking information from the transaction manager, just as the balance sheet program imports transaction information to prepare the balance sheet. Finally, the financial planning program helps you plan your monetary future.

Each program is highly usable, and, for many people, separating the package's functions makes for a shorter learning time. Bar charts and X-Charts (cross-reference charts) can be created in the budget manager, while reports can be generated in each of the programs. Where *Your Personal Financial Planner* excels, however, is in its financial planning capabilities.

The first step in financial planning is to tell the program your financial goals. This means creating a work sheet for the program. Five work-sheet types are available: college, house, business, retirement, and other. Filling in a work sheet requires that you choose the type, note what it's for (Lucy's college education, perhaps), and then set the priority of that individual goal, the amount of money needed to achieve it, and the year the amount is needed. Also required are figures of the funds you currently have

printer files (or you can create your own), the disk drive for saving data, and the monitor type. It's here that you first come across the program's simple interface; simply type the appropriate letter and enter the information.

The second and subsequent times you load the program, you'll see the main menu, where you'll begin by creating your accounts. Typical of *MoneyCounts'* interface, the bottom of this creation screen lists the nine account categories, along with the range of numbers available for each cate-

one choice here—*Your Personal Financial Planner*. The program offers a wide range of financial advice and is inexpensive.

Less constrained are Apple II owners. *Your Personal Financial Planner*, *On Balance*, *Smart Money*, *Managing Your Money*, and *Dollars and Sense* are all available for this system. Each package has its own strengths.

IBM PC and compatibles owners have a similar embarrassment of riches, with only *On Balance* unavailable for them.

Your Bottom Line

Andrew Tobias' *Managing Your Money*

Apple II—\$149.95
IBM PC and compatibles—\$219.98
Macintosh—\$219.98
MECA Ventures
355 Riverside Ave.
Westport, CT 06880
(203) 226-2400

Dollars and Sense

Apple II—\$119.95
IBM PC and compatibles—\$179.95
Macintosh—\$149.95
Monogram Software
531 Van Ness Ave.
Torrance, CA 90501
(213) 533-5120

MoneyCounts 5.0

IBM PC and compatibles—\$29.95
Parson Technology,
375 Collins Road NE,
Cedar Rapids, Iowa 52402
(800) 223-6925
(319) 395-7300

On Balance

Apple II—\$59.95
Brøderbund
17 Paul Dr.
San Rafael, CA 94903-2101
(415) 492-3200

Smart Money

Apple II—\$79.95
Apple IIs—\$79.95
IBM PC and compatibles—\$79.95
Sierra
P.O. Box 485
Coarsegold, CA 93614
(800) 344-7448

Sylvia Porter's *Your Personal Financial Planner*

Apple II—\$99.95
Commodore 64—\$39.95
Commodore 128—\$49.95
IBM PC and compatibles—\$99.95
Timeworks
444 Lake Cook Rd.
Deerfield, IL 60015
(312) 948-9200

MoneyCounts' simple interface makes it a good choice for any budding financial manager.



gory. Type 800, for instance, and you create your first expense account. Type 800 again, and *MoneyCounts* automatically supplies 801. The process is easy and the system is very usable, two features appreciated by beginning financiers.

MoneyCounts can handle as many as 999 accounts and process 100,000 transactions per year. The manual contains an appendix with hints for such transactions as depositing the paycheck, refinancing a mortgage, and buying a new car. *MoneyCounts* also includes a forms-manager program for creating checks, mailing labels, Rolodex cards, and phone lists. Like all the packages examined in this article, *MoneyCounts* also contains a financial calculator, a math calculator, and a notepad.

You may prepare reports at any time. Available are financial reports, inquiry reports, special reports, and reports of grouped accounts. One major deficiency of *MoneyCounts* is its inability to display these reports on the screen (you send them to your printer instead).

MoneyCounts has little of the sophisticated feel of either *Managing Your Money* or *Dollars and Sense*. It is, however, an excellent value. Its simple interface makes it a good choice for any budding financial manager.

So Who Wants to Help Me Become a Millionaire?

Commodore 64/128 owners have only

As a guideline, consider *On Balance*, *Smart Money*, or *MoneyCounts* for a quick, easy start, but not if you plan extended use of a financial package or if you want serious help with planning. Of the other three, it depends on your needs. *Your Personal Financial Planner's* strength is its distinct financial planning function, while *Dollars and Sense* has, unquestionably, the most traditional businesslike orientation. *Managing Your Money*, on the other hand, is perhaps the most feature-filled of all, and its financial advice will be very attractive to many serious users.

Macintosh owners can choose confidently between *Managing Your Money* or *Dollars and Sense*, their only decision being Tobias' personality or *Dollars and Sense's* detachment. Both offer a wealth of features as well as a Macintosh-specific interface.

The final question, though, is whether or not you really want to know your financial situation. Certainly, all these programs offer an enormous amount of information, but sometimes you'd simply rather not know that you can't afford the software, or the lawn mower, or the car you want to buy. The terrifying possibility is booting up the program, entering all the information, and then discovering you can't possibly get through another Christmas season without going bankrupt, winning a lottery, or robbing a bank.

On the other hand, if you've just made some investments or you're

about to do so, or if you feel your finances slipping away from you, one of these packages might get you back on track. Much less expensive than several visits to an accountant, they give you day-to-day control over your money and, to a large degree, your financial future. □

Neil Randall teaches at the University of Waterloo (Canada), writes for numerous computer magazines, and knows the value of money.

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Money and Your Spreadsheet

Make that spreadsheet of yours earn its keep. Here's how to build your first template the absolutely painless way.

Dan McNeill

Pity the poor spreadsheet. Beginners see it as the unscalable face of El Capitan, yet it is the most helpful of programs. It offers ease and order—something those most daunted can most profit from.

A spreadsheet is a table that calculates automatically. Since most tables contain numbers that stem from other numbers, spreadsheets have a lightning-fast, magical quality. You alter one figure in one cell, and the change ripples through all the other numbers that depend on it.

This is a marvelous ability. It means that spreadsheets can instantly update baseball statistics, census data, and, of course, financial information of every sort.

So why do potential users shy away? There are at least two reasons: math and learning.

Spreadsheets look like math, and math affects some individuals like a sensory-deprivation tank. Moreover, spreadsheet math has a peculiarly bar-

ren façade: not the exotic symbols of advanced mathematics, but the columns and subtotals of an accountant's statement. People are reluctant to face spreadsheets.

Second, learning a spreadsheet takes a little effort. Some people feel more comfortable with the addition and subtraction they learned in school. It's a strange, short-term outlook, since over the years, working by pen or calculator demands far more time and labor than devising a template or two. In fact, the time spent recalculating because of a single basic mistake could equal or surpass that of creating a template.

Hence, the Big Leap in spreadsheets is creating your first template. Once you make one, the worry ebbs, the barriers fall, and you can easily build many more.

This article will take you through that process, using a template that looks tough and rugged but is actually a snap.

Templates Step by Step

The average template requires five steps:

1 Outline the document on paper. Planning is the key to an effective template. Here, you need only set up the skeleton—the labels down the left and across the top. Each vertical category will intersect with a horizontal category, and the result will be a grid of cells, the framework.

2 Enter labels. This is the first hands-on software stage. It has two simple parts: *entry*, where you select the cells and type the names in, and *formatting*, where you tidy them up. Entry is merely rote, but formatting takes a bit of thought, especially if you want the template to look crisp and clear.

3 Enter raw data. Stable, changeless numbers are the meat of the spreadsheet. This step also has two parts: *entry*, where you select the cell and enter the figures; and *formatting*, where you provide commas, dollar signs, and decimal points.

4 Enter formulas. Formulas, the nerves of the spreadsheet, can form a broad, interwoven nexus. Here again, you first enter the formulas and then format them.

5 Format the page. Once the spreadsheet is in working order, you'll want to spruce it up. You can insert extra rows or columns, add a title, and generally make it easier to read. Page formatting is cast as the last step because its effect is more obvious once the rest of the template is done. However, you can usually format the page at any stage. The more spreadsheet-fluent you get, the more likely it is that you'll format it early and often.

Rainy Day Umbrella

Now let's apply these steps to a simplified business plan.

Suppose you're starting a company to make umbrellas, called Rainy Day Umbrellas, Inc. You want some grasp of your firm's future: You need a business plan to forecast overall sales and subtract such projected expenses as manufacturing, marketing, administration, interest, and taxes.

Note the basic mechanism underlying this document: Money is coming in and money is going out. You want to keep track of it and match income against outlay. That's it. It's simple. Moreover, the same construct supports numerous other templates. It won't take much of a conceptual leap to adapt this fictitious business plan to handle your own checkbook, household expenses, preliminary tax preparation, and an array of other financial matters.

One final word: If the steps below seem arduous, realize that in reality they aren't. It's like explaining a microwave to someone who's never seen it. The workings sound intricate—full of knobs and settings and special cautions—until you actually have the machine in front of you, at which point it becomes more or less obvious. In this process, experience is the best teacher.

Step 1 The Outline

A spreadsheet has two dimensions: vertical and horizontal. You set vertical labels on the left and horizontal labels across the top. The vertical labels normally refer to figures, such as gross profit, since you stack numbers in columns to add and subtract them. The horizontal labels often indicate time.

With that in mind, you should carefully consider what you want from the spreadsheet. Let's take the vertical part first. For the income/outlay brand of template, you probably want to place income at the top of the column and outlays (which you'll be subtracting) below. The difference between all income and all expenses will go on the bottom line, where it belongs.

Here, you can start by penciling in *Gross Sales*, the overall revenue. Note that, in this case, *Gross Sales* is the only figure for income. If you have several sources of funds—for instance, a home budget might include the salaries of both husband and wife—you can subdivide the category. You can break it down by other indices, such

Can You Really Do It

Not all spreadsheet templates are as simple as the business plan for Rainy Day Umbrellas. Should you write your own template, buy prewritten programs, or hire a professional? I asked Julie Rubin, a tax computer specialist at the major accounting firm of Peat Marwick Main and Co., in Los Angeles, for answers.

Q. When should a person try to develop a spreadsheet template?

A. I've found that it's best to have a good understanding of the basics of the program you are working with. It may be hard for a nonuser or novice to decide when to design an application, but once you've gained experience and have a feel for a program's commands and capabilities, you can make that decision more easily.

Q. How do you get that experience?

A. Hands-on classes are really great, but studies show that people normally remember only about 20 percent of what is taught. So hands-on use becomes extremely important.

Q. Does designing a template make for good experience?

A. Yes. You should try something simple and work your way up.

Q. What kind of template should a beginner tackle?

A. Financial statements, balance sheets, even a checkbook-adding template might not be too overwhelming. You should try something that's close to home, not too complicated, where perhaps you add numbers in columns. You should also do a lot of reading about that application to see

if it'll perform the functions you need.

Q. When is it better to buy a template?

A. When you don't have the confidence to do the programming yourself. For instance, don't try to write a very complex tax computational model unless you are familiar with both the application and the laws and regulations regarding that application.

Q. When should a person consult a professional?

A. Deciding when to write a program or consult someone else can be determined in advance, before doing any work. If you're a novice, the first thing you might want to do is consult with your CPA firm. It might have an application to meet your needs, might design one for you, or might research third-party packages. Remember that computers are only as good as the person doing the programming. I've seen problems with too much reliance on computers. People don't double-check.

Q. When should a person double-check a spreadsheet application?

A. I check every calculation with a calculator. I leave nothing to chance.

Q. If you check every calculation, why use a computer?

A. Making changes or revisions to a spreadsheet is much faster than recomputing by calculator. I verify my formulas. If they're accurate, I can change a variable within a column being computed, and the formula will take that new variable into account.

— Dan McNeill

as the geographic distribution of sales. Usually, however, income will be far more monolithic than expenditures.

Outlays form the rest of this chart. They fall roughly into four categories: cost of sales (the cost of making the umbrellas), marketing and administration, interest, and taxes.

The first two have important subcategories. Under Cost of Sales, for instance, you may wish to indicate expenses for materials and subcontractors, for labor, and for manufacturing overhead, which itself can include such items as rent, power, heat, maintenance, insurance, and any research and development you may do.

Marketing and Administration also comprise notable subsections. Marketing is a compound of sales salaries and commissions, advertising, trade shows, travel and entertainment, and similar items. Under Administration, you'll place administrative and office salaries, legal and accounting fees, and bad debts.

Thus, going down the left, you'll write the vertical labels you see sketched out in Figure 1.

Now let's address the horizontal

axis. Here, you're simply indicating years. Four years is a reasonable projection, so you can write in 1989, 1990, 1991, and 1992.

Don't bother filling in the grid yet. This structure is all you need to turn on the computer.

Step 2 Labels

When you first open a spreadsheet and gaze at its empty grid, you may panic. Here, however, you're all set. You just transcribe your outline onto the program.

Begin with the vertical labels. Start in the far left column several lines down from the top, to give yourself room for the horizontal labels, and then type in the labels one by one (Figure 2).

The labels are now entered. But look at them. The lines are crammed together, with no space to separate different categories and nothing to highlight those categories that are more important. You can't leave these labels as they are. You need to format them, with spacing and capital letters. ▸

Spacing separates the template into distinct regions yet unites the figures that belong together. It not only makes the template look more attractive, but it also confers order and at-a-glance comprehensibility.

Enter blank lines after the labels Gross Sales, Cost of Sales, Gross Profit, Marketing and Admin., and State and Federal Taxes. If you want, you can also add spacing after the Less Interest Expense and State and Federal Taxes labels to isolate the interest and tax factors.

Now you have a list of vertical labels cleanly separated. Some labels, however, refer to raw data, such as Marketing, and others indicate the results of addition or subtraction, such as Operating Income. The latter are more important, since they sum up (and so will include formulas, not just numbers). The template will look better if you differentiate the two.

You can do so by placing the major labels in uppercase. Except for Gross Sales, these headings all indicate results of arithmetic performed by the program (Figure 3).

There's another way to emphasize priority: indention. You can type a few spaces before the subheads to inch them in from the left edge. You don't need to do that here, but you can use indented subheads to set up three levels of rank: (1) all caps, not indented; (2) upper- and lowercase, not indented; and (3) upper- and lowercase, indented.

There's one final, gnatlike problem. The vertical labels occupy two full columns and a dotted line bisects them. That's OK. On most spreadsheet programs you can easily widen an individual column. It takes just a moment to expand Column A to fill the space previously occupied by both Column A and Column B. All the other columns shift to the right (Figure 4).

Now you're ready to move on to the horizontal labels, where things are much simpler. Each label is a year, so you don't need to worry about organization or levels of importance. Place them on the second line above the vertical labels, and enter them one by one across four columns.

But now a new problem arises. The year labels are numbers, so the program automatically aligns them flush right, as if they were data in a column. But they're headings and will look better centered. Select and center them, and they all shift over to the middle of the cell (Figure 5).

Now you're set. The spreadsheet has backbone. It stands on its own, and you can move on to the next phase.

Figure 1

Outline the spreadsheet's labels on paper, before you turn on the computer.

Figure 2

	A	B	C	D	E	F
1						
2						
3						
4	Gross Sales					
5	Materials, Subcontractors					
6	Labor, inc. Fringe Benefits					
7	Manufacturing Overhead					
8	Cost of Sales					
9	Gross Profit					
10	Marketing					
11	Administration					
12	Marketing and Admin.					
13	Operating Income					
14	Less Interest					
15	Income before Tax					
16	State and Federal Tax					
17	Net Income					
18						
19						

Vertical labels are in place, but without spacing or uppercase letters.

Figure 3

	A	B	C	D	E	F
4	GROSS SALES					
5						
6	Materials, Subcontractors					
7	Labor, inc. Fringe Benefits					
8	Manufacturing Overhead					
9	COST OF SALES					
10						
11	GROSS PROFIT					
12						
13	Marketing					
14	Administration					
15	MARKETING AND ADMIN					
16						
17	OPERATING INCOME					
18	Less Interest					
19	INCOME BEFORE TAX					
20	State and Federal Tax					
21						
22	NET INCOME					

Spacing and uppercase have been added for emphasis and clarity.

Figure 4

	A	B	C	D	E
4	GROSS SALES				
5					
6	Materials, Subcontractors				
7	Labor, inc. Fringe Benefits				
8	Manufacturing Overhead				
9	COST OF SALES				
10					
11	GROSS PROFIT				
12					
13	Marketing				
14	Administration				
15	MARKETING AND ADMIN				
16					
17	OPERATING INCOME				
18	Less Interest				
19	INCOME BEFORE TAX				
20	State and Federal Tax				
21					
22	NET INCOME				
23					

Expanding Column A makes the template easier to follow.

Figure 5

	A	B	C	D	E
1					
2		1989	1990	1991	1992
3					
4	GROSS SALES				
5					
6	Materials, Subcontractors				
7	Labor, inc. Fringe Benefits				
8	Manufacturing Overhead				
9	COST OF SALES				
10					
11	GROSS PROFIT				
12					
13	Marketing				
14	Administration				
15	MARKETING AND ADMIN				
16					
17	OPERATING INCOME				
18	Less Interest				
19	INCOME BEFORE TAX				
20	State and Federal Tax				

Years become the horizontal labels.

Figure 6

	A	B	C	D	E
4	GROSS SALES	70000	120000	200000	320000
5					
6	Materials, Subcontractors	25000	35000	55000	80000
7	Labor, inc. Fringe Benefits	10000	15000	30000	40000
8	Manufacturing Overhead	5000	10000	15000	20000
9	COST OF SALES				
10					
11	GROSS PROFIT				
12					
13	Marketing	8500	12000	20000	25000
14	Administration	6500	8000	10000	15000
15	MARKETING AND ADMIN				
16					
17	OPERATING INCOME				
18	Less Interest	2000	4000	4000	6000
19	INCOME BEFORE TAX				
20	State and Federal Tax	3000	4500	10000	22000
21					
22	NET INCOME				
23					

Now the boring part—entering the numbers.

Step 3 Numbers

Here you have the static, unchanging numbers—the ones you start with rather than the ones you derive.

Entering these figures is the least appealing part of spreadsheet-template creation. Labels constitute the initial plunge and build the grid. Formulas bring the document to life. But entering numbers is merely copying. You have to do it, and you might as well get it over with fast.

This template has many rows with formulas, so now you can see one benefit of having distinguished these from the rows containing simple data. Enter numbers in each year's Gross Sales column, and in every subsequent line that's labeled in upper- and lower-case (Figure 6).

When you've finished, however, the numbers remain completely bare. They have no commas, decimal points, or dollar signs. You can touch them up by adding these helpful items. In fact, you can do more. Formatting, even at this early stage, can improve the overall comprehensibility of the template.

Let's reserve the dollar sign for only those numbers under labels in all caps: the important ones. You'll see the result later, but for now, format the Gross Sales line with dollar signs and commas, and the other numbers with commas only (Figure 7).

The labels and numbers give you almost everything the spreadsheet needs. It's like laying pipe and funneling water toward the fountain. Now it's time to turn on that fountain and watch it play.

Step 4 Formulas

Formulas calculate numbers from other numbers on the spreadsheet. When you look at a spreadsheet, a formula cell displays a number just as a data cell does. The difference is that the number in the formula cell can change.

Why? Formulas don't act on pre-specified numbers. They act on the *contents* of other cells, whatever those may be. If they acted only on preset numbers, a spreadsheet would differ little from a pocket calculator. You'd have to punch in the numbers anew for each addition.

With complex templates, managing the formulas is the trickiest part of the operation. Not here. The formulas in this example merely add and subtract. All you have to do is be a little careful. ▶

Once again, let's contemplate the overall design. Your template starts with one large sum, Gross Sales, and subtracts a series of numbers one by one until it arrives at Net Income.

This example uses two kinds of formulas: addition of minor cells to arrive at a figure to be subtracted, such as Cost of Sales, and subtraction of major cells, such as Cost of Sales from Gross Sales, to yield a new and steadily dwindling subtotal, like Gross Profit.

You meet the first kind of formula at the outset, in the Cost of Sales cell. To determine this amount, insert a formula to add the contents of the three cells just above it. (Because each spreadsheet program does this a bit differently, it's impossible to explicitly outline how to insert such a formula; you'll have to refer to your spreadsheet's manual if you haven't done this before.)

The next formula cell is Gross Profit, the difference between Gross Sales and Cost of Sales. You need to supply a formula that subtracts the contents of the Cost of Sales cell from the contents of the Gross Sales cell.

And thus you proceed down the column. In the Marketing and Admin. cell, the formula should add the two numbers from just above. In the Operating Income cell, the formula should subtract Marketing and Admin. from Gross Profit.

In the last few cells, simply subtract. In the Income before Taxes cell, the formula subtracts Less Interest from Operating Income. And finally, in Net Income, State and Federal Taxes are subtracted from Income Before Taxes.

Now add the formatting—commas and dollar signs. The dollar signs now make the major numbers stand out clearly from the minor ones and provide an instantly visible structure (Figure 8).

You now have a fully operative template for a business plan. You can change any of the raw-data figures, and the subtotals and bottom line will reflect the alterations automatically.

Step 5 Page Formatting

But the template isn't quite finished. It lacks a title and is packed into the worksheet's upper left corner. It needs serious enhancement (Figure 9).

Basically, you need to do three things: insert a column on the left, add more space at the top, and supply a title.

The first step in dislodging the template from the corner is to wedge in

Figure 7

	A	B	C	D	E
4	GROSS SALES	\$70,000	\$120,000	\$200,000	\$320,000
5					
6	Materials, Subcontractors	25,000	35,000	55,000	80,000
7	Labor, inc. Fringe Benefits	10,000	15,000	30,000	40,000
8	Manufacturing Overhead	5,000	10,000	15,000	20,000
9	COST OF SALES				
10					
11	GROSS PROFIT				
12					
13	Marketing	8,500	12,000	20,000	25,000
14	Administration	6,500	8,000	10,000	15,000
15	MARKETING AND ADMIN				
16					
17	OPERATING INCOME				
18	Less Interest	2,000	4,000	4,000	6,000
19	INCOME BEFORE TAX				
20	State and Federal Tax	3,000	4,500	10,000	22,000
21					
22	NET INCOME				
23					

Using formatted numbers makes the template easier to understand.

Figure 8

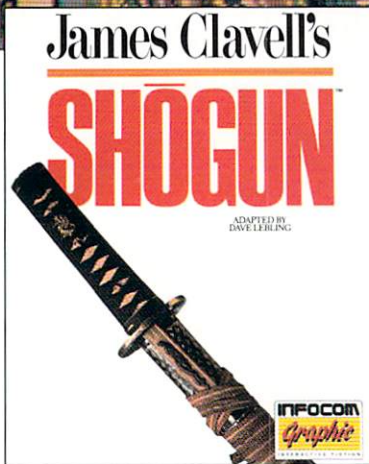
	A	B	C	D	E
4	GROSS SALES	\$70,000	\$120,000	\$200,000	\$320,000
5					
6	Materials, Subcontractors	25,000	35,000	55,000	80,000
7	Labor, inc. Fringe Benefits	10,000	15,000	30,000	40,000
8	Manufacturing Overhead	5,000	10,000	15,000	20,000
9	COST OF SALES	\$40,000	\$60,000	\$100,000	\$140,000
10					
11	GROSS PROFIT	\$30,000	\$60,000	\$100,000	\$180,000
12					
13	Marketing	8,500	12,000	20,000	25,000
14	Administration	6,500	8,000	10,000	15,000
15	MARKETING AND ADMIN	\$15,000	\$20,000	\$30,000	\$40,000
16					
17	OPERATING INCOME	\$15,000	\$40,000	\$70,000	\$140,000
18	Less Interest	2,000	4,000	4,000	6,000
19	INCOME BEFORE TAX	\$13,000	\$36,000	\$66,000	\$134,000
20	State and Federal Tax	3,000	4,500	10,000	22,000
21					
22	NET INCOME	\$10,000	\$31,500	\$56,000	\$112,000
23					

Formulas can be simple, as in this template where they add and subtract numbers in spreadsheet cells.

Figure 9

	A	B	C	D	E
1					
2		1989	1990	1991	1992
3					
4	GROSS SALES	\$70,000	\$120,000	\$200,000	\$320,000
5					
6	Materials, Subcontractors	25,000	35,000	55,000	80,000
7	Labor, inc. Fringe Benefits	10,000	15,000	30,000	40,000
8	Manufacturing Overhead	5,000	10,000	15,000	20,000
9	COST OF SALES	\$40,000	\$60,000	\$100,000	\$140,000
10					
11	GROSS PROFIT	\$30,000	\$60,000	\$100,000	\$180,000
12					
13	Marketing	8,500	12,000	20,000	25,000
14	Administration	6,500	8,000	10,000	15,000
15	MARKETING AND ADMIN	\$15,000	\$20,000	\$30,000	\$40,000
16					
17	OPERATING INCOME	\$15,000	\$40,000	\$70,000	\$140,000
18	Less Interest	2,000	4,000	4,000	6,000
19	INCOME BEFORE TAX	\$13,000	\$36,000	\$66,000	\$134,000
20	State and Federal Tax	3,000	4,500	10,000	22,000

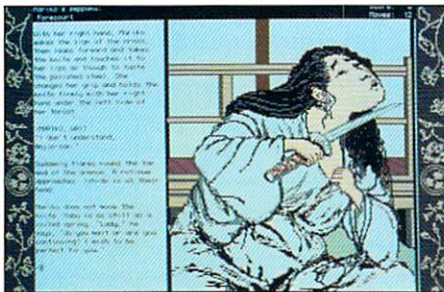
Here's the final spreadsheet before it's formatted.



JAMES CLAVELL'S SHOGUN™

Now James Clavell's compelling saga of power and intrigue in 16th Century Japan comes to life in a riveting work of interactive fiction. You play the English sea-pilot John Blackthorne, a stranger who must learn to survive in the exotic world of feudal Japan. How you act, what you say and whom you befriend will determine your fate and the course of the game.

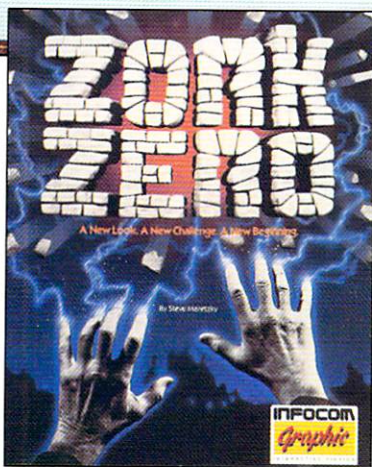
- *Shogun* is an adaptation of James Clavell's novel in which you actually become the hero. If you enjoyed the book or television miniseries, you will love the interactive version of *James Clavell's Shogun*.
- *Shogun's* breathtaking graphics are designed in the style of 16th Century Japanese painters. You have never seen computer screens like these.
- *Shogun* features on-screen hints and friendlier language interface.
- *James Clavell's Shogun* is a collaboration between two extremely popular authors: James Clavell, whose bestselling novels include *Noble House™* and *Tai Pan™*, and Dave Lebling, author of the *Zork Trilogy* and *Enchanter*.*
- Your *Shogun* package includes a game disk and Blackthorne's map of the known world.
- *James Clavell's Shogun* is available for most personal computers. See the order form on the reverse side for machines and prices.



(Top) Experience the drama and pageantry of 16th Century Japan in *Shogun*.

(Center) Infocom's *Shogun* captures all the power of the novel.

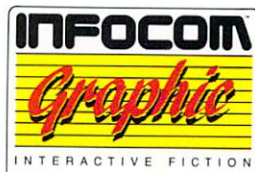
(Bottom) Rich text and vivid graphics weave a gripping story of honor, intrigue, and survival.



ZORK ZERO

The game that started it all has a new beginning! *Zork Zero* is the interactive fiction prequel to the *Zork Trilogy*, the most popular entertainment software product of all time. In *Zork Zero*, an unpredictable jester challenges you with puzzles, paradoxes and plenty of fun as you seek out objects ranging from the curious to the sublime.

- One million satisfied game players can't be wrong! Discover the origins of the Great Underground Empire in this new and exciting chapter of *Zork*.
- *Zork Zero* integrates graphics into the game play with visual puzzles, illustrated maps and a Zorkian encyclopedia.
- *Zork Zero* includes our most requested features: a friendlier parser for easier typed-in commands, on-screen hints, mapping, optional mouse interface and sound.
- *Zork Zero* is by Steve Meretzky, author of *Leather Goddesses of Phobos*, *The Hitchhiker's Guide to the Galaxy* and *Planetfall*.
- Your *Zork Zero* package includes the game disk, a secret spell, "Lives of the Twelve Flatheads" Calendar and an unusual blueprint.
- *Zork Zero* is available for most personal computers. See the order form on the reverse side for machines and prices.



(Top) The Great Underground Empire comes alive with spellbinding graphics.

(Center) Look for *Zork Zero* at a software retailer near you.

(Bottom) New visual puzzles will challenge you like never before.

Erasmus at sea:
Bridge of the Erasmus

Score: 0
Moves: 1

The gale tears at you, biting deep within, and you know that if you don't make landfall soon you'll all be dead. You are John Blackthorne, Pilot-Major of a dead fleet: one ship left out of five, eight and twenty men out of one hundred and seven, and only ten of those can walk. No food, almost no water, and that brackish and foul.

Bridge of the Erasmus

This is the bridge of the Erasmus, a Dutch merchant and privateer. The unlashd wheel is directly forward of you, a sea chair is lashed to the deck aft of the wheel, and the ship's bell is hanging here. Spray blows past in an angry torrent.

The wheel dominates the quarterdeck. It is turned straight and free to turn now.

The ship heels in a sudden squall, throwing you from your post at the wheel, which, uncontrolled, begins to turn to port.

>STRAIGHTEN THE WHEEL



INFOCOM'S NEW GRAPHICS WILL BLOW YOU OUT OF THE WATER...

Figure 10

	A	B	C	D	E	F
1						
2						
3			Rainy Day Umbrellas, Inc. -- Business Plan, 1989-1992			
4						
5						
6			1989	1990	1991	1992
7						
8		GROSS SALES	\$70,000	\$120,000	\$200,000	\$320,000
9						
10		Materials, Subcontractors	25,000	35,000	55,000	80,000
11		Labor, inc. Fringe Benefits	10,000	15,000	30,000	40,000
12		Manufacturing Overhead	5,000	10,000	15,000	20,000
13		COST OF SALES	\$40,000	\$60,000	\$100,000	\$140,000
14						
15		GROSS PROFIT	\$30,000	\$60,000	\$100,000	\$180,000
16						
17		Marketing	8,500	12,000	20,000	25,000
18		Administration	6,500	8,000	10,000	15,000
19		MARKETING AND ADMIN	\$15,000	\$20,000	\$30,000	\$40,000
20						
21		OPERATING INCOME	\$15,000	\$40,000	\$70,000	\$140,000
22		Less Interest	2,000	4,000	4,000	6,000
23		INCOME BEFORE TAX	\$13,000	\$36,000	\$66,000	\$134,000
24		State and Federal Tax	3,000	4,500	10,000	22,000
25						
26		NET INCOME	\$10,000	\$31,500	\$56,000	\$112,000

The completed spreadsheet template not only works, but looks great.

a blank column on the left. That's easy with most spreadsheet programs. Next, add four blank lines on the top, pushing the table down. Now for the title: On row 3, type in **Rainy Day Umbrellas -- Business Plan, 1989-1992** and then press the space bar until the title is centered. The template is finished (Figure 10).

Not only is it done, but you can copy it and alter it to give you other templates. The same substructure—income minus expenses—applies to a variety of other templates. Once you master this one, you can go on to others with relative ease.

That's the great secret of template design. Like juggling, it looks harder than it really is. With a little practice, you'll develop all the reflexes you need.

Dan McNeill isn't an accountant, but he's not afraid of math or money. His spreadsheet of choice is *Excel* on the Macintosh.

Templates for Sale

Even with gentle coaching, not everyone is ready to step into the worlds of finances and spreadsheets at the same time. A more gradual transition can be found in many of the following template collections. If your needs exceed your spreadsheet prowess, you may want to buy a template rather than build one. Here's a sampling of available templates.

BizPlanBuilder

Business/marketing plan for use in presentation
Tools for Sales
13335 Wildcrest Dr.
Los Altos Hills, CA 94022
(800) 442-7373
(415) 941-9191 (in California)
IBM PC and compatibles—\$99.00
Macintosh—\$99.00
Runs under any *Lotus 1-2-3*-compatible spreadsheet on the PC or under *Excel* or *Multiplan* on the Macintosh

Business Plan Toolkit

Financial Forecasting Toolkit
Sales and Market Forecasting Toolkit
Templates for business plan, cash-flow and financial planning, and sales prediction
Palo Alto Software
260 Sheridan Ave.
Suite 219
Palo Alto, CA 94306
(800) 336-5544
(415) 325-3190 (in California)
IBM PC and compatibles—\$69.95 to \$99.95
Macintosh—\$69.95 to \$99.95
Runs under *Lotus 1-2-3*-compatible spreadsheets on the PC and *Excel*, *Multiplan*, and *Works* on the Macintosh

HeadStart

34 templates for home and small-business use
HeadStart Software
P.O. Box 51596
Durham, NC 27717
(919) 556-8792
Macintosh—\$34.00
Runs under *Excel*

Loan Qualifier

Template for mortgage brokers, real estate agents, and loan officers
Financial Microwave
P.O. Box 40
Cupertino, CA 95015
(408) 446-5639
Apple II—\$99.00
Macintosh—\$99.00
PC—\$99.00
Runs under most spreadsheets

MICROTEMP Financial Calculators

Fifty templates for home and small business finance
MICROTEMP
318 Mendocino Ave.
Santa Rosa, CA 95404
(800) 284-8367
Macintosh—\$79.95
Runs under *Excel* and *Works*

Project Calc

Performs what-if project cost calculations and issues charts
Frontline Systems
P.O. Box 7408-PC
San Francisco, CA 94120-7408
(800) 451-0303, ext. 55
IBM PC and compatibles—\$149.95
Runs under *Lotus 1-2-3* or *Symphony*

Ready-to-Run

Offers general ledger, accounts payable, accounts receivable, inventory/order entry, and payroll

Manusoft

8570 W. Washington Blvd.
Culver City, CA 90232
(800) 292-6123 (in CA, 213-559-1564)
IBM PC and compatibles—\$199.95
Runs under *Lotus 1-2-3*; each module available separately

Ryan Estate Tax

Makes major estate calculations and generates reports, charts, and form letters
Ryan Software
901 N. Broadway
North White Plains, NY 10603
(914) 682-0106
(800) 447-8338
IBM PC and compatibles—\$150.00
Runs under *Lotus 1-2-3*, release 2

Templicity

A set of 60 templates, including those for accounts, auto loans, refinancing, and retirement
Templicity
Box 4850
Berkeley, CA 94704
(415) 655-2355
Amiga—\$29.95
Runs under *Analyze*, *Haicalc*, *Logistix*, *MaxiPlan*, and *VIP*

1040Works-X

Helps prepare individual tax forms
Personal Financial Services
P.O. Box 1401
Melville, NY 11747
(516) 757-3201
Apple II with 256K—\$27.95
Apple II with 128K—\$24.95 (called *1040Works*)
Runs under *AppleWorks*; add \$3.00 for a 3½-inch disk

new products!

SAT Prep

Simon and Schuster Software has released a computerized preparation guide for the Scholastic Aptitude Test. *Simon & Schuster's Computer Study Guide for the SAT* provides users with two simulated exams.

Features include a built-in timer to monitor speed, an automatic scoring device to pinpoint right and wrong answers, a catalog of explanations for every question, and an online scratch pad for computations. Bar graphs display improvement charts and projected scores. All the required areas of study are covered in 25 practice modules that contain more than 500 questions. An online four-function calculator, an on-screen help menu, and test-taking strategies act as the student's College Board tutor. To simulate the actual environment of a test, the calculator locks out during the two tests.

The program's random-start feature allows a second-time test-taker to skip over the basics and review the more difficult areas of the test. A complete review of high school grammar is included with the Test of Standard Written English. The manual also features more than 120 pages of exam tips and strategies.

Simon & Schuster's Computer Study Guide for the SAT is available for the Commodore 64 and has a suggested retail price of \$29.95. The Apple II version retails for \$34.95, and the IBM PC and compatibles release sells for \$39.95.

Simon and Schuster Software, One Gulf + Western Plaza, New York, NY 10023

Circle Reader Service Number 200.

Ancient Quest

Players of Microdeal's *Tetra Quest* find themselves involved in the first galactic athletic games, for which athletes from different worlds have assembled. The games cannot go on, however, because the six Phoenix Tablets have been stolen by the Tetroids, who were not invited to participate in the games.

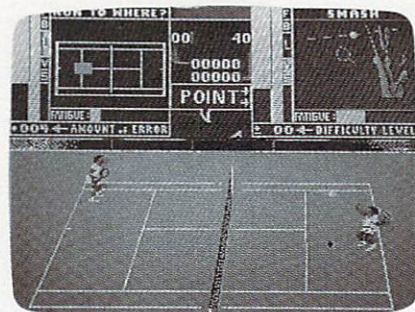
Your challenge is to find the tab-

lets. The Tetroids have split them into 64 pieces and have hidden them in the six provinces of their world. Their world contains 384 sections, where you will encounter Spitters, Aliens, acid and oil slicks, mutating deflectors, and joysticks. Some obstacles can be turned to your advantage.

Available for the Amiga and Atari ST, *Tetra Quest* has a suggested retail price of \$39.95.

Microdeal, 576 S. Telegraph, Pontiac, MI 48053

Circle Reader Service Number 201.



Accolade's *Serve & Volley* simulates actual tennis action.

From Wimbledon to Monaco

Accolade has released two new sports simulation games: *Serve & Volley* and *Grand Prix Circuit*.

Serve & Volley simulates tennis-court action. Players must make careful stroke selections and correct ball placements, possess accurate timing, and anticipate the correct court position after each ground stroke, volley, and serve.

The Strobe-O-Stroke feature consists of action windows with animated racket movement that allows players to time each hit or serve. You can choose from several serves or ground strokes and play the game at the beginner, intermediate, or advanced levels. Other game options include a choice of court surfaces, match or tournament play, adjustable player attributes, and saved game.

This one- or two-player game is available for the Commodore 64 for the suggested retail price of \$29.95. IBM PC and Apple IIGS versions sell for \$39.95.

In the tradition of their successful driving simulation, *Test Drive*, Accolade has released *Grand Prix Circuit*, a racing simulation based on the Formula One series.

Players can choose to represent either the McLaren, Ferrari, or Williams team at Monaco, Japan, Detroit, Germany, or four other tracks. Other options include three modes of play—qualifying lap, single race, or Grand Prix Championship—and a choice of five difficulty levels.

Features that add to the realism of the game include cars that show damage after mishaps on the track, functional rear-view mirrors, accurate track representations (including overpasses and tunnels), and authentic background scenery of each city.

Grand Prix Circuit is available for the Commodore 64 and 128 for the suggested retail price of \$29.95. The IBM PC and compatibles version sells for \$39.95.

Accolade, 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128

Circle Reader Service Number 202.

Car Clash

Origin has released an Amiga version of *Autoduel*, an arcade-style role-playing game based on the board game *Car Wars*.

Players custom-build their own futuristic four-wheel weapons and then engage in car-to-car battles. The action takes place in *Autoduel* arenas or on the freeways. Vehicles can be loaded with add-on equipment such as flamethrowers, oil slicks, and heavy armor. Players encounter action in 16 different cities during the various missions.

In addition to the Amiga version, *Autoduel* is available in versions for Apple II, IBM PC and compatible, Commodore 64/128, Atari ST, and Atari 8-bit computers. The suggested retail price is \$39.95. Origin games are distributed by Brøderbund Software.

Origin, 136 Harvey Rd., Bldg. B, Londonderry, NH 03053

Circle Reader Service Number 203.

Mickey McLean ☐

COMPUTE!

specific

**DOS Dilemma;
Alpine 64; IIGS
Plus What; Mac
'n' Amiga;
Hyper Tales;
and ST Speed**

MS-DOS

The MS-DOS world is split into two seemingly incompatible camps: those who love the DOS command line and those who hate it. Command-line haters love shells and mice for their simplicity and ease of use. They think that command-line lovers are dinosaurs with mainframe mentalities.

Command-line lovers think that shell collectors are wimps. *Real men don't use shells, you'll hear them say, and real women not only don't use shells, they don't even talk to men who do.* Give command-liners an esoteric command and a dozen switches, and they're as happy as can be. They're sold on the power and control that the command line offers.

It's almost impossible to imagine a DOS enhancement that could satisfy both groups, but there is one: *The Norton Commander*, version 2.0 (Peter Norton Computing, 2210 Wilshire Boulevard, Suite 186, Santa Monica, California 90403; 213-319-2000; \$89.00).

The Norton Commander gives shell lovers a flexible and easy mouse-driven environment with powerful features. For command-line addicts, *The Norton Commander* performs all its tricks without losing sight of the command line—there's always one at the bottom of the screen. Simply

start typing, and you're talking directly to DOS.

The Norton Commander takes the have-it-your-way idea and runs with it. The main screen consists of two panels that contain subdirectory trees or file listings, a function-key template across the bottom of the screen, and a menu bar that appears only when you summon it. Nestled on the next-to-the-last screen line is the familiar DOS prompt.

Power command-liners will appreciate the fact that *The Norton Commander* lets you paste filenames from directory listings onto the command line. You simply position the cursor over the filename, press Ctrl-Enter, and the filename appears next to the DOS prompt. If you want to load your word processor and four or five files, this feature is a timesaver.

Another boon to A:> addicts is the command-line history feature. The program keeps track of the last 15 commands entered at the command line and displays them in one of two ways. While on the command line, you can press Ctrl-E or Ctrl-X to scroll through the list from top or bottom, or you can view all 16 commands in a pop-up window and choose the one you want.

The Norton Commander is only as intrusive as you make it. If you find the display panels or the function-key template distracting, you can resize them or toggle off any or all of them. With *The Norton Commander* in the background, you summon it only when you need to use its built-in features to view, edit, copy, move, or rename a file; to search for files or subdirectories; or to recall the command-line history. A new wrinkle in the View command will please power users: With the new version of *The Norton Commander*, you can view *dBase* and *Lotus 1-2-3* files.

At \$89.95, *The Norton Commander's* price is hard to beat. It may even encourage some dinosaurs to collect a few shells and some mouse lovers to take command.

Invisible Link

Telecommunications is one of the joys of owning a computer. You can share information, programs, and gossip with electronic friends across the country or across the world. Few computer thrills equal that of reading about an exciting shareware program, finding it on a BBS, downloading it, and running it, all in the space of an hour or two.

But there's a negative side to telecommunicating: While you're downloading, your PC is tied up. It was designed to think about only one thing at a time, and transferring files usually takes a lot of thought.

The Invisible Link, a shareware program by Robert and Garland Wong (8663 Via Mallorca #86, La Jolla, California 92037; \$20.00), puts file transfer in the background, where it belongs, and returns your PC to you.

Invisible Link is a TSR that hovers in your PC memory, doing its job while you go about your business. After *Invisible Link* is loaded, you summon it with a hot key. You'll find yourself in terminal mode with a help screen and a dialing directory available. After you've dialed your number and decided what you want to download or upload, one of *Invisible Link's* best features comes into play: you can give *Invisible Link* a batch command to upload or download as many as ten files. You simply tell the program the commands you want to give to the BBS, and the files to send or receive, and you're off. If you want to automatically give

a log-off command, *Invisible Link* has that option, too, so you can completely forget about the transfer once it has begun.

As soon as you give the command to up- or download, *Invisible Link* returns to your calling application. You can't use the hot key to reenter terminal mode while files are being transferred, but *Invisible Link's* status screen displays the current file, the block being sent or received, and other useful information.

Invisible Link doesn't have many bells and whistles, and it only offers the XMODEM protocol, but it can transfer files at up to 9600 bps, it uses only about 20K of memory, and it works like a charm. If you like to telecommunicate, *Invisible Link* is worth a look.

Laser Power

Don't give up on your tried-and-true 9-pin dot-matrix printer. Laser printers may be at the cutting edge of technology (and a high-priced technology, at that), but there's amazing untapped power in your dot-matrix. *The Image Printing Utilities* (Image Computer Systems, P.O. Box 647, Avon, Connecticut 06001; 203-678-8771; \$89.95) brings that power to your page.

The Image Printing Utilities consists of two programs: *Metatext*, a memory-resident print enhancer, and *ImagePrint*, a program that formats files in batch mode.

To run *Metatext*, you type the program's name followed by the name of a font or fonts (16 are supplied with the program) and the print quality. There are three qualities available: a fast draft mode, a beautiful three-pass mode, and an amazing six-pass mode.

The three-pass mode looks good and will suffice for most applications, but the six-pass mode produces output that's so smooth and dark, many people would mistake it for laser printing.

As you might expect, the more passes your printhead makes, the longer it takes to

print a document. Printing a six-pass, six-page, single-spaced document takes about 45 minutes. If your output has to look good, though, the wait will be worthwhile.

The real beauty of *Metatext* is that it works in the background, with your word processor. When you tell your word processor to print, *Metatext* steps between the word processor and printer, producing super-quality output. If you have underlining, boldface, italics, or boldface italics in your document, *Metatext* recognizes these, too, and prints them in the font you've selected.

You may wonder why anyone would want to use *ImagePrint*, the batch program. Well, you can use more fonts with *ImagePrint*, and you have a great deal of control over your document's final format. If you're doing the page design for a poster or newsletter, *ImagePrint* is the program to use. For high-quality everyday printing, however, *Metatext* is the answer.

— Clifton Karnes

market this year. Berkeley thoroughly redesigned the basic package while respecting the market's familiarity with the system. The result is impressive.

Berkeley upgraded original GEOS features and added some new offerings, including a spelling checker, a mail-merge program, a text importer, and a driver compatible with Apple's LaserWriter. *geoWrite 2.1* is actually a version of *geoWrite Workshop*. As a word processor, *geoWrite 2.1* rivals *MacWrite*, a package regarded as a standard on the Macintosh. *geoPaint* has added several options, too, including overlays, ellipses, line connection, and stretching and scaling. *Paint Drivers* creates a *geoPaint* file from a document written with *geoWrite 2.1*, letting you easily add graphics.

The biggest change in the deskTop is support for all three Commodore disk drives. You can run GEOS with two different disk drives plus a RAM expansion unit. To make your files easier to find, the Pad Color Manager desk accessory lets you color-code your files with 16 available colors.

With the release of GEOS 2.0, GEOS has become an important addition for those who use their 64 as a productivity machine. GEOS owners should upgrade immediately, and others should consider GEOS seriously. The original program was an excellent idea, but it was limited. GEOS 2.0 answers the early criticisms well.

Dungeon Helper

The second installment in the Advanced Dungeons and Dragons series (SSI, 1046 North Rengstorff Avenue, Mountain View, California 94043; 415-964-1353) is *Dungeon Master's Assistant, Volume 1: Encounters* (\$29.95). The program is the first in a series of helpful packages for the beleaguered creators of AD & D adventures. The package puts the AD & D Monster Manuals on a disk so that dungeon masters can create encounters much more

quickly and accurately.

Preparing an AD & D adventure takes a long time. Not only must dungeon masters concoct some kind of viable plot, but they must also populate their worlds with characters and opponents. The official Monster Manuals offer a wealth of bad guys with different idiosyncrasies, so keeping track of everything is difficult. SSI's package lets dungeon masters design and control the encounters in advance, allowing random as well as contrived meetings. Available on the disks are about 1000 encounters and more than 1300 monsters and characters.

Attack the Alps

Epyx (600 Galveston Drive, Redwood City, California 94063; 415-368-3200) has come through with another unusual sports game, this one devoted to mountain climbing. *Final Assault* (\$39.95) takes you into the Alps, letting you choose from six climbing trails. You use a joystick and the keyboard to get around.

Beginners should choose the training trail, where you don't need to pack your rucksack and, when you fall, you don't die.

If you don't choose the training course, you proceed immediately to the supply screen, where you pack your rucksack. The length of your trip and the types of terrain dictate which items you should take, and as you gain experience, you'll pack to meet the specific demands of each climb. You can accept the basic selection or design your own pack.

Packing teaches beginners what mountain climbing involves. You need a rope; everybody knows that. But you need carabiners to hook the rope to your climbing gear, or the rope is useless. The carabiners, meanwhile, will have to be attached to the mountain-side, so you'll need ice pins for an ice cliff or pitons for a rock face. But these are pointless without a hammer, unless you rely on cracks in the rock, in which case you can anchor

If GEOS is to remain the official Commodore 64 operating system, Berkeley Softworks (2150 Shattuck Avenue, Berkeley, California 94704; 415-644-0883) must continue not only to add modules, but also to upgrade the basic system. With that in mind, the release of GEOS 2.0 (\$59.95; \$29.95 for upgrades) is the most exciting news to hit the Commodore 64

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with a chock.

That's not all. You'll need things to wear, as well, including two kinds of shoes, an anorak, gloves, hats, mittens, wool socks, and gaiters. You'll need goggles, hammocks, sleeping bags, a first aid box, a knife, a shovel, and even an extra pair of shoelaces. Of course, you can't take everything, so selection must be carefully considered.

Once you've packed, the real test begins. You'll jump over crevasses and negotiate ice cliffs. Climbing the rock face is more dangerous still, and icons show whether you have safe handholds and footholds. After a while, your climber will want food and sleep, and then the climb continues. Eventually, you'll either fall or reach the summit. In the meantime, you can save your climb to disk, resuming it later.

Final Assault is a welcome simulation because, like most simulations, it's highly educational. Mountain climbing is hardly everyone's idea of a good time, but many people are fascinated by it. This game offers a chance to learn a little of what it's like—without risking your life.

More Lore

In the same fantastic vein, *Times of Lore*, from Origin Systems (136 Harvey Road, Building B, Londonderry, New Hampshire 03053; 603-644-3360; \$39.95), uses overhead-view graphics to show yet another kingdom in distress. You must save the kingdom from an evil fate by rescuing three magic artifacts and, ultimately, the heir to the throne.

Times of Lore is refreshingly simple. Combat and magic are easy to master, and the game doesn't require lengthy character creation or equipment purchase. It operates in two modes: In Movement mode, you use the joystick to wander through the kingdom, fighting rogues, orcs, ghosts, and other foul foes. In Command mode, you talk to other characters, examine objects, use objects, and pause

the game. One game position can be saved to the master disk.

The game plays quickly, but it isn't hampered by disk access. It even autoboots on the Commodore 128. For dedicated followers of *Ultima*, *Bard's Tale*, *Wizardry*, and other fantasy games, *Times of Lore* will seem simplistic, but for those wanting something faster moving, its blend of action and adventure is extremely good.

Triple-Team

Also in the sports-simulation line is *Fast Break* (\$29.95), a basketball package from Accolade (550 South Winchester Boulevard, Suite 200, San Jose, California 95128; 408-296-8400). In contrast to Electronic Arts' one-on-one game and Gamestar's two-on-two, *Accolade* presents three-on-three, and the results are good.

To begin, choose a center, a guard, and a forward, using *Fast Break's* scouting reports to help you select the optimum combination. Next select four of the available 15 offensive plays; you can exchange these 4 plays for others during timeouts and between quarters. Offensive plays include Give 'n Go, Reverse Cut, and Alley Oop; and five defensive plays include Man-2-Man and Double-Team. The idea is to select a play and then execute it using your joystick.

Fast Break includes in-bounding, dribbling, and passing. Take shots from the three-point line and block opponents' attempts. There are no free throws because, as the manual says, "free throws are for wimps." You'll need skill at rebounding, though, and you'll have to watch out for personal fouls, the 24-second rule, and the half-court violation.

The plays are the thing here, and, like *Final Assault*, this game teaches as well as it entertains. It's questionable whether *Fast Break* is a better simulation than *Jordan vs. Bird: One-on-One*, but *Fast Break* certainly offers something unique. Team games are

hard to recreate on the computer, but *Fast Break* does its job very well.

— Neil Randall

APPLE II

Del Yocam, long the champion of the Apple II series within Apple Computer, has given his notice, citing as his reason a desire to get off the fast-track treadmill. He'll leave the company within a year.

During the latest round of reorganization at Apple—a seemingly endless process at the company this year—Yocam left his position as chief operating officer and took the helm of a new division, Apple Pacific and Apple Education. A strange mix to put within one division, many said. They were right. Yocam is now simply head of Apple Pacific. Apple Education has been dumped into Apple USA's marketing group.

Yocam joined the company in 1979 and was the general manager of the Apple II division when the company was split by machines, not geography. There are few current employees who have been there longer.

Yocam's departure—and the shunting of educational concerns to the division most responsible for the company's success in the business arena—may dramatically affect the Apple II line. Without Yocam, long a proponent of the Apple II's place in the company's business, the older line may receive even less emphasis than it does now. Most important,

though, is the fact that the Apple Education division—really the only part of the company that still focuses on Apple II's—has been downgraded to a part of Apple USA.

Without a heavyweight like Yocam at its helm, Apple's educational efforts, and in many respects the success of the Apple II, may be in for some rough sledding.

Stratospheric

Back in mid-September, they didn't strike up the band or even shout it out, but Apple *did* raise prices of nearly every computer model it produces, as well as prices of its monitors and some other peripherals. High demand for DRAM chips (which show up in computers and on memory boards, of course, but *not* in monitors) was the reason given by Apple for the increases.

In case you missed the hikes, here are the new prices of the affected Apple II products, with their old prices in parentheses:

Apple IIGs: \$1,149 (\$999)
Monochrome monitor: \$159 (\$129)
Color composite monitor: \$399 (\$379)
RGB monitor: \$599 (\$499)
5¼-inch disk drive: \$329 (\$299)
3½-inch disk drive: \$429 (\$399)
Apple II 256K memory-expansion kit: \$159 (\$69)
Apple IIGs memory-expansion card (256K): \$229 (\$129)

Buying a typical IIGs system (computer, RGB monitor, two 3½-inch disk drives) now costs you \$2,606. That's a 13½-percent increase over the old total of \$2,296. If you pick up an ImageWriter II printer, as do many first-time buyers, you'll end up paying more than \$3,000 for an Apple IIGs system!

That staggering price isn't going to win many hearts, or minds, for the IIGs this Christmas.

Apple IIe computers didn't go up in price, however. And since the IIc was replaced

by the IIc Plus (which actually costs less than its predecessor), it also avoided the price jumps.

This makes the IIc Plus, for all its 8-bit failings, look like a bargain when compared to the IIGs. At \$1,099 with a color composite monitor and its single, built-in, 3½-inch disk drive, the IIc Plus costs less than half as much as the IIGs system listed above. Guess which machine will sell better in December?

I'm putting my money on the IIc Plus.

Talk, Talk, Talk

It seems as if the talk of a newer, faster, more powerful Apple IIGs just won't go away. Speculation, or perhaps just idle wishes, about a beefed-up IIGs is at least a year old. It didn't take long after the computer reached users before many people wanted more power.

The current guesses on the IIGs Plus (a likely name, since Apple has added *Plus* to its machines three times already) generally run like this:

- A new microprocessor from Western Digital, the makers of the machine's current 65816 chip. The new chip will run two times faster, if not three times faster, than the current microprocessor. Note that Applied Engineering's Transwarp GS (not yet released at press time) speeds up the machine by a factor of a bit more than 2. Apple needs to beat that speed.
- At least 768K—or perhaps even a full megabyte—of RAM. Virtually none of the best productivity and creativity software for the IIGs can run with less than 768K.
- A SCSI port so that fast hard disks, Apple's CD-ROM player, and other peripherals—the AppleScanner, perhaps—can be connected. Software for the II is starting to beg for a hard disk.
- Maybe, just maybe, enhanced graphics in the form of a higher resolution mode and/or more colors in current resolution modes. These improve-

ments are less likely than the other possibilities, simply because IIGs graphics are already quite good.

Of the additions, the most important, by far, is a faster processor. It's unlikely that a new IIGs will have a graphics coprocessor (as does the dominant graphics computer for the home—the Commodore Amiga), so more processing power is vital for such tasks as screen refresh and animation. The new GS/OS may cut down on boot time and disk access time, but it does nothing for the machine's raw speed. Sixteen-bit productivity software—word processors and desktop publishing packages, for instance—runs pathetically slow on the IIGs. In order for the machine to be an acceptable home computer, it *must* be faster.

Here's hoping that the rumors, whatever their source, turn out to be true, and true soon.

Mini-Murdochs

It's been more than a year and a half since The Learning Company (6493 Kaiser Drive, Fremont, California 94555; 415-792-2101), developer of Apple II educational software classics like *Reader Rabbit* and *Rocky's Boots*, released a new program. That drought ended with the October shipment of *The Children's Writing & Publishing Center*.

The program simplifies desktop publishing by cutting down on confusing options. Half-pint Hearsts can create documents in only two formats—single-page newsletter or multipage report. Everything prints larger in a report, so young publishers can squeeze the same amount of text and graphics into either format.

Writing & Publishing Center (the program's title needs an acronym—what about *W & PC*?) doesn't skimp on features in its quest for ease of use, though. Easy graphics importation, eight fonts and type sizes, and the ability to wrap text around graphics are some of the fea-

tures that should impress the kids and dazzle teachers.

W & PC uses a graphics interface, but it isn't an Apple-standard interface. You access menus through icons at the top of the screen. Everything can be done from the keyboard, a big plus on machines without a mouse: Hit Escape to get to the menu bar, press an arrow key to cycle through the icons, and then hit Return when you get to your choice.

Extensive printer support includes color printers, such as the ubiquitous ImageWriter II, so the package's included graphics can be pounded out in color. Text prints only in black, mercifully saving teachers and parents from reading yellow print on white paper.

Because of *W & PC*'s constraints, finished reports and newsletters are generally clean and attractive. With a color printer and ribbon, they're even bright.

It shouldn't take much to get *W & PC* into classrooms, what with The Learning Company's excellent reputation among educators. It's an easy-to-use, friendly program that should give software veterans like *The Newsroom* and *The Print Shop* a run for their money.

W & PC is available in 3½- and 5¼-inch disk versions for \$59.95.

—Gregg Keizer

P.O. Box 1222, Lewiston, New York 14092; 416-731-4175). Shell out \$150 for ReadySoft's box, drop in a set of 64K or 128K Macintosh ROMs (available for about \$50 and \$90, respectively), and you're ready to go. The Max is a full-speed Macintosh emulator. In fact, the Amiga's blitter chip makes screen-intensive programs run even faster than they run on a Macintosh.

Drawbacks? The program uses the flickering interlace mode of the Amiga, so you'll probably want to use MicroWay's flickerFixer or buy a long-persistence monochrome monitor. Commodore's upcoming Enhanced Chip Set and new color monitor should also steady the screen image.

Another problem is that Amiga drives can't read Macintosh disks directly, so you need a transfer program to move your files from Mac to Amiga. ReadySoft is considering letting you plug a standard Macintosh disk drive into the back of the box. The result? A system that runs Amiga and Macintosh software for about \$1,500.

Cavalcade of Shows

Amiga developers and dealers are spending a lot of time on the road. At the time of this writing, the October Los Angeles AmiExpo and the November Philadelphia World of Commodore have just finished. Ahead are a spate of winter shows—COMDEX, the Toronto World of Commodore, and CES (the Consumer Electronics Show).

Commodore has been pushing the Amiga into every niche it could find, but the most impressive drive is being made into the field of education. Nothing rivals the Amiga's video and animation capabilities, and Commodore is making sure that the word gets out to schools.

At the World of Commodore in Philadelphia, educators were handed video cameras and assigned to make a movie. Back in the conference area, they learned firsthand how to add Amiga graphics to

AMIGA

The Philadelphia World of Commodore's big hit was ReadySoft's Macintosh emulator, called Max (ReadySoft,

their work. Educators interested in using the Amiga in the classroom should contact John DiLullo, education manager, K-12, at Commodore Business Machines, 1200 Wilson Drive, West Chester, Pennsylvania 19380; (215) 431-9246.

Professional video connections with the Amiga are also booming. RGB Computer and Video Creations has combined hardware and software to control up to 32 professional videotape machines. The company's popular Deluxe Help series will soon be expanded to cover the video controller software. In no time, anyone can learn how to make and mix video productions. RGB has two successes under its belt. It worked with NASA on several video products and put together a full turnkey system for a video house that was already using Amigas.

Contact RGB Computer and Video Creations at 3944 Florida Boulevard, Suite 102, Palm Beach Gardens, Florida 33410; (407) 622-0138.

The big hit at the AmiExpo was ASDG's new video scanning system, which uses a Sharp scanner to produce the most breathtaking pictures yet. This product is for high-end users only, since the scanner itself runs \$6,000.

Contact ASDG at 925 Stewart Street, Madison, Wisconsin 53713; (608) 273-6585.

Moving Pictures

New animation software continues to appear monthly. With the latest two entries, creating short animations is easy not only for programmers, but for animators as well. *Zoetrope*, from Antic Software (544 Second Street, San Francisco, California 94107; 415-957-0886; \$139.95), and *Movie Setter*, from GoldDisk (P.O. Box 789, Streetsville, Mississauga, Ontario L5M 2C2; 416-828-0913; \$99.95), are both powerful, but in different ways. *Zoetrope's* features help you create professional special effects. *Movie Setter* is a mouse-driven program that lets you produce surprisingly long and detailed

movies.

Zoetrope, written by *Aegis Animator* author Jim Kent, is an updated and expanded version of Kent's *CyberPaint*, a program for the Atari ST. *Zoetrope* is like a paint program that works on every frame of an animation. Of course, it wouldn't be much fun to draw each frame individually, so *Zoetrope* lets you perform visual tricks on several frames at a time. There are three groups of special effects: pixel effects, color effects, and APM effects.

Using pixel effects, you create spectacular dissolves and motions. The names of the effects hint at some of the possibilities: Defocus, Shatter, Wipe, Antialias, Crystallize, Venetian, Outline, Tile, Ripple, Edge In, Unrez, and Buzz. With *Zoetrope's* color effects, you have full control over the color palette of each animation frame. Careful use can give you glowing and sparkling animations. The most powerful effects are the APM (Antic Pixel Mover) effects. With these, you can make a picture spin on any axis, move along any path, and expand or shrink.

Zoetrope uses RIF-format files for animation, meaning that you can load and alter digitized sequences captured with Amiga Live!. *Zoetrope* also offers full support for static IFF images and animations saved in the popular ANIM format.

Zoetrope is an impressive and easy-to-use program that will help the Amiga gain respect among video professionals.

Movie Setter is a different sort of animation program. It's best suited to creating cartoon-like animations. Carefully constructed movies can run for several minutes—even on a one-megabyte machine.

In *Movie Setter*, you work the same way a cartoon artist works. Using the built-in paint program, you create the characters which will inhabit your movie. You draw each frame of the animation separately (not too difficult, if you take advantage of the features of the program). Then you load background screens and set up background scrolling.

You design movies with the mouse. Simply select a character and then click on the screen where you want to see it. Each time you click, the

next frame of the animation appears. After you've set up the movement for the character, you can clone it. Keep copying the character, and you can create an army of marching ants or a roomful of walking robots. *Movie Setter* has excellent sound support, so you can select a sound for any event in a *Movie Setter* movie.

Movie Setter includes a public domain player program so that you can distribute your movies without a hassle.

Deluxe Paint III has been spotted. It sports a new animation menu that allows you to create animations and load and save ANIM files. It supports the 64-color EHB mode, but not the 4096-color HAM mode.

Font Tricks

Are you tired of the same old fonts in the Amiga's Command Line Interface? If so, you'll enjoy *SysFont*, a program that allows you to use a typeface different from the Topaz font built into the Amiga.

SysFont includes ten fonts and five sizes. The various sizes let you have 60, 70, 80, 90, or 106 characters per line. The benefits may not seem immediately obvious, but you'll soon discover them. Consider a directory listing. If your CLI window is too small, directories can wrap onto a new line, making them nearly impossible to read. With a font that squeezes 106 characters onto a line, you can have smaller windows without the text wrapping to the next line. In effect, you have a larger Workbench screen.

SysFont works with many text editors and several other programs. Virtually anywhere the system font is used, *SysFont* will fill in.

Since *SysFont* supports very small fonts, those who have a good, clear monochrome monitor will find it most useful, but *SysFont* is also handy for the rest of us.

SysFont is available for \$34.95 from Eraware, P.O. Box 10832, Eugene, Oregon 97440; (503)-344-7684.

— Rhett Anderson

MAC

Yeah, yeah, I know the Macintosh isn't supposed to be a game machine. It's supposed to be a practical business computer, but honestly, wouldn't you like to have some fun with it?

Arkanoid (\$49.95), one of the top arcade-style games on other computers, has just been released for the Macintosh by Discovery Software (163 Conduit Street, Annapolis, Maryland 21401-2512; 800-342-6442). It's a highly evolved version of the venerable *Breakout*, full of bouncing balls and shattering bricks. In black-and-white (and gray), *Arkanoid's* game screens are a little hard to get used to because they're so intricately textured. Once you've adjusted, though, the game is a lot of fun. While you're playing the game, hit the space bar to pause, then look under the Apple menu for information about how to get a screen editor that will let you create your own arrangement of blocks.

Watch Discovery Software for more games, including an educational version of the old Ad-Libs game (unnamed as of yet) and *Sceptre* (\$49.95), another arcade game due out soon. In the Ad-Libs-style game, players complete stories by filling in blanks with the right part of speech. The computer version is enhanced by help screens that define the parts of speech and suggest possible words. *Sceptre* is an arcade-style game in which your character moves through a castle, battling monsters and avoiding traps. The game should be available by February. ▸

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

Gary Carter



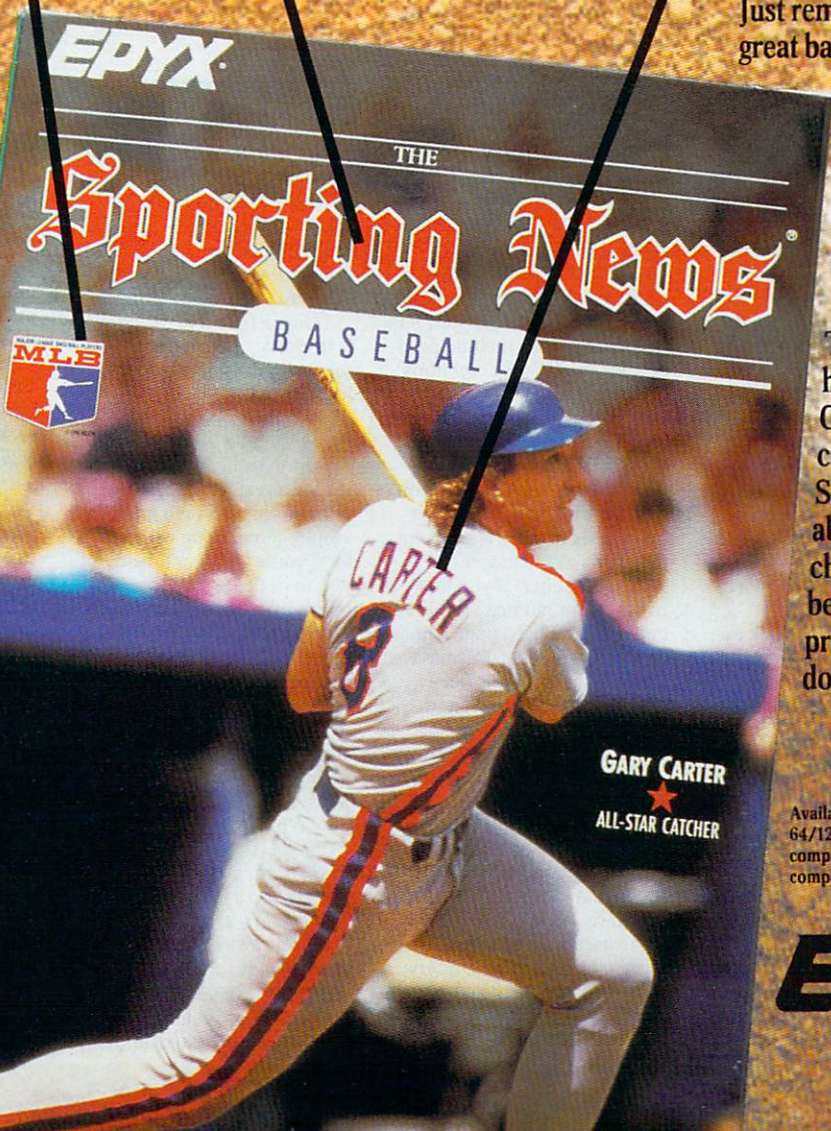
As the pitcher, you can throw the batter a curve, a high hard one. Pitch him inside, outside. Even brush him back if he's crowding the plate. Just remember, he's got great bat control. He

might even drag a bunt on you.

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

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

EPYX



Broderbund (17 Paul Drive, San Rafael, California 94903-2101; 415-492-3200) has just released *Shufflepuck Cafe* (\$49.95), an arcade-style game with amusing graphics and sound. It's one of the few Macintosh games that really use the mouse intuitively.

The game is air hockey. The setting is an intergalactic bar, the last bastion of air hockey competition. Your opponents, computer characters, have distinct personalities. Each has a unique voice and ridicules or compliments you on bad plays and good shots. Best of all, their personalities affect their play. Lexan Smythe-Worthington, a lizard-like creature, has a penchant for a local blue champagne, for instance. He's a pretty good shufflepucker, but the longer you play him, the drunker he gets and the easier he is to beat.

Upgrade 101

Thinking about spending some money on your Macintosh? Want a more powerful computer? A bigger hard disk? More RAM? More software?

If you're not sure what to buy, invest in *The Macintosh Upgrade Book* (\$4, including shipping and handling). This small book is published by Computer Quick, a company that services and upgrades Macintosh computers. In the introduction, the author admits he has a product to sell, but you'll find the book is much more than an advertisement.

Author Loy Spurlock explains different kinds of upgrades and offers tips that make your Macintosh work more efficiently. When Spurlock writes about hard drives, for instance, he explains how hard drives become fragmented and offers several methods for slowing down the process, thereby speeding up disk access.

In the grand tradition of the early years of personal computing, Computer Quick started in a garage, and *The Macintosh Upgrade Book* looks like photocopier or laser-

printer output. What you get is a folksy booklet packed with useful information.

For information, contact Computer Quick, 14928 Lef-fingwell Road, La Mirada, California 90638; (213) 941-7951.

Templates to Burn

Heizer Software is the brain-child of another garage entrepreneur, Ray Heizer. His company has been selling user-developed spreadsheet templates, program macros, and *HyperCard* stacks for two years.

The idea is this: If you need a specialized *Excel* work sheet, somebody else has probably developed one, and if you've developed one, somebody probably needs it. Heizer provides a clearinghouse for *Excel*, *Works*, and *HyperCard* users.

His company publishes three catalogs. *Excellent Exchange* hawks templates, databases, macros, and tutorials for *Excel*; *Stack Exchange* lists utilities, databases, and tutorials for *HyperCard*; and *WorksXchange* offers databases, tutorials, and templates for *Works*. The *Works* and *Excel* catalogs even include products for the IBM PC versions of the programs.

For businesses, there's the Small Business Accounting System. For construction offices, there's the Construction Cost Estimator. For astronomers, a set of work sheets plot the orbits of the moon, the sun, and Jupiter. If you take trips, you might need the Frequent Flyer Flight Log. You can find calendars, business logs, engineering tutorials, educational databases, and games. Can you imagine playing solitaire with *Excel*? Learning Bridge conventions with *HyperCard*?

You can even get tutorials on how to design your own nifty programs so that you can become an author for Heizer Software. If you've written some useful add-ons for *Excel*, *Works*, or *HyperCard*, query Heizer by calling the company. Check out the catalogs first—Heizer is looking for programs

that are different from what's already offered.

Program authors support their own programs and retain copyrights. Heizer handles all the marketing and order fulfillment. Currently, Heizer markets packages for about 150 program designers.

Ray Heizer's strategy saves programmers the trouble and expense of starting a software company. Much of a company's overhead costs the same whether you're selling one product or 150 products, he said.

The catalog is free, but if you send \$4, you'll receive a sample disk that includes 3 free programs and about 30 demo programs. For information, contact Heizer Software, P.O. Box 232019, Pleasant Hill, California 94523; (415) 943-7667.

HyperStory

Ever since the first adventure game, people have enjoyed interactive fiction. With *The Manhole* (\$49.95), Mediagenic has provided the first children's interactive-fiction game to use *HyperCard* as the interface.

For a first, *The Manhole* is impressive. You travel through a fantastic landscape, into the sky via beanstalk, under the ocean via manhole, into a rabbit's home via fire hydrant. Scenes are linked in the strangest ways: The elephant in his boat is a good example. Float along with him for a while and you'll find out you're in the teacup that the rabbit offered you a few minutes ago. Later, at the top of the castle, you find that you've climbed to the top of a chess piece on a chessboard floating in some water. And who should turn up but the elephant in his boat. Talk about links!

While the idea of interactive fiction is intriguing, *The Manhole* doesn't use *HyperCard*'s full potential. You spend a great deal of time exploring an enchanting world, but you don't really get anywhere. A stronger plot would make a better program. In any good adventure, you should

run up against obstacles. You should know what your goal is, or at least that you have a goal.

In the future, we'll probably see more hyperfiction—perhaps designed for adults. I would enjoy running through a hypertext version of a book I'd already read, taking new routes through familiar plot lines.

The Manhole is enormous, four megabytes, so you must have a hard disk to go exploring. Some may have that much disk space to spare, but my guess is that most people will keep this story on their hard drives only as long as it takes to "read" through it. I think of the program as a book that comes off the nightstand and goes back on the bookshelf when I'm finished.

For information about *The Manhole*, contact Mediagenic, 3885 Bohannon Drive, Menlo Park, California 94025; (415) 329-0500.

Printers to Go

Add a Macintosh-compatible ink-jet printer to the list of portable computer products. GCC Technologies has started shipping WriteMove, a 192-dpi printer weighing in at only three pounds.

Once the printer-driver software is installed, you can select WriteMove from Chooser. WriteMove comes with several fonts, including Helvetica, Times, and Symbol. Other WriteMove software allows you to spool files or print them in a batch.

It's priced at \$699. For information, contact GCC Technologies at 580 Winter Street, Waltham, Massachusetts 02154; (617) 890-0880.

Any Questions?

If you have questions about the Macintosh or about software for the Macintosh, write to *COMPUTE!*, Attention: Mac Specific, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408.

— Heidi E. H. Aycock ▸

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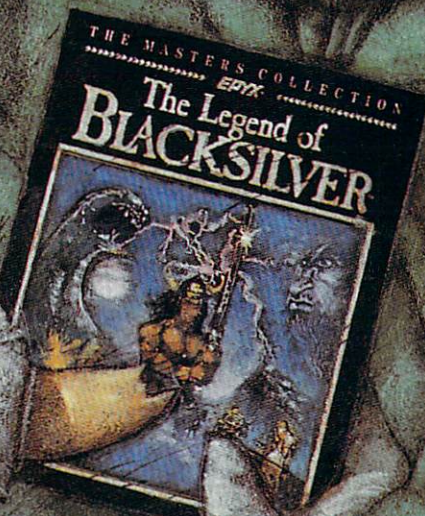
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Apple II and compatibles, Commodore 64/128, IBM PC and compatibles. Screens from Commodore. © 1988 Epyx, Inc.



EPYX

ST Flexcessory!, from E. Arthur Brown (3404 Pawnee Drive, Alexandria, Minnesota 56308; 612-762-8847; \$29.95), is a unique desk accessory that lets you load and unload utilities at any time. Thus, if you don't have the right utility loaded, you can use it to simply load what you need and unload unnecessary utilities that are taking up valuable memory. You can summon *ST Flexcessory!* from any GEM program that allows access to the Desk menu.

ST Flexcessory! includes a print spooler and a configurable ramdisk. You can reset the size of both features, but the new size won't take effect until the next time you boot. These features also can be disabled to save memory. A clock can be set to appear in the upper left corner of the screen.

You can specify which utilities should be loaded into memory on startup, but you must remember the program names because you can't access a file-selector box. All the programs must be in the same folder.

Also, you can choose several system parameters and the amount of memory you want reserved for *ST Flexcessory!*. If you don't reserve enough (enough isn't well defined by the documentation), you'll get an out-of-memory error. Save the configuration to disk so that it will be used the next time you boot.

When you select *ST Flexcessory!* from the Desk menu, a new menu appears. From there you can load or run a utility, unload a utility, reconfigure *ST Flexcessory!*, or quit.

A complete set of utilities

comes with the package. These are specially designed to work with *ST Flexcessory!* and include two calculators, a printer-configuration utility, a drive step-speed utility, a control panel, an RS-232 port-configuration utility, a disk formatter, a notepad, a file-comparison utility, a show-file utility, a VT52 emulator, and a file renamer. Other utilities can be loaded and used within *ST Flexcessory!* provided they follow a couple of rather stringent rules: They must not use resource files, and they must not use menus (the main application's menu is still on the screen while *ST Flexcessory!* is active).

One problem appeared almost immediately with the notepad program. Even though the notepad was the only desk accessory loaded and 150K was reserved for *ST Flexcessory!*, the notepad couldn't duplicate a block of text because it was out of memory.

Easy Tools

Migraph (200 South 333rd, Suite 220, Federal Way, Washington 98003; 206-838-4677) has released *Easy-Tools* (\$49.95), a desk accessory that adds functions to the company's page-layout program, *Easy-Draw*.

Easy-Tools' small toolbox includes many useful features. The Angulator measures selected objects. The edges of the Angulator can be moved in increments as fine as 1/100 inch to match the size of the object, and the tool can be rotated to make measuring easier.

The Inquisitor views and adjusts the location and size of selected objects. For example, use the Inquisitor to change the upper-left-corner coordinates, the width, and the height of a rectangle.

The Rotator turns selected objects around a user-defined point in increments as small as 1/100 degree. You can also program a series of copies by telling the Rotator how many objects to make in what size and at what orientation to the original object. This powerful tool creates spirals with a

single command.

Convert translates any figure into polylines. A polyline figure can be adjusted in ways which aren't possible with the original shape. A polyline takes up more memory, though. Polytext appears in four sizes and with the option of italics or back-slanted characters. Because these characters are actually polylines, you can stretch, rotate, group, and manipulate them in ways that are impossible with regular text.

The only difficult thing about using this product is that the measurement and rotation adjustments must be made via keystroke, so you must memorize or look up the keys necessary to control the tools. *Easy-Tools* has an excellent reference manual, designed for insertion into the *Easy-Draw* binder.

Holy Macro, Batman!

Wholly Macro!, from Sedroc Software (3815 Greengrass Drive, St. Louis, Missouri 63033-6636; 314-921-9048; \$39.95), gives you timesaving macro capabilities. A macro replaces many keystrokes with a single keypress. For example, when you press a certain key combination, such as Alternate-Left Shift-N, a macro can automatically insert information such as your name, address, and telephone number on the screen. Using a macro facility, you can also redefine a program's commands.

You can customize many *Wholly Macro!* features—including the default directory, the hot key which turns the macros off and on, and the amount of memory reserved for macros. Except for memory, nothing limits the number or length of macros.

Key combinations using Alternate, Control, and the left and right Shift keys are most common, but the sample file redefines the number keys at the top of the keyboard so that when one is pressed, the name of the number, rather than the numeral, is typed. The keys on the number pad offer additional possibilities.

Wholly Macro! provides a dialog box for editing and add-

ing new macros. Once you've saved the macro file to disk, you can load it whenever necessary. Editing macros is somewhat clumsy because the keyboard is reserved for typing, and all editing commands must be given with the mouse.

One valuable feature of *Wholly Macro!* is its macro-recording abilities. You simply go through the typing and commands that you want included in the macro from within an application, recording all the while. A flashing block lets you know that a macro is being recorded; pressing the hot key shuts off the recording. The dialog box also provides a List function to show you which macros are currently stored in memory and what the corresponding keystrokes are.

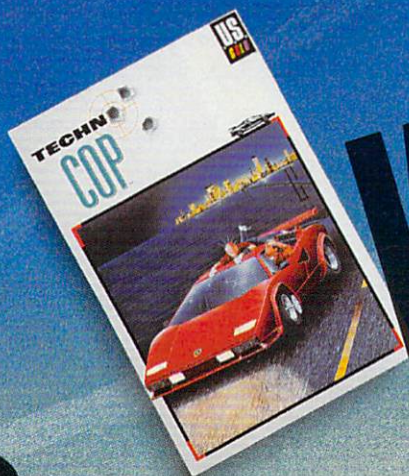
If you do a lot of repetitious typing, this program could be of considerable help to you.

Blitter Substitute

Many of the most important applications for the ST are text-based: spreadsheets, word processors, and databases. Users have complained that the screen-update speed is slow, but the much-heralded Blitter chip should fix this problem. The Blitter is in short supply, however, and even if you can find one of these chips, you'll need a hardware upgrade to use it in older machines.

TurboST (SofTrek, P.O. Box 5257, Winter Park, Florida, 32793; 407-657-4611; \$29.95) is a software alternative which works surprisingly well. Using this desk accessory is as simple as copying it to your boot disk. It appears under the Desk menu. *TurboST* invisibly speeds up window updates for text-based applications. It doesn't affect graphics, so it's useless with GDOS fonts, but this shortcoming is being addressed by program designers. With help from *TurboST*, *ST Writer's* speed was increased by more than 100 percent, while the speeds of *GFA BASIC* and *dBman* increased by 60-70 percent.

— David Plotkin □



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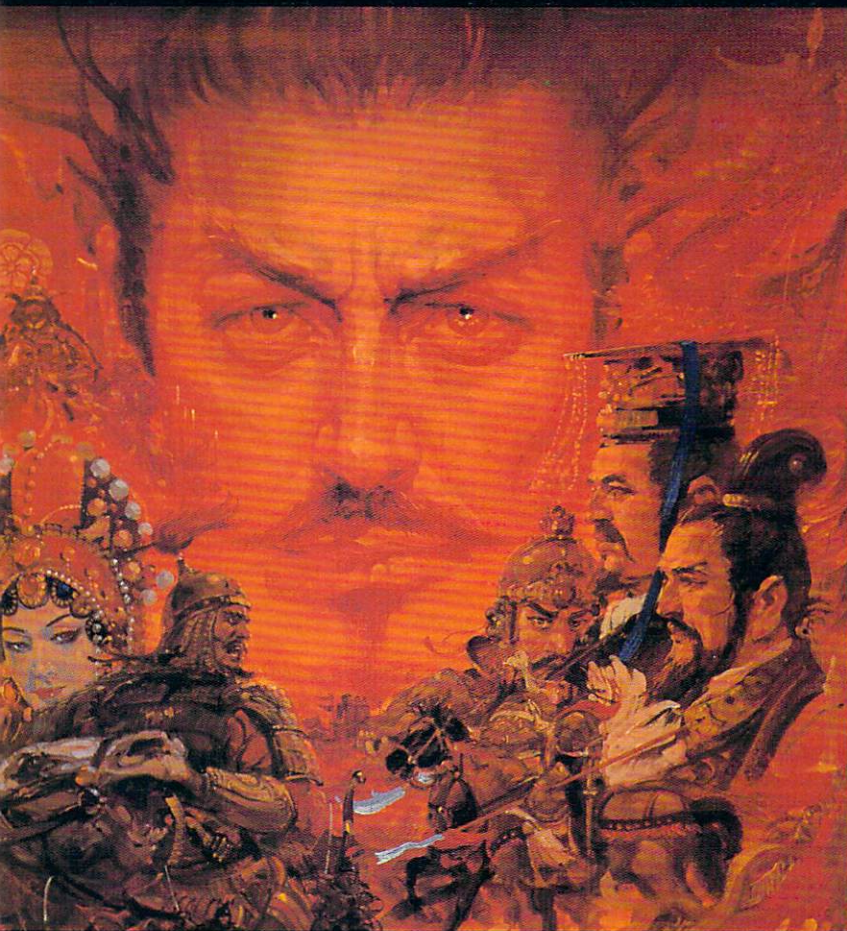
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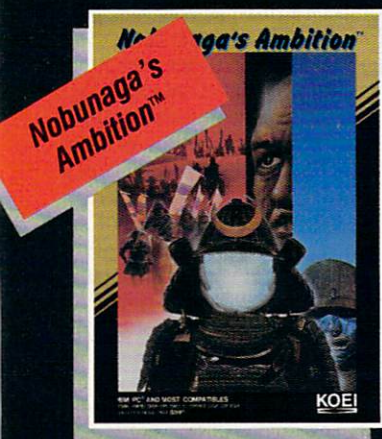
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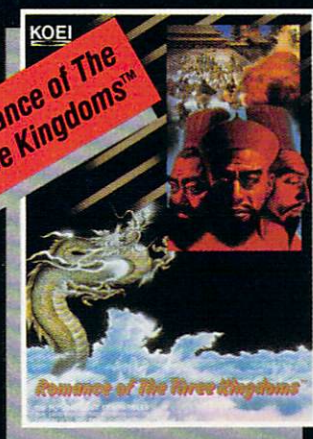
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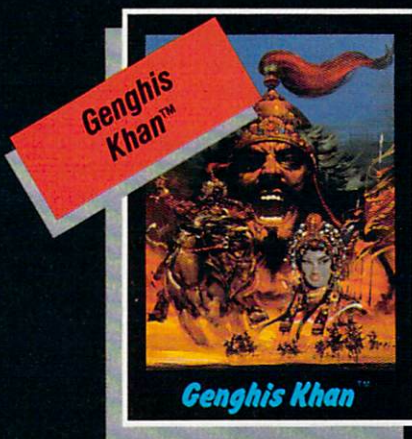
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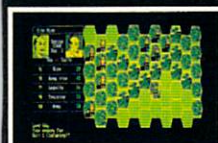
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— PS

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Contributing to "Fast Looks" this month were Heidi E. H. Aycock, David English, and Peter Scisco.



Pool of Radiance

Dungeons and Dragons (D & D) and its big brother, Advanced Dungeons & Dragons (AD & D), the ever-popular TSR board games, have come to the screen with SSI's latest release, *Pool of Radiance*. Around a scenario of elves, dragons, dwarves, and magic, SSI has developed the sharpest, most polished piece of programming ever to emerge from its labs.

Battles are what *Pool of Radiance* is all about. You'll spend the majority of your time in combat, directing the actions of a party of up to eight sword swingers and spell casters as they tackle dozens of orcs, kobolds, and other dungeon dwellers. Represented by detailed and semi-animated icons, characters and monsters are seen from the side, while the maze itself is viewed from an oblique angle that gives a 3-D effect.

But while combat is the game's essence, you'll find puzzles, too. A code wheel that serves as copy-protection is also used to decode clues and passwords found in the dungeons, and there are plenty of teleports and hidden doors to discover.

Set in the Forgotten Realms, the story unfolds in a thousand-year-old city called Phlan. Overrun by monsters, most of Phlan is inaccessible. The City

Council offers commissions (what other adventures call "quests") to those brave enough to clear the slums of monsters and rewards to those who are successful. As you venture deeper into the mazes and out across the Wilderness area, more of the plot comes to light. A villain with the unwieldy name Tyr-anthraxus is behind the invasion of monsters, and you must locate the source of his power, the fabled Pool of Radiance, in order to squelch his diabolical plan. In doing so, you'll explore 18 dungeons, each with a unique challenge to meet.

Mazes, both in the towns and in the dungeons, offer colorful images of shopkeepers, streets, and buildings, as if you were seeing through the eyes of your party. Monsters and characters are often brought to life with effective spot animation, such as an orc swinging his blade through the air. A convenient automapping feature replaces the picture with an aerial map of your team's immediate area.

Your characters can be elves, dwarves, humans, or any of three other races, but only four classes (Fighter, Thief, Magic-User, Priest) are available. The chief distinction between *Pool of Radiance* and other computer role-playing games is in character alignment: Each character can assume a personality from law-abiding saint to the vilest scum. Some elements of gameplay, like the reaction of other characters you meet, depend on your party's alignment. This is especially true if you choose to interact with them by adopting a stance (from meek to abusive) in hopes that they'll help you instead of hurt you.

After you've created a character, you can use the Modify option to change its attributes. This allows you to use the characters you created in the AD & D board game. You can choose each character's image by combining head and body graphics. You can also customize the combat icons by changing the color and type of weapon, head, shield, and other parts.

SSI has earned a reputation for producing games with difficult interfaces that are usually made more confusing by the documentation. These drawbacks have been thoroughly addressed in *Pool of Radiance*, giving it one of the most streamlined, adventurer-friendly interfaces SSI has ever developed.

From a horizontal menu that runs across the bottom of the screen, you can highlight commands by moving the joystick or using the cursor keys. In some cases, a vertical menu fills the



Pool of Radiance takes its lead from the Advanced Dungeons and Dragons theme.

screen. As part of its interface design, SSI has dumped most of the combat commands and options that made *Wizard's Crown* and *Eternal Dagger* needlessly complex and intimidating for many adventurers.

The combat system is a highly refined version of the one used in *Wizard's Crown*. A black box surrounds your active character (or monster). To battle, you (or the computer, if it's the monster's turn) pick one of several orders. You can easily move sword-wielding fighters into better positions, or pull back a heavily wounded man, while your archers and spell casters pin down the enemy.

Animation and sound effects round out the combat simulation. Arrows zip across the field of battle, clouds of smoke puff up when combat spells hit their target, and characters spin around when a monster moves within striking range.

A difficult game that will take hundreds of hours for most people to finish, *Pool of Radiance* isn't for the novice. And though veterans of other computer role-playing games won't find anything new here, the D & D spell remains unbroken. Now that the computer version of AD & D is finally here, you can't call yourself a serious fantasy role-player if you haven't experienced it. Those of you who enjoy prolonged sessions of well-animated tactical combat will be especially pleased. If you love dungeons, dragons, and drama, *Pool of Radiance* will probably get your vote as Best Game of the Year.

— Shay Addams

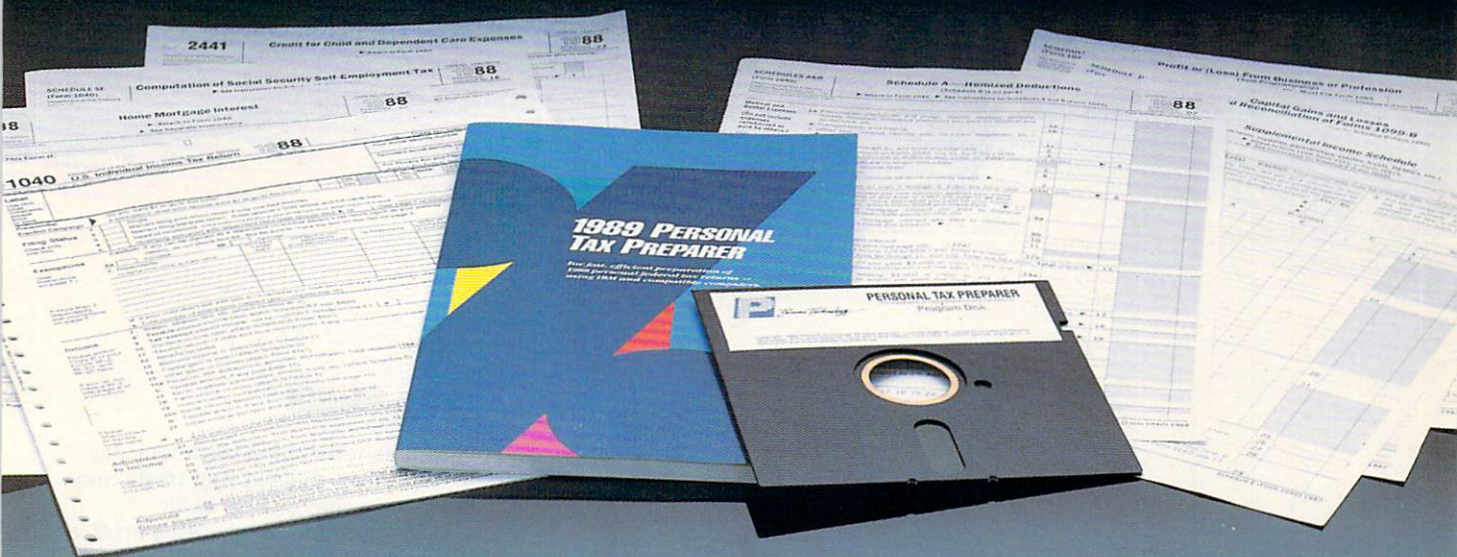
Pool of Radiance

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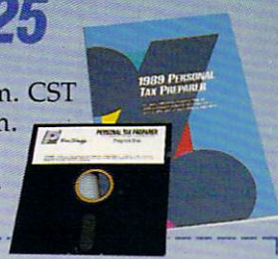
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////// ■ fast looks

**Descend into
Dungeons,
Animate Your
Artwork, Harness
Hypermedia, Sink
Ships from a Sub,
Go to the Games**

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

DeskPaint 2.0

DeskPaint is a good example of how far Macintosh paint programs have come. It puts most of the features of *MacPaint*, *SuperPaint*, and *MacDraw* into two desk accessories. With *DeskPaint*, you can stay in your favorite application, such as a desktop publishing program or a word processor, while you open, alter, and save paint or draw files.

The *DeskPaint* package includes an Auto Trace feature, which converts bit-mapped graphics into draw objects for higher-resolution printouts, and *DeskDraw*, a separate draw program in another desk accessory. *DeskPaint* lets you load, edit, and save *MacPaint* and TIFF files, while *DeskDraw* lets you load, edit, and save PICT files. Zedcor has also improved *DeskPaint*'s handy Browse feature, which lets you quickly look through the picture files.

If you're looking for a full-featured paint/draw program and prefer the flexibility of a desk accessory, put *DeskPaint* under your Apple menu.

— DE

Macintosh—\$129.95
Zedcor
4500 E. Speedway
Suite 22
Tucson, AZ 85712
(800) 482-4567

Map Skills

Next time you need to teach someone to read a map, pull out your trusty computer and a copy of *Map Skills*.

Designed for the education market, this program features about 100 lessons on navigating through highways and byways. You can also design your own lessons based on the five maps provided in the package.

The program gives you instructions on how to get from point A to point B, and you direct your car across the onscreen map. When you've finished your trip, the computer tells you how many miles you traveled and how much time you took to get to your destination. Sometimes you can take a shorter, faster route than the one suggested by the program.

The report card feature is useful for teachers because it tracks students' progress. Teachers can also customize the program for each student, starting a student at a low difficulty level, for instance, or limiting a student to exercises from one map.

Map Skills isn't just educational, though. It's fun, too—not the kind of frantic fun seen in an arcade game, but enjoyable learning as students drive across the computer landscape.

— HA

Apple II—\$39.95
Weekly Reader Software/Optimum Resource
10 Station Place
Norfolk, CT 06058
(800) 327-1473

Grand Prix Circuit

You've got your two-tones through the floorboard and your eyes on the red line. The motor roars as you white-knuckle your McLaren Honda Turbo through a hairpin curve and onto the straightaway at 180 miles per hour. Welcome to *Grand Prix Circuit*.

This hot-rod game gives you the choice of three supercharged cars and puts you on any of eight Grand Prix racetracks around the world. From Monaco to Motor City, from Britain to Brazil, *Grand Prix Circuit* covers more

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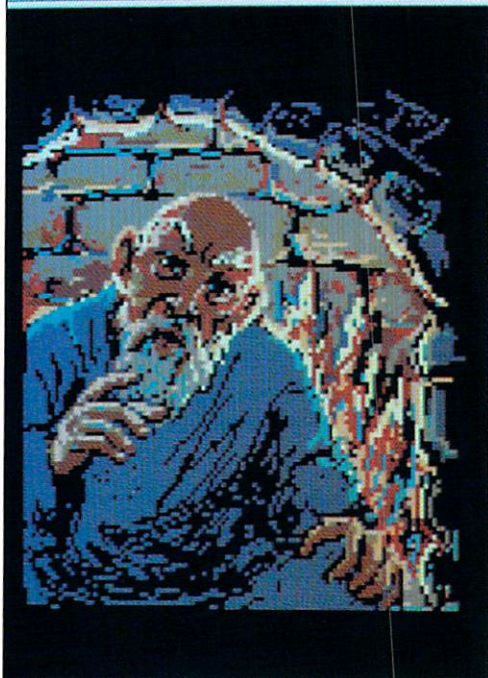
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Journey



For six long hours, we climbed steeply up the side of the Sunrise Mountain, and thus we came to the high tower of Astrix, the Wizard. No sooner had we arrived, then the tower's massive oak door opened.

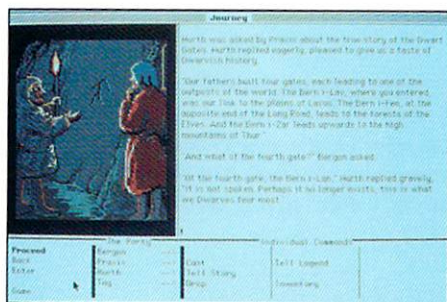
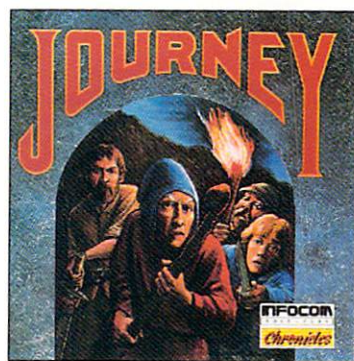
"I have been following your progress with great interest," the Wizard said, stroking his stringy gray beard. "You are a very resourceful group, that is certain!"

His voice became dark and we seemed to wince from some unseen injury. "The question is: Have you mettle enough to make siege on the Evil One himself?" And then, smiling, the darkness fell from his voice, and he answered his own question, "We shall see, I suppose; we shall see."

Leading us to his hearth, he sat us in a semi-circle around the blazing fire and spoke. "There is a story I must tell, a story of the Seven Stones. Created in a time lost to living memory, these Stones contained the very strength and essence of our world. Of the Seven, Four were entrusted to the races of men who could use them best: Elves, Dwarves, Nymphs, and Wizards."

"These are the Four: the Elf Stone, green as the forests of old, and the Dwarf Stone, brown as the caverns of Forn a-klamen; the Nymph Stone, blue as the deep waters of M'nera, [MORE]]

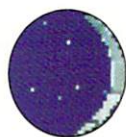
	The Party		Individual Commands
Back	Bergon -->	Cast	Tell Legend
	Praxix -->	Scout	
	Minar -->	Drop	Inventory
Game	Tag -->		



(Top) Magical creatures and wondrous wizards inhabit the world of *Journey*.

(Center) Ask for *Journey* at your favorite software retailer.

(Bottom) You must interpret what you find for your journey to be successful.

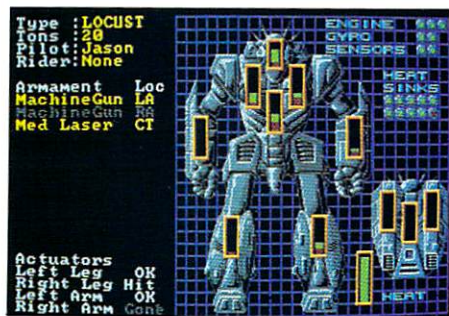
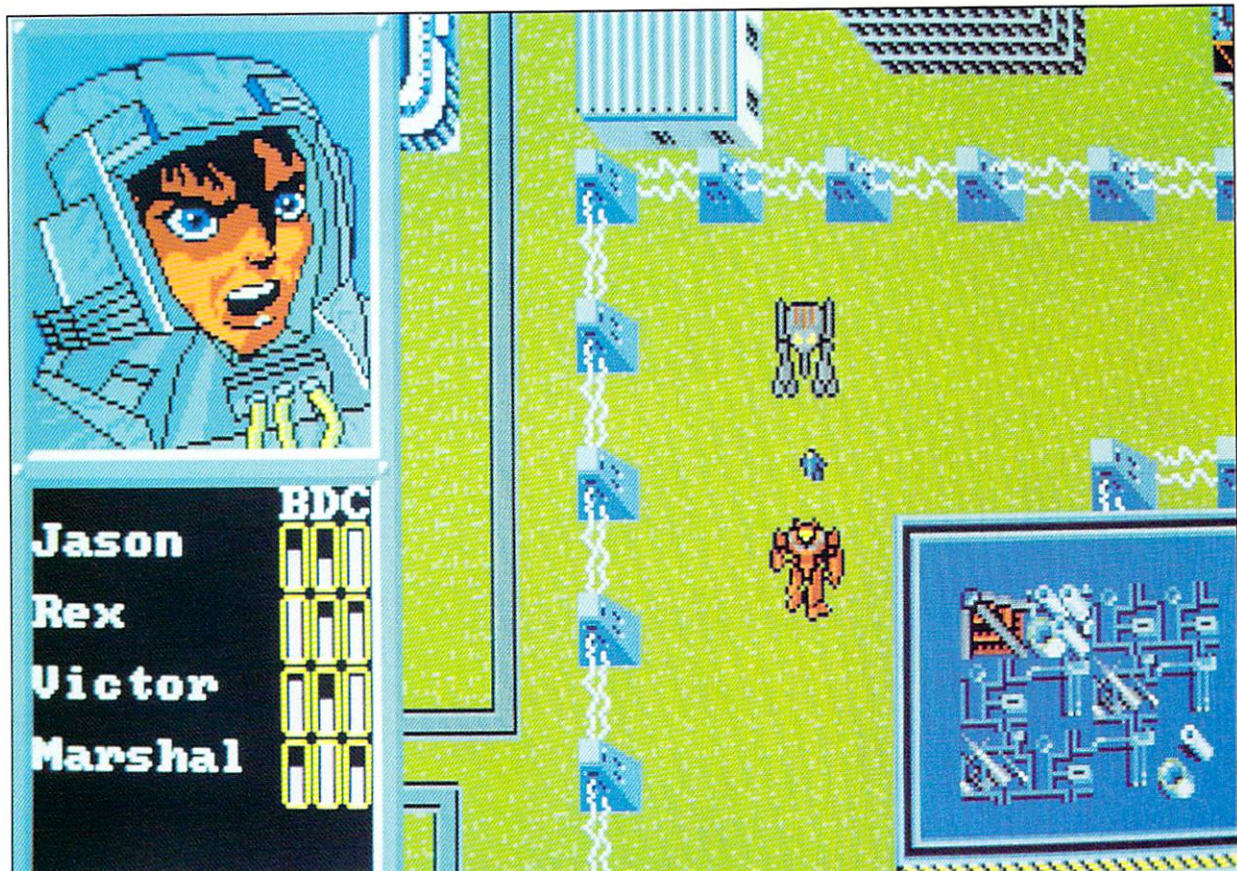


JOURNEY™

Journey into a world of natural beauty and unnatural magic, a world of monsters and melee, an entirely new world of entertainment software. In *Journey*, you lead a party of four adventurers on a noble quest to save the countryside from evil. *Journey* combines Infocom's storytelling expertise with the essence of role playing games to create the truly new genre of "role-play chronicles."

- *Journey* requires no typing and can be played entirely with a keyboard, a joystick, or a mouse.
- If you like RPG's, interactive fiction or fantasy stories, you'll love the saga of *Journey*.
- Over one hundred stunning graphics give you new vistas to explore at every stage of your quest.
- Favorite Infocom writer Marc Blank, author of *Zork*, *Deadline*® and *Enchanter*, has developed *Journey* and the new role-play chronicles.
- Your *Journey* package includes a game disk, a beautifully illustrated map and a quartz crystal secured in a velvet pouch.
- *Journey* is available for most personal computers. See the order form on the reverse side for machines and prices.





(Top) Animated outtakes let you zoom in on the action.

(Center) The package tells you that *BattleTech* means business.

(Bottom) Detailed scan helps keep track of damage sustained in combat.



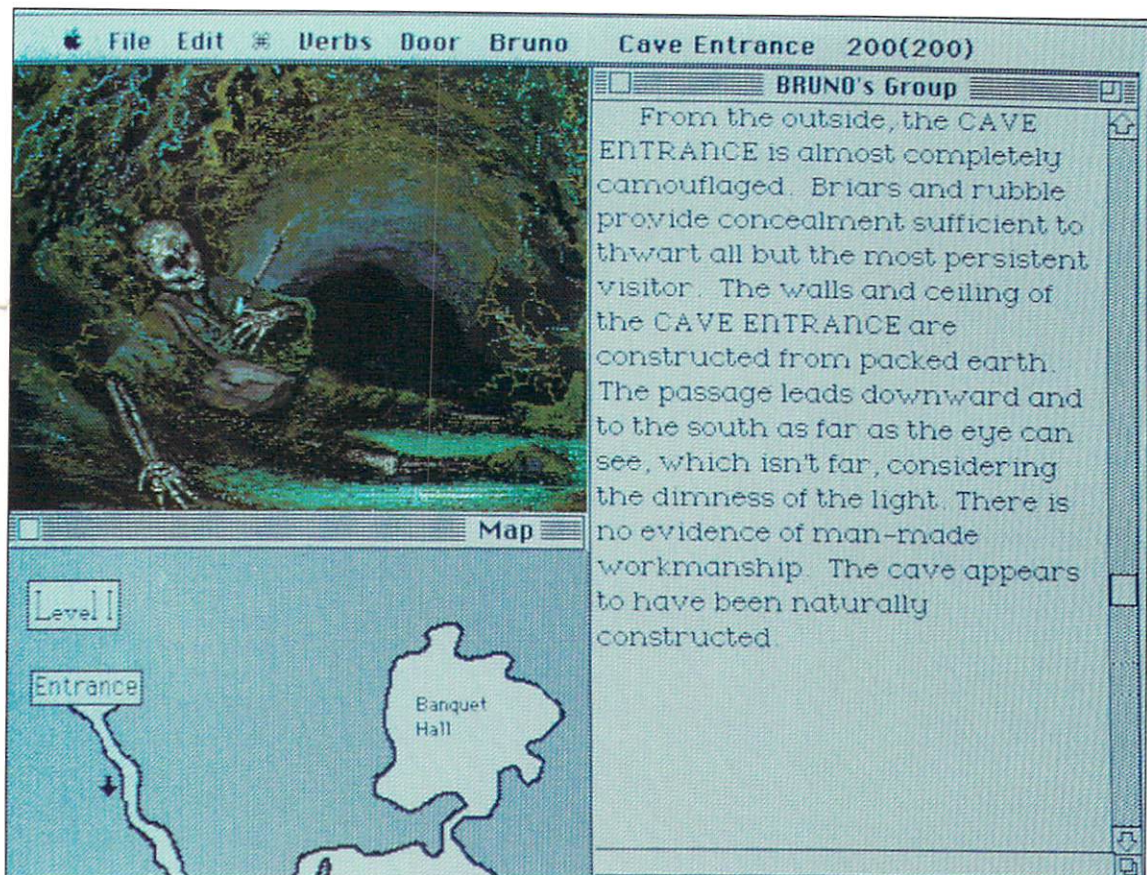
BattleTech®: The Crescent Hawk's Inception™

In the 31st Century, brutal wars are waged in giant machines, and human lives are cheaper than water.

In this action-packed RPG, you are Jason Youngblood, a warrior cadet who must fight to preserve his planet, his honor and his life.

- *BattleTech* is the first computer RPG set in the powerful BattleTech universe.
- *BattleTech* includes "The Arena," a gladiatorial module you can play again and again to hone your skills and accumulate supplies.
- *BattleTech* features the richness of plot and depth of detail that you have come to expect from Infocom games.
- You will see animated game sequences rendered in the distinctive style of Japanese "manga" comics.
- *BattleTech* features the largest RPG universe ever created, with over four million different locations on the computerized playing board.
- *BattleTech* features the most explosive warfare and complicated strategy of any computer RPG.
- *BattleTech* is a fully integrated part of FASA's BattleTech universe. It was developed with Westwood Associates, creators of Phantasie™ III, Questron™ II and Summer Games.®
- Your *BattleTech* package includes a game disk, an exciting full-color poster, and an official Weapon and 'Mech Recognition Guide.
- *BattleTech* is available for IBM PC and 100% compatibles, Apple II series, Commodore 64/128 and the Amiga. See the order form on the reverse side for specifications and prices.

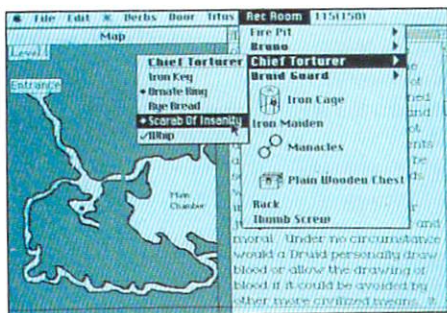




QUARTERSTAFF™: THE TOMB OF SETMOTH™

Three months ago, the Tree Druid Colony vanished without a trace. A search party is sent to discover what fate befell these peaceful people, and to save any who may survive. In *Quarterstaff*, it is your mission to guide this ever-changing band of warriors through cavern and crypt in search of an unknown demon.

- *Quarterstaff* is the first computer role playing game to capture the mood and feel of pen-and-paper RPG's.
- *Quarterstaff* features the most realistic environment of any fantasy role playing game. Characters need to eat and sleep, objects have size and weight, and even monsters have motives.
- The Macintosh version of *Quarterstaff* features the ultimate in Macintosh interfaces, with hierarchical menus, realistic sound, context-sensitive hints and a dynamic map window.
- When *Quarterstaff* was developed by Scott Schmitz and Ken Updike, *Dragon Magazine*™ gave it a perfect rating. This new version is refined and enhanced with Infocom's distinctive brand of storytelling.
- Your *Quarterstaff* package includes the game disks, a dazzling poster, a mystical ritual parchment and a Druid coin. Macintosh version also has an extra color graphics disk.
- *Quarterstaff* is available for the Macintosh, Apple II GS, and IBM and 100% compatibles. See the order form on the reverse side for specifications and prices.



(Top) Superb graphics, on-screen mapping, and a dramatic story create a realistic role playing experience.

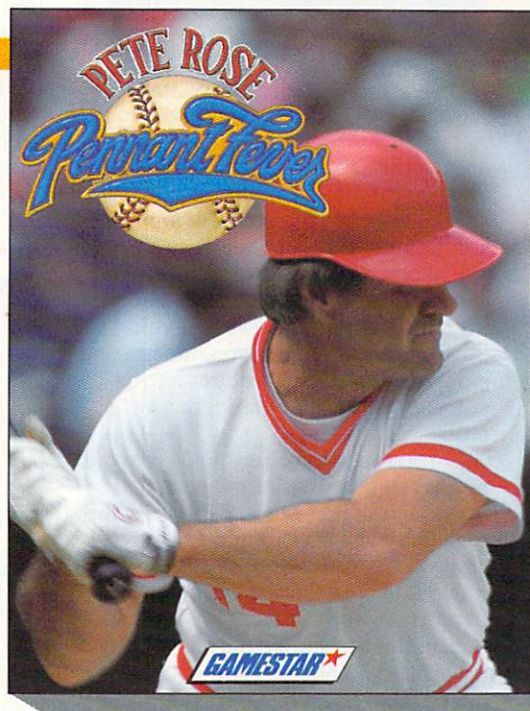
(Center) *Quarterstaff* is the fantasy role playing game for true RPG players.

(Bottom) *Quarterstaff* is easy to play using logical, sophisticated menus.

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Set a blistering batting order and pitching rotation. Bring in relievers, pinch-hitters and pinch-runners. Call for the steal or hit-and-run.



It's spikes first when you gotta have the bag — tell 'em Charlie sent ya.

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GAMESTAR

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Fantavision

Walt Disney's artists had to draw millions of pictures to produce full-length animated movies. But you don't. Animation programs, packages that give you the tools to create your own computer "toons," are the hot new kids on the software block. Brøderbund's *Fantavision* easily qualifies as the best such program for the IBM PC and compatibles.

Making short movies with *Fantavision* is simple. The program's graphics interface works best with a mouse, but you can operate it (rather awkwardly) with the keyboard. To make a shape that will move from left to right on the screen, create it on the far left of the screen with one of the drawing tools (a line-segment tool, a rectangle tool, and a circle tool). This is the first frame of your movie. Create a second frame by cloning the first (with an option in the File menu), but this time move the shape all the way to the right of the screen. Click on Go and *Fantavision* produces a sequence—your shape sails smoothly across the screen.

The program works on the *key frame* principle: It interpolates an object's motions between two widely different frames and then draws the intermediate positions. Those intermediate drawings are called *tweens*.

Fantavision treats shapes as *objects*, collections of points and lines. Objects can be as simple as a single dot or as complex as a fully drawn figure of lines and color shapes. Metamorphic tools (a grabbing hand, a point-creating finger, and a point-cutting knife) allow you to change the arrangement and number of points in any object from one frame to the next. Thus you can draw a tiger in one frame and then turn it into a chair in the next frame simply by rearranging the points that make up the tiger. When you play back the movie, *Fantavision* transforms the tiger smoothly into the chair. (This sort of metamorphosis can often produce unexpected intermediate results; you'll need some practice to get a feel for it.)

You can use the Goodies menu to make special object transformations like rotating, squashing, and spinning around a center of rotation. Objects can be any available color; with a monochrome adapter, *Fantavision* offers a pattern palette instead. The IBM PC and compatibles version supports as many as 16 individual, independently moving objects in any one movie.

Because *Fantavision* is object-oriented rather than page- or bitmap-oriented, you can create lengthy



With *Fantavision*, you can animate your computer art for a moving experience.

animations. You can loop animations and you can use the material in individual frames more than once within an animation—a real convenience when you're creating repetitive sections. You can vary the timing of a movie and the number of frames it takes to accomplish an action. In addition, the program's frame-editing features let you cut, copy, and insert frames in any sequence.

You can load backgrounds for your movies from any paint program that saves picture files in *PC Paintbrush* format. Only one background per movie is allowed, however. One effective technique is to create a rich and colorful backdrop with your paint program and then animate a simple shape over it.

Once you have created your animated movie, you can store it on disk for playback either in *Fantavision* or with a different player program.

Besides its grace and simplicity, another aspect of *Fantavision* that sets it apart is its sound effects library. Effects include a variety of animal noises, bug squeaks, and laser blasts. You can create and customize your own sounds with the help of frequency and duration histograms.

One of the few drawbacks in this otherwise well-designed and easy-to-use program is its inability to draw true curves. The best you can do is approximate curves by drawing many short, straight sides. Without curves, it's hard to make convincing cartoon characters (although the polar bear movie included on the movie demo disk is a clever demonstration of how a talented animator can overcome this). Brøderbund might consider offering a Bezier-curve tool in a future upgrade.

The ability to preset a motion path for objects would also be a welcome addition. Similar programs, such as *Aegis Animator* for the Amiga, offer a path-creation tool. Finally, you should be able to save complex objects in separate files rather than as part of a movie file. This would make it easier to create a se-

ries of different movies based on the same character(s).

Fantavision doesn't have to be all fun and games, however. Managers can use it to create animated charts and graphs that will enliven presentations. Teachers can use *Fantavision* to present difficult concepts—the evolution of galaxies, for example. Still, Brøderbund isn't marketing the program as a high-powered business or educational tool. Instead, *Fantavision* is for all of us who spent countless Saturday mornings watching cartoons, dreaming of the chance to create our own "Tom and Jerry."

— Steven Anzovin

Fantavision

For . . .

Amiga—\$59.95
Apple II—\$49.95
Apple IIGS—\$59.95
IBM PC and compatibles with Hercules, CGA, and/or EGA compatibility—\$59.95

From . . .

Brøderbund Software
17 Paul Dr.
San Rafael, CA 94903
415-492-3500

And . . .

Microsoft or compatible mouse is recommended for the IBM PC version.



Tutor-Tech

It's here—hypermedia for the Apple II. Actually, it's been here for over two years, but few people in the classroom know about it. Likened to *HyperCard* in its structure and capabilities, *Tutor-Tech* has one distinct advantage—it runs on any Apple II with 128K.

With *Tutor-Tech*, nonprogramming teachers can write unique programs to match their curriculum. Several different types of lessons and tests can be designed, including true/false, multiple choice, and fill in the blank. Teachers can import laser disc information and speech synthesis to their lessons. The program can use *Print Shop* and *Newsroom* graphics (after conversion to ProDOS), and it's also compatible with *MousePaint*, which allows teachers to paint their own graphics and icons.

Tutor-Tech comes with a Teacher disk, a Student disk, and an excellent manual. A Grader disk and a Samples disk are also available. Deciding how to present a lesson may be your hardest task. A storyboard method gives you a

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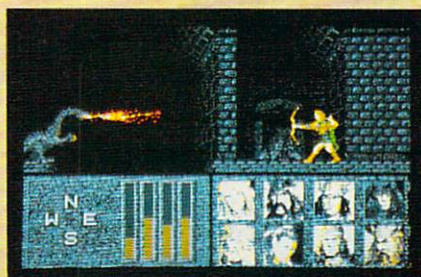
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good idea of how many pages are needed and where to insert motivational cues and remediation pages. The manual provides several good examples of how to organize yourself before you begin constructing your lesson; its tutorial exposes you to every aspect of the programming process.

The Teacher disk displays a toolbox along the left side of the screen and a menu bar across the top. There are four font choices and line options and 16 colors and patterns. You can use a grid to draw point-to-point lines and shapes or turn the grid off to do free-hand graphics. You can page forward or backward, make filled or unfilled squares and circles, and even stretch those shapes in any direction by clicking and dragging. The toolbox also supplies positive, negative, and proceed target buttons, as well as a target for fill-in-the-blank questions.

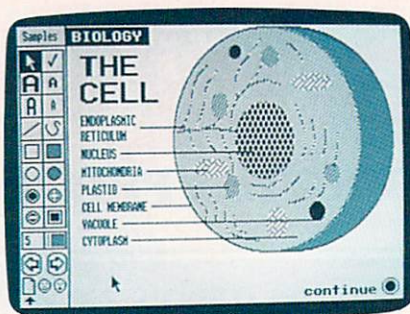
You can easily make lessons and tests by using the positive and negative targets. Indicate which page in the story a selected target would send the user to, and then assign the target a page to which it would return.

After you've created the lesson on the Teacher disk, copy it to the Student disk. The positive and negative targets signs become round, filled buttons. The student can boot the program on any Apple II and use the keyboard to move through the lesson. First, the student selects his or her name from the roll, which the teacher has created using the Grader disk. (Even if the Grader disk isn't used, the program will score the student's activity and print that information for the teacher.) The Grader disk offers the benefit of recording the score beside the student's name; you can retrieve the score (number of correct responses, number of incorrect responses, and percentage) later.

The Grader disk isn't a full-fledged gradebook manager, but it's extremely useful for *Tutor-Tech* lessons. It allows for class rolls with as many as 191 names and calculates individual scores and percentages as well as class scores and a class-percentage average. The teacher can grade ranges, distribute the grades on a curve, call up the grades on a bar graph, and print the graded roll. Hours spent grading papers could become a thing of the past.

The Samples disk offers four lessons for preview, which can give you ideas of ways to set up your own lessons. It also features clip art and icon graphics.

An exciting feature of the package is its interface with the Pioneer LD V2000 or LD V4200 laser disc players.



Teachers can use the *Tutor-Tech* hypermedia program to construct interactive lessons.

You can incorporate movies or still shots into your lessons; the manual provides you with all the appropriate commands. Informational video clips interspersed with text are sure to be a hit with students. Along with video, *Tutor-Tech* also offers speech capabilities. With the use of a speech synthesizer and commands sent to the speech printer card, your lessons can feature words of encouragement and/or direction.

Tutor-Tech is a long-awaited program for those who haven't the expertise to develop full-blown software packages. Writing computer programs to accompany lessons can lead to exciting possibilities and discoveries for teachers and students alike. Educators should find this fabulous program the perfect complement to their teaching.

— Nancy Rentschler

Tutor-Tech

For . . .
Apple II—\$195

From . . .
Techware
P.O. Box 151085
Altamonte Springs, FL 32715-1085
(407) 695-9000

And . . .
Grader disk—\$95; full teacher-student package—\$290

Red Storm Rising

It was bound to happen. Tom Clancy is the master of the technically rich, action-packed military novel. MicroProse is the industry leader in complex, realistic, action-packed military simulations. Sooner or later, they had to get together, and I'm glad they did. The resulting game, *Red Storm Rising*, is outstanding.

Red Storm Rising realistically simulates modern naval warfare. When you sign on for duty, you take charge of one of the major players in modern naval action, the SSN, a fast-attack nuclear-powered submarine. This is no awkward, strategic, missile-carrying sub, or "boomer"—the SSN is agile, fast, and very deadly. Your mission as commander lies mainly in battling for control of the Norwegian Sea Theater. You are a hunter-killer. Anything that floats and has a red star on it is fair game.

You assume command of your boat in peacetime but, after you head to sea, things sour quickly. You pick up sketchy details of worsening NATO-Soviet relations. Before you know it, a real shooting war has developed and you're on the front line. A war in Europe can't last long without supplies and troops from the U.S., and they must come across the vast Atlantic.

You know that the Soviet Red Banner Northern Fleet will come rushing down the Norwegian Sea corridor to the Atlantic in an attempt to cut that vital supply line. You will receive orders to attack specific targets in the area, and your performance will have a major impact on how the war progresses.

An interesting part of the game is the Strategic Transit Screen, which shows a map of the whole ocean area. You move in compressed time to avoid the tedium of long periods without action. Besides searching for targets, you must also deal with loads of information. For example, the positions of enemy forces are shown; some are recent and accurate, some are old and starting to fade, and all of them move. You must also avoid enemy antisubmarine warfare ships, Soviet Tu-142 Bear aircraft, and recon satellites. Good luck.

Stealth is imperative. Once you make sonar contact with a possible target, you stalk your prey, all the while trying to get a good ID and a good firing solution. Is this the target you're after? Should you fire or should you wait? Should you reveal your position by firing a cruise missile, or should you try a slower, quieter torpedo shot? You're the skipper. You decide. You'll find out quickly if you have the wrong answers. The North Atlantic is deep, cold, and unforgiving; you won't get many second chances.

Like other MicroProse games, you have a wide variety of weapons from which to choose. There are several models of Mk 48 wire-guided torpedoes (which you can steer toward a maneuvering target), tube-launched Harpoon antiship missiles, vertically launched

Arcade adventure at its finest...

Fast-paced, exciting combat demands the use of all your wits and endurance to best a world teeming with assassins, wizards and monsters. Experience captivating graphics of an unprecedented calibre. Relentless opponents will hone your combat skills to a razor's edge. A simple yet powerful menu and icon interface provides effortless interaction with the world and its people, while the incredibly smooth

animation presents a continuous panorama of action and adventure.



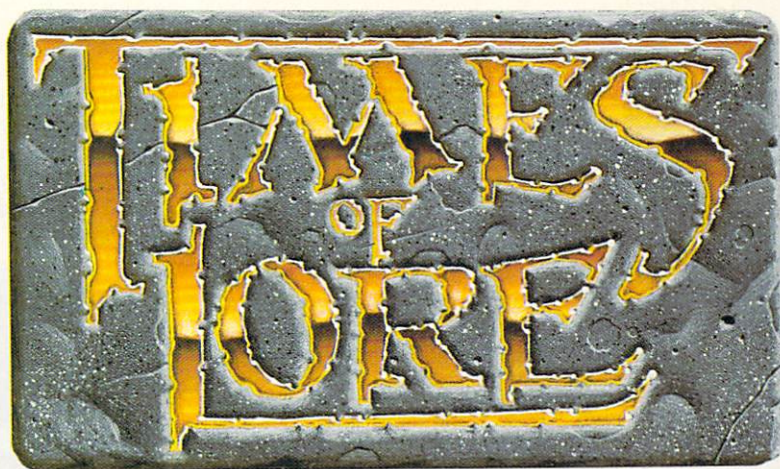
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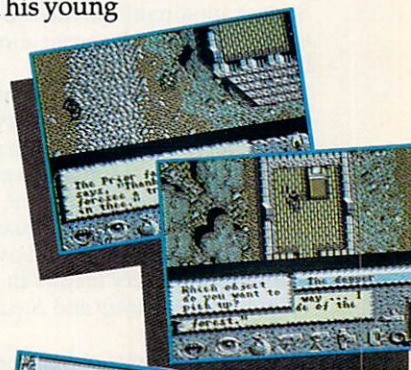
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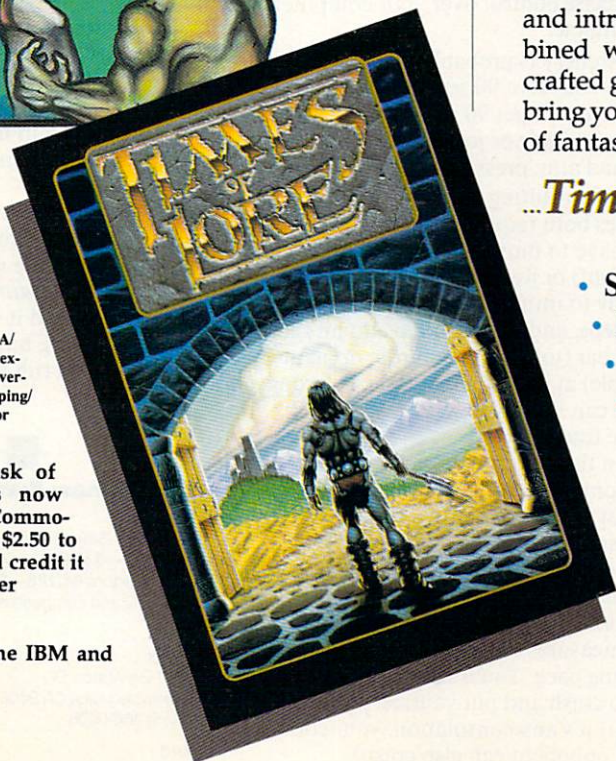
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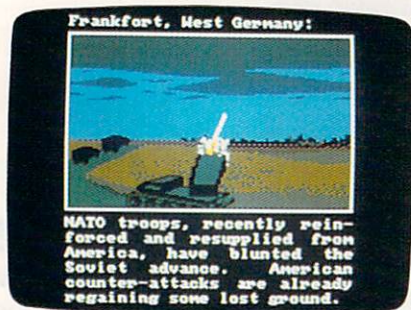
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If all of this sounds intimidating, don't worry. The designers have included several levels of play. Both novice and expert players should be able to find a level at which the game is both interesting and winnable. Excellent documentation and a keyboard overlay (which proved very helpful in MicroProse's own *Gunship* and *Stealth Fighter*) are included.

For the serious player, the complexities of this simulation can be quite challenging. If you have any interest in military simulations or in Tom Clancy's books, don't miss this one. I give it my highest recommendation.

— Richard Sheffield

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The Games: Summer Edition

Lay off, Louganis. Move over, Moses. You guys got company. I may be late, but I'm heading for Seoul, Korea, courtesy of Epyx. It's my chance to rewrite the 1988 Olympics.

All right, so it's just a game—a sports game at that. But it's a darn good one, with all the color, excitement, and

competition you'd expect to find at a computerized Olympiad sanctioned by the United States Olympic Committee. From the music of the opening ceremonies to the grandeur of the gold medal presentation, *The Games: Summer Edition* effectively captures the spirit of world-class athletics.

The game's main menu is an overview of the Olympic Village, with eight icons representing separate events and one icon, the Olympic torch, representing system options. From this screen you may practice any of the events or set up for competition. To practice, use the arrow keys or joystick to highlight the appropriate icon; then press the space bar.

You'll need all the practice you can get. Each event (diving, uneven bars, velodrome cycling, hurdles, rings, hammer throw, pole vault, and archery) requires a blend of timing, planning, and reflexes. The rings and uneven bars especially demand that you look ahead and react quickly. I've planted my head in the mat more times than I can count—looks like the gymnastics world is safe for four more years.

I played *The Games* on a Tandy 1000 EX and on an IBM PC AT clone equipped with EGA. The graphics were superb on both. I opted for keyboard control and, although I didn't use a joystick, I would recommend the keyboard for precise control over your computerized athlete.

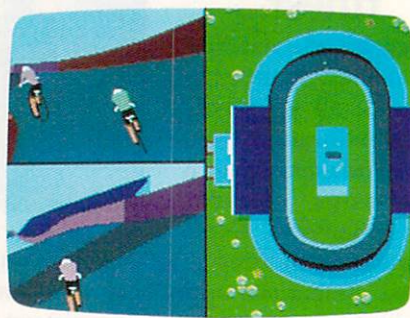
Archery is probably the easiest event. You have 90 seconds to fire six arrows at a target 90 meters away. Use your arrow key or joystick to draw your bow and aim; press the space bar to fire.

Pole vaulting and the 400-meter hurdles both require a sense of rhythm. You have to move your arrow keys (left and right) or joystick (back and forth) quickly to imitate your contestant's footsteps, and then you have to hit the space bar (to jump the hurdle or plant the pole) at just the right time. A wrong move can leave you flat on your back on the track.

In the velodrome cycling event, you compete against another player or against the computer in a three-lap strategic sprint around a banked oval track. Start out slowly and try to draft your opponent to conserve your energy for the sprint. A graphic of your cyclist's face measures exhaustion during the grueling pace. You'll have to be careful not to crash and put yourself out of the race (if it's any consolation, your computer opponent can also crash).

The graphic detail really brings your computer screen to life. A miscue in the hammer throw, for example, can

put a solid metal ball right through your monitor (not really, but a hole and a webbing of cracks give that illusion). At the diving competition, the water ripples in the pool and drips from the three-meter springboard, spectators converse, and judges motion from their booth.



Bicycle racing is just one of eight events in *The Games: Summer Edition*.

With eight events to choose from, it's a real treat to set up your own Olympiad. You're allowed as many as eight players; each can represent any of 24 countries. The game automatically stores world records during competition; if you break a record during play, the scoreboard shows you both the new and old records.

It's difficult to find any problems with Epyx's design. Each event is different enough to allow for various kinds of skills among competitors. Some events call on skills easily learned, while other events remain tough. The truth is, every time you sit down in front of your computer, your performance will vary. Hey, just like real life.

Few of us will ever experience the thrill of wearing the gold medal that says we're best in the world. *The Games: Summer Edition* won't make you a folk hero and it won't put you on a box of Wheaties, but for just a little while it'll let you run with the best.

— Peter Scisco

The Games: Summer Edition

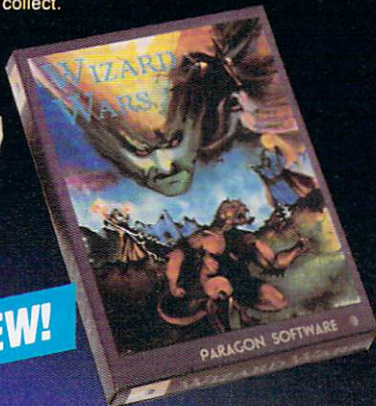
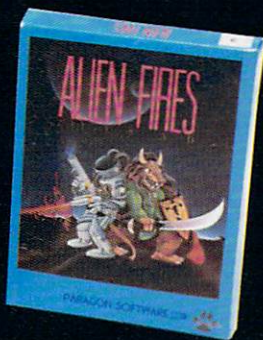
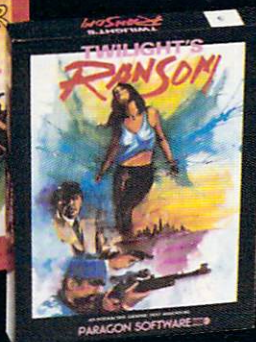
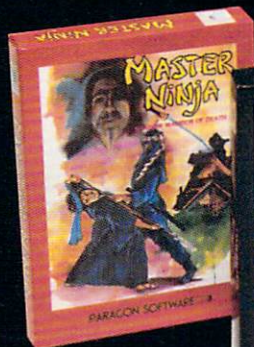
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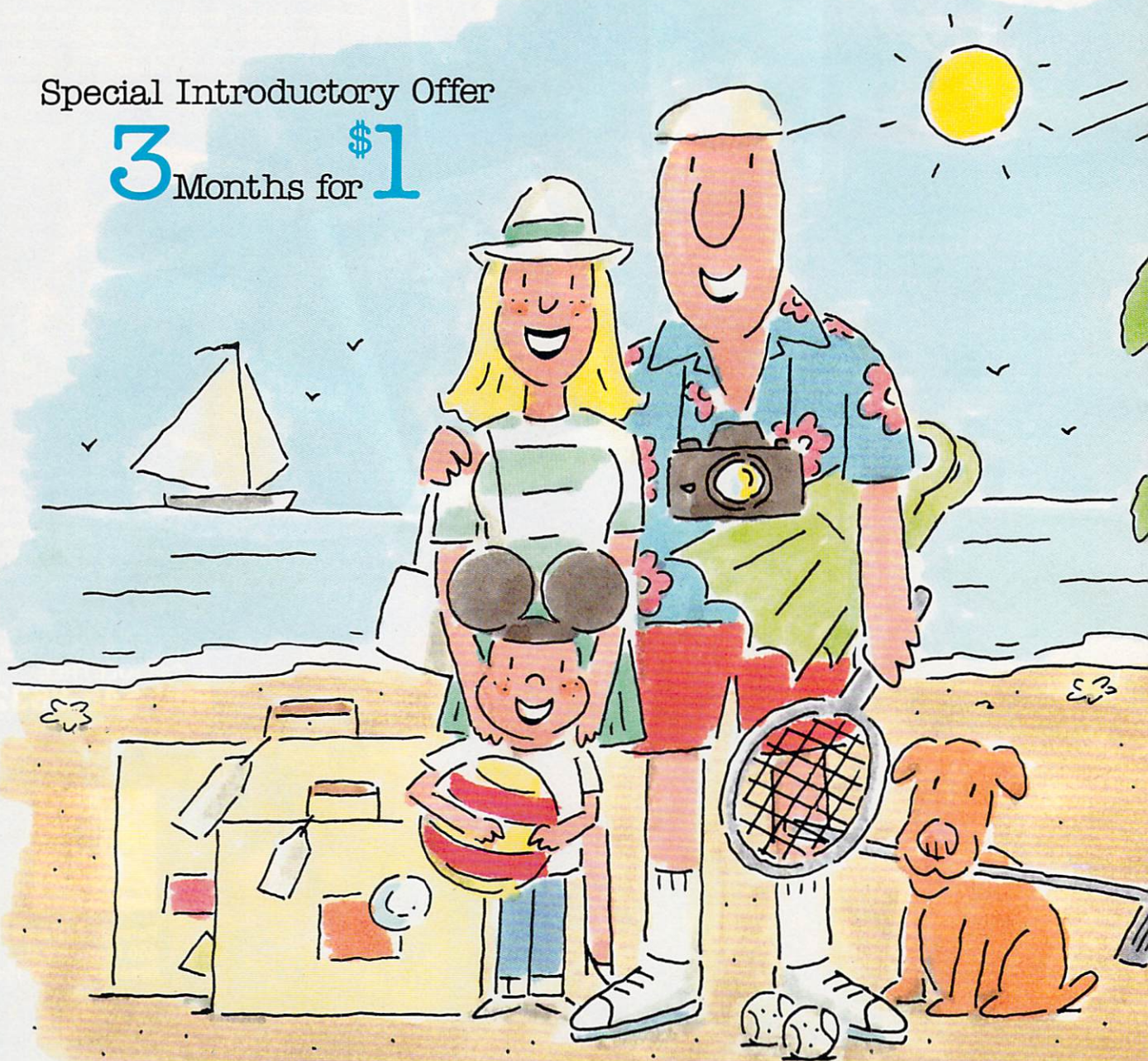
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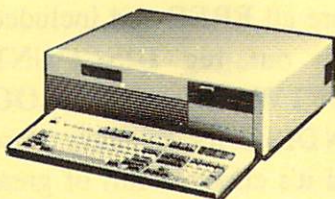
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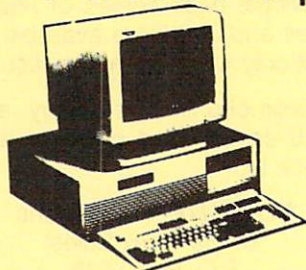
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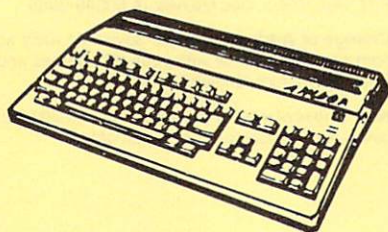
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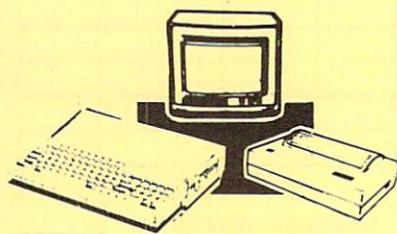
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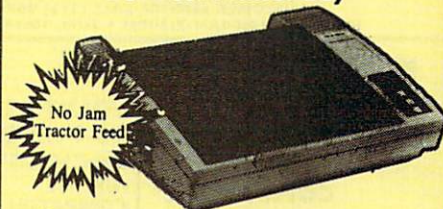
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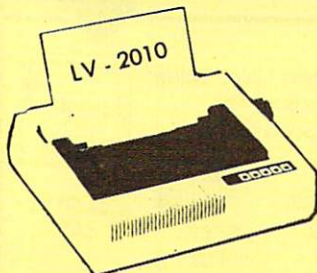


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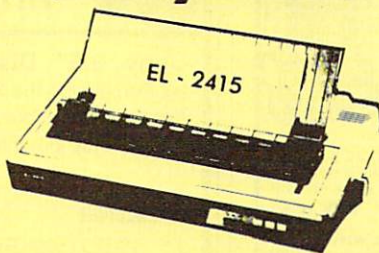


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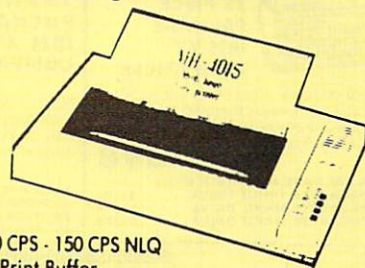
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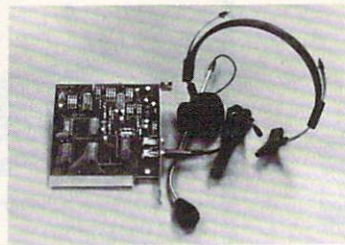
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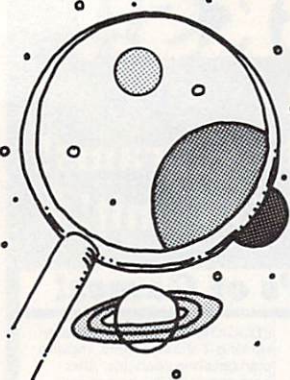
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discoveries

DAVID STANTON



Plug Into the Electronic Educational Connection

Yoichi Tsuji teaches English to Japanese teenagers at Tezukayama Gakuin Izumigaoka High School in Sakai City, Japan. While searching for a way to bring the foreign language alive, he discovered CompuServe, one of several U.S.-based telecommunications services. A few online sessions later, he found the Education Forum. With help from the forum's sysop (*system operator*), Mr. Tsuji met several American teachers interested in a penpal arrangement. Soon a deal was cut—his Japanese students and a class of elementary children from Columbus, Ohio, would make friends, share personal insights, and study each other's customs.

Recently, New York University sponsored a research project designed to help handicapped secondary students improve their reading and writing skills. Participants suffered from a wide variety of handicaps, including mental retardation, deafness, and learning disabilities. The experiment used computers, modems, and telephone lines to link ten schools from New York and other nearby cities. Students composed messages and exchanged them with others via the network. Motivated by their desire to make friends, they took a new interest in communication skills.

High school seniors in several western New York schools rarely see their Advanced Placement Biology teacher. In fact, their instructor teaches simultaneously in ten widely dispersed districts. The state-sponsored experiment uses computers, modems, graphics tablets, and telephones to reduce the cost of providing challenging courses to students in smaller school districts. A conference-call hookup combines with a speaker phone at each location so that teacher and students can talk. Using a graphics tablet as "chalk," classmates draw on their own IBM computer monitor and send that drawing to all other classrooms. The post office delivers assignments and tests from teacher to student, and back again.

But you don't have to wait for the future to see practical real-life benefits of being connected. Today's news reporters write on-the-scene stories using computers and then send them to editors thousands of miles away. Experienced telecomputists order airline tickets, buy and sell stocks, bank, and do research from their keyboards. Local electronic bulletin board systems (BBSs) act as free messenger services and provide easy access to public domain software.

Need an expert on Atari ST program-

ming? Having trouble deciding which printer to buy? Trying to learn a programming language and having trouble? Chances are you can find help on a national or local BBS.

Whatever your interests, an inexpensive modem can connect you with others of like mind. An electronic bulletin board in Roanoke, Texas, specializes in information for inventors and authors. Aspiring genealogists can meet on BBSs in Salt Lake City, Lexington (Massachusetts), and San Diego. Boards in Phoenix and Detroit cater to investors. Religious themes prevail on bulletin boards from Missouri to California. Those with genius genes can even contact Mensa-BBS (Palm Beach, Florida), the official board of the Mensa club.

No phone numbers here—small local bulletin boards come and go too quickly. Don't worry, though. Once you install your new modem, you'll find more boards than you could ever hope to contact. In addition, your tax dollars support several specialized BBSs run by Uncle Sam from his home along the Potomac.

Most pertinent to this column is a toll-free bulletin board operated by the U.S. Department of Education's Office of Educational Research and Improvement (OERI) (800-222-4922). The system holds hundreds of text files that document OERI's research. In addition, it offers many public domain educational programs for downloading. Anyone can call, but only professional educators qualify for full access. Since this BBS is quite popular, expect to encounter a few busy signals before you get online.

Or why not start your own BBS? If you limit its hours to the evening and night, you won't even need a dedicated phone line.

A few schools run their own BBSs. More should. Such boards can post classroom assignments, provide online educational games, even offer drill-and-practice exercises. In communities with heavy concentrations of home computers, teachers and parents could use the system to send informal messages back and forth. Students with long-term illnesses could even take tests online.

Few computer applications have greater potential. If you're doing something unique with educational telecomputing, write and tell me about it. And if your family doesn't own a modem, you might want to ask yourself, why not? □

David Stanton can be contacted via CompuServe (72407,102) or by mail at P.O. Box 494, Bolivar, New York 14715.

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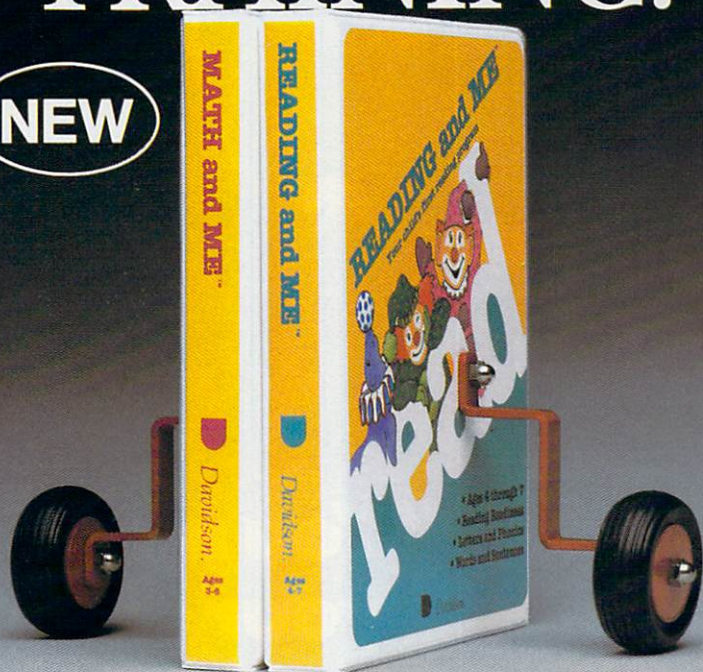
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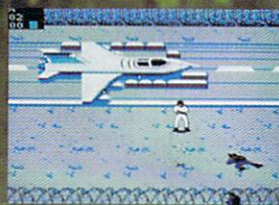


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levitations

How We Lost the COMDEX "Party-Animal Honors" to the Team from (Western) Japan

continued from page 86

roll and rhythm and blues while hundreds of beach balls, burritos, and shrimp sailed through the air for five hours. While the estimated quarter-million-dollar tab may seem excessive to some, remember that the cost of the bash, which included nonstop beverages for everyone, just *might* be enough to pay for a coffee maker on the new Stealth bomber.

Most Incongruous Party-Animal Honors. Hiroyuki Yokoyama, Asutoshi Fujii, and Toshiko Nakatsu for their thoroughly incomprehensible rendition of "Okie from Muskogee" at the Micrographix Texas barbecue party. After an hour of instruction from yours truly in the finer aspects of consuming taco chips, hot sauce, and Margaritas, the Tokyo trio looked real down-home in their red bandanas, straw hats, and three-piece suits.

Best Video Display. The Las Vegas Hilton Sports Book. I was stopped dead in my tracks while cutting through the hotel between press conferences. Most casinos have sports books, an area set aside for folks who want to bet on the outcome of sporting events throughout the country. The usual setup is a dozen or so televisions and a tote board where results are displayed. The Hilton's sports book is in a class by itself. Imagine a truly cavernous room with an immense wall studded with video displays ranging in size from 26 inches to 30 feet. I stood there, mouth agape, for at least 15 minutes, half expecting the live horse races and baseball and football games to be replaced with displays of incoming ICBMS, tactical-fighter-wing readiness reports, and nuclear-sub threat analysis. Later that evening some Las Vegans told me that Caesar's Palace has an even more impressive sports book. It reportedly prompted NORAD to authorize a billion-dollar revamp of Cheyenne Mountain.

Most Popular PR Stall. "We should have FCC approval for the machine in about two weeks." I heard this so often that, by my reckoning, it must take only about 20 minutes for the Feds to certify a system. Probably a mass hallucination resulting from excess gas generated by the otherwise excellent eggplant parmigiana at Batista's Hole in the Wall restaurant.

Weirdest Story Proposal. Pitched by a freelancer to a bemused editor at an after-show cocktail reception: "Environment threatened by disposal of spent laser-printer toner cartridges."

Most Laid-Back Attire. Dan Bricklin, coauthor of *VisiCalc*, great granddaddy of spreadsheets. Dan still has the good sense to refuse to wear a suit at COMDEX.

Most Embarrassing Moment. Being cornered by Mark Smith from U.S. Robotics. Smith had the temerity to ask if I was ever going to mention the Courier HST 9600 bps modem he loaned me nine months ago for a planned article on high-speed modems that got put off indefinitely after my "Telecomputing Today" column was replaced by "Levitations." Just to make me feel extra guilty, he gave me an updated list of over 3000 bulletin boards that support the Courier HST.

Most Arrogant Support Attitude. Move over Lotus and Microsoft. Enter Wizardware, which proudly proclaimed that by integrating an easy-to-use menu system with its MS-DOS products it has created "moron-friendly" software.

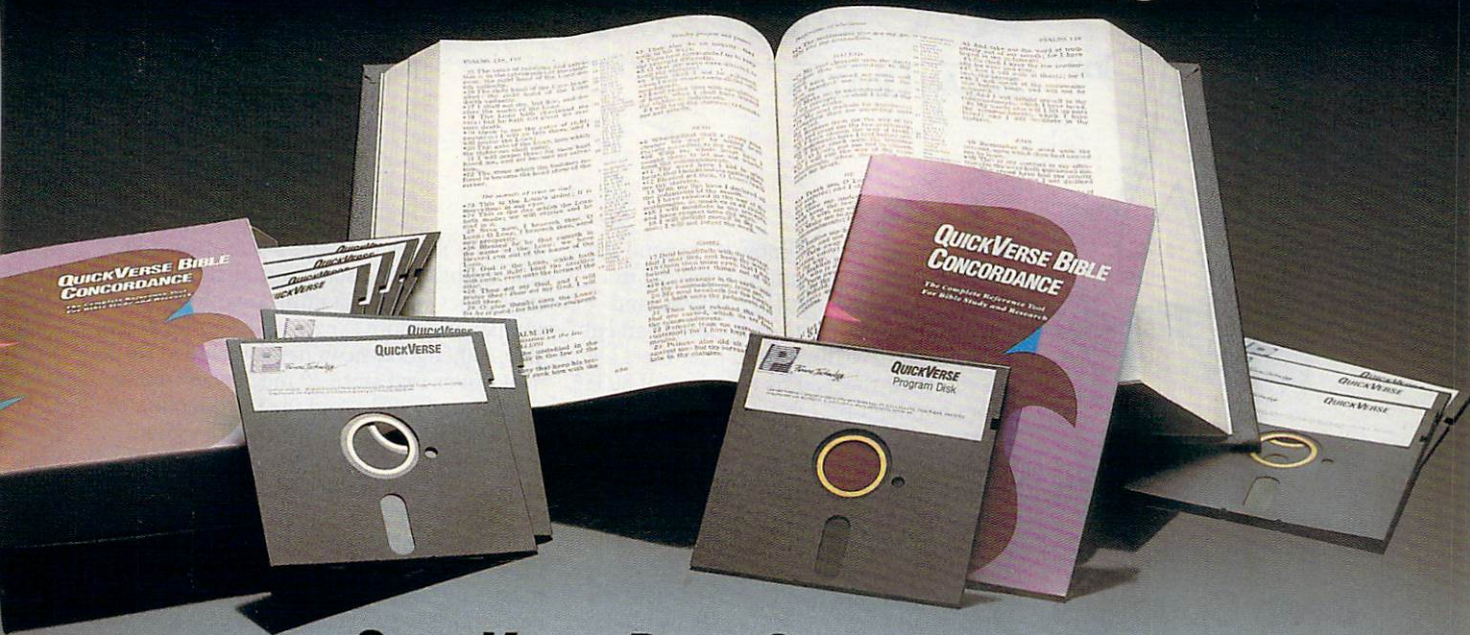
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By Thursday morning I was ready for a serious break from anything remotely related to COMDEX. To relax for a few hours, I tooted over to the Hoover Dam and bought a ticket for the tour. As I rode down the elevator 400 feet into the center of the indifferent concrete, I felt removed from the hustle of the floor show and oddly at peace with world. The elevator opened, and there stood a dozen suits with their COMDEX badges neatly pinned to their lapels. I managed a muted scream and lunged back into the safety of the elevator, deciding it was time to head for home.

A few hours later, as I turned in the Levitan party van at the rental agency, I echoed an inward sigh of relief. My billfold had gotten considerably lighter over the last four days. It was a genuine relief to put COMDEX, the gaming tables, and their associated hustle behind me for another year.

"Thanks for taking care of your vehicle, sir. Here's your \$300 security deposit." The smiling, uniformed agent hesitated for a moment before continuing. "Care to flip for it... double or nothing?" □

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Levitations

ARLAN LEVITAN



Computers and Casinos, Bean Counters and Bookies Mix It Up at Las Vegas COMDEX

Wouldn't you know it? I spend the last four columns sneaking in cracks about trade shows, and now that it's actually time to devote an entire column to writing about one, I feel like I'm still shell-shocked by five days of 80386 clones and laptops. Drop the "this is serious business, folks" attitude of the Computer Dealers Exposition (COMDEX) into a glittering, gritty location like Las Vegas and you end up getting hustled on *and* off the show floor.

Two weeks before the show, the COMDEX lodging situation looked particularly grim. Jimmy the Greek's latest line made it 3:1 that the show's attendance would top 100,000. The only way I could land a room was to book space on a gambling junket charter. It was the first time I've ever been asked to put my wallet through the airport security x-ray machine. Our plane was a Lockheed L-1011; its normally sardinelike seating configuration was made even more intimate after the ventilation system gave up the ghost 30 minutes into the flight.

I was somewhat curious about the nameplate our chartered bird was flying under. "Isn't Air America the same name used by the Central Intelligence Agency for covert air transport?" I asked one of the air hostesses. "Beats me," she replied. "As far as I know, all flights to Vegas are vectored over Nicaraguan air space."

A humid four hours later, we slammed down on the Tarmac at McCarran International Airport on a cool, but dusty, Sunday. The intercom clicked on. "Not bad for my first time, eh folks?" our pilot cracked.

Forget about getting a car from Hertz, Avis, or any of the other major rental outfits on short notice during a Vegas COMDEX. Anything with wheels has usually been booked six months in advance. The week before, however, I had used American Airlines' online SABRE system to locate a couple of local rental outfits with decidedly nasty terms, which included a \$300 damage deposit. I signed my life away at the car-rental counter, opting for a practical minivan instead of last year's screaming-yellow Corvette convertible. While the 'Vette was decidedly stylish, I had quickly been informed by the local constabulary that carrying passengers on the luggage rack is generally frowned upon.

The truth of the matter is that this COMDEX just wasn't particularly interesting or fun. Sure, there were some bright spots. One was the NEC UltraLite, a dimin-

utive but pricey four-and-a-half-pound PC-compatible laptop that journalists and yup-scale types will covet until something smaller and more expensive becomes available. Other good-news items included floppy drives that store 20 megabytes of data on a 3½-inch disk. And the introduction of high-density magneto-optical drives hold forth the near-term promise of reasonably priced mass storage on 500-megabyte replaceable cartridges.

Virtually every manufacturer displayed PC-compatible wares that seemed more depressingly similar with the passing of each day of the show. Even the Amiga crowd was downplaying things, Commodore having given strict orders that no (heaven forbid) *game* software was to be run at its booth during the show.

Here are my impressions of the show in shotgun format:

Longest-Running COMDEX Giveaway Item. Informix's red-and-yellow nylon shoulder bags. Once again, these stylish bags were the most coveted COMDEX badge of courage. The only way to get your mitts on one was to wait in line for an hour so you could be subjected to a ten-minute multimedia extravaganza featuring Leonard Nimoy touting *WingZ*, the Macintosh spreadsheet vaporware. I got my bag by donning a pair of pointed latex ears and slipping into the exhibit area five minutes before it opened. Some industry insiders claim that *WingZ* doesn't really exist, that the whole thing is merely a front for an international nylon-bag smuggling operation.

Least Popular Application of High Tech. AT & T's message system. The corporate giant tried to make a big deal out of providing an electronic message system for the press. If a you had a message waiting, your name would appear on monitors in the press area. The system was decidedly unpopular. I never saw more than a handful of messages waiting on the system. The computer press prefers using bulletin board systems—namely, the old standby cork and pushpin type—which were jammed with the usual crazy quilt of messages, party notices, and pleas for spare sleeping space.

Most Excessive Party Trophy. The IDG publishing group's intimate gathering at the University of Nevada at Las Vegas stadium for 9000 of its closest friends. Mitch Ryder and the Detroit Wheels and Otis Day and the Knights belted out basic rock-'n'-
continued on page 84

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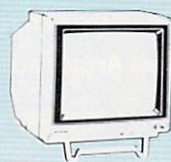
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Apple Compatible

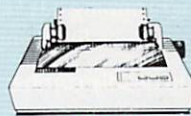


MAGNAVOX

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180-D

CITIZEN

- 150 cps Draft
- 29 cps NLQ
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- Built-in Pull Tractor

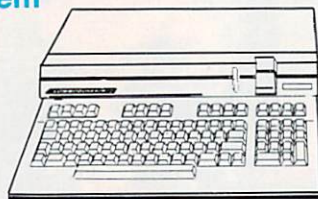
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Quantities Limited
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COMMODORE

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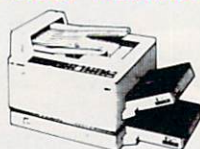
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Panasonic Office Automation

KXP1124



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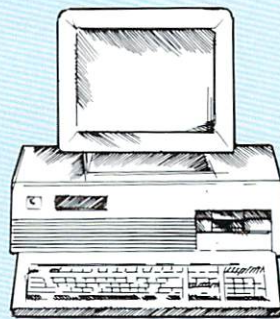
LASER Turbo XT Model II
Monitor Optional

\$629⁹⁵

Continental 8088 XT



\$529⁹⁵

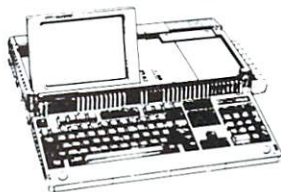


Monitor Optional

Get the PC/XT you need, at the price you can afford, with the Continental Turbo 8088 XT. Take a look at these standard features: one 360K floppy drive, 640K RAM, 150 Watt power supply, parallel/serial port and clock/calendar with battery back-up. Internally this system provides full compatibility with Phoenix Bios, 8088 Intel at 4.77/10 MHz, with memory expandable to 4 MB and a socket for an 8087 math co-processor. This is a superb PC/XT, backed with a full 1-year parts and labor warranty.

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SHARP PC-4502 Laptop
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Amstrad Laptop PPC 640-1
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COMMODORE COLT

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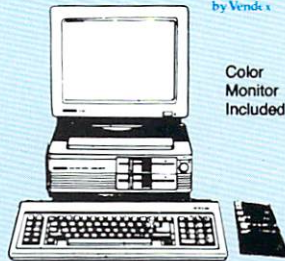
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CITIZEN Mate/12

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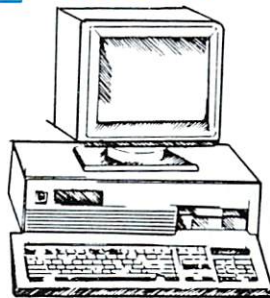


Monitor Optional

We realize that 80286 AT computers are becoming the trend in office use. Continental provides the 80286 AT model at an affordable price. Some of the outstanding features included are: 640K RAM (expandable to 4MB), one 1.2 MB 5.25" disk drive, 1 parallel and serial port, 101 key enhanced keyboard, and a clock/calendar with battery back-up. Full compatibility is ensured through Award bios, 8 I/O slots (6/16 bit-2/8 bit), 200 watt power supply, and an Intel 80286 running at 8/12 MHz. Combine all of these features with a full one-year warranty for an outstanding PC/AT system package.



Continental 80286 AT



Monitor Optional

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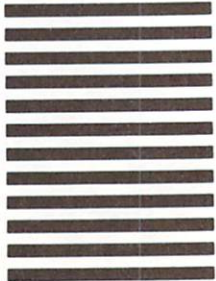
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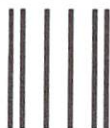
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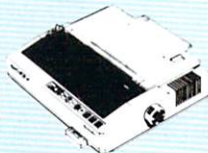
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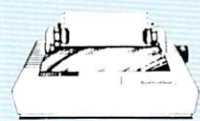
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If you are seeking world renowned printer performance for your home, look no further than the 120-D. Your data processing needs are handled quickly at a print speed of 120 cps (draft) or 25 cps (NLQ). The 120-D features 9 pin dot matrix print quality, standard parallel centronics interface and a 4K text buffer.



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