

# COMPUTE!

The Leading Magazine of Home, Educational, and Recreational Computing

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# COMPUTE!

APRIL  
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of Home, Educational, and  
Recreational Computing

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# editorial license

GREGG KEIZER

## Okay, Who Made Things So Tough?

I'm no rocket scientist. I don't pretend to be. But I do consider myself prepared for most personal computer tasks. I've used nearly every home computer made, from the flimsy plastic Coleco Adam to a top-of-the-line IBM PS/2. I can pop computer covers, yank boards out and press them in, set up printers, install software, back up hard disks as well as anyone. As long as it doesn't involve solder or live electrical wires, I'll take it on.

Then why, for crying out loud, is it so hard to telecommunicate? Why can't a file get from computer A to computer B today, when it made it yesterday? What makes sending messages on a national information service so tough that it takes five tries to get it right? What's going on here?

Complex convolutions of technology, I guess. Telecommunications is, without a doubt, the most difficult, the most frustrating, the most delicate of personal computer applications. Telecommunications is composed of too many parts, any one of which can go bad and turn on you. Telecommunications is the space shuttle of computing.

Not only is there a computer involved, but there's also a mysterious device called a *modem*. Add the telecommunications software, which runs the gamut from the absurdly arcane to the barely usable. Toss in the phone line, which, as we all know from voice communications, isn't always the crystal-clear medium that pin droppers would have us believe. Finally, you've got to contend with the equipment on the other end and its strange software.

If the phone line isn't quite clean, or your software isn't set quite right, or sunspots are too active, you'll have trouble. Fixing things isn't easy, for you must first locate the problem—usually through a hit-and-miss process of elimination—before you can correct it (assuming you *can* make corrections).

All this is terribly time-consuming. Tracking down trouble is never fun, and in telecommunications, it's hell. A good rule of thumb is to allow yourself at least three times as long as you think necessary to handle any telecommunications chore. I can't remember the last time a session I thought would be only 15 minutes long actually lasted only 15 minutes.

Once you get everything running and you manage to get connected with a bulletin board or information service, you've got to mess with an almost infinite number of interfaces. Amateur bulletin boards don't worry too much about ease of use, so you've got

to struggle through even the best. Commercial systems aren't much better, for you're either slugging it out with menus or trying to recall what odd alphanumeric combination calls up the area you're after.

Downloading public domain and shareware software, although a popular pastime on bulletin boards and services, is daunting enough to send thousands scurrying for the nearest user group library or public domain disk collection. Assuming you get everything right and get software downloaded into your computer, you still may not be ready to run what you've grabbed. You may have to download even more programs—file compressors, conversion utilities, virus checkers—before you can use the ones you have.

The final insult comes when you get the bill for your online exploration. Sit down, grip the chair firmly, and don't scream when you see the first month's tally.

It's as if there's a telecommunications conspiracy—how else do you explain such formidable obstacles thrown willy-nilly into the beginner's path?

To be truly useful, to really persuade most (or all) home computer users that it's a great idea, telecommunications had better wake up. Unless it's as easy to use as the phone (or as near to that as possible), telecommunications won't affect anyone beyond the thousands of computer technophiles. Millions of potential users will simply take a telecommunications rain check.

There has been some progress of late. Services such as the recently introduced PC-Link and AppleLink offer graphic interfaces for easy access and make connecting almost automatic. CompuServe's *Navigator*, a Macintosh-specific program, uses that machine's vaunted graphics to simplify nearly every telecommunications task. GENie, the pioneer of low-cost telecommunications, is growing fast, proving that high prices aren't an inherent part of the business.

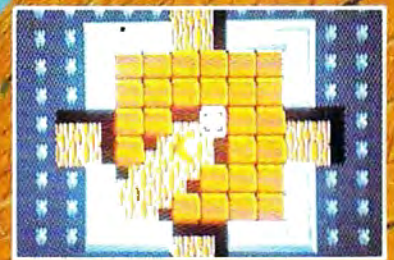
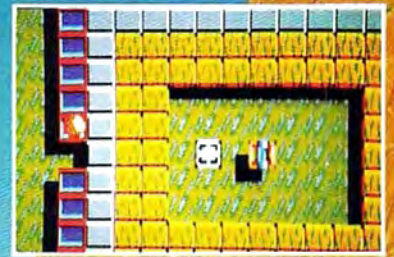
Push those ideas to their limit and you'll have telecommunications for the masses: cheap rates (how about equivalent to the cost per hour of other entertainment, such as movies?), machine-specific, service-specific software that takes the sting out of logging on and getting around, and electronic message systems as simple to use as a typewriter. Make things simple, simple, simple.

Only then will our computers pick up the phone as often as we do. □



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# news & notes

## Consumer Computers

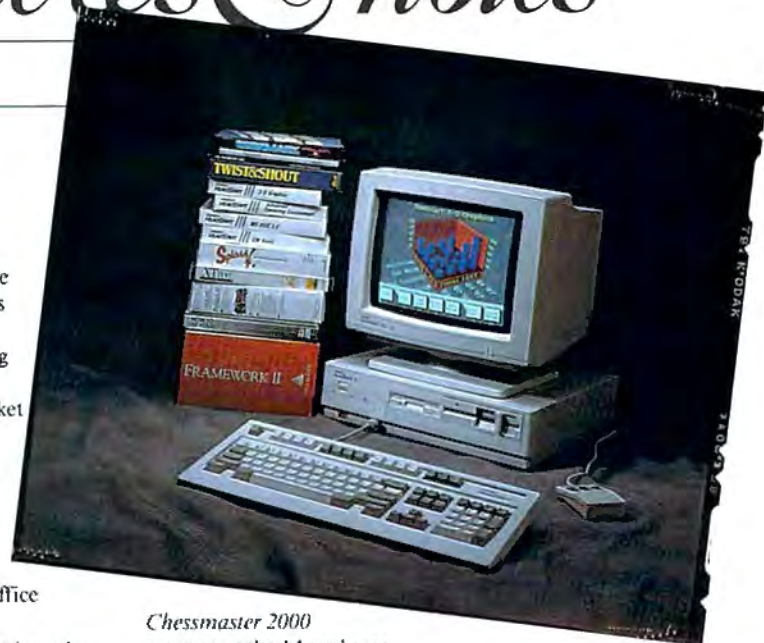
Winter's Consumer Electronics Show (CES) is held every January in Las Vegas, terra firma for gamblers, hustlers, and, for a few days, anyone connected with electronics. Computer software publishers, at least those with an interest in the consumer (read *home*) market, head there, too. Hardware manufacturers, on the other hand, seem to think that the home is not a fit place for a computer, and so are harder to find at CES.

One of the few hardware manufacturers that's not hard to find is Vendex, the maker of a popular line of IBM PC-compatible computers. All you have to do is look for the company's spokesman, King Kong Bundy, a bald-headed professional wrestler who looks as though he could tear a computer in half.

Vendex has specialized in

bundling well-made MS-DOS machines with easy-to-use software and selling these computers through mass-market merchandisers, not computer dealers. In the process, Vendex has made a name for itself among home and home-office computer users.

Its most recent introduction is the Vendex HeadStart III, an 80286-driven PC AT compatible (8 and 12 MHz) equipped with 1 megabyte (MB) of RAM, a 32MB hard disk, a 360K/1.2MB 5¼-inch drive, a 720K/1.44MB 3½-inch drive, and built-in VGA graphics. A slew of software also comes in the box: *Framework II*, *Twist & Shout*, *Publish-It!*, *Splash*, *XTree*, and



*Chessmaster 2000*

are among the 14 packages included in the system. All this costs \$2,995 list; look for a lower street price, though.

The only things not part of the Vendex HeadStart III package are a printer and a monitor. One of the latter is often thrown in by the seller, said Henry Fox, executive vice president of Vendex, without exceeding that \$3,000 price tag.

The combination of dependable hardware, included software, availability through major mass merchants, and low cost seems to attract the potential home computer buyer who is intimidated by traditional computer dealers, wants an instant system, and likes to get going as soon as the boxes are unpacked.

— Gregg Keizer

## Home Is Where the Fax Is



If you work out of your home, you're in good company. More than 13 million full-time businesses operate out of American households. Another 14

million people work part-time from the home, according to the American Home Business Association (AHBA). With those numbers comes power—

the organization reports that a million new home ventures are launched each year and that home businesses will contribute \$100 billion to the nation's economy in 1989.

The average home-based business owner is 38.8 years old and married, has two children, earns \$56,000 annually, owns a home, has graduated from college, and has worked for a large corporation for several years, says the AHBA.

Consulting is the most popular home-based business. Other professions include accounting, veterinary care, writing, editing, psychology, dentistry, and commercial art.

The personal computer is partly responsible for the boom in home-based businesses, according to Dorothy Den-

ton, executive director of the Association. "It's made it possible for people who have always had an entrepreneurial bent to start a business without a large support staff because computers can do the work of many people," she said.

People who own home-based businesses can get helpful information and assistance from the Association. The group offers a monthly newsletter, tax information, group insurance, and a buying service that provides savings on office equipment.

For information, contact the American Home Business Association, 397 Post Road, Darien, Connecticut 06820; (800) 433-6361.

— Heidi E. H. Aycock



## The Latest Sim Craze

Remember—you heard it here first. The hottest computer simulation category in 1989 will be tank-combat sims. Forget about flying 100 feet off the deck at Mach 2 with some two-bit pilot from the Third World in your jet fighter's sights. Forget about diving 100 fathoms as you escape a determined destroyer captain who will be happy only when he sees your sub bubble up. Instead, think about sticking your head out a turret hatch as you guide a modern metal monster across battlefields littered with smoking wreckage.

Tanks are but the most recent technological marvel portrayed in computer simulations. Submarines, jet fighters, and helicopters have been done to death. The armored behemoth may be the last machine left to simulate on the screen.

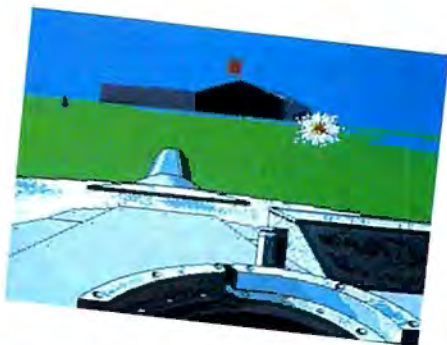
Several software publishers have come to the same conclusion and have been busy developing tank simulations. *Accolade* was first out the gate with *Steel Thunder*, a game for the Commodore 64 that puts players inside one of four armored vehicles: the M48A5 Patton Battle Tank, the M60A3 Main Battle Tank, the M3 Bradley Cavalry Fighting Vehicle, and the M1A1 Abrams Main Battle Tank. *Steel Thunder*, which is more an arcade-style action game than a realistic simulation, lets you assume the roles of tank commander, tank driver, and tank gunner. A fourth crew member, the loader, is computer-controlled, but vital: If he's slow or tires easily, you'll have a hard time of things. Graphics in *Steel Thunder* are adequate, but not dazzling. Stick figures, for instance, stand for enemy infantry.

Electronic Arts should have its *Abrams Battle Tank* on the shelves by the time you read this. *Abrams* runs on MS-DOS machines and is a more realistic portrayal of modern armored combat. Several crew stations let you rotate from commander to gunner to driver to loader inside the M1A1 Abrams, the Army's front-line battle tank. Three-dimensional graphics spice up the screen, and a bevy of targets pop up in front of your thermal sights. You can lay smoke as cover, and even take on Soviet choppers. Play levels let you determine the fight's ferocity. At the lowest level, for instance, your tank can take hit after hit and roll away from the action virtually unscathed. Play at the highest level, though, and a single round can brew up your tank in moments.

Other publishers are rumored to be working on tank simulations. The most prominent names banded about are Spectrum HoloByte, of *Falcon* fame, and MicroProse, creator of such landmark simulations as *Gunship*, *Silent Service*, and *F19 Stealth Fighter*.

If this crop is any indication, the year should see a lot of fighter jocks ground themselves for a chance to take a turn or two in the turret. Meet you on the battlefield.

—Gregg Keizer ▸



## Radar detectors: Which are really best?

These days every maker says their radar detector is best. Who's telling the truth?

### Freedom of the press

If you read movie ads, you know how each one finds a short phrase from a review that makes it sound like "the year's best." Well, some detector makers play the same game.

But we won't play games. Below are the overall results of three recent independent tests of radar detectors.

### LATEST PERFORMANCE RANKINGS

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Uniden	BEL Quantum	BEL
Radio Shack	Whistler	Snooper
BEL	Maxon	Uniden
Whistler	Radio Shack	Whistler
Sparkomatic	Uniden	Cobra
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## Much Ado About Mac

Tens of thousands of enthusiasts, corporate buyers, software developers and publishers, and interested onlookers swarmed over San Francisco in January to help Apple celebrate the Macintosh's fifth birthday. MacWorld Expo filled both of the city's major convention centers with hundreds of exhibits; despite a noticeable Sunday afternoon drop-off following the kickoff of the Super Bowl, total attendance topped 60,000.

Apple CEO John Sculley set the tone with a multimedia keynote address demonstrating the Mac's ability to interface with television images. Wearing an Apple sweatshirt, Sculley used a Macintosh II to drive a laser-disc video history of the Mac, which included the first of the weekend's showings of the company's classic "1984" commercial. Promising further progress toward his vaunted "Knowledge Navigator" personal computer, Sculley leaned more toward style than substance in his presentation, but style seemed to be what his audience wanted.

On the product front, the big news was Apple's introduction of the Macintosh SE/30, a powerful computer that incorporates many features of the Macintosh II. With a 16-MHz 68030 at its heart—augmented by a 16-MHz math coprocessor—

40- or 80MB hard disk and more RAM. The floppy drive can access MS-DOS, OS/2, and ProDOS disks.

An upgrade kit will be available for current Macintosh SE owners.

Claris debuted *MacWrite*



—the SE/30 accesses its RAM at speeds equal to those of the Mac IIx. In its basic configuration, the SE/30 includes 1 megabyte (MB) of RAM and a high-density floppy drive. Other configurations include a

II, the successor to *MacWrite*. The new program was built from the ground up and delivers features such as sharply increased speed, WYSIWYG capabilities, resident *HyperCard* help, and advanced for-

matting capabilities.

Perhaps the greatest excitement at the show was generated by Silicon Beach's *SuperCard*, a customizable software toolkit compatible with Apple's *HyperCard*. *SuperCard*, as much a software-authoring environment as a toolkit, includes a runtime program for executing user-designed applications.

Entertainment software for the Macintosh was more in evidence at this MacWorld. Mediagenic attracted a lot of attention with its CD-ROM version of *The Manhole*, a *HyperCard* narrative. *The Whole Earth Catalog* on CD-ROM was demonstrated by Brøderbund, and MicroIllusions showed a Macintosh II version of *Faery Tale Adventure*. Discovery's *Arkanoid* continued to attract fans. Mindscape boasted the largest rollout of Macintosh entertainment and began building suspense for *Chris (Balance of Power)* Crawford's latest exercise in simulated budget balancing, *Guns and Butter*.

— Keith Ferrell

## Quick Decision

U.S. Supreme Court decisions may become more accessible than ever. A committee of department heads is considering a system that would download decisions from the Supreme Court's Atex system into a PC from which an outside organization would publish the text on a public telecommunications network.

Right now, the court issues decisions at 10:00 a.m. It takes about 24 hours to scan typeset opinions into legal databases like Mead Data General and news-service databases like the Associated Press. With the new system being considered, the opinion could be transferred to interested people by a few minutes after 10:00.

"It's in the court's best interest to get the opinions out to

as many people as it can as fast as it can," public information officer Toni House said.

The electronic opinions would be available in raw form only—no keywords, no notes,

no automatic cross referencing, no indexing. You would, however, be able to download these files and manipulate the information.

House said the system



BLAIR

Harry Blair

won't compete with legal research databases like Lexis and Westlaw.

"We're looking at who needs the information when," she said. "We started down this road because of people interested in legal matters, and our principal objective has been to receive Supreme Court opinions in machine-readable form as fast as possible."

Those who would benefit from this service include lawyers, legal researchers, and the news media.

The instant opinion service is still only an idea. The committee has invited organizations to make proposals but hasn't decided whether the service would be feasible.

— Heidi E. H. Aycock  
continued on page 82 ▸



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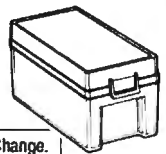
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## news & notes

### Giving Games the Female Touch

Geoffrey the Steel-Hearted Game Designer faces the gruesome Riddle Beast and asks, "What's the hardest riddle in the universe?" The Riddle Beast rears back his spiked head and bellows, "That's easy: How do we get women and girls to play computer games?"

And all the software companies nod their heads as the Riddle Beast again bests Geoffrey. For the most part, the entertainment-software market is a male world. But some companies are fighting that trend and trying to attract women and girls to their products.

Sierra, for instance, has released *King's Quest IV: The Perils of Rosella*, in which the lead role is female. The game was designed by Roberta Williams, who wrote the other in-

stallments in the King's Quest series. "It's a risky proposition," she said. "But I think it's high time we had a heroine. As one of the few women game designers in the business, I think it would have been riskier for us *not* to introduce a heroine."

Other games—such as *Sword of Sodan*, from Discovery Software, and *Axe of Rage*, from Epyx—let players choose the sex of the main character.

Changing the sex of the main character may not be enough, though. New plots with less violence and aggression may be necessary. Williams' latest project is *The Plantation Murders*—a 1920s murder mystery with another female lead character. Solving the mystery is more important than physically subduing an-



other character.

Doug Glen, of LucasFilm, feels that the company has successfully attracted women by approaching game design differently. "You've got to have a philosophy about the meta-game instead of trying to feminize aspects of a masculine game."

LucasFilm's market research shows that in the under-18 category, 15 percent of the audience are girls. In the over-18 category, 30 percent are women.

Attracting young girls may be the toughest part of the riddle. Because young girls traditionally don't use computers as much as young boys do, the software market isn't driven to win the group. And if young girls don't use the computer, they can't offer any input.

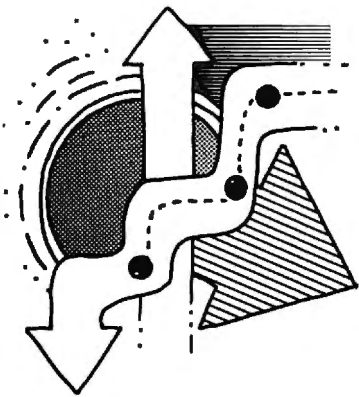
The Riddle Beast eats Geoffrey the Steel-Hearted Game Designer and says, "Next?"

— Heidi E. H. Aycock  
continued on page 82



# gameplay

ORSON SCOTT CARD



## Tetris Must Be a Commie Plot; the Game's Not Copy- Protected

Every now and then a game comes along that is so dangerously addictive that it sucks your brains out through your fingers.

Such a game is *Tetris* (Spectrum Holo-Byte). It was programmed by a Russian, and I warn you, this game will steal weeks from your life.

You'll sit down at your computer, intending to get some work done, and suddenly there will be these geometric shapes slipping down the screen. You'll rotate them until they fit—or fail to fit—into a slot in the pile of objects that have already fallen. When a shape completes a horizontal row, the row disappears. But if too many shapes don't fit, they pile up to the top of the screen and you're dead.

I have played until I see these dumb little concatenations of four tiny squares sliding down before my eyes as I'm trying to read, as I'm watching TV, as I'm driving.

*Tetris* proves that Russia still wants to bury us. I shudder to think of the blow to our economy as computer productivity drops to 0.

And it isn't even fun. It's the Computer Game from Hell. I've even erased it from my hard disk—but it keeps coming back.

If you don't believe my conspiracy theory about *Tetris*, try *this* for evidence: *Tetris* isn't copy-protected. That's right, a hot new computer game, and you can make as many copies as you want. Obviously the game is meant to find its way onto every American machine. If the Russians were sincere about Perestroika-style game marketing, they'd copy-protect this sucker eight ways from Tuesday, like true-blue, red-blooded American game designers do.

Take MicroProse's *Pirates!*, for instance. Admittedly, its title is like a red flag for game thieves—how delicious to give your friends *pirated* copies of *Pirates!*, right? But they go way overboard. Not for MicroProse the old-fashioned key disk. No, you have to *boot* from the game disk. You can't copy even part of the game onto your neat new 3-picosecond, 9-gigabyte hard disk from Mattel. It's the A: drive or nothing.

As if that weren't enough, the company *also* requires you to come up with passwords out of the manual. Now, I approve of passwords as the most humane copy-protection scheme. The people at Lucasfilm Games, for instance, have worked their passwords into *Maniac Mansion* and *Zak McKracken* so deftly that it feels like you're still playing. And if you hold their un-Xerox-able black-

on-dark maroon password list just right, you can sometimes read off the numbers without going blind. But passwords *and* boot disks? These folks from MicroProse are deeply paranoid about copy protection.

Ah—but with reason. *Pirates!* is so good that even people who drive 55 mph might consider stealing it. You're captain of your own ship in the Caribbean during the great era of piracy. Choose to be English, Dutch, French, or Spanish—your career as a swashbuckler will be thrilling.

It may also be short. This game feels easier than it actually is. Sure, you get right into your boat and start tooling around the Caribbean. Even the one-on-one sword fighting is so well programmed to fit the numeric keypad that it takes only a little practice before you're parrying and thrusting with the best of them. But after a while you realize that there are *nuances* to the game. When do you use your cannon, and when do you grapple and board? When should you divvy up the spoils? Should you propose to the governor's ugly daughter? How do you get out of a duel you think you might lose without earning infamy as a coward?

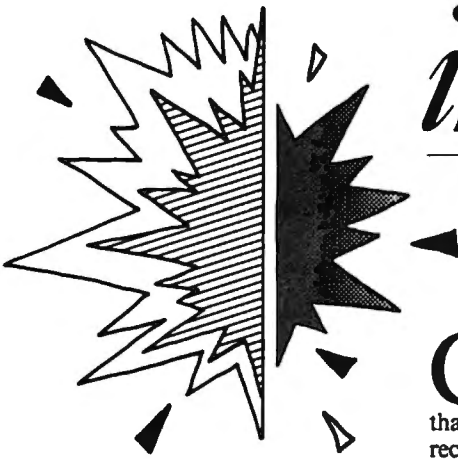
I'm afraid that I'm still a rank amateur, though. Even when I try to move up to the next level, the program senses my ineptness and demotes me. Only once have I managed to complete a good career and retire in honor and dignity.

Friends of mine have fared better, but no one has enjoyed it more than I have. This game feels like life—only more exciting and a lot faster. Splendid graphics in every phase of the game make it a pleasure to play, and it is so deftly designed that it never becomes tedious.

By contrast, *Annals of Rome* (PSS) looks like it was programmed in the Bronze Age. You can go blind squinting at a screen full of cryptic codes. Yet despite its appearance, I assure you that the game designers have done a splendid job of letting us re-live—and rewrite—the history of the world's greatest empire. The programmers have a real understanding of that epoch, and I enjoyed playing the game. If I had never seen the good graphics and humane interface of *Pirates!* or *Romance of the Three Kingdoms*, I'd be perfectly satisfied with *Annals*.

But I have. So I'm not. The people who created *Annals of Rome* deserve better sales than they're going to get. But then, we players deserve a better visual experience than they've given us. It's almost fair. □





# impact

DAVID D. THORNBURG

## From Telstar to Typefaces, Computers Bring the Information Age Home

Computers define the world of communication. Electronic transmission has moved so far since its inception that Morse, Bell, and Edison would hardly recognize the tools we now take for granted. We can't pick up a telephone without causing millions of dollars' worth of computer equipment to spring into action. Even facsimile, a very old communication technology, has been revitalized through the use of computer-based fax machines.

We've grown used to transmitting documents during off-peak early-morning hours and to bringing paper documents onto a computer display screen by means of high-resolution scanners. In fact, these communication tools have infiltrated our businesses so deeply that we would be lost without our high-tech toys.

Recently, while on a speaking engagement in Washington, I got a taste of how far communication technology reaches. On my way back to the airport, the phone rang in my host's car. She picked it up and said, "It's for you." Communication tools have become so pervasive that we never have to be out of touch—no matter where we are.

But even as computers are influencing older electronic media like telephones and facsimile machines, the medium that has felt the greatest impact is paper.

Visions of workers sitting at immaculate desks, conducting all their business communication electronically, occupy a prime place in the computing imagination. The communicative power of satellites, cellular radio, and high-speed phone lines were once considered so great as to one day replace cumbersome paper. Futurists plotted the rise in postage, showing that it would cost less to send a document instantly over a phone line than it would to send it slowly through the mail.

But even though those price predictions have come true (especially for local calls), the post office still staggers under a mound of paper that grows larger all the time.

The truth is, computers don't eliminate paper; instead, they extend its utility by enhancing its expressive power. The popularity of desktop publishing software and hardware proves how attractive that power is. Poster and greeting-card programs like Bröderbund's *The Print Shop* have probably felled more trees than last summer's wildfires in Yellowstone.

This romance with desktop publishing would never have bloomed if our computers and printers were restricted to only one

typeface. Fortunately, we have a cornucopia of tools that let us craft a page as a work of art. The ease with which the computer allows us to mix graphics with text, adjust type size and style, and even pick from a variety of typefaces has made many people more aware of the communicative power of the written word. Because of the computer, the rest of us are finding out what graphic artists have known for ages: The content of a message is embodied in its words *and* its graphics style.

Besides enhancing the look of printed documents, the computer has reduced the entry fee for publishing. Prior to the creation of inexpensive computer systems, which support low-cost laser printers, anyone who wanted to publish a brochure or a book had to enlist the expensive services of a typesetter. But now computer users can publish books or pamphlets themselves.

The number of small publishers is growing rapidly as authors who once moved through the publishing giants now take matters into their own hands. This move to personal publishing is resulting in a large number of books that would not otherwise have been published. Not all are masterpieces, by any means, but that's a small price to pay for the freedom that computer-based publishing has brought us.

The computer's enhancement of paper communication is but the forerunner of what's in store for our other modes of communication. Already there are children who have never seen a rotary-dial phone; the push-button world of computerized switching stations has eclipsed the world of finger dialing and hometown operators. Video-screen telephones, which are still a novelty, will one day be as prevalent as telephone booths. Pay-per-play movies, instant face-to-face international communications, instantaneous information retrieval—the information age will come home to us through inexpensive terminals that will make today's personal computer look like an abacus.

Our right to communicate freely is granted through the First Amendment to our Constitution. There is no guarantee, however, that the right of free communication will remain in our hands unless we vigorously exercise that right as often as possible. Our personal computers can play a key role by serving as the tool with which we learn new ways to express ourselves—no matter what the medium—to the fullest benefit of all. □



# Letters

## Mac Choices

Your January awards issue truly proved that *COMPUTE!* hasn't forgotten that most home computer owners have neither the want nor the need for superexpensive, feature-laden software.

However, as a Macintosh owner, I must disagree on two points. Although *MacWrite* is an inexpensive, useful program, *WriteNow 2.0* outshines it in almost every respect. It has a much more friendly user interface and incorporates other important features that *MacWrite* doesn't, including impressive speed and autonumbering footnotes. I'm sure you'll agree that these features are important to a student or even an occasional computer user. I might also add that although *WriteNow* costs more than *MacWrite*, it can be ordered from discount software vendors at a very reasonable price.

Second, I'd like to point out that the Amiga indeed does have a peer, when it comes to graphics, in the Macintosh II. Several Macintosh paint and draw programs are capable of displaying many more than 4096 colors. Case in point: *Studio/8* from Electronic Arts is capable of painting with all 16.8 million colors that the Macintosh II can display.

Russell Arcuri  
Utica, NY

## What Price, Computing?

I am the owner of an 8-bit computer and have been looking into upgrading to an MS-DOS machine. After experiencing the sticker shock connected with pricing different units, I read Gregg Keizer's February 1989 editorial with great interest.

I agree completely that pricing has gotten out of hand for entry-level machines. If I had not gotten a machine and had not gotten comfortable with programming it, I would have been afraid to think of putting down that much money on a machine. What if I can't program it? What if it doesn't do what I'd like it to do? What if I'm totally computer illiterate and end up with a \$1,200 paperweight?

Mr. Keizer's idea of a low-cost

entry-level unit is right on target. However, there are entry-level machines for under \$500: the 8-bits. Atari and Commodore still make their great 8-bit machines, and just this month I saw a magazine ad for an Atari 130XE with dual-density drive and printer for \$429.95. What better way to introduce the novice to this wonderful world and not bankrupt him in the process? If more people talked up the 8-bits and started to support them again, there would be more first-time buyers, and that would help make the home computer industry healthier.

For the record, I use an Atari 130XE with twin 1050 drives and an XMM801 printer. I use my machine for word processing, spreadsheets, inventory, home finances, charts, and games (of course); and my wife has her company's advertising and training manuals on it. As I look at the MS-DOS machines, I keep asking: "Do I really need a new machine or am I just going for the glitter?"

David M. Schoch  
Scotia, NY

## Time Travel

Who goofed? I just received my February 1989 issue of *COMPUTE!* and settled back behind my desk to read through it—and was I surprised!

Are you way ahead of yourself for next Christmas or behind yourself from the Christmas past?

Kenneth C. Sickels  
Phillipsburg, NJ

*Mr. Sickels refers to "Editorial License," in which we say "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."*

*Because of the lead times inherent in magazine publishing, we're often forced to practice a crude form of time travel—we write of the future knowing that it will be the past by the time you read it. Make sense?*

*If not, just remember. That's why we call the column "Editorial License."*


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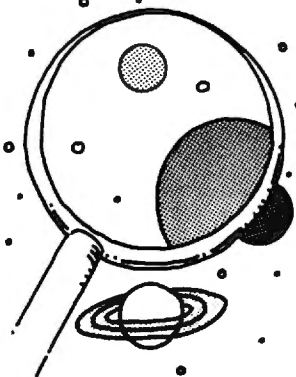
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# discoveries

DAVID STANTON



## BBSing on the Cheap—the Phoneless Electronic Bulletin Board

There's no denying it. I'm an addict. Just ask the local sysops (system operators)—they'll tell you. Or call and check their users' logs. No other name appears more often.

Not that my timing is especially regular. BBS (bulletin board system) fever strikes unpredictably at any hour. Just sitting down at the keyboard gives me the urge. Thinking about writing a new column prompts it. The tolling of the clock triggers it (cheaper rates after 11:00 p.m.). Saturday morning's sunrise evokes an especially strong craving (low weekend charges, you know).

Nor is it an irresistible desire to chat that lures me past business applications, around paint programs, and under and over enticing sound-manipulation software to stop directly at my favorite terminal emulator. Like most addictions, this one can't stand up to the merciless scrutiny of logic.

Maybe an overwhelming desire to be the first to know drives this compulsion. Maybe it feeds on an irrational fear of falling behind in a field with which no one person can keep pace. Possibly it's one man's version of "shop till you drop," an insane need to stock tomorrow's computer lawn sales with today's great software deals.

Whatever the explanation, that addiction explains why this column is not about recent studies on the effectiveness of computer-assisted instruction (CAI) in the nation's schools. That one was progressing nicely one Sunday afternoon when my mischievous mouse plotted an escape and scampered off for my telecommunications software. Cajoling did no good. Only a diversion would mollify the plastic rodent. My modem's red lights began their captivating dance.

Three hours and \$12 later, I was the proud owner of a fully functional copy of Warp 6 (Apple II), a freeware electronic bulletin board system. With it or similar software for other operating systems, an enterprising person can start a BBS.

Right then, though, I had a column to finish. Unfortunately, by the time I returned to contemplate the pros and cons of CAI, the Muse had gone. Only a nagging suspicion that my new software might somehow prove useful remained.

Introducing students to the pleasure of telecomputing is difficult. School administrators often veto even limited access to commercial services (something about budgets). In rural areas, access to small, free boards is limited. What to do?

Like many similar programs, Warp 6 can operate in a purely local mode. Set up this way, it requires no phone line and no modem. Instead, Control-L from the host triggers an answer exactly as if the signal has come from a remote terminal. Thus, a perfect BBS simulation can be effectively run from one computer acting as both host and remote. To anyone but a frugal educator, this might seem pointless. It does, however, suggest fascinating possibilities.

Suppose the computer club or an English class or the school newspaper staff decided to set up an entirely local BBS. Would-be sysops could practice until they got it perfect. Students could write welcome messages, validate new users, maintain text files, and perform all the other required tasks. Where else could so many gain the sysop experience so easily?

"But who wants to run a BBS that no one calls?" you might ask.

A well-maintained board will generate action. Just use a little imagination. Design your BBS to serve its constituency and success is guaranteed.

Why not set up a few forums where kids can express opinions on sports or politics or school rules? How about one where students, teachers, and administrators exchange views? Maybe one section could list classroom assignments (no more "Did we do anything in class a week ago last Tuesday? I was absent" questions). And the E-mail section will be a surefire hit: Consider the long-time classroom tradition of exchanging notes! Whether "callers" work with educational games, write private or public messages, or simply read the work of others, they'll learn and enjoy every minute.

Home users, too, can benefit from this concept. Youngsters interested in establishing their own BBS can practice and prepare by running a local, family system. Members can post messages, write happy-grams to brighten each other's day, and maintain shopping lists and print them out when needed.

Who knows where your school or home BBS simulation might lead? Maybe some will decide to take their act on the wire. Others may discover that playing sysop involves too much hard work. Whatever the outcome, everyone is sure to benefit from the experience. Try it—I promise you won't be disappointed! □

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



# new products!

## A Titanic Adventure

The world's most famous shipwreck comes to the computer screen with IntraCorp's Capstone adventure simulation, *Search for the Titanic*. Reviewed for accuracy by the staff of the Woods Hole Oceanographic Institution, the organization that first discovered and photographed the *Titanic* site, the program contains digitized pictures from actual photos of the sunken ocean liner.

Begin as an inexperienced oceanographer searching for the wreck of the *Titanic*; then build a reputation as an explorer by finding and exploring other lost vessels and earning the resources necessary for funding your search. Each expedition requires money, a ship, personnel, and the correct equipment. You must chart your own course and battle the elements as you explore more than 75 shipwrecks.

*Search for the Titanic* features over 100 navigational maps and charts, 47 ports of call, realistic weather patterns, underwater cameras, and minisubs. It's available for the IBM PC and compatibles, Apple II, Atari ST, and Amiga for the suggested retail price of \$39.95. The Commodore 64/128 version sells for \$34.95.

IntraCorp, 14160 SW 139th Ct.,  
Miami FL 33186  
Circle Reader Service Number 200.

## The Force Is with Broderbund

Broderbund has based its latest release, *Star Wars*, on the Lucasfilm movie and the coin-operated videogame.

Take the role of Luke Skywalker as you maneuver an X-wing fighter through attack waves in an attempt to destroy the Empire's Death Star. The 3-D view from the cockpit provides images similar to ones seen in the movie. You can even hear the *Star Wars* theme by pressing a spot on the software box.

The versions for the IBM PC and compatibles, Amiga, and Atari ST have a suggested retail price of \$39.95. The Commodore 64/128 release is priced at \$29.95.

Broderbund, 17 Paul Dr., San Rafael, CA 94903-2101  
Circle Reader Service Number 201.

## Now You See It . . . Now You Don't

Gain more desktop space with the Curtis Keyboard SpaceSaver from Curtis Manufacturing. The keyboard can be installed underneath your CPU housing or your desktop. Just slide the keyboard out when you're ready to use your computer.

When installed on a desktop, the SpaceSaver holds a CPU and monitor. For installation beneath the desktop, the package includes mounting screws. The product can also protect your keyboard from spills, dust, and debris.



The SpaceSaver can mount a keyboard beneath the CPU or under a desktop.

The SpaceSaver has a suggested retail price of \$39.95.

Curtis Manufacturing, 30 Fitzgerald Dr., Jaffrey, NH 03452  
Circle Reader Service Number 202.

## Tangled Up with Origin

Origin has released a fantasy role-playing adventure, *Tangled Tales: The Misadventures of a Wizard's Apprentice* for the Apple II and Commodore 64/128.

You assume the role of a wizard's apprentice and receive three progressively difficult tasks to perform as proof of your worthiness. The game features a world of haunted houses, medieval fortresses, and contemporary country

farms. As the game progresses, you meet more than 50 odd characters.

*Tangled Tales* uses a menu and icon interface and is designed to have a lighter theme than others in this genre.

The game sells for \$29.95. Origin products are distributed by Brøderbund.

Origin, 136 Harvey Rd., Bldg. B,  
 Londonderry, NH 03053  
Circle Reader Service Number 203.

## Mac Sports

Accolade has ported two of its most popular sports games to the Macintosh. Now Mac users can tee it up with *Mean 18 Ultimate Golf* and throw the long bomb in *4th & Inches*.

In *Mean 18*, one to four players can challenge Augusta National, Pebble Beach, St. Andrews, or the custom-made Bush Hill Country Club golf courses. Each of the courses can be redesigned by using the built-in course architect.

Players first choose to compete in stroke, best-ball, or match play and then select a skill level. They can also choose whether to tee off from the regular or pro tees.

*Mean 18* is available for the Macintosh SE, II, Plus, and 512KE and requires 512K of memory. The suggested retail price is \$44.95. The game has been released previously for the Apple IIGs, IBM PC and compatibles, and Amiga for \$44.95.

With *4th & Inches*, you run a full 11-player offense against a full 11-player defense. Assume the role of coach by calling the plays and directing their execution on the field and by selecting a formation, a play, and a player to control. You can also call timeouts and make substitutions. The players on each team are rated according to height, weight, and years played; an assessment of the speed and strength of each player is also given.

The game has a suggested retail price of \$44.95 and is available for the Macintosh SE, Plus, and 512KE. At least 512K of memory is required. The game is also available for the IBM PC and compatibles for \$39.95, Commo-

**Mickey McLean**



dore 64/128 for \$29.95, and Apple IIGs and Amiga for \$44.95.

*Accolade, 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128*  
Circle Reader Service Number 204.

## Epyx's Newest Jewel

Assume the role of the savvy Devon Aire, a reformed cat burglar, in Epyx's *Devon Aire* in "The Hidden Diamond Caper." Devon has been hired by the wealthy widow Crutchfield to find her priceless jewel collection. Her late husband trusted no one and stashed the jewels somewhere in the mazelike Crutchfield manor.

To find clues, you must search more than 30 rooms, secret passages, and hidden doors that conceal the Crutchfield mansion's mysteries. In addition to revealing the mansion's secrets, you must also avoid mutant pigmice and killer canaries—the results of Old Man Crutchfield's genetic experiments.

You have three chances to find all the jewels and return them to Lady Crutchfield, but, even then, you still must find a way out of the mansion.

Versions for the Amiga and Atari ST have a suggested retail price of \$49.95. Commodore 64/128 and Apple II editions sell for \$29.95, while the IBM PC and compatibles version is priced at \$39.95.

*Epyx, 600 Galveston Dr., P.O. Box 8020, Redwood City, CA 94063*  
Circle Reader Service Number 205.

## Jungle Warfare

Taito's *Operation Wolf* is set in a steamy jungle where heavily armed terrorists hold innocent civilians hostage. You must instigate a commando-style mission to free the hostages by overtaking the captors in a weapons facility, routing them from a jungle hideout, and finally leading the hostages aboard a rescue plane.

In the game's six missions, you must overcome enemy gunboats, helicopters, armored vehicles, and enemy soldiers. Sound effects include the sound of rotor blades and staccato bursts of gunfire.

*Operation Wolf*, designed for the Commodore 64/128, sells for \$34.95. Versions for the Amiga, Atari ST, and IBM PC and compatibles will be released shortly.

*Taito Software, 267 W. Esplanade,*

*Suite 206, N. Vancouver, B.C., Canada V7M 1A5*

Circle Reader Service Number 206.

## Courting Magic

Earvin "Magic" Johnson will endorse Virgin Mastertronic's planned basketball game, to be released under the Melbourne House label.

*Magic Johnson's Basketball* will be a translation of Arcadia's arcade game *Magic Johnson's Fast Break*. Johnson contributed not only his name to the product, but also commentary on style and technique.

According to Mastertronic, the game features seven rounds of two-on-two play and a final round where players face the magic man himself. Players can execute set plays, including the pick and roll and alley-oop. They can also slam dunk and lead the fast break.

Initially, the game will be released for the Amiga and IBM PC and compatibles, with Apple II and Commodore 64/128 versions to follow later this year.

*Virgin Mastertronic, 711 W. 17th St., Suite G9, Costa Mesa, CA 92627*  
Circle Reader Service Number 207.

## Street Gangs and Cycles

In Data East's action-oriented street-fighting game, *Bad Dudes*, you assume the role of a modern-day hero sent to rescue the President of the United States from deadly kidnappers. Blade and Striker, two street fighters who are out to preserve good and justice, must fight their way through waves of ninjas, dogs, and other enemies, using knives, shurikens, nunchakus, and their fists.

*Bad Dudes* is available for the IBM PC and compatibles and the Atari ST for \$39.95. The Amiga version sells for \$44.95, and the Commodore 64/128 game costs \$34.95.

Data East has also released its first Macintosh game, *Super Hang On*. It's a global motorcycle race based on the Sega arcade game.

You can ride your motorbike as fast as 160 miles per hour while challenging the unique terrain of each continent. Points are awarded for distance driven, speed, and course completion. You can pick up bonus points for making a perfect run and can even design your own race courses.

This one-player game can be controlled by keyboard or mouse and re-



*Super Hang On* is Data East's first entry in the Macintosh market.

quires 512K of memory. *Super Hang On* retails for \$39.95.

*Data East, 470 Needles Dr., San Jose, CA 95112*

Circle Reader Service Number 208.

## Write Some Macros

Users of *PC-Write* can make use of 100 advanced and alternate commands with a product from Simple Productions called *PC-Write Macros*. The commands can be assigned to specific keys and used as macros.

*PC-Write Macros* enables you to reverse the video display, print an address from a letter onto an envelope, instantly set up margins and spacing, and edit with a single keystroke.

The package requires version 3.0 of *PC-Write* or later. With a printed manual, it sells for \$25; the disk alone costs \$15.

*Simple Productions, 12 E. 15th St., Suite 3, Arcata, CA 95521*

Circle Reader Service Number 209.

## On the House

For homebuilders, designers, and others who want a source of current house plans, Computer Plan Source has introduced *Plan Finder*. The program provides the user with a database of floor plans that can be displayed onscreen and also assists in searching for appropriate house designs.

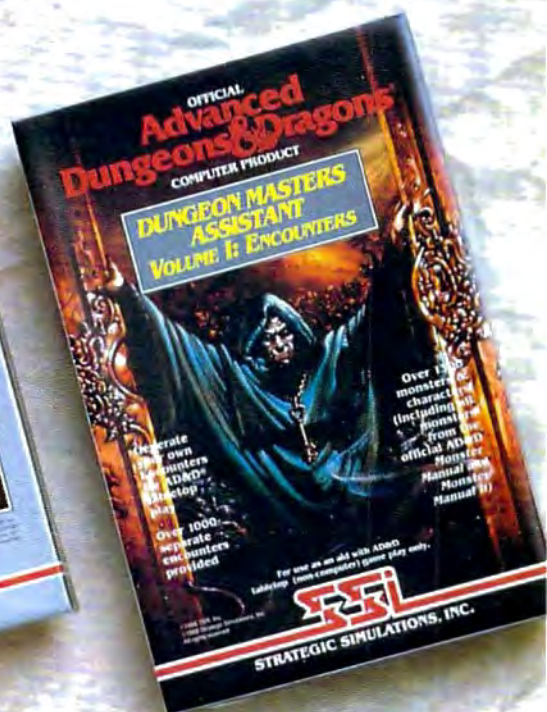
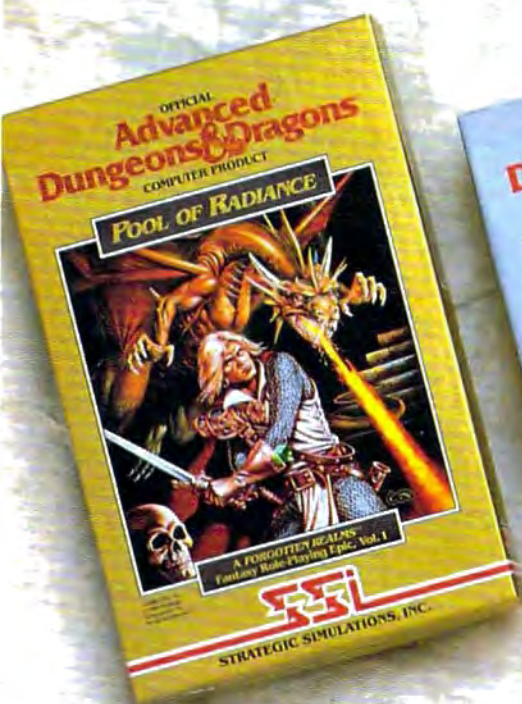
It supports Hercules, VGA, CGA, and EGA graphics adapters and can print the plans on any Epson-compatible printer or HPGL-compatible plotter. All plans are less than a year old and are professionally rendered. For the IBM PC and compatibles, the program lists for \$285.

*Computer Plan Source, 9603 Flintridge Cir., Dept. PF, Austin, TX 78737*  
Circle Reader Service Number 210. □



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ATARI ST**



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monsters and encounters to the database.

**IBM  
APPLE  
C-64/128**



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Robert Pizzo

Get in touch with the wide, wide world with your computer by your side.

# The World Through a Wire

Neil Randall

If there is one persistent vision of the electronic world, it's one of a shrinking globe embossed with the snaking connections of computers.

To some extent, the vision has been realized. Call for concert tickets and your request is entered into a local, or sometimes a nationwide, computer system. Go to a travel agent and your air ticket is reserved according to the dictates of a vast computer network. You can even register for college using computers.



Somehow, though, the dream seems truest at the professional level; only a small percentage of home users join in. But all the home user needs is a computer, a modem, telecommunications software, and a phone line; a wide variety of long-range computer hookups are readily available.

Even so, telecommunicating remains one of the underutilized areas in home computing. There are several reasons, not the least of which is that telecommunicating takes time, a rather scarce commodity for many people. Second, the whole process can be expensive, especially for those who use the professional services. Third, a modem and software, though less expensive now, are still a sizable investment. Most of all, however, telecommunications can be the most intimidating part of computing.

Even the term *telecommunications* is intimidating. It conjures up visions of a global computer link in which technologically adept people work together on some mysterious, ultramodern project. Once past these visions, the intimidation is perpetuated by the jargon: *modem*, *log-on*, *baud rate*, *protocol*, *buffer*, *chat mode*, *scripting*, *configuration*. Few of these terms are household words. There's even something called *Kermit*, which until recently was only the name of a very low-tech frog.

To make matters worse, the manuals for telecommunications software have traditionally been about as fun to read as those for Pascal compilers. Terminal settings, file-transfer methods, and duplex choices are but the beginning of the software learning curve. More than most applications, telecommunications software has demanded that you know what you're doing before you start.

All that is needed, though, is a bit of courage and a reasonable investment of time. *Courage* because that first log-on is still a mystical experience. *Time* because one of telecommunications' guarantees is that things generally don't work the first time. Once you're up and running, however, the process soon becomes second nature. Well, close enough.



## Picking Your Information Service

Before you're up and running, though, you'll need to choose an information service. Several are available, and all have strengths. Before choosing, however, ask yourself these important questions:

**Does the service have local telephone access?** Each of the services has a user's fee of some sort. Over and above that fee, though, is the cost of a long-distance telephone call. In some cases, a toll-free number connects you to the service; in others, a local call does the trick. If you live in an outlying area, however, or in an area

where the toll-free number doesn't apply, you must consider phone access. Heavy users of telecommunications services can run up extremely high phone bills very quickly.

**What are my primary interests?** Most of the services have a specific focus. The Source, for example, concentrates on business information, while QuantumLink (and PC-Link and AppleLink) are aimed at the casual telecommunicator. GENie, CompuServe, and Delphi are all general-purpose services. You'll find descriptions here that will help you decide which service is best for you. You should be aware, though, that you probably won't use all the features any service offers.

**Do I have free connection time available?** This is critical, because you will

### First, You Need a Modem

Actually, first you need a computer. But all computers have connections for modems, even if some—such as the Macintosh, the Commodore 64/128, and the Amiga 1000—need special adapter cables. Macintosh-specific and Amiga 1000-specific modems are available, but you'll have more options if you buy an adapter cable and then decide on the modem. Many Macintosh dealers, for instance, reported that Apple's Macintosh-specific modems are priced too high.

There are two kinds of modems available: acoustic or direct-connect. Acoustic modems tend to be less expensive, and they work with pay phones or other phones that do not connect with the standard wall jack. Direct-connect modems, however, have a wider variety of features and are generally more reliable than acoustic modems.

Consider transmission rate when buying a modem. A 300-bits-per-second (bps) modem is quite slow (it will transmit about 30 words per second, for instance), and unless you buy one that's very inexpensive, it's rarely worth the slow speed. A 1200-bps modem is still standard for home use, but 2400-bps modems are rapidly catching on. If you can afford a 2400-bps modem—which can also communicate at 300 or 1200 bps—buy it; if not, aim for 1200 baud.

**Anchor 2400E or 1200E:** 2400 and 1200 bps, respectively; Hayes-compatible; \$249.00 and \$139.00; Anchor Automation, 20675 Bahama St., Chatsworth, CA 91311

**Aprotek Minimodem-H:** 300 or 1200 bps; includes communications software; \$89.95 (Minimodem-C is a C64/128-specific product); Aprotek, 1071-A Avenida Acaso, Camarillo, CA 93010

**Avatex 2400 or 1200HC:** 2400 and 1200 bps, respectively; Hayes-compatible; \$269.00 and \$149.00; Avatex, 1230 Oakmead Pkwy., Suite 310, Sunnyvale, CA 94086

**Delta Gold Voyager:** 300 or 1200 bps; AC/DC power; includes ProComm software; \$99.00; Delta Computer, 260 Forbes Blvd., Mansfield, MA 02048

**1670 Modem:** 300 or 1200 bps; connects directly to a Commodore 64 or 128; \$149.95 (\$79.95 with Q-Link subscription); Commodore Business Machines, 1200 Wilson Dr., West Chester, PA 19380

**SmartLink 2400 or 1200:** 2400 and 1200 bps, respectively; \$199.00 and \$99.00; Join Data Technology, 14145 Proctor Ave., City of Industry, CA 91746

**Smartmodem 300, 1200, 2400:** 300, 300/1200, and 300/1200/2400 bps, respectively; \$199.00, \$399.00, \$499.00, respectively; Hayes Microcomputer Products, P.O. Box 105203, Atlanta, GA 30348

**Supra Modem 2400:** 2400 bps; Model 2400CM is Commodore 64/128 specific; \$219.95; Supra, 1133 Commercial Way, Albany, OR 97321



probably spend your first few hours wandering around the service. Most telecommunications software packages—and some integrated packages—include a coupon for free time on one or more telecommunications services. A magazine ad for the service might offer free hours as well. Keep in mind, too, that you'll have to join the service to use all of its features, even though you might be able to browse without joining.

**Do I know anybody who already uses a service?** If a friend or colleague is already registered on one of the services, ask for a demonstration (but do *not* ask for a password—that's a telecommunications no-no). Offer to pay for the online time and—if necessary—the phone call. Once you see how the service works, ask if you can take an hour to run through some things by yourself, again with an offer to pay for the time. At the end of the hour, you will know whether the service is for you.

**How much does the service charge?** Information services charge in one of two ways. The first is a flat monthly fee, such as that charged by QuantumLink and PC-Link. More common is an hourly rate, with substantial savings in nonbusiness hours. All services have additional charges for special services, which include online shopping, encyclopedias, and stock information. (Actual charges are listed in each service's section below.) If you plan to use the service for long periods of time, a flat fee will be cheaper than an hourly rate, but if you plan to drop in for short stretches, choose a service that charges by the hour. No matter which price structure, however, watch for minimum monthly charges.



## What You Get

Different telecommunications services

## Then, You Need Some Software

Telecommunications software is readily available for all popular computers. The list below highlights an outstanding package (or two, in some cases) for each of the six personal computers *COMPUTE!* covers.

Remember that you can always find some excellent telecommunications software in the public domain. Ask your local user group for suggestions for your machine.

### Amiga

*Digal* (Aegis Development, 2210 Wilshire Blvd., Suite 277, Santa Monica, CA; \$49.95)

### Apple II

*AppleLink—Personal Edition* (Apple-authorized dealer; \$35.00)

### Atari ST

*Flash* (Antic Publishing, 544 Second St., San Francisco, CA 94107; \$39.95)

### Commodore 64/128

*Q-Link* (QuantumLink, 8620 Westwood Center Dr., Vienna, VA 22180; 800-392-8200; \$9.95)

*BobsTerm Pro* (Progressive Peripherals and Software, 464 Kalamath St., Denver, CO 80204; \$49.95/\$59.95 for 64/128)

### Macintosh

*Red Ryder* (The FreeSoft Company, 10828 Lacklink, St. Louis, MO 63114; \$80.00)

### MS-DOS

*PC-Link* (Radio Shack, 1700 One Tandy Center, Fort Worth, TX 76102; \$29.95)

*ProComm Plus* (Datastorm, P.O. Box 1471, Columbia, MO 65205; \$89.95)

have a lot in common. All five of those surveyed here, for example, offer news and information areas (though some are more extensive than others). All five let you communicate with other users, and they all offer public domain and shareware software for downloading.

But each service has its own focus. If you're looking for extensive business news, for instance, you shouldn't sign up with Quantum. On the other hand, if you're looking for features designed specifically for Commodore computers, you should give Quantum a try.



## Get Specific

Perhaps the most useful part of a telecommunications service, machine-specific forums are often the best place to settle once you're comfortable with a service. Here you can communicate with people who use the same com-

puter you do. You can get expert advice from experienced users, find out what's hot and what's not, and commiserate when hardware doesn't live up to expectations or software goes south.

Best of all, though, you can find public domain and shareware software to download to your own computer. The selection is staggering in quantity if not entirely in quality.

CompuServe has the strongest forums because it has the largest membership and is the most popular service. Every major personal-computer format (and some not so major) is well supported by CompuServe. For Commodore information, Quantum's Q-Link is the best bet since it's aimed solely at Commodore users. Although they are relatively new, Quantum's PC-Link and Apple-Link will likely develop into fine sources of software. GENie's machine-specific forums are almost as strong as CompuServe's; its Apple II and Macintosh areas are particularly active. The Source and Delphi are weakest in machine-specific forums, although The Source seems to be shoring up its offerings lately.





## News and Business

Generally speaking, every telecommunications service offers a lot of news. CompuServe's News-Weather-Sports area includes the Associated Press Sports Wire, the Associated Press Videotex Wire, the Business Wire, the Executive News Service, the Hollywood Hotline, and the St. Louis Post-Dispatch, among others. Q-Link's News & Information has the latest news, weather, and sports information, but compared with the broader telecommunications services such as CompuServe and The Source, it's limited. GEnie's current-events area includes NewsGrid Headline News, USA Today DecisionLines, press releases, personal computer news, news on FCC proposals, and Fight Back with David Horowitz, based on the TV consumer show. The Source provides news from several press wires, including UPI, AP, and the Washington Post Capital Edition. You can also find Accu-Weather forecasts.

If you're interested in financial information, you won't have to go far—every service offers several kinds of economic news. CompuServe lets you browse through services such as Commodity Market News and Analysis, Earnings & Growth Estimates, and Stock Prices & Volumes Since 1973. You can also find brokerage and banking services on CompuServe, like Quick & Reilly and United American Bank. In Delphi's Business and Finance area, you'll find resources like AP Business News—for general information, government economic figures, the Dow Jones average, and so on—and Japan's Kyodo News—for economic news from Asia and Japan. Delphi also offers stock quotes, a 24-hour investment advisor, and a loan- or mortgage-calculation program. In Quantum's general news area, you can access stock information and an invest-

tor's debate board. GEnie's financial area has the Dow Jones News/Retrieval Service, the GEnie Quotes Securities Database, a 24-hour investment advisor, and a loan calculator.

But The Source is where you can find a complete menu of business resources. Options include the Business Update, Investment Data and Analysis, Financial Market Reports, Employment Services, a Business Bulletin Board, and a Tax Reform Information service. Quotes from the New York and American stock exchanges are available, as are information on mutual funds and market indexes, a good portfolio-management system that checks current stock prices automatically, a full mutual-fund analysis service, and an online trading service through Spear Securities.



## Shopping and Other Stuff

Each of these services offers an electronic shopping service of some sort (see "Shop Around," in this issue, for more on computerized shopping). You can buy computer equipment, magazine subscriptions, and many other products at special shops and department stores. CompuServe features an extensive mall with special discounts for members. GEnie's mall includes compact-disc stores, coffee shops, and software discounters. It's easy to find the shopping areas on each service.

Most of the services have forums for specific interests, ranging from computers to comic books. Besides the typical computer forums, though, CompuServe offers forums on religion, human sexuality, fish, music, and learning disabilities. You'll have to go exploring to see what else is available—the list is endless. GEnie has, in

its long list of forums, a writer's round table, a discussion of the law, a medical group, and a home office/small business area.

For pure fun, telecommunications services offer a wide variety of games, both solitaire and multiple-player, to keep you occupied. You can battle—or join forces with—someone you've never met. CompuServe's repertoire includes Castle Quest, Island of Kesmai, BlackDragon, several trivia quizzes, and some parlor games. Multiple-player games include Air Traffic Controller and MegaWars. In Quantum's Just for Fun area, users participate in games and contests, join special-interest groups, or just chat. From Delphi's Entertainment and Games menu, you can access a wide range of games, including Colossal Cave, Dungeon, Quest, and the French version of Adventure (Aventure). Astrological predictions are available, as are board and logic games. A games group offers a shopping service, hints on 18 adventure games, the Infocom newsletter, and software ready for downloading. Like CompuServe, GEnie offers BlackDragon and Castle Quest. You can also play Hunt the Wumpus or participate in a football pool. GEnie's multiple-player games include Stellar Warrior, Chess, Orb Wars, and PhraseMania!

If you think of yourself as a world traveler, you'll be happy to find features that let you arrange vacations and make flight reservations; they also offer advice for your trip. CompuServe's travel services include the ABC Worldwide Hotel Guide, the American Express Travel Services, the Official Airline Guide, the National Tourism Citilog, and travel-advice areas. Information is even available on aviation weather, forecasts, and aviation safety. Like almost all services, Quantum lets you reserve space on American Airlines flights through EAAsy Sabre Travel Service. Delphi gives you Travel+Plus, travel news and bulletins, the Official Airline Guide, and a city- and country-travel search service. You can make reservations, order theater tickets, and plan





several details of your vacation or trip. Delphi even offers travel prizes in its TQ Travel Trivia Contest. One of GENIE's more impressive services is its Adventure Atlas, which provides information about a specific style of trip you're interested in (a cruise down the Nile River, golfing in Mexico, or almost anything else). Other travel features include a ski-resort database, a traveler's information round table, and American Airlines' EAAasy Sabre.

Many of the services offer a reference area to help you find answers to those puzzling questions of life. CompuServe's IQuest provides brief, general information on many subjects, but you'll also find the Academic American Encyclopedia, MicroSearch, and SuperSite Demographic Information. Quantum also offers the Academic American Encyclopedia in its Learning Center, while GENIE offers an online version of Grolier's Encyclopedia.



## Electronic Mail

Last, but not least, most services offer electronic mail features that let you keep in touch with users across town or across the country. Delphi's electronic mail and conferencing capabilities are particularly good examples of telecommunications correspondence. Two different online text editors offer near-word processor-quality features, while its E-mail offers multiple messaging and extensive searching. GE Mail, on the other hand, gives you a fairly simple electronic-mail service, and its LiveWire CB area simulates a CB environment and allows for real-time conferences and several chat modes.

Most of these features are common to each telecommunications service. The trick is finding the service that's best suited to you. Here are the things that make each service special:



## Short Stats

**CompuServe**  
P.O. Box 20212, Columbus,  
OH 43220; (800) 848-8199, or  
(800) 614-457-0802 in Ohio  
Supporting magazine: *Online Today*

CompuServe is perhaps the best known of all the communications ser-

vices, and its subscriber base boasts nearly 500,000 users. CompuServe offers local access in virtually all major U.S. and Canadian cities, and expansion into Japan is on the horizon.

As a result of its rapid growth, the service has been able to drop its prime-time rates, with all subscribers now charged \$6.00 per hour at 300 bits per second (bps) or \$12.50 per hour at 1200 or 2400 bps. Additional fees are levied for several specific services, with business-oriented charges often in the range of \$15.00-\$25.00 per hour.

Just reading through Compu-

## Next, You Learn the Jargon

Like all areas of computing, telecommunications has its own technical terminology. Often it's not the online services that demand you know the arcane words, but rather, the telecommunications software you buy. Here's the most common jargon:

**ASCII.** The standard code used for all computer communication. ASCII files can be read by practically all software, which is why there are ASCII terminal emulations (otherwise known as TTY) and ASCII text files.

**autodial.** A modem feature that lets the computer dial a phone number automatically. An excellent timesaver when you're dialing over and over again to get through to the ticket agency.

**baud rate.** The rate at which data is transferred over telephone lines. Although *baud rate* is often used interchangeably with *bits per second*, the latter is more accurate.

**buffer.** Computer memory set aside to hold information captured from an online service.

**download.** To transfer data from another computer to yours. The opposite is *upload*, where you send data from your computer to another computer.

**electronic mail, or E-mail.** A service that lets you send messages to other users on the same online system or to users on other online systems.

**Hayes compatibility.** Modems that use the commands originated by Hayes Microcomputer Products are called *Hayes-compatible*. Hayes compatibility is not required for accessing most services, but it is a standard.

**ID, or user ID, or user name.** The number you receive when you sign on to a service. One of the intimidating factors of telecommunications, it makes many people think of Big Brother. You must know your ID and your password (which you create yourself) to sign on.

**log on.** Who invented this one? You *log on* to a system when you dial the number and enter your ID and password. You *log off* before you hang up.

**modem.** An acronym from the words *modulate/demodulate*. A modem is a device that translates computer signals into tone signals (and vice versa) that the phone lines can comprehend.

**parity.** In the NFL, parity is the guarantee that all teams will be equally boring. In telecommunications, it's a setting for the error-checking bit during transmission of data. There are several possible parity settings, and your software will let you change them as needed.

**protocol.** The agreed-upon settings for the transfer of information. XMODEM is the most common protocol, but many others exist. Among them are Y-MODEM, Z-MODEM, CompuServe-B, Kermit, and ASCII. The two computers must agree on parity and protocol if they are to exchange information properly.

**terminal.** A device that can send information to and receive information from a computer. That's all a terminal can do. You have to use special software to make your computer act like a terminal.



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Serve's information packet gives you an idea of the features available. In fact, reading the packet is practically a prerequisite to logging on because CompuServe is so large. Its size can force you to rack up a lot of connect-time charges as you figure out where you want to go and what you want to do. If variety and broad scope is what you're looking for, CompuServe is the best service to tackle.



### Short Stats

**Delphi**  
3 Blackstone St., Cambridge,  
MA 02139; (800) 544-4005, or  
(617) 491-3393 in  
Massachusetts

Delphi began in 1982 as the first online encyclopedia service. Since then, it has expanded to include the general features found on such services as CompuServe and GEnie. It's another good alternative for people who want a general service like CompuServe.

Accessible through direct lines, Telenet, Tymnet, or DataPac (in Canada), Delphi charges \$7.20 per nonprime hour and \$17.40 per prime hour. Unlike most services, modem speed does not affect the connect charge: Users with 2400-bps modems pay the same as those with 300-bps devices. Access through Telenet or Tymnet, of course, incurs additional charges. A few special services cost extra, as well. Frequent users, however, can opt for a Delphi Advantage membership, which carries a minimum monthly charge but a lower hourly fee.

Two special features help to distinguish Delphi. First, a Magazines and Books menu takes you to one of four magazines: *Analog Computing* (Atari), *Directions* (TI), *PCM Magazine*, or *Rainbow*. You can subscribe to each online, or you can read news and communicate with editorial staff. Second, Delphi offers a translation service. You can send electronic mail to the service; have it translated into Spanish, Italian, Portuguese, French,

German, or other languages; and then have it forwarded to your destination by electronic mail or telex.



### Short Stats

**Q-Link, AppleLink, PC-Link**  
QuantumLink, 8620 West-  
wood Center Dr., Vienna, VA  
22180; (800) 392-8200, or  
(703) 883-0788 in Canada  
Supporting magazines: *QLink*  
*Update* (Q-Link), *AppleLink*  
*Update* (AppleLink), and *PC-*  
*Link Update* (PC-Link)

Originally a popular Commodore 64/128-specific service, QuantumLink has expanded to include Apple and MS-DOS users. Actually, Q-Link, AppleLink, and PC-Link are three separate services, each available only to owners of the specified machine. Because of this exclusivity, Quantum's services are able to provide machine-specific graphics and keyboard control.

What this means is that the Quantum services are probably the least intimidating option. All you need to do is boot up the software for your machine and then follow the prompts to sign on for the first time. After that, simply booting the disk automatically logs you on. There are no identification numbers or passwords to memorize and change.

Coupled with this convenience is Quantum's reasonable fee structure. Basic service for Q-Link and for PC-Link is a flat \$9.95 per month, with specialized services adding a bit more. AppleLink doesn't use a flat-fee approach but instead charges by the



### Short Stats

**GEnie**  
General Electric Information  
Services, 401 N. Washington  
St., Rockville, MD 20850;  
(800) 638-9636  
Supporting magazine:  
*LiveWire*

GEnie is CompuServe's closest competitor. In operation since 1985 and rapidly growing, GEnie is a user-friendly service that offers a relatively easy entry system for the new telecommunicator, yet it provides features elaborate enough to suit experienced users.

GEnie's pricing structure distinguishes sharply between prime-time and non-prime-time hourly rates. Between 8:00 a.m. and 6:00 p.m. Monday through Friday, GEnie's service costs \$35.00 per hour, but at other times the rate drops to \$5.00 per hour. Charges apply to both 300- and 1200-bps connections, with a \$7.50 hourly additional charge for 2400-bps users. Registration on GEnie costs \$29.95 and gets you the GEnie manual and two free hours of connect time.



hour. Costs run \$6.00 per hour during non-prime time and \$15.00 per hour during prime time.

The machine-specific nature of the services allows an uncomplicated interface. Q-Link is the only online service I know of that children can operate. In the Commodore-specific Q-Link, for example, everything is accessed with the four function keys, the Return key, and the up and down cursor keys. Menus and submenus guide choices and, in fact, provide the only means of moving among the features.

But because of its simplicity, the Q-Link, PC-Link, and AppleLink software doesn't offer much for the advanced user wanting to customize and streamline telecommunications. Even so, the services have a great deal to offer casual and experienced users alike.

QuantumLink's goal has been to make telecommunications accessible to anyone, and, to a large degree, they have succeeded. If you live in an area with local telephone access to the service, your money buys a wealth of interesting evenings.



### Short Stats

#### The Source

1616 Anderson Rd., McLean, VA 22102; (800) 336-3366 or (703) 821-6666 in Virginia and outside the United States

The Source was one of the earliest information services available, and it remains one of the most respected because of its focus on financial information. So strong are The Source's ties with financial users, in fact, that the service is still largely perceived as being oriented toward the business user, not the general consumer.

Over the past year and a half,

## Last, You Need to Save Money

Using online services can be expensive, but with a little planning and a reliable clock, you can avoid running up enormous telephone and connect charges. Here are a few hints:

1. Choose a service that you can access with a local call. If there are none, choose one with a toll-free number.
2. If the service requires a long-distance call or access to Telenet, Tymnet, or DataPac, read the telecommunications-service information carefully to determine how much it will cost. Direct dialing is often cheaper than packet-switching networks such as Telenet and Tymnet, especially in the middle of the night and on weekends.
3. Before choosing a service, browse through computer magazines and look at the advertisements. Often you'll find discounts and offers of free connect time.
4. If the service offers an online tutorial, use it. There's nothing worse than not knowing how to get out of an area. Keep in mind that turning off the modem won't immediately disconnect you from the service—you may still be ringing up a bill.
5. Compose E-mail offline. Uploading is much faster than typing. When conferencing, use 300 bps if it's cheaper. Unless you're a super typist, 300 bps will keep up with you.
6. Download software during the least expensive connect hours and at the fastest possible speed (2400 bps if you have an appropriate modem).
7. If exploring new areas of the service, keep the manual in front of you. Don't get caught in an area that charges extra; some of them are meant for business use and will cost you \$15-\$30 per hour.
8. Change your password often. If someone were to discover it, your bill could rise dramatically.
9. Use ramdisks whenever possible to send or receive files. RAM is faster than a disk drive in reading from or writing to disk, which saves you connect-time charges.
10. Many telecommunications software packages include a timer, but if yours doesn't, buy a cheap digital watch to keep track of the time. Set yourself a time limit per night, week, and month, and stick to it. Unlike you, your service's billing department will never lose track of the time.

however, The Source has made considerable strides toward becoming a full-featured service. It remains among the best—if not the very best—for serious financial users, but its entertainment, shopping, and education areas are growing rapidly.

You can access The Source through surcharged WATS numbers, local phone numbers, Telenet, or—in Canada—DataPac. Current usage rates are \$21.60 per prime-time hour at 300 bps, \$25.80 at 1200 bps, and \$27.60 at 2400 bps. Non-prime-time hourly rates are \$8.40, \$10.80, and \$12.00, respectively. Certain options have additional charges. Members are charged a minimum of \$10.00 per month, a fee applied against the first \$10.00 of chargeable time.

Considering its reputation as a service for the advanced user, it's somewhat surprising that The Source offers the best online tutorial of any service. Completely free, the tutorial consists of two sections, one dealing with the basics of moving through the

service and the other offering detailed instruction in how to use the Communications services, the Business and Investment services, or the Travel services. The first section takes roughly 15 minutes to complete, while each of the other three takes 20 minutes. By the time you've worked your way through the tutorial, you won't have any trouble using the service.

If The Source were to concentrate its efforts on entertainment, special-interest groups, and shopping services as well as it has on its news and financial areas, it could become the best overall service available. For now, it's the service of choice for business users who want more than Dow Jones News/Retrieval (a financial online information service) has to offer. For those wanting entertainment and socializing, though, The Source is not yet first choice. □

Neil Randall teaches at the University of Waterloo in Ontario, Canada, writes frequently about computer concerns, and needs another phone line into his home.

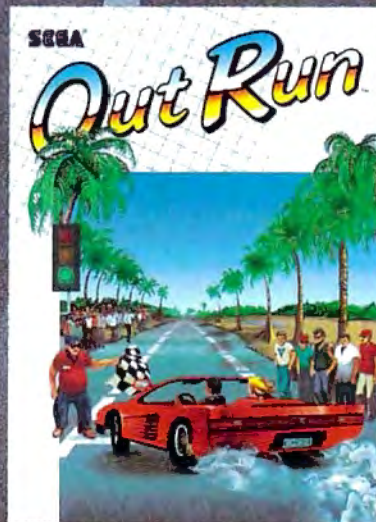


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DRIVE OF YOUR LIFE!



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3 SMASH  
ARCADE HITS NEW  
FOR YOUR COMPUTER!

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ACTION ON YOUR  
HOME COMPUTER!



**Out Run.** One of the biggest arcade hits ever, and the ultimate motor-sports simulation. Now you can bring the action home! With 4.4 liters under the hood, you're driving a beast of a machine only top drivers attempt to drive. Can you handle it? Maybe. Maybe not.

**Space Harrier.** You are Harrier, the extra-terrestrial warrior. Space is your battlefield. Your mission is to save the Land of Dragons from the vicious followers of the vile one-eyed mammoth. Grab your laser blaster because this game is 100% action, non-stop clashes, powerful combat scenes.

**Alien Syndrome.** Genetic lab overrun by hideous organic mutations! Scientists captured! Activate the lab's self-destruct mechanism! Break in and blast away the slimy hordes and the biggest, most grotesque mutants guarding the doors. Can you do it before the bomb explodes?



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Peter Soisco



Grab the wheel in one of these six driving games where hairpin turns and hair-raising spins set your mind (and computer) racing.

**M**aybe you like to fly on your computer. You're a high-tech Walter Mitty strapped into the cockpit of an F-19, rolling out at Mach 3. Or maybe you like the sea. You run silent, run deep. Maybe you like the outreaches of space or the fantastic maze of a dragon's lair.

But I want to drive. Buckle me into the close confines of a Lamborghini Countach and hand me the keys. Tighten the lugs on my Formula One fireball and tap on my helmet. Outfit my pickup for a grueling run across the Baja, or send me on a midnight spin up a stretch of twisting mountain road, 500 horses screaming under the hood, a hundred pounds of rubber crying for mercy. It's the stuff of dreams.

### Hit the Road, Jack

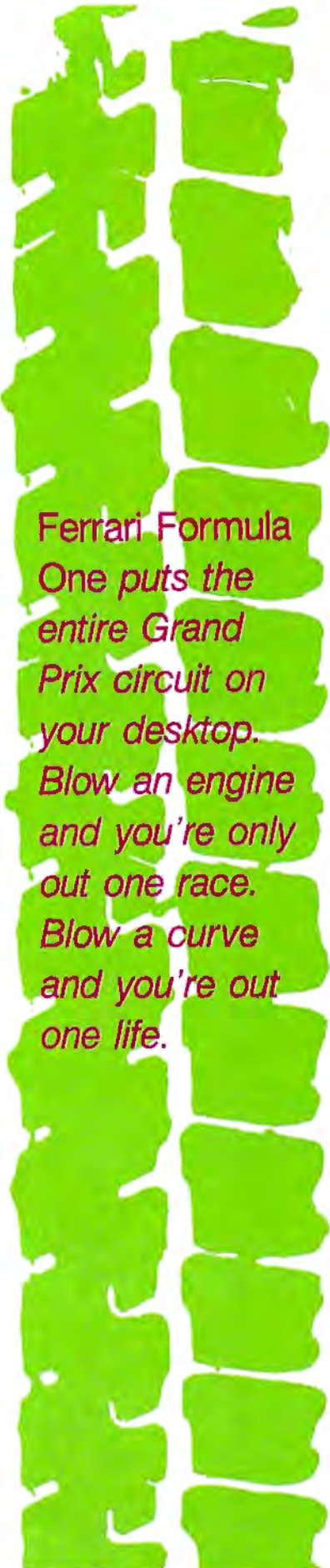
Driving high-performance cars is a risky business that takes agility, quick thinking, nerve, and lots of money. Whether it's a \$50,000, street-legal

roadster or a \$1 million Grand Prix motorcar, if you've got the itch, you'd better have the scratch. Thanks to a handful of software developers, though, you can climb behind the wheel of your computer for a whole lot less.

You're sure to find a driving game that meets your taste: high-scoring, quick arcade action; realistic racing-circuit simulations; dragsters; dirt scrabblers; modified stock cars; and the crown prince of road racing, the Formula One.

Few names are as synonymous with Formula One racing as Ferrari, a fact not lost on game makers. From *Ferrari Grand Prix* to *Ferrari Formula One*, this high-speed, corner-hugging, five-gear, Italian rubber-burner is making a name in the software driving-simulation circuit the same way it did on the tracks of Monaco and Detroit. ▀





Ferrari Formula  
One puts the  
entire Grand  
Prix circuit on  
your desktop.  
Blow an engine  
and you're only  
out one race.  
Blow a curve  
and you're out  
one life.

## Ferrari Fandango

On the Macintosh, *Ferrari Grand Prix* promises edge-of-the-seat excitement with its superbly realistic-scale speed. You'll swear you're really moving. Using fast frame rates and limiting the background graphics, this simulation boasts some of the smoothest action around.

Although the background is limited, it's no throwaway. Besides, when you're sitting low in the cockpit of a Ferrari racer moving around a curve at 175 mph, your attention had better be on the road. But you can glance at lap and speed information displayed conveniently below the steering wheel at the bottom of the screen.

Several game options give you some control over how you run your race. You can, for instance, modify your gear ratios to get more top end or change your two computer opponents' skill levels to Great or Good. You can design backgrounds for your track and, in an interesting departure from other driving simulations, you can design your own racetracks.

If there's a hitch to *Ferrari Grand Prix*, it's in using the mouse. It's tough to control your car with a mouse. The manufacturer, Bullseye, says the game works well with a joystick, so you may want to go that route if possible.

Experienced mouse users probably won't suffer so much from the mouse-steering dilemma, and if their mouse is hooked to an Amiga, they can warm their engines to the sound of *Ferrari Formula One*. Electronic Arts really pushes the envelope with this simulation, exploiting the Amiga's sound and graphics to put the entire Grand Prix-circuit experience on your desktop.

For most racing-game enthusiasts, driving is the bottom line. They want to wring that redline for all it's worth, double-clutching the curves and hitting the straights flat out. But the real racing circuit is comprised of modifying, testing, and qualifying the team's car before it makes its charge for the winner's circle. *Ferrari Formula One* is a pretty successful attempt to capture all the elements that go into making a world champion.

From the test track of Fiorano, Italy, to the Australian Grand Prix in Adelaide, South Australia, take your Ferrari through its paces as you fine-tune everything from fuel mix and tires to suspension and wings. As you follow the racing circuit around the globe, allow ample time for testing and

qualifying. Blow an engine and you're out of the race. Blow a curve and you could be out for the season.

This game requires patience, time, and imagination. You'll have plenty of opportunities to experiment with the intricacies of your car, just as a Grand Prix racing team would. Once you take to the road, the Amiga's graphics-processing power gives you pretty smooth operation—assuming you can control the mouse, shift gears, brake, and steer while keeping one eye on the other cars and the other on the track. If you want the World Driving Champion trophy, you've got to earn it. Nobody said it would be easy.

And the Amiga's digitized sound makes motors roar, tires squeal, and air wrenches sing. You'll be looking on your hands for oil stains. The sound effects are leagues ahead of the two-tone warble of an IBM PC or compatible computer and easily outclass the loose-lipped Bronx cheer of a non-digitized Macintosh.

## Switching Gears

If you're tired of Ferrari, *Accolade's Grand Prix Circuit* relieves some of the doldrums by offering two other choices: a V-8 Renault six-speed road hugger and a six-speed Honda Turbo that's only a little slower than a lightning strike. Like its *Ferrari Formula One* cousin, *Grand Prix Circuit* takes you through a simulated racing season, albeit a shorter one. The emphasis here isn't on the work behind the scenes as much as it's on driving performance.

You get into the action quickly with practice laps and then move on to qualify and race on any of eight tracks. Keep your eye on the tachometer so you don't blow your engine, and watch the other nine drivers who share the two lanes of asphalt. Some are quick, clean racers who ride the groove as well as Jackie Stewart ever did; others are slow, clumsy road hogs who'd be more at home on farm tractors.

Options in *Grand Prix Circuit* are limited to more arcade-type modifications than those offered with *Ferrari Formula One*: You can choose skill levels, length of race, and a particular track (if you don't want to run the whole circuit). The background graphics are a knockout on an EGA-equipped PC, though they can be disconcerting, shifting around boxlike



as you steer around a curve or another driver.

The same design team brought out *Test Drive* two years ago, which also leans more toward arcade action; you'll come across the same passing situations and tight squeezes time after time. The goal is to get to the top fast, and there's just one way to do it: Put the hammer down, fuse your foot to the clutch, and don't worry about that cliff to your left.

From the stock Corvette to the Lotus Esprit Turbo, *Test Drive's* five exotic cars are built to move. They are quick out of the gate, slip lanes like butter in a frypan, and cling to the curves like lint to a cheap suit. Each comes equipped with a radar detector, which flashes and beeps when you move through a speed trap at 105 mph. If Smokey appears in your rear-view mirror, you have two choices: Pull over and take a speeding ticket or kick it up a notch and leave him chewing dust.

*Test Drive*, like *Grand Prix Circuit*, suffers from a background that shifts like Los Angeles in an earthquake, but to a lesser degree. Because the game is fashioned on a vertical-scroll model, there's not as much detail to bog it down. Like *Grand Prix Circuit*, it's best to run *Test Drive* on a Tandy 16-color or EGA-equipped computer instead of in CGA; otherwise, you'll end up driving a purple car up a blue mountain. It's enough to make you carsick. You could drive in Hercules graphics mode of course, but only as a last resort. Both games suffer from the poor sound capabilities of the IBM PC and compatible computers, and, although both support joysticks, you'll get better control from the keyboard.

## Off the Beaten Track

Barring a steering wheel modeled after the yokes sold for flight simulators, a joystick is the most natural control for a driving game. Unfortunately, the games that make the best use of joysticks are those furthest removed from the realities of driving and racing. Racing enthusiasts who thrill to the chase may be disappointed in games like *Crazy Cars* from Titus, but they can still find some elements of real driving in *4 × 4 Off-Road Racing* from Epyx.

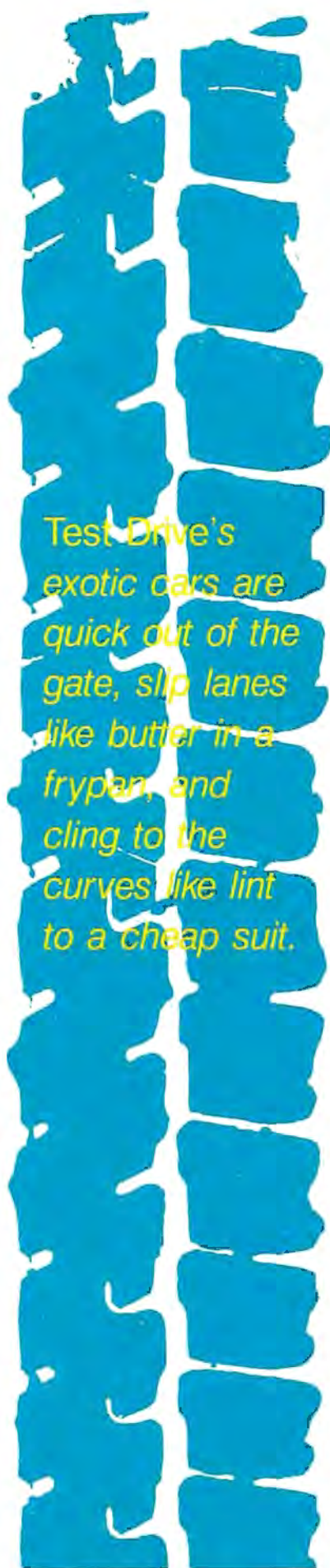
*Crazy Cars* is flat-out full-tilt ar-

cade action. It emphasizes points, and it's not hard to rack up 5 million points after only 10–15 minutes of play. The game's context is a set of races (they're not races as much as weaving contests) in places like New York, Arizona, and the space shuttle launch pad at Cape Canaveral. The object is to hit the finish line first so that you can move up to a faster car. You start with a Mercedes 560 SEC and climb to a Porsche 911, then to a Lamborghini Countach, and, finally, to a Ferrari GT0.

The cars are represented realistically onscreen, but that's where the real world ends. Unlike the black asphalt you find in the top-of-the-line simulations, in *Crazy Cars* you drive on a striped ribbon that floats eerily over a spray-painted field. This game takes the idea of minimal background graphics to the extreme, even on the Amiga version. Depending on where you're driving, the horizon can be a skyline (the George Washington Bridge in New York) or landscape (brown buttes in Arizona), but even at speeds over 100 mph, you never get any closer to the things you see on the horizon. And don't forget the sky, which in the Amiga version is a series of horizontal blue stripes of different hues.

With its fantasy-world graphics and predictable patterns, *Crazy Cars* offers little to those who want the thrill of real racing action. Epyx improves the situation with its *4 × 4 Off-Road Racing* by mixing arcade action with simulated racing preparations. Although not nearly as complex as *Ferrari Formula One*, *4 × 4* gives you the chance to customize your rig for a race over any of four terrains. This game gets you out of the garage and into the race without requiring too much technical expertise. It's enough to know you should bring some spare tires, tools, and a few extra parts.

Once on the road (or off the road, to be more exact), the game resorts to arcade-style play. Your path is strewn with boulders, holes, and other assorted obstacles. Along the way, you can pass your computerized opponents. One of your rivals, called the Doombuggy, is a highway hit man who drives like a reject from *The Road Warrior*. The only reason he's in the race is to put you out of it. If you damage your vehicle, you can pull into a checkpoint for repairs, and you may want to gas up before heading back



*Test Drive's exotic cars are quick out of the gate, slip lanes like butter in a frypan, and cling to the curves like lint to a cheap suit.*



into the race.

The four races in *4 x 4 Off-Road Racing* are pretty similar, differing mainly in color—another bow to the arcades. The Baja is light brown, Death Valley is yellow, Georgia is dark mud-brown, and wintery Michigan is—you got it—snow white. The sound on the Commodore 64/128 resembles a running motor, with splash sounds when you hit water. It's not state of the art, but it's better than silence.

## Home Stretch

Games like *Crazy Cars* and *4 x 4 Off-Road Racing* aren't designed as full-fledged driving simulators, and whatever shortfalls they have should be considered with that fact in mind.

Bona fide driving simulations like *Ferrari Grand Prix* and simulation-arcade mixes like *Grand Prix Circuit* come much closer to matching the true racing experience. Every computer user interested in cars will find a favorite driving game to capture the spirit of the moving road.

There's still plenty of room in the driving-game field for innovative products. A game modeled after the Daytona 500 would please stock-car fans, especially if it incorporated some of the intricacies of racing preparations and featured realistic crash graphics that would add tension to the oval track. Another overlooked possibility is a Demolition Derby simulation filled with Detroit dinosaurs. There's nothing quite like ramming the back end of a '67 Chevy Impala into the grill of a '64 Ford Gal-

axy. Or maybe someone will model a game after great movie car-chase scenes—imagine driving Steve McQueen's Mustang in *Bullitt*, or chasing the French Connection through the streets of Manhattan, à la Gene Hackman.

Figure-eight dirt tracks, quarter-mile drag strips, curving Grand Prix roadways, asphalt ovals—all of them form the racing arena. No matter if you're a weekend cruiser, a Monday-morning motorhead, or a pedestrian who doesn't know a piston from a pipe cleaner, your search for some pulse-quickenning excitement can start at your neighborhood software store. Let your computer put you in the driver's seat. □

Peter Scisco is an assistant editor with *COMPUTE!* and doesn't make enough money to drive a real Ferrari.

## Drive Like a Demon

### Crazy Cars

Titus  
20432 Corisco St.  
Chatsworth, CA 91311  
(818) 709-3693  
Amiga—\$39.95  
Atari ST—\$39.95  
Commodore 64/128—\$39.95  
IBM PS/2, PC and compatibles—\$39.95  
Macintosh—\$39.95

### Ferrari Formula One

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

### Ferrari Grand Prix

Bullseye Software  
P.O. Box 7900  
Incline Village, NV 89450  
(702) 831-2523  
Macintosh—\$59.95

### 4 x 4 Off-Road Racing

Epyx  
600 Galveston Dr.  
Redwood City, CA 94063  
(415) 366-0606  
Amiga—\$49.95  
Commodore 64/128—\$39.95  
IBM PC and compatibles—\$39.95

### Grand Prix Circuit

Accolade  
550 S. Winchester Blvd.  
Suite 200  
San Jose, CA 95128  
(408) 296-8400  
Commodore 64/128—\$29.95  
IBM PC and compatibles—\$39.95

### The Great American Cross-Country Road Race

Activision  
Distributed by Mediagenic  
3885 Bohannon Dr.  
Menlo Park, CA 94025  
(415) 329-0800  
Apple II—\$14.95  
Commodore 64/128—\$14.95

### Lombard/RAC Rally

Top 10 Software  
40308 Greenwood Dr.  
Oakhurst, CA 93644  
(209) 683-5575  
Atari ST—\$39.95  
Commodore Amiga—\$39.95

### Richard Petty's Talladega—3D Nascar

Cosmi  
431 N. Figueroa St.  
Wilmington, CA 90744  
Commodore 64/128—\$12.95

### Shirley Muldowney's Top Fuel Challenge

Cosmi  
431 N. Figueroa St.  
Wilmington, CA 90744  
Commodore 64/128—\$24.95

### Test Drive

Accolade  
550 S. Winchester Blvd.  
Suite 200  
San Jose, CA 95128  
(408) 296-8400  
Amiga—\$44.95  
Apple II—\$34.95  
Atari ST—\$39.95  
Commodore 64/128—\$24.95  
IBM PC and compatibles—\$39.95

### Top Fuel Eliminator

Gamestar  
Distributed by Mediagenic  
3885 Bohannon Dr.  
Menlo Park, CA 94025  
(415) 329-0800  
Apple II—\$29.95  
Commodore 64/128—\$29.95





# Ultima IV



1. Experience innovative combat and exotic magic!
2. Enter into the extraordinary world of Britannia . . .
3. Unprecedented realism crafted in exquisite detail!



# The Epic Unfolds

In *Ultima IV* and *Ultima V*, Lord British weaves the spellbinding tale of the Avatar – a quest for spiritual enlightenment and a test of virtue gone awry. It's one incredible story in two captivating games! And while each stands alone, together they deliver unparalleled intensity and incomparable depth.

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Version	MONEYCOUNTS† 5.0	QUICKEN† 2.0	MANAGING YOUR MONEY† 5.0	DOLLARS & SENSE† 3.1
Manufacturer	Parsons Technology	Intuit, Inc.	MECA Ventures, Inc.	Monogram Software, Inc.
<b>Suggested Retail Price</b>	<b>\$29.00</b>	<b>\$49.95</b>	<b>\$219.98</b>	<b>\$179.95</b>
<b>Account Balancer</b>	YES	YES	YES	YES
- Automatic Error Finder	YES	NO	NO	NO
<b>Accounts Can Be Added When Entering Transactions (Data)</b>	YES	YES	YES	NO
<b>Budgeting</b>	YES	YES	YES	YES
- Variable Budgeting By Month	YES	NO	YES	YES
<b>Automatic Transactions</b>	YES	YES	YES	YES
<b>Financial Reports</b>				
- Actual Financial Results	YES	YES	YES	YES
- Month and Year to Date	YES	YES	YES	YES
- All Months On One Report	YES	YES	YES	YES
- Budgeted Financial Results	YES	YES	YES	YES
- Actual Compared to Budget	YES	YES	YES	YES
- Actual Compared to Prior Month	YES	NO	NO	NO
- General Ledger Report	YES	YES	NO	NO
- Accountant's Trial Balance	YES	NO	NO	NO
- Net Worth Computation	YES	NO	YES	YES
<b>Inquiry Reports</b>				
- Check and or Deposit Register	YES	YES	YES	YES
- Account Analysis	YES	YES	YES	YES
- All Transactions with Party	YES	YES	YES	YES
- Cash Requirements Forecast	YES	YES	YES	YES
- Aged Invoices Payable	YES	NO	YES	YES
<b>Graphics</b>	YES	NO	YES	YES
<b>Fiscal Year Support</b>	YES	NO	YES	YES
<b>Optional Password Protection</b>	YES	NO	NO	YES
<b>Financial Calculator</b>	YES	NO	YES	YES
- Prints Amortization Schedules	YES	NO	YES	YES
- Prints Accumulation Schedules	YES	NO	YES	YES
<b>Mail List Manager</b>	YES	NO	YES	YES
- Prints Address Labels	YES	NO	YES	YES
- Prints Index Cards	YES	NO	YES	NO
- Prints Telephone Directory	YES	NO	YES	NO
- Mail Merge with Word Processor	YES	NO	YES	YES
<b>Check Writer</b>	YES	YES	YES	YES
- Prints Laser Checks	YES	YES	YES	NO
- Prints Any Pin-Feed Check	YES	NO	YES	YES
<b>Personal Income Tax Estimator</b>	YES	NO	YES	YES
<b>Pop-up Note Pad</b>	YES	NO	YES	YES
<b>Pop-up Math Calculator</b>	YES	NO	YES	YES
<b>Capacity</b>				
- Total Number of Accounts Per File	999	300	*	120
- Total Number of Open Transactions	100,000	65,535	*	4,000

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# Buying Your First Computer

Gregg Keizer

**Y**our first computer should be like your first love—forgiving and faithful, endearing and enduring, steadfast and satisfying. You'll always remember your first computer.

Picking the right first computer for your family or business is crucial. After all, it's going to be your introduction to personal computing. And if it breaks down (and breaks your heart), or if it makes you work too hard at the computer-human relationship, you're not going to take to personal computers. First impressions are, even in electronics, important.

A first computer should be reliable, easy to use, easy to set up, equipped with nearly everything you'll need to get started, and able to offer access to an impressive amount and a variety of software. Even with those qualifications, though, you have scores of acceptable machines to pick from.

The three first-computer candidates described here are standouts not only because they represent high-quality computer hardware, but also because they open the door to peerless software libraries. Each is a genuine good buy and can deliver on the promise of entertainment, education, and productivity. Pick one of these three and the memories of your first days of computing will be fond, not frightening.

## IBM PS/2 Model 25

IBM's low-end PS/2 is the modular-looking Model 25, an excellent choice

Choosing your first computer is serious business. Here are three picks that won't do you wrong.



The Model 25 is a safe selection for first-time buyers.

for the first-time computer buyer eager to work beneath the famous blue logo. The computer's cubelike appearance is marked by an all-in-one monitor and system case that sits on the desk at a slightly tilted angle for easy screen viewing. Typing on the full-size, detachable, 84-key keyboard is a pleasure—the keys have a nice, firm feel and make a satisfying click when pressed. On the downside, the small keyboard is much too large for dinky desktops. An even smaller keyboard would be a welcome option.

Unboxing and setting up the Model 25 is a breeze. Put the system/monitor on the tabletop, connect the keyboard cable, and plug the power cord into the computer and an outlet. The computer itself takes up a surprisingly small piece of desktop real

estate: about 15 × 13 inches.

Open the case and you'll find an Intel 8086 8-MHz microprocessor, 512K of RAM (expandable to 640K), and two expansion slots that take one full-size and one short PC XT-compatible card. On the back are a serial port, parallel port, earphone connector, keyboard connector, and connector for the optional mouse. At the front, just under the monitor, are the power switch and one 3½-inch disk drive (another can be added).

The Model 25 can sport either a monochrome or a color display. The color version uses MCGA (MultiColor Graphics Array) mode, which offers 256 colors in 320 × 200 resolution. The monochrome model is no slouch either: It can put 64 shades of gray on the screen.



Model 25 buyers have the entire MS-DOS productivity software library to choose from. And though the 3½-inch disk format excludes older programs (which probably are available only on 5¼-inch disks), more software is appearing on the smaller-size disks. There's plenty to get a first-time computer user started, including the top integrated packages and business applications.

The Model 25 also makes sense as a student's computer, especially for high schoolers and collegians who have need for MS-DOS applications in business and finance classes. And the machine's rugged all-in-one case should keep it running even after the umpteenth move.

As a home computer, the Model 25 has much to offer, but it's not the first choice. The computer's price takes it out of the reach of many potential buyers. Entertainment and educational software is heading into the MS-DOS market, but many packages run only in the crude CGA (four-color) graphics mode. When more software supports the 25's MCGA graphics, the computer will become a better pick for those wanting to entertain and educate in the home.

## Apple IIc Plus

The Apple II is more than a decade old. That kind of longevity hasn't gone unrewarded: The Apple II is still the computer of choice for most schools, and tens of thousands of II's make it home every year because parents think of Apple when they think of a computer for their kids.

The Apple IIc Plus is the newest Apple II, and though it's more a reworking of an ancestor (the IIc) than



The Apple IIc Plus is a smart pick for parents.

a brand-new model, it has many things to recommend it to the first-time computer buyer.

A petite computer, the Apple IIc Plus's design puts the keyboard and the computer in a case measuring a mere 12 × 12 × 2 inches. When propped up on its handle, the IIc Plus rests at a comfortable typing angle. The 63-key keyboard feels solid, although it doesn't have enough tactile and audio feedback.

Inside the computer is a 6502 microprocessor that can run at the Apple II-traditional speed of 1 MHz or at a more respectable 4-MHz speed. The faster speed is one of the machine's more impressive features. The IIc Plus also boasts 128K of RAM, two serial ports, a mouse port, an ex-

ternal disk drive connector, and two video connectors. All this precludes most add-on boards—a good thing, considering that the computer is a “closed” system (not designed for later expansion). A built-in 3½-inch disk drive rounds out the computer's features.

You can connect a monochrome or a composite color monitor to the Apple IIc Plus (or even a television set with an optional RF modulator). And since the IIc Plus supports traditional Apple II graphics modes, including the acceptable but not dazzling 16-color double-hi-res mode, color is an integral part of its software.

Entry-level computers like the IIc Plus should have entry-level prices, and the IIc Plus doesn't disappoint.

	PS/2 Model 25	Apple IIc Plus	Tandy 1000 SL
Software Format	MS-DOS	Apple II	MS-DOS
Price	\$1,350 (monochrome) \$1,695 (color)	\$675	\$899
CPU	8086 (8 MHz)	6502 (1/4 MHz)	8086 (4/8 MHz)
RAM	512K	128K	384K
Keyboard	84-key detachable	63-key integrated	101-key detachable
Monitor	Included*	Optional	Optional
Disk Drive	3½-inch	3½-inch	5¼-inch
Slots	2	0	5
Ports	Serial Parallel Earphone Mouse	Serial (2) Joystick/Mouse	Serial Parallel Joystick/Mouse (2) Earphone Microphone
Colors	256	16	16



The Tandy 1000 SL is a bargain for buyers looking for PC compatibility.



It's the least expensive Apple II around, an important point to anyone concerned with the bottom line and the benefits of home computing. If you have kids at home and in school, Apple's entry-level computer makes the most sense as your first home machine. The computer's small size and easy setup make it practically kidproof.

Even if your child's school doesn't use Apple II's, the computer's impressive library of educational software—still second to none—makes it *the* choice for home education. And if your local schools do use Apple II's, your children will be able to use the same software at home that they're familiar with in class. Although the majority of Apple II software is in the older 5¼-inch size, many of the best-known and best-selling packages now come in 3½-inch versions.

If you're looking for more than an education computer, don't discount the Apple IIc Plus. Apple II software may not have the breadth and depth of MS-DOS, but several excellent applications, notably the venerable *AppleWorks*, can complete most productivity tasks.

## Tandy 1000 SL

It may not be a bottom-end computer, but the Tandy 1000 SL is sure priced like one. This compact IBM PC compatible is the least expensive Tandy computer that also features substantial expansion capabilities. Its built-in features, however, are what make the machine the perfect choice

for first-time computer buyers eager for MS-DOS but put off by IBM's prices.

Measuring just 15 × 13 inches, the 1000 SL comes with a 101-key detachable keyboard that's actually wider than the computer. Although it's an improvement over previous Tandy keyboards and it gives good audio feedback, it still feels mushy. The monitor, a separate buy often bundled with the SL during Radio Shack sales, sits on top of the computer.

Like that of the other two first-time computers, the SL's setup is a snap. Computer and monitor power cords and monitor and keyboard cables are all you have to contend with. The inclusion of DOS 3.3 and Tandy's own DeskMate interface shell in the SL's ROM helps immeasurably in getting first-timers going.

Inside the computer, you'll find 384K of RAM (expandable to 640K), an 8086 microprocessor that runs at either 4 MHz or 8 MHz, a 5¼-inch disk drive, a serial port, a parallel port, two joystick/mouse ports, and five slots that take PC XT-compatible cards.

Equip the SL with a Tandy color monitor, and the SL's enhanced CGA mode sports 16 colors, not the usual 4. Monochrome is compatible with the Hercules standard for crisper screens. It's possible to use more advanced graphics modes, but you'll need to slip a card into one of the SL's slots.

Interested in computerizing your business in the office or at home? The Tandy 1000 SL makes sense because

of its attractive pricing and because of the tremendous selection of MS-DOS business software. Although the measly 384K of RAM and single 5¼-inch disk drive aren't enough for full-featured business applications, you can add more memory to the motherboard and increase the storage with another disk drive, a hard disk, or a hard disk card.

The 1000 SL is a strong contender for home education and entertainment. Its 16-color mode enhances learning and gaming programs far above and beyond CGA-equipped PC compatibles, and its 5¼-inch disk drive opens up a wider software selection than does IBM's Model 25. Add the DOS and DeskMate interfaces in ROM, bundle in the integrated DeskMate applications, and the life of a first-time computer owner becomes a lot easier.

## You Win!

No matter which of these three machines ends up on your desktop, you can rest assured you've made a good choice. All come from solid companies long-involved in personal computing. That's important to the first-time computer buyer—nothing is worse than buying a computer and seeing its support (and its manufacturer) slink away.

Each machine has its strengths and weaknesses, and each has a significant software base. You're not taking much risk buying one of these computers; your caution will steer you toward a solid relationship with home computing.

After all, you don't want your heart broken by a whirlwind computer romance, do you? □

Gregg Keizer is editor of *COMPUTE!* magazine and remains a first-time computer buyer at heart.

## Manufacturers

For more information about these computers, contact the manufacturer or visit a local computer dealer.

**Apple Computer**  
20525 Mariani Ave.  
Cupertino, CA 95014  
(408) 996-1010

**IBM**  
Contact an authorized dealer  
(800) 447-4700 (for the closest dealer)  
(800) 246-2468 (IBM Direct)

**Tandy/Radio Shack**  
1700 One Tandy Center  
Fort Worth, TX 76102  
(817) 390-3011



# Shop Around



**Heidi E. H. Aycock**

**Crowded parking lots? Forget 'em. Pushy salespeople? They're history. Try shopping from home with your computer for a sane solution to mall madness.**

**R**emember the crowds at the mall in December? Remember following thousands of other shoppers like lambs to the slaughter, lemmings to the sea? You couldn't take a left turn out of the shopping center because of the traffic, and you paid \$2.00 for an ice cream cone that ended up on the floor.

Now's probably not a good time to tell you this, but you could have done most of your shopping from your trusty computer keyboard. Every major telecommunications service sponsors an electronic shopping center with plenty of parking, polite salespeople, and cheap food.

If you think that the wares might be too obscure or the prices too high, you're wrong. You can find Levi's jeans, Godiva chocolates, Penguin books, and more. You can also find Alaskan reindeer sausage, which, for most of us, falls squarely into the *obscure* category. Prices are reasonable, too—just what you'd expect to find at a traditional mall. Those Levi's, for instance, cost about \$22.50; the Godiva chocolate runs \$3.75 for a two-ounce bar; and you'll pay \$3.95 for a Penguin paperback. And the reindeer sausage? How about \$7.50 for 12 ounces?

## **Check Out the Checkout**

Different telecommunications services have different stores; so, prepare for your first shopping trip by learning what shops are in which mall. CompuServe, for instance, has Bloomingdale's, but GENie and Delphi don't. Most of the services have a coffee shop, a CD store, and some bookstores.

In publications like CompuServe's *Online Today* and GENie's *LiveWIRE*, advertisements and features tell what stores are available. Try to locate a winter issue because the shopping coverage is extensive during the holiday season.

Once you know what kind of stores are in the mall, you can start thinking of reasons to go shopping. Do your

parents enjoy exotic coffee? Is there a compact disc player in your house? Do you have a friend who will read anything about cats? Don't be too specific as you list items to look for. You may not find the latest effort by Bruce Springsteen or Jackie Collins, but you'll likely find a collection of New Age music, and you could stumble into a gold mine of British mysteries. Leave yourself open to possibilities and you won't be disappointed.

To help in your search, you can order catalogs from most of the mall merchants. You could, in fact, devote one shopping trip to ordering catalogs from the stores that interest you. Then, after you've browsed on paper, log on and place your order. Using catalogs will save you online charges because you won't spend all your computer time looking for that perfect gift.

Now that you know what you're looking for, grab a piece of paper, a pen, your charge card, and any address information you might need if you're buying a gift for someone else. Turn on your computer and log on to your favorite telecommunications service. CompuServe has the most variety, but the other services also have tempting wares, and new shops show up all the time. After you've found the mall, look for an index to the stores.

Let's say, for example, that you've decided to get a book for your friend who lives in another state. You can locate the bookstores by looking through an index organized by categories. Or, if you know the store where you want to shop, you can often look for it in an alphabetical list or even perform a search.

Once you're in the bookstore, peruse the collection. You might find prices listed with the titles, but sometimes you must ask for more detailed information to get the price. Ordering and paying for a book or any other item is a menu-driven process. Type in all the pertinent information—everything from title and quantity to your billing



address and shipping addresses. Up to this point, you haven't committed to buying anything. The service will ask you to check the information and to verify your purchase, and you'll be given a confirmation number, which you'll use if you need to check on the order later. Once you leave the store, your order is final.

Now, just sit back and wait for the package to arrive.

## Caveat Emptor

What happens if you order a cashmere sweater and Brooks Brothers' idea of size 9 is different from yours, or the dyed-in-the-wool blue doesn't match the dyed-in-your-imagination blue? Can you return unsatisfactory purchases?

While the electronic malls don't guarantee satisfaction, many of the merchants do. Shops usually have an "About Our Store" section where you can find payment and return policies. You can also contact the merchant if you have problems with your purchase. It's especially important to check on these policies before you order anything because the shops aren't required to provide guarantees.

Also, check on shipping and handling charges. They aren't standard from merchant to merchant, and these hidden costs can boost the price of items you want to buy.

## What's the Catch?

The selection is good, shopping is easy, the prices are fair, and many stores guarantee their products. So why would you ever go shopping in a real mall again? For one thing, you can't window-shop in an online mall; there isn't anything to see through the windows. Malls without walls rely on text to convey product information, so you really need to know what you're looking for before you log on. You definitely should avoid buying products you don't know much about. Remember the sweater that didn't fit? If all you know about a cashmere sweater is what you read in the

## Prodigy: Ahead of Its Time

Paying for connect time is probably the number 1 drawback to shopping online, so the Prodigy network is to be commended for its progressive service. Created by Sears and IBM, the Prodigy telecommunications service charges a \$9.95 monthly fee for time spent online.

Besides online shopping, Prodigy offers many of the standard telecommunications service features: electronic mail, advice columns, financial services, and national news.

What makes Prodigy different from the other services is its terminal software, which you install on your IBM PC through a simple but time-consuming procedure. The benefit of Prodigy's packaging is its impressive onscreen color graphics. Instead of plain text, each shop is represented by a colorful logo running along the top of the screen. You're not getting any more information than you would get from any other online mall, but Prodigy is more attractive.

The service is only available for IBM PCs and compatibles right now (look for a Macintosh version soon). This means your membership isn't portable; you can't log on from your Uncle Ralph's Amiga. You can, however, log on from his PC as long as you have your installation software with you.

Unfortunately, Prodigy is confined to a few areas: parts of Connecticut, parts of California, and Atlanta. So the inexpensive \$9.95 monthly charge is offset by long distance charges for those who live outside those areas. When Prodigy becomes more widely available, it could be a real boon to computer shoppers.

## Telecommunications Services

**CompuServe**  
P.O. Box 20212  
Columbus, OH 43220  
(800) 848-8199  
(614) 457-0802 in Ohio

**Delphi**  
3 Blackstone St.  
Cambridge, MA 02139  
(800) 544-4005  
(617) 491-3393 in  
Massachusetts

**GEnie**  
General Electric Information  
Services  
401 N. Washington St.  
Rockville, MD 20850  
(800) 638-9636

**Prodigy**  
Prodigy Services  
500 S. Broad St.  
Meriden, CT 06450  
(800) 759-8000

**The Source**  
Source Telecomputing  
1616 Anderson Rd.  
McLean, VA 22102  
(800) 336-3366  
(703) 821-6666 in Virginia and  
outside the United States

store's menu, you're taking a chance that you'll get something you didn't expect. But you don't have to see a CD of Beethoven's Eighth Symphony before you buy it, so an electronic store is probably just as safe a gamble as your local record shop.

Another drawback to online shopping is the connect-time expense. GEnie, which is a fairly inexpensive telecommunications service, charges about \$5.00 per hour at night. Even if you must pay for parking at your nearest mall, it probably doesn't cost \$5.00 per hour. If it does, make one more trip to the shopping center and buy a modem.

Some shops offer free connect time, especially during the winter holidays. Look for these specials as you meander through the mall because they'll save you a lot of money.

## Things to Come

Right now there's no good way to avoid the cost of wandering around the electronic mall. In the future, businesses may create their own services and let you log on for free to place orders from their catalog or just to browse.

With more powerful microcomputers and higher-resolution monitors, you may one day be able to see the actual products onscreen. With the addition of 3-D graphics, high-quality sound, and a hypermedia interface, online shopping could impart more information than paper catalogs. Imagine a men's shirt displayed in color on your computer screen. Position the cursor over the neck of the shirt and press Return; the computer lets you enter your neck size. Select the front pocket and the computer shows you a close-up of the careful stitching. Request other colors. Request care instructions.

Someday, shopping by computer may become the mode of choice for those of us who were born to buy. No parking hassles, no crowds—just a leisurely stroll through electronic aisles, the jingling of coins in our pockets replaced by the tapping of keys on our keyboards. That day is still to come; right now, it's still an expensive way to shop. □

Heidi E. H. Aycok is an assistant editor with *COMPUTE!* who loves to shop any way she can.



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9CM-082	\$439.95

#### Gold Star

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1430 VGA 14"	\$389.95
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#### NEC

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Multisync +	\$899.95
Multisync XL	\$2699.95

#### Avatex

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1200p	\$89.95
1200hc Modem	\$89.95
2400	\$149.95
2400 II PC Card	\$129.95

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NX-2400	\$299.95
NR-10	\$319.95
NR-15	\$419.95
NB24-10 24 Pin	\$419.95
NB24-15 24 Pin	\$545.95
NB-15 24 Pin	\$669.95
Laser 8	\$1759.95

\*limited quantities

#### Toshiba

321SL	\$449.95
341 SL	\$599.95
351 SX 400 cps	\$899.95

#### Citizen

120 D	\$137.95*
180 D	\$159.95
MSP-40	\$279.95
MSP-15E	\$329.95
MSP-50	\$369.95
MSP-45	\$389.95
Tribute 124	\$399.95
MSP-55	\$459.95
Premiere 35	\$489.95
Tribute 224	\$589.95

\*with interface cable

#### Epson

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LQ500	\$305.95
FX850	\$339.95
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LQ850	\$529.95
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#### Okidata

Okimate 20	\$129.95
Okimate 20 w/cart	\$189.95
182	\$209.95
180	\$219.95
182+	\$225.95
183	\$239.95
320	\$337.95
292 w/interface	\$449.95
321	\$469.95
390	\$479.95
293 w/interface	\$585.95
391	\$649.95
294 w/interface	\$814.95
393	\$955.95
Laser 6	\$CALL

#### Panasonic

1080i Model II	\$CALL*
1091i Model II	\$CALL*
1180	\$179.95
1191	\$245.95
3131	\$289.95
1092i	\$299.95
1124	\$319.95
1592	\$375.95
1595	\$429.95
1524 24 Pin	\$549.95
Fax Partner	\$579.95
Optical Scanner	\$859.95
KXP 4450	
Laser	\$1399.95

\*quantities limited

Cables & Connections  
For All Applications

Printer Ribbons Available



#### NX-2400

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

**\$299<sup>95</sup>**



**\$169<sup>95</sup>**

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



**NX-1000**



**\$137<sup>95</sup>**

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

**120-D**



**1-800-233-8760**

**PAGE 1 OF 4** Turn page for more specials.





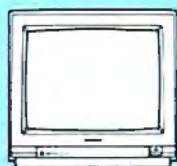
# Lycocomputer Marketing & Consultants

## MAGNAVOX

CM8762

**\$239<sup>95</sup>**

- 17% Larger Screen Than Standard 12" Monitors
- RGB TTL (CGA)
- Composite Video Inputs
- 640X 240 Resolution
- Green Text Display Switch
- Audio Input
- Built-in Tilt Stand
- One-Year Limited Warranty



### Attention Educational Institutions:

If you are not currently using our educational service program, please call our representatives for details.

1200e Modem

Avatex™



**\$69<sup>95</sup>**

- Auto/manual Originate or Answer
- Auto Speed Select in Originate/answer Modes
- RS-232C Interface
- 2-Year Warranty

## LASER 128

- Built-in 128K RAM
- Built-in 5 1/4 Drive
- Built-in Parallel Port
- Built-in Mouse/Joystick Port
- High Res. Graphics



Apple Compatible

## MAGNAVOX



BM7622  
Amber Monitor

- Composite Video
- 900 Dots of Resolution
- Anti-Glare CRT Face
- Line Level Audio Input
- One-Year Limited Warranty

## CITIZEN

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



180-D

Quantities Limited

**\$589<sup>95</sup>**

Cables Optional

## LASER 128

Take a look at the Laser 128 Apple-compatible computer, and beginning with its built-in disk drive and 128K RAM of memory, you start to feel that this machine was designed with you in mind.

**\$379<sup>95</sup>**

\$10 off any Item Purchased With Laser 128!

Apple IIc-IIe Compatible



## PC's & ACCESSORIES

Laser Compact XTE 640K .....	\$539.95
Laser Turbo XT Model II .....	\$629.95
Vendex VTI-33-XT .....	\$699.95
Vendex VTI-55-AT .....	\$1139.95
Sharp PC 4502 .....	\$1149.95
Sharp 4521 .....	\$1949.95
BCC CG ColorCard .....	\$94.95
ATI VIP .....	\$299.95

## Seagate HARD DRIVES

<b>5.25" Half Heights</b>	
ST225 20 meg 65msec MFM ..	\$219.95
ST225N 20 meg SCSI .....	\$294.95
ST238R 30 meg RLL .....	\$234.95
ST251 40 meg 40 msec MFM ..	\$339.95
ST251-1 40 meg 28 msec MFM ..	\$419.95
ST277R 65 meg 40 msec RLL ..	\$389.95

<b>3.5"</b>	
ST125 20 meg 40 msec MFM ..	\$235.95
ST125N 20 meg SCSI .....	\$299.95
ST138R 30 meg RLL .....	\$249.95
ST138N 30 meg SCSI .....	\$334.95
ST157R 49 meg RLL .....	\$399.95
ST157N 48 meg SCSI .....	\$445.95

<b>Seagate Internal Cards</b>	
ST125 20 meg Internal Card ..	\$299.95
ST157R 49 meg Internal Card ..	\$485.95

## TOSHIBA DRIVES

5 1/4" 360 KB PC/XT Compatible ND-04D .....	\$69.95
3 1/2" 720 KB PC/XT Compatible ND-354A .....	\$84.95
3 1/2" 1.44 MB PC/AT Compatible ND-356T .....	\$99.95
5 1/4" 1.22 MB PC/AT Compatible ND-08DEG .....	\$89.95

## COMMODORE HARDWARE

64C Computer .....	\$149.95
C128D Computer/Drive .....	\$429.95
1541 II Disk Drive .....	\$179.95
1581 Disk Drive .....	\$187.95
Excel FSD-2+ C64 Drive .....	\$139.95*
1802C Monitor .....	\$189.95
1084 Monitor .....	\$279.95
C1351 Mouse .....	\$38.95
1764 RAM C64 .....	\$117.95
Coll PC .....	\$669.95

Call for system pricing.

\*Limited Quantities

## LASER 128

Compatible with Apple Software.

Laser 128 EX .....	\$419.95
Laser External 5 1/4 Drive .....	\$119.95
Laser External 3 1/2 800K Drive ..	\$199.95
Two Slot Expansion Box .....	\$44.95
Laser 128/EX Mouse .....	\$55.95

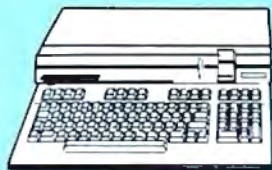
We carry a full line of laser accessories.

## COMMODORE

128 D System

**\$429<sup>95</sup>**

- 128K Std.
- 3 Mode Operation
- 1-64: Runs 64 software. 2-C128: Faster, more mercury for increased productivity
- 3-CPM: Uses Standard cpm titles



## Seagate

ST138R 30 Meg Internally Mounted Card

- Premounted on its own Controller Card
- EZ Slot Installation (app. 10 min.)

**\$329<sup>95</sup>**

20-30-49 meg drives available!

## TOSHIBA

3.5 Floppy Drive

- IBM PC XT/AT Compatible
- 720 K
- 3.5" DSDD
- Universal Installation Kit Included
- Full Manufacturers Warranty

**\$84<sup>95</sup>**

See complete listings under Toshiba Drives.

## Panasonic Office Automation

**\$1399<sup>95</sup>**

KXP4450 Laser Partner

Special Purchase



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

## Panasonic Office Automation

**\$179<sup>95</sup>**

KXP1180



Announcing the Panasonic KX-P1180, an affordable 9-pin personal printer with abundant features and solid performance. Featured on the 1180 is the EZ-Set operator panel that lets you control the most commonly accessed printer functions right from the front panel. The 1180 also has advanced features, such as an adjustable push/pull tractor feed and multiple paper paths.

**1-800-233-8760**

PAGE  
2 OF 4



## LASER

### Turbo XT Model II

Out perform the conventional PC/XT competition with Lazer's Turbo XT-II. The Lazer provides everything you expect from an XT plus such standard features as 4.77/10 MHz speed, 102 key enhanced keyboard, security lock and a clock/calendar with battery backup. Lazer's compatibility is guaranteed through a 150W power supply, four accessible drive slots, (1 360K 5.25 standard) 8 I/O expansion slots, parallel centronics and RS 232 interfaces, 640K RAM

Monitor  
Optional



**\$629<sup>95</sup>**

standard, (expandable to 1.6 MB) along with a CGA video card already installed. Introduce yourself to the new generation XT through Lazer's Turbo XT-II.

## VENDEX® VTI-33-XT

Amber Monitor Included

**\$669<sup>95</sup>**



- IBM XT Compatible with Award Bios
- Small Footprint
- 8088-1 Turbo Processor with 4.77 or 9.54 MHz Software Switchable
- 640K
- 2-360K Floppy Disk Drives or 1 Floppy Drive
- Parallel Printer Port
- RS232 Serial Port
- Clock Calendar with Battery Backup on Board
- AT Style 84 Key Keyboard
- CGA/MGA and Hercules Graphics Adaptor

- 6 Total Empty Slots
- 135 Watt Power Supply
- MS-DOS Version 3.3
- GW-Basic
- Easy Working Writer (Word Processor by Spinnaker)

When deciding upon a laptop personal computer, Sharp has the model for you. Sharp's PC-4502 is a lightweight, compact, single unit design. Included in the PC-4502 are two 3.5" 720KB disk drives, supertwist display with back lighting, along with parallel and external disk drive ports. 640K RAM is standard (expandable) to 1.6 MB and a 7.16 Mhz clock speed. Take advantage of Sharp technology.

## SHARP PC-4502 Laptop

**\$1169<sup>95</sup>**



PC-4521.....\$1949.95

## AMSTRAD

### Laptop PPC 640-1

**\$779<sup>95</sup>**

PPC 640-2 \$859.95



Step into a new era of convenience and control with Amstrad's exciting new PPC 640 portable computer. The PPC 640 features 640K RAM, full sized AT 101 keyboard, Hayes compatible modem, an 8086 processor (8MHz) and your choice of either one or two 3.5" 720KB disk drives.

## TOSHIBA

Pick up on the T-1000 and you'll go far. Give yourself desktop PC power wherever you need it. Toshiba's T-1000 includes 512K RAM, one built-in 720KB 3.5" disk drive supertwist LCD display with CGA capability.

### T-1000 Laptop \$799<sup>95</sup>



## COMMODORE COLT



Monitor Optional

PC/XT

**\$669<sup>95</sup>**

The Commodore Colt, a computer with all the built-in features you need. The Colt includes 640K RAM, CGA video support, two 5.25 360K disk drives, serial and parallel ports with three clock speeds (4.77/7.16/9.14 MHz). Plus, look at these Commodore extras: full size keyboard, clock/calendar with battery back-up, MS-DOS 3.2 and GW Basic 3.2 and Wordstar word processor. Try the Commodore Colt in your home or office and experience what a difference it will make.

## PC1640 DDC

## AMSTRAD



**\$899<sup>95</sup>**

The Amstrad PC1640 DDC will bring out the genius in you. You have full support with 640K RAM, CGA/Hercules graphics, 8 MHz clock speed, plus parallel, serial and joystick ports. Amstrad includes MS-DOS & Basic, GEM desktop and GEM paint to provide for your computing needs. Convenience is supplied through two 360K 5.25" disk drives, clock/calendar and a 2-button mouse. The Amstrad PC1640 DDC is a stroke of genius, put it to work for you.

## CITIZEN

### Mate/12 AT

World class competition in an 80286 PC/AT from Citizen. One MB RAM is standard, along with 2 serial and 1 parallel port, EGA video card and keyboard switchable 6.25/12.5 MHz for full PC/AT compatibility. Citizen also includes added features such as, switchable 150 watt power supply, 1.2 MB 5.25" floppy

drive, MS-DOS-GW Basic software to provide for your immediate computing needs. Leave the competition behind with the Citizen Mate 12 Plus.

**\$1349<sup>95</sup>**



Monitor Optional

## VENDEX® VTI-55-AT

Monitor Optional

**\$1179<sup>95</sup>**



- IBM AT Compatible with Award Bios
- Small Footprint
- 80286-12 Turbo Processor with 8 MHz or 12 MHz Software Switchable
- 640K, Expandable to 1MB
- One 1.2 MB Floppy Disk Drive
- Parallel Printer Port
- RS232 Serial Port
- Clock Calendar with Battery Backup on Board
- 101 Key Keyboard
- EGA Graphics Adaptor

- 5 Total Empty Slots
- 200 Watt Power Supply
- MS-DOS Version 3.3
- GW-Basic
- Easy Working Writer (Word Processor by Spinnaker)





# Lycocomputer Marketing & Consultants



## Why shop at Lycocomputer?

Lycocomputer is one of, if not the largest, and most established firms to provide only quality name brand computer products at prices 30% to 50% below retail. We've set many industry standards, and we are setting the pace for many more in the future. Our standards include: a separate department for customer service; a price guarantee; guaranteed factory fresh merchandise; diverse payment and shipping policies, including a C.O.D. policy which allows customers to have products in their hands before paying anything. Selection places Lycocomputer at the forefront of the industry. Due to our in-stock volume, we cannot advertise all of our products. If you do not see the product you want advertised, call Lycocomputer toll free.

## How do I know I will get the product I need?

Our marketing staff is well-educated in the computer industry. They receive continuous formal training by our manufacturers which enables them to develop and maintain a high degree of expertise on the products they represent. Though our strict guarantee on providing only new merchandise prohibits free trial periods and a guarantee on compatibility, a wealth of knowledge is available to our customers to help with the purchasing decision. As thousands of people every week capitalize on our savings and services, we hope you too, will make Lycocomputer your first choice.

## What about warranty or service?

We decided several years ago that a Customer Service Department was needed in the industry. Unfortunately, few of our competitors offer this service. Our Customer Service Department is available at (717) 494-1670 to provide assistance in all warranty matters. Our product line enjoys "name brand recognition," and we back all of our manufacturer's stated warranty terms. Many manufacturers will allow defective products to be exchanged. Before returning any item that appears to be defective, we ask that you call our Customer Service Department to assist you in determining if the product is defective. If the product is determined defective, they will give you a special authorization number and speed processing of your order.

## Will you rush an item to me?

Since 1981, we have set the standard in the industry by processing orders within 24 hours — not 4 to 6 weeks. We offer next day air, two day air, standard UPS, and postal international shipping services. Our records show we fill 95% of our orders daily. Temporary shortages are normally filled within 10 days. If an order cannot be filled within 60 days, we refund your money in full, unless you choose to wait for the order and benefit from the price savings. Any time prior to shipment, you may cancel or change the out of stock product by contacting our Customer Service representatives.

## How do I order?

Send your order to Lycocomputer, P.O. Box 5088, Jersey Shore, PA, 17740. Or, call 1-800-233-8760 or (717) 494-1030. We provide four payment methods. We have always accepted C.O.D. orders through UPS. Prepaid orders over \$50 are shipped freight-free in continental U.S. For orders under \$50, please add \$3 for freight. Orders prepaid by a certified check or money order are shipped immediately. Personal and company checks require a 4 week waiting period prior to shipping. Visa and Master Card orders are accepted for your convenience, but we cannot pass along the 4% discount offered for cash. Prices advertised are cash prices. Purchase orders are accepted from Educational Institutions. We only charge sales tax on items delivered in Pennsylvania. For APO, FPO, and international orders, please add \$5 plus 3% for priority mail. Advertised prices and availability are subject to change. Not responsible for typographical errors.

## Price Guarantee

Since 1981, we have led the industry by continuing to offer the lowest national prices while providing quality service. Many companies have come and gone trying to imitate our quality and service. If by some oversight we do not have the lowest prices advertised on the products you desire, then we would appreciate the opportunity to rectify this oversight.



Sales: 1-800-233-8760 or 717-494-1030

Hours: Monday through Friday, 9:00 a.m. to 8:00 p.m.  
Saturday, 10:00 a.m. to 6:00 p.m.

Customer Service: 717-494-1670

Hours: Monday through Friday, 9:00 a.m. to 5:00 p.m.  
Fax: 717-494-1441

## IBM

<b>Activision:</b>	
Might & Magic .....	\$27.95
<b>Broderbund:</b>	
Print Shop .....	\$34.95
Jet Fighter .....	\$28.95
<b>Epyx:</b>	
California Games .....	\$22.95
Print Magic .....	\$32.95
4x4 Off Road Racing ..	\$22.95
Sporting News	
Baseball .....	\$22.95
<b>Firmin:</b>	
Universal Military	
Simulator .....	\$28.95
<b>Microleague:</b>	
Microleague, Baseball ..	\$22.95
GM Disk .....	\$16.95
Stat Disk .....	\$13.95
88 Team Disk .....	\$11.95
<b>Microprose:</b>	
Gunship .....	\$28.95

## IBM

<b>Mindscape:</b>	
Gauntlet .....	\$22.95
Balance of Power II ....	\$27.95
<b>Origin:</b>	
Ultima IV .....	\$34.95
Ultima V .....	\$34.95
<b>Strategic Simulations:</b>	
Heroes of the Lance ....	\$25.95
<b>Sublogix:</b>	
Jet Simulator .....	\$30.95
Western Europe	
Scenery Disk .....	\$14.95
<b>Timeworks:</b>	
Wordwriter PC .....	\$27.95
PC Quintet .....	\$49.95
Partner PC .....	\$22.95
Publish It .....	\$99.95

## ATARI

<b>Access:</b>	
Triple Pack .....	\$11.95
Leader Bd. Double Pk. ..	\$9.99
<b>Broderbund:</b>	
Print Shop .....	\$26.95
Graphic Lib. I, II, III ..	ea.\$14.95
Lode Runner .....	\$9.95
<b>Microprose:</b>	
Silent Service .....	\$19.95
F-15 Strike Eagle .....	\$19.95
<b>Mindscape:</b>	
Gauntlet .....	\$20.95
Infiltrator .....	\$17.95
<b>Origin:</b>	
Autoduel .....	\$24.95
Ultima IV .....	\$34.95

CALL FOR  
ATARI ST. LISTINGS

## COMMODORE

<b>Access:</b>	
Echelon .....	\$25.95
Mach 128 .....	\$28.95
Wild. Cl. Leader Bnd. ...	\$22.95
<b>Activision:</b>	
Last Ninja .....	\$19.95
Might & Magic .....	\$22.95
Maniac Mansion .....	\$19.95
<b>Batteries Included:</b>	
Paperclip III .....	\$31.95
<b>Berkeley Softworks:</b>	
Geoffie 64 .....	\$29.95
Geos 64 .....	\$35.95
Geos 128 .....	\$39.95
Geowrite 128 .....	\$39.95
Berkeley TriPak .....	\$29.95
<b>Broderbund:</b>	
Print Shop .....	\$26.95
Graphic Lib. 1,2,3 ...	ea.\$14.95
<b>Electronic Arts:</b>	
Jordan vs. Bird .....	\$19.95

## COMMODORE

<b>Epyx:</b>	
Fastload .....	\$22.95
California Games .....	\$22.95
4x4 Off Road Racing ..	\$22.95
Mindroll .....	\$22.95
<b>Microprose:</b>	
Airborne Ranger .....	\$22.95
F-15 Strike Eagle .....	\$19.95
Pirates .....	\$22.95
Stealth Fighter .....	\$22.95
Red Storm Rising .....	\$23.95
<b>Origin:</b>	
Ultima IV .....	\$34.95
<b>Springboard:</b>	
Newaroom .....	\$19.95
Certificate Maker .....	\$14.95
<b>Strategic Simulations:</b>	
Pool of Radiance .....	\$25.95
<b>Timeworks:</b>	
Swiftcalc 128 .....	\$27.95
Wordwriter 3 .....	\$22.95



Call for Apple Listings

## 5-1/4

Disk Notcher .....	\$5.95
<b>Maxell:</b>	
SSDD .....	\$7.95
DSDD .....	\$8.95
<b>Bonus:</b>	
SSDD .....	\$5.95
DSDD .....	\$6.95
<b>SKC:</b>	
DSDD .....	\$6.95
DSHD .....	\$13.95

<b>Xidex:</b>	
DSDD .....	\$4.95
<b>3.5</b>	
<b>Maxell:</b>	
SSDD .....	\$11.50
DSDD .....	\$17.95
<b>Bonus:</b>	
SSDD .....	\$10.95
DSDD .....	\$13.95

<b>Verbatim:</b>	
SSDD .....	\$12.95
DSDD .....	\$18.95
<b>Xidex:</b>	
DSDD .....	\$12.95
<b>SKC:</b>	
SSDD .....	\$9.95
DSDD .....	\$13.95

## Joysticks

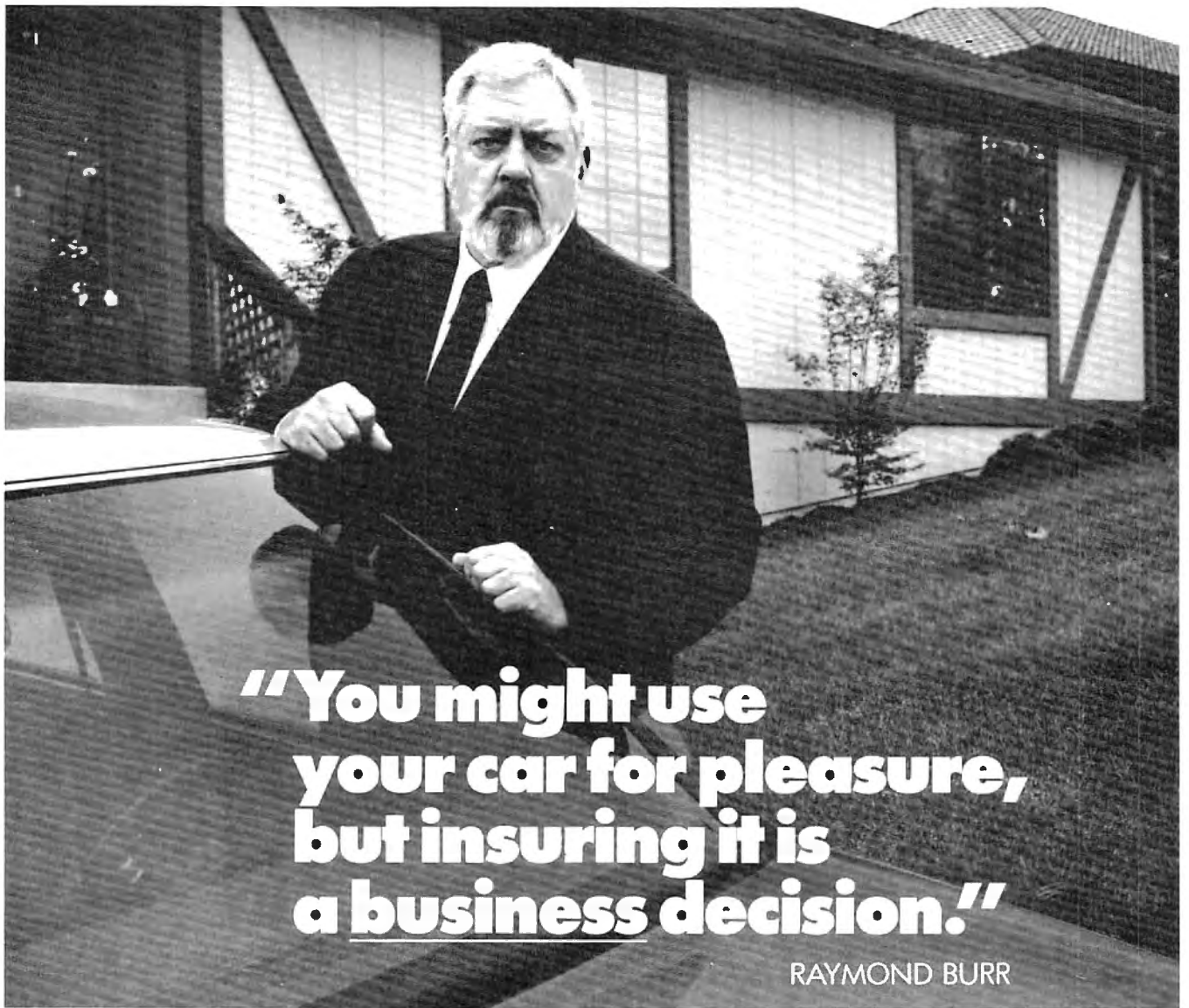
Tac 3 .....	\$9.95
Tac 2 .....	\$10.95
Tac 5 .....	\$12.95
Tac 1 + IBM/AP .....	\$26.95
Sik Stick .....	\$6.95
Black Max .....	\$10.95
Boos .....	\$11.99
3-Way .....	\$19.99
Buthandle .....	\$16.75

Winner 909 .....	\$24.95
Wico IBM/AP .....	\$29.95
Lipetic Plus .....	\$14.95
Kraft KC III Ap/PC .....	\$16.95
Kraft PC Joystick	
Card .....	\$24.95
Kraft Maze Master .....	\$8.95
I Controller .....	\$13.95
Epyx 500 XJ .....	\$19.95

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4 OF 4





**"You might use  
your car for pleasure,  
but insuring it is  
a business decision."**

RAYMOND BARR

**Here's why...** With the cost of auto insurance, particularly with two or more cars, you must make informed decisions. The right insurance company with the right coverages, with the proper limits at appropriate rates. Those are *business* decisions that require the advice and counsel of an Independent Insurance Agent. We represent several fine companies...not just one...so you choose the right policy at the right price, with the right service. An Independent Agent — always a good *business* decision.



**INDEPENDENT INSURANCE AGENTS OF AMERICA**  
...and the insurance companies they represent INCORPORATED



# buyer's guide

## Telecommunications Software

*Want to connect your computer with others across the country? Want advice from experts? Want to shop from home or download software? Then get yourself some telecommunications software so you can log on to one of the hundreds of services or bulletin boards around the world.*

*Check out your software choices in this gridlike comparison chart. Here, you'll find information about the important telecommunications software features—from protocols and terminal emulation to price and special requirements. In short, this chart lists all the details you need to choose the right telecommunications package.*

**Caroline D. Hanlon**

Software	Company	Price	Computer	Computer Requirements*	Error-Checking Protocols	Terminals Emulated	baud Rates Supported (bps)	Telephone Directory	Autodial Feature	Script Language	Features
Applet, Ink—Personal Edition	Apple Computer and QuantumLink, 20525 Mainani Ave., Cupertino, CA 95014, (408) 996-1010	\$35.00	Apple II, IIcS	128K; file requires enhanced ROM, 80-column and superserial cards	XMODEM, Binary II	None	300-2400	y <sup>n</sup>	y	n	Connects to Applet, Ink Online Service; features realtime chat mode and electronic mail; includes one-year subscription to the online service and a subscription to the magazine <i>Applet, Ink Update</i> .
ASCII Express Pro	United Software Industries, 8399 Topanga Canyon Blvd., Suite 201, Canoga Park, CA 91304, (818) 887-5800	\$129.95	Apple II, IIcS	64K	XMODEM, Binary II	VT52, VT100, VT101, VT102, Teletype, DataMedia, IBM 3101	Up to 19,200	y	y	n	Macro capabilities; Macintosh-like user interface for full point and click; full-screen editor; scroll-back review buffer; VT100 terminal emulation supports all function and application keys and reverse video.
ASCII Pro	United Software Industries, 8399 Topanga Canyon Blvd., Suite 201, Canoga Park, CA 91304, (818) 887-5800	\$89.95	IBM PC and compatibles	64K	XMODEM, XMODEM, Kermit	VT52, VT100, VT101, VT102, Teletype, DataMedia, IBM 3101	Up to 19,200	y	y	n	Menu-driven operation; macro capabilities; full-screen editor; scroll-back review buffer; VT100 terminal emulation supports all function and application keys and reverse video.



# buyer's guide

Ascorm IV	Dynamic Microprocessor Associates, 60 E. 42nd St., New York, NY 10165, (212) 687-7115	\$195.00	IBM PC and compatibles	256K, DOS 2.0 or later	XMODEM, YMODEM, XON/XOFF, Kermit, AscornIV, high-speed transfer	VTS2, VT100, VT220, Televideo 912, IBM 3101, and more	Up to 19,200	y	y	Remote operation; built-in editor; com support for com 1-4; can be used to create bulletin boards; version available that includes bulletin boards; online support included.
A-Talk III Communications Program	Oxoi, 1339 E. 28th, Long Beach, CA 90806, (213) 427-1227	\$99.00	Amiga	1 megabyte recommended	XMODEM, YMODEM, ZMODEM, WMODEM, Kermit	4010, 4014, VT100, VTS2, H19, ANSI, TTY	Up to 19,200	y	y	Setmaps for foreign character sets; resizable and scrolling buffer; voice option; A/Rex support; over 50 commands; multitasking spooler; IFF graphics export; voice option; recording feature; online help.
Better Working Communicator	Spinnaker Software, One Kendall Sq., Cambridge, MA 02139, (617) 494-1200	\$29.95	IBM PC and compatibles	256K, DOS 2.1 or later, hard drive or 5 1/4-inch disk	XMODEM	VT100, IBM 3101, Televideo 920	300-1200	y	n	Macro-key capabilities; full- or split-screen option; adjustable terminal width.
BitCom 3.5	BIT Software, 830 Hillview Ct., Suite 160, Milpitas, CA 95035, (408) 263-2197	\$69.00	IBM PC and compatibles	256K, DOS 2.0 or later	XMODEM, XON/XOFF, Kermit	VT100A, VT100B, IBM 3101	Up to 19,200	y	y	Support for most graphics cards with 132 columns; multiple-choice selections for installation; storage for 32,767 names, addresses, and phone numbers.
BLAST (Blocked Asynchronous Transmission)	Communications Research Group, 5615 Corporate Blvd., Baton Rouge, LA 70808, (504) 923-0888	\$250.00	IBM PC and compatibles	DOS 2.1 or later	XMODEM; Kermit; advanced, full duplex with CRC validation	VTS2, VT100, VT220, D6C, D200, HP 2392A, ADM-3A, Televideo 925, Dialog 80	300-38,400	y	y	Translates as it communicates; overrides noise in lines for transmission overseas and to mini and mainframe computers; creates full-duplex link; batch command files; includes recording feature.
BLAST	Communications Research Group, 5615 Corporate Blvd., Baton Rouge, LA 70808, (504) 923-0888	\$195.00	Macintosh Plus, SE, II	1 megabyte	XMODEM, BLAST full-duplex protocol	TTY, VTS2, VT100, VT220	Up to 38,400	y	y	Connects to AppleTalk; transmits and receives graphics; operates under Finder; includes slave mode; supports multiple file transfers; overrides noise in lines; translates as it communicates.
BobsTerm Pro	Progressive Peripherals and Software, 464 Kalamath St., Denver, CO 80204, (303) 825-4144	\$49.95/ \$59.95	Commodore 64 and 128	Commodore 64 and 128	XMODEM, XON/XOFF, CompuServe Bin, Punter	VTS2, VT100, 8040DN31 (128 only)	300, 1200, 2400	y	n	Reads from and writes to CP/M-formatted disks; text-editing capabilities; macro commands; 28K buffer with Commodore 64 version and 60K buffer with 128 version; not copy-protected.
Carbon Copy Plus V. 5.0	Mendian Technology, 7 Corporate Park, Suite 100, Irvine, CA 92714, (404) 390-9152	\$195.00	IBM PC and compatibles	256K	XMODEM, YMODEM, Kermit	VTS2, VT100, TV1920, IBM 3101	Up to 38,400	y	y	Compiler for terminal emulation; remote control mode; background file transfer; universal graphics support.
The Communicator	Free Spirit, 59 Noble St., Kutztown, PA 19530, (215) 683-5609	\$29.95	Commodore 64	Commodore 64	XMODEM	VTS2	300-2400	y	n	Menu-driven, user-defined parameters; optional macro keys; online help; DOS-commands menu; like-conversion utilities; graphics capabilities; 40-, 64-, or 80-column display on the Commodore 64; online help.
Crosstalk Mk 4 V.1.1	Crosstalk/Digital Communications Associates, 1000 Holcomb Woods Pkwy., Roswell, GA 30076, (404) 998-3998	\$245.00	IBM PC and compatibles	256K	XMODEM, YMODEM, ZMODEM, Kermit, Crosstalk, Quick B+, FAST	VTS2, VT100, VT101, VT102, VT220, and more	Up to 115,200	y	y	Fifteen separate, simultaneous communications sessions; full-featured programming language called CASL (Crosstalk Application Script Language).
Crosstalk XVI V. 3.7	Crosstalk/Digital Communications Associates, 1000 Holcomb Woods Pkwy., Roswell, GA 30076, (404) 998-3998	\$195.00	IBM PC and compatibles	256K	XMODEM and a variety of popular protocols	Most popular terminals	Up to 115,200	y	y	Background communications; pathname support; command-line editor; support of Remote2, also from Crosstalk; compatible with Microsoft Windows; upgrade to version 3.7 available for \$30.
Digal	Aegis Development, 2115 Pico Blvd., Santa Monica, CA 90405, (213) 392-9972	\$79.95	Amiga	512K and Kickstart 1.2	XMODEM, YMODEM, CompuServe B, DoubleTalk	VTS2, VT100, TTY, Tektronix 4014, ANSI	Up to 19,200	y	y	Macro keys; password protection; Aegis' DoubleTalk file-transfer capability for chat mode.
Dr. Term Professional	Progressive Peripherals and Software, 464 Kalamath St., Denver, CO 80204, (303) 825-4144	\$69.95	Amiga	512K	XMODEM, YMODEM, WMODEM, Kermit, CompuServe B	VTS2, VT100, TTY, ANSI	Up to 19,500	y	y	Full-down menus; answer-back capabilities; 300-entry phone book; command language for programming 40 macros.
Easy Working: The Connector	Spinnaker Software, One Kendall Sq., Cambridge, MA 02139, (617) 494-1200	\$9.95 (5 1/4-inch disk); \$14.95 (3 1/2-inch disk)	IBM PC and compatibles	256K, DOS 2.0, 5 1/4-inch disk drive	XMODEM	None	300-1200	y	n	Full- or split-screen options; support for over 250 printers; drop-down menus.
Flash	Anic Publishing, 544 Second St., San Francisco, CA 94107, (415) 957-0886	\$29.95	Atari ST	Atari ST	XMODEM, CompuServe, Kermit, and other major protocols	VTS2	Up to 9600	y	n	Macro capabilities; online help; a Kermit macro helper available separately.

\* All software packages require a computer-compatible modem and connecting cables.



Software	Company	Price	Computer	Computer Requirements*	Error-Checking Protocols	Terminals Emulated	Baud Rates Supported (bps)	Telephone Directory	Autodial Feature	Script Language	Features
MacTerminal	Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014, (408) 996-1010	\$125.00	Macintosh	128K or 512K	XMODEM, XON/XOFF	VT100, IBM 3278	300, 1200	y	y	n	Simulated macros from Notepad; Macintosh-to-Macintosh transfer mode; free time and membership with online services such as CompuServe, Dow Jones, Western Union Easylink, and The Source.
MicroPhone 1.5	Software Ventures, 2907 Claremont Ave., Suite 220, Berkeley, CA 94705, (415) 644-3232	\$149.00	Macintosh	512K	XMODEM, YMODEM	VT102	50-57,600	y	y	y	Bundled with <i>Glue</i> for desktop publishing; compatible with MultiFinder; text editor included; resizable screen; recording feature; complimentary subscriptions to The Source, GENie, Dow Jones News/Retrieval Service, CompuServe, and the Official Airlines Guide
MicroPhone II	Software Ventures	\$295.00	Macintosh	512K	XMODEM, YMODEM, Kermit, MacTerminal 1.1, MacBinary II	VT52, VT102	50-57,600	y	y	y	XON/XOFF pacing; compatible with MultiFinder; support for extended keyboard; capability to run in the background; recording feature included.
Mirror III	SoftKlone Distributing, Suite 100, 327 Office Plaza Dr., Tallahassee, FL 32301, (904) 878-8564	\$99.95	IBM PC and compatibles	256K, DOS 2.0 or later	XMODEM, YMODEM, Kermit, Crosstalk, Hayes, ACT Compressor	DEC 220, Wyse-50, and more	Up to 115,000	y	y	y	Operates completely in the background; built-in <i>WordStar</i> -like text editor; includes PRISM, a script language that can be accessed while running in the background.
Mi-Term 4.0	MichTron, 576 S. Telegraph Rd., Pontiac, MI 48053, (313) 334-5700	\$29.95	Atari ST, IBM PC and compatibles	512K and GEM (IBM)	XMODEM, YMODEM, DFT	VT50, VT100, VT200	300-9600	y	y	y	Twenty-six user-definable keys; printer echo; online parameter changes; split windows for conferencing; online help.
MouseTalk	United Software Industries, 8399 Topanga Canyon Blvd., Suite 201, Canoga Park, CA 91304, (818) 887-5800	\$99.95	Apple II and IIGS	128K	XMODEM, Binary II, ASCII Express	VT52, VT100, VT102, Televideo, DataMedia, IBM 3101	Up to 19,200	y	y	n	Macintosh-like user interface for full point and click; macro capabilities; full-screen editor; scroll-back review buffer; VT100 terminal emulation supports all function and application keys and reverse video.
Online! Platinum Edition	Micro-Systems Software, 12798 W. Forest Hill Blvd., Suite 202, West Palm Beach, FL 33414, (407) 790-0772	\$99.95	Amiga	512K	XMODEM, WXM0DEM, CIS-B, Quick B, HVP, Kermit	VT52, VT100, VT102, TTY, Tektronix	Up to 19,200	y	y	y	Pull-down menus; ten definable macro keys; seven translation tables; multitasking capabilities; ability to transfer data and chat simultaneously.
PC-Talk III	Headlands, P.O. Box 8, Tiburon, CA 94920, (602) 299-6296 (technical support), (415) 435-0770	\$35.00	IBM PC and compatibles	128K	XMODEM	none	300-9600	y	y	n	Online help available
PC-Talk IV	Headlands, P.O. Box 8, Tiburon, CA 94920, (602) 299-6296 (technical support), (415) 435-0770	\$99.00	IBM PC and compatibles	192K	XMODEM	VT-100, VT52	300-9600	y	y	n	Optional packages available for additional terminal emulation; macro capabilities; upgrade to version IV for \$45 available to registered users of version III.
Point-to-Point	Pinpoint Publishing, 5865 Doyle St., # 112, Emeryville, CA 94608, (415) 654-3050	\$129.00	Apple II, enhanced IIGS	128K, ProDOS	XMODEM, Binary II	VT52	300-9600	y	y	n	Recording feature; macro capability; full-screen text editor; <i>AppleWorks</i> file-card interface; print-screen feature.
ProCom M	Prometheus Products, 7225 SW Bonita Rd., Tiard, OR 97223, (503) 624-0571	\$49.95	Macintosh	512K	XMODEM, MacBinary	VT52, VT100	2400, 9600	y	y	n	ProCom M also sold as a package with the 2400M modem for \$279.
ProComm	Datastorm Technologies, P.O. Box 1471, Columbia, MO 65205, (314) 474-8461	\$50.00	IBM PC and compatibles	128 K	XMODEM, YMODEM, Kermit, CompuServe B, Telink, Modem 7, Windowed XMODEM	VT52, VT100, VT102, IBM 3101, Televideo 912, Televideo 920, Televideo 925, Televideo 950, Lear Siegler 80M 3/5, Adds Viewpoint, WYSE 100, Heath/Zenith 19, ANSI X3.64, TTY	300-19,200	y	y	y	Keyboard macros; host mode; pull-down menus; scroll-back review buffer
ProComm Plus	Datastorm Technologies, P.O. Box 1471, Columbia, MO 65205, (314) 474-8461	\$89.00	IBM PC and compatibles, PS/2	192K	XMODEM, YMODEM, Kermit, CompuServe B, CompuServe Quick B, Telink, Modem 7, Windowed XMODEM, Sealink, IMODEM, YMODEM-G	VT52, VT100, VT102, IBM 3101, Televideo 900 series, Lear Siegler 80M 3/5, Adds Viewpoint, WYSE 100 and 50, Heath/Zenith 19, ANSI X3.64, IBM 3270, TTY	300-115,200	y	y	y	Proprietary script language called <i>Aspect</i> featured; keyboard macros; advanced host mode; pull-down menus; scroll-back review buffer; record mode for automating log-on processes; remappable keys for terminal emulation
ProTerm 2.1	Checkmate Technology, 509 S. Rockford Dr., Tempe, AZ 85281, (602) 966-5802, (800) 325-7347	\$129.00	Apple II, IIGS, Laser 128	128K	XMODEM, YMODEM, ZMODEM, ASCII, Kermit, Christensen, Trans	VT100, VT52, Televideo, Heath H19, Zenith Z19, ADM-3A, and more	110-9600	y	y	y	Online help with pop-up screens; batch mode; direct-connect capabilities; Autolearn recording feature; software also bundled with Epic Technology modem (800-634-992 or 415-683-0932)



Quick Link II	Smith Micro Software, P.O. Box 7137, Huntington Beach, CA 92615, (714) 964-0412	\$99.00/ \$149.00	IBM PC and compatibles; Macintosh	512K, DOS 2.1+ (for PC); 512K (for Macintosh)	XMODEM, YMODEM, Kermit, Super Kermit	Teletype, VT52, VT100, VT102, ANSI	Up to 115,200	y	y	y	Account and usage time to CompuServe, Dow Jones, and The Source included; compatible with Macintosh MultiFinder; text editor; macro keys.
Red Ryder 10.3	FreeSoft, 150 Hickory Dr., Beaver Falls, PA 15010, (412) 846-2700	\$80.00	Macintosh, Plus, SE, II, and XL	512K	XMODEM, YMODEM, Kermit	TTY, VT52, VT100	Up to 57,600	y	y	n	Free subscription to GEnie; access to FreeSoft Round Table; 30 macro keys; 150-command procedure language; recording feature; onscreen time and money meters; auto redial; MacBinary II support.
Relay Gold 3.0	Relay Communications, 41 Kenosia Ave., Danbury, CT 06810, (203) 798-3800, (800) 84-RELAY	\$295.00	IBM PC and compatibles, PS/2	192K, DOS 2.0	XMODEM, Kermit, Relay	Most major terminals and IBM 3270	Up to 38,400	y	y	y	Data compression; overnight operations; multiple sessions; background file transfer; recording feature; online help.
RESPOND/Async	Software Synergy, 230 Park Ave., Suite 539, New York, NY 10169, (212) 697-0360	\$129.00	IBM PC and compatibles	256K, hard disk recommended	XMODEM	DEC ZT1000, IBM 3101, HP 2621, TTY	300-9600	y	y	y	Online help; support for data encryption.
SmartCom EZ	Hayes Microcomputer Products, P.O. Box 105203, Atlanta, GA 30348, (404) 449-8791	\$39.00	IBM PC and compatibles	DOS 2.2-3.0	XMODEM	None	300-1200	y	y	n	Keyboard macros; sold with the Hayes Personal Modem 1200 for \$179.00; simple onscreen menus; online help.
SmartCom II	Hayes Microcomputer Products, P.O. Box 105203, Atlanta, GA 30348, (404) 449-8791	\$149.00	Macintosh	512K	XMODEM, MacBinary, Hayes Verification	VT100, VT102, VT52, TTY	Up to 9600	y	y	y	Compatible with MultiFinder; support for Hayes modems, including V-series; capability to move and resize windows; support for printers on AppleTalk network
SmartCom II Version 3.0	Hayes Microcomputer Products, P.O. Box 105203, Atlanta, GA 30348, (404) 449-8791	\$149.00	IBM PC and compatibles	384K, DOS 2.0-3.3	XMODEM, YMODEM, Hayes Verification	VT52, VT102, VT100, TTY	Up to 9600	y	y	n	Macro keys; storage for 26 batch-command sets; menu-driven.
SmartCom III	Hayes Microcomputer Products, P.O. Box 105203, Atlanta, GA 30348, (404) 449-8791	\$249.00	IBM PC and compatibles	512K, 80-column display, hard disk, DOS 2.0-3.3	XMODEM, YMODEM, Kermit	TTY, VT52, VT100, VT102, ANSI	Up to 38,400	y	y	y	Terminal settings separated from modem settings; editor; peruse buffer; simultaneous communication through two com ports; online help; recording feature; script language called SCOPE.
SpeedTerm	Abacus Software, 5370 52nd St. SE, Grand Rapids, MI 49508, (616) 698-0330	\$29.95	Commodore 64 and 128		XMODEM, Punter	VT52	300-1200	y	y	n	Function keys; access to DOS; batch-file capabilities; Commodore 64 has 24K buffer and Commodore 128 has 45K buffer.
Straight Talk	Dow Jones, P.O. Box 300, Princeton, NJ 08543-0300, (609) 520-4641, (609) 520-4642	\$95.00	Macintosh	128K	None	None	300-2400	y	y	n	Includes membership to the Dow Jones News/Retrieval service; accesses CompuServe and The Source; uses Notepad to click on stock choices; retrieves up to 30 stocks; automatically logs on to the DUN/R service.
Telecomm	Popular Programs, 6915 La Granada, Houston, TX 77083, (713) 530-1195	\$59.95	IBM PC and compatibles	128K	XMODEM, XON/XOFF	VT52, VT100	200-9600	y	y	y	Provides access to airline reservations, ticketing, and low fares.
Teleworks Plus	Actvision, Distributed by Mediagenic, 3885 Bohannon Dr., Menlo Park, CA 94025, (415) 329-0800	\$99.95	Apple IIgs	512K, RGB monitor	XMODEM, ASCII, NONE for character sets, Teleworks Plus X-Modem	None	300-9600	y	y	y	Capability to send and receive artwork and text; pull-down menus; mouse or keyboard control; macro keys; online text editor; recording feature.
Telpac	U.S. Robotics, 8100 N. McCormack Blvd., Skokie, IL 60076, (312) 982-5244	\$99.00	IBM PC and compatibles	256K, serial port	XMODEM, ASCII, Modem 7	TTY, VT52, VT100	Up to 19,200	y	y	n	Contains Photologon to record sequences; written in assembler and C; is menu-driven; logs outgoing calls; has remote access capabilities; includes windows, security options, and online help.
VTXON-Line	MichTron, 576 S. Telegraph Rd., Pontiac, MI 48053, (313) 334-5700	\$79.95	Amiga		XMODEM, YMODEM, CompuServe B, Kermit	VT100, 4014	300-9600	y	y	y	CLI-compatible capture buffer; two-window conferencing; recording feature; mouse-, keyboard-, or menu-driven; online help.
XChange	Commtech International, 2580 Cumberland Pkwy., Suite 150, Atlanta, GA 30339, (404) 438-9999, (800) 678-8988	\$149.95	IBM PC and compatibles	256K, DOS 2.0 or later	XMODEM, YMODEM	None	Up to 36,400	n	n	n	Unattended execution; encryption of data; activity log; customized protocols and routines.
XChange Plus	Commtech International, 2580 Cumberland Pkwy., Suite 150, Atlanta, GA 30339, (404) 438-9999, (800) 678-8988	\$245.00	IBM PC and compatibles	280K, DOS 2.0 or later	XMODEM, YMODEM	None	Up to 115,200	n	n	y	Error-free transmission; automatic data compression; detailed history logs; color map to depict calls graphically; support of null modem; data encryption; online help.

\* All software packages require a computer-compatible modem and connecting cables.



# COMPUTE!

## *specific*

**Immense PC  
Floppies; 64  
Rumors; Riper  
Apples; Amiga  
Antics; Mac  
Files Swapped;  
New GFA  
BASIC**

**MS-DOS**

Nels Anderson got tired of playing games that didn't take advantage of his PC's EGA graphics, so he decided to write one that did. The result is *Mah Jongg* (Nels Anderson, 92 Bishop Drive, Framingham, Massachusetts 01701; shareware—\$10) a game that uses the classic Oriental tile contest to push an EGA system to its max.

The *Mah Jongg* screen consists of 144 beautifully detailed tiles randomly arranged in a classical dragon, or pyramid, formation. To play the game, you simply find matching tiles and remove them from the board. When you've removed all the tiles, you've won the game.

That may sound simple, but winning depends on strategy, and each game has a remarkable number of variations and subtleties.

What makes *Mah Jongg* such a success is Anderson's attention to detail. Not only are the tiles exceptionally well designed, but the game features full mouse support, on-line help, an undo feature, and a boss key, as well as single-user, multiple-user, and tournament play options. In addition, you can customize the background color, the color of the mouse pointer (actually a tile-sized rectangle), and much more.

If you get stuck and don't

know what to do next, *Mah Jongg* offers just as much help as you need. Select Help and you'll find out whether another move exists. If that isn't enough help, the program can show you exactly what your next move should be. If you've chosen one tile and are looking for the other, click on Help, and the program will show you the matching tile if one exists.

*Mah Jongg* keeps track of the number of tiles you have left to play and, on an alternate screen, the tiles you've already played. You can save games in progress and load them later, and, since each game has an identifying number (there are over 65,000 games), you can jot down any game's number and replay it to try to better your score.

If you have an EGA system or equivalent (MCGA or VGA), *Mah Jongg* is a visual feast and a mental workout. If you have a Hercules system, don't feel left out: Anderson has included Hercules support in his newest release of *Mah Jongg*, version 3.0.

### 360K and Counting

When the PC was released in 1981, its standard disk drive was a single-sided, nine-sectors-per-track device that could store about 160K.

The PC has come a long way since then, but floppy-disk storage capacity has lagged behind other advances. Although you can now buy AT-class machines with 1.2MB 5¼-inch and 1.44MB 3½-inch drives, the standard floppy drive is still 360K and has an average access time of about 270 milliseconds (ms).

You may wonder why manufacturers simply can't squeeze more bits onto a disk. This is exactly what's happened with hard drives. Five years ago, 10 megabytes was the standard size; today, 150-

megabyte hard disks are becoming common. Things are different with floppies, however.

Hard drives usually consist of several disks, called *platters*, with one head for each platter. The head mechanism can read the information on each cylinder—the tracks that are on the same location on each platter—without having to move. The more platters there are, the more information can be read without moving the heads and the faster the disk can read a file. If you've ever wondered why larger hard disks are almost always faster than small ones, this is why: Larger disks have more platters and a higher cylinder density.

Because hard disks are rigid, they can be precision-coated with superdense media, which means more tracks per inch, yielding a higher track density, and more bits per track, yielding a higher data density.

Floppy disks, however, are limited to one, nonrigid platter. The only way to squeeze more information onto one of these disks is to increase the track density and the data density. Ironically, the smaller the disk is, the more rigid it can be made and the more accurately tracks can be laid out. This is why 3½-inch disks hold more than physically larger 5¼-inch disks—the 3½-inch disks are more rigid.

Several years ago, PCs reached a floppy-disk storage limit of something over a megabyte, and it looked as if capacity was going to be stuck there. But two companies have just announced exciting new super-high-capacity floppy drives that could easily revolutionize the way we use our computers.

Maxell has developed a 3.2MB 5¼-inch disk as well as 4MB and 12.5MB 3½-inch disks. Briar Technology has just announced two drive/disk combinations that hold 21.4MB and a whopping



# COMPUTE! *specific*

43.2MB. The access times of the Maxell disks are in the neighborhood of 200 ms, but Briar's 43.2MB model clocks in at 29 ms—an excellent access time for a multiplatter hard disk and an almost unbelievable time for a floppy.

The prices for these high-capacity drives should start at around \$1,000, with disk prices ranging from \$6 for the 3.2MB Maxell disks to \$30 for Briar's 43.2MB media.

## Power Pak

A PC power system needs three things: a disk cache, a print spooler, and a ramdisk. A disk cache really moves a hard disk into the fast lane. A ramdisk just can't be beat for lightning-fast file access. And when it comes to freeing your machine while it's printing, nothing saves you like a print spooler.

These three RAM-based system enhancers have one thing in common: The more RAM they use, the better they work.

But choosing how to allocate scant RAM resources among these software devices is an almost impossible task. Do you simply divide your available RAM evenly among them? That probably won't give you maximum performance because the disk cache will get the most use, followed by either the ramdisk or the print spooler, depending on your needs. No matter what type of allocation system you come up with, most of the time your print spooler will just be sitting there taking up space and electricity. And, depending on how you use your system, the same probably goes for a big chunk of the memory allocated to your ramdisk.

Multisoft has the answer to the cache/print-spooler/ramdisk dilemma with *PC-Kwik Power Pak* (Multisoft, 15100 SW Koll Parkway, Suite L, Beaverton, Oregon 97006; 503-644-5644; \$129.95), a system enhancement that manages your PC's memory and dynamically allocates RAM for the print spooler and ramdisk from the cache. When

you're not using the print spooler, *all* its memory can be dedicated to the cache. Likewise, if you don't need the ramdisk, its memory can be used by the cache—or by extension, by the print spooler. *Power Pak* uses conventional, expanded, or extended memory.

The cache memory manager is a TSR program that takes about 60K of conventional memory; the amount of memory used by the print spooler and ramdisk depend on the options selected for each. All programs work completely transparently, managing your memory while you go about your computing as usual.

But *Power Pak* doesn't stop there. Also included are a keyboard accelerator and a screen-boost utility. The screen boost has a feature that lets you recall past screens and, like that of the ramdisk and print spooler, its memory is dynamically allocated from the cache.

If you're planning to buy a new PC, there's a chance *Power Pak* will be bundled with your new micro: Computers by AST, Hewlett-Packard, Dell, GRiD, and Cordata now include *PC-Kwik Power Pak*, and the software also comes with Intel's Inboard 386 and Plus Development's Hardcard 40.

— Clifton Karnes



Two rumors come from the Commodore camp this time around. The first predicts a Commodore 64D, which

would be packaged like a 128D. (The 128D's motherboard, power supply, and 1571 disk drive are built into a separate console; its keyboard and monitor are separate.) The second rumor suggests a full-fledged Commodore 64 emulation for the Amiga. Two Amiga products already exist that emulate the 64, but neither is particularly impressive. This one would be an add-on card for the Amiga 2000 and would include a port for a 1541 drive.

Like other rumors concerning Commodore's 64, these are probably idle. The 64D idea would be more viable if the Commodore 64 were still used extensively for home or small-business productivity. The 64 emulator for the Amiga would be useful only if Amiga software were still scarce.

## Ancient Future

PSS, licensed by DataSoft and distributed in turn by Electronic Arts (1820 Gateway Drive, San Mateo, California 94404; 415-571-7171), has released two new war games for the Commodore 64/128. *Annals of Rome* (\$24.95) simulates the rise and fall of the Roman Empire, from 273 B.C. through the fifth century A.D.; and *FireZone* (\$24.95) lets you fight twenty-first-century colonial wars. Both are designed with the historical-game fan in mind.

The map for *Annals of Rome* represents the ancient world in 28 regions, extending from Aegyptus and Judaea in the southeast to Britannia in the northwest. As the ruling body of the Roman senate in 273 B.C., you establish the Imperial strategy, send leaders into the fight, arrange for new rulers in Rome when they're needed, and so on.

The game is purely strategic, with a host of conditions to keep you on your toes: inflation, decreased popularity, and the declining population. Then you have to worry about making sure the right leader is in charge of the right territory. You even have to decide whether you want to start a rebellion. There are foreign wars

and civil wars, as well. In other words, it's just like good old Rome.

*FireZone* depicts tactical combat between the European League and the Pacific Combine in 2160 A.D. Also in the futuristic picture are the United African States and Islam, a collection of Arab-based powers. The game comes with nine scenarios. First Blood is an introductory game; Surprise Attack and Final Conflict increase the complexity. The other six advance from there, and once you get through all these, you can design more. *FireZone* features seven types of terrain and seven types of combat units. The units include infantry with plasma armor and X14 nuclear rifles; nova guns; striders, machines much like the Star Wars walking assault vehicles; grav tanks, a sort of armored hovercraft; heavy tanks; and levathans, powerful tanks. Movement is by hexagon, and combat is simple to execute but difficult to survive.

## Yet Another Jet

From Absolute Entertainment (distributed by Mediagenic, 3885 Bohannon Drive, Menlo Park, California 94025; 415-329-0500) comes *F-18 Hornet* (\$34.95), a one-player flight simulator. Here you take command of a Navy F-18/A jet and execute a series of increasingly complex missions. The introductory mission is tough enough to complete, but by the time you master the tenth mission you can rightly call yourself a Top Gun.

Each time you fly, your score is based on whether or not you've completed the mission, the number of targets you've destroyed, the condition of your jet, how many difficult maneuvers you've flown, and how well you landed on the deck of an aircraft carrier.

As in most flight simulators, you look out from the cockpit. Controlling your jet with the joystick, you learn to taxi, take off, land, and fire missiles. A nice option lets you fly around without worrying about the enemy.

Flying is unusual in that



you can't turn around until you reach your destination. It can be an island, a carrier, or an airstrip.

Certainly not an easy game to master, *F-18 Hornet* offers something different in the line of flight simulators for the 64/128.

## Q-Link Games Grow

Q-Link, the 64/128-specific telecommunications service, has added two new games to its repertoire: *Boxes*, which was previewed November 1988, should be running full-time by now. *Quad 64* made its debut in January.

*Boxes* is the old dots game. Most of us played the game as kids, trying to join the dots and eventually close the boxes. Win boxes by closing them, and win the game by closing the most boxes. In the Q-Link version, two players compete in realtime by modem.

*Quad 64* is three-dimensional tic-tac-toe. Each of four boards has a 4 x 4 grid. The object is to fill in four consecutive squares—vertically, horizontally, diagonally, or across the four boards. Try it once and find out how tied to two-dimensional gaming you are.

Both games must be downloaded to your Q-Link games disk before you can play them. For information, contact QuantumLink, 8620 Westwood Center Drive, Vienna, Virginia 22180; (800) 392-8200, or (703) 883-0788 in Canada.

## Long-Playing Roles

Three notable role-playing products have found their way to the shelves. If you like computer role-playing games, you'll like all of these.

After what seems an eternity since its release of the program for the Amiga, *Micro-Illusions* (17408 Chatsworth Street, Granada Hills, California 91344; 800-522-2041) has finally ported *The Faery Tale*

*Adventure* to the 64/128. *Faery Tale* (\$49.95) offers a graphically stunning overhead view of a large, rich fantasy world in which you direct three brothers through their individual quests. The game works with either keyboard or mouse; the mouse is better.

*Faery Tale* is a very fine game with a very big problem. Even on the Amiga version, disk access is frequent and annoying; on the 64/128, it's more frequent and far, far slower. Speed-up cartridges don't seem to help (I tried Warp Speed and Fast Load), and the game, unfortunately, does not use the 1571's burst mode. The game is still enjoyable, but playing it requires even more dedication than is usual for a role-playing game.

*Deathlord* (\$29.95), from Electronic Arts (1820 Gateway Drive, San Mateo, California 94404; 415-571-7171), is particularly welcome because it deals with Japanese, rather than European, mythology. Races include Human, Toshi (good magic users), Kobito (a dwarflike race), Gnome, Obake (a hobbitlike race), Troll, and Ogre. The rich assortment of character classes is comprised of Senshi (mercenaries), Ansatsusha (assassins), Genkai (illusionists), Kishi (good guys), Mahotsukai (spell casters), Ronin (head bashers), Yabanjin (primitives), and, of course, Samurai.

In *Deathlord*, you and your party must defeat the evil power loose in the world of Lorn. Six adventurers can join the party, but each character needs money for goods and equipment. There are objects to be found, dungeons to be explored, magic spells to be learned—the whole bit. This is a strong game, with its Japanese emphasis especially appreciated.

*Mars Saga* (\$34.95), also from Electronic Arts, is a science-fiction role-playing game that takes place on Mars in the not-too-distant future. Like *Deathlord*, *Mars Saga* is party-oriented. It also features a good tactical battle system.

Your goal is to find out what happened to Proscenium, the mining outpost destined to be Mars' largest city. Contact with the outpost has been lost, and you must brave the Mar-

tian environment in an attempt to find out why. Another rich and lengthy game, *Mars Saga* makes good use of the 64's graphics without accessing the 1541 drive too often.

— Neil Randall



Now may be the time to get the family another Apple II computer. A second Apple in the house could solve a lot of problems—maybe keep the kids' sticky fingers off your keyboard and keep your spouse at bay when the two of you argue over who gets to use the computer.

Becoming a two-computer family won't even cost much if you look into buying a used Apple II as your second machine. The price of used Apples has never looked better.

Maybe it's just the time of year that's pumped so many Apple II's into the used-computer pipeline, but a better explanation is the rush for Apple IIcs computers. The pricey IIcs costs plenty, enough that a lot of prospective buyers must unload their current Apple II's to come up with the cash. Their loss can be your gain.

In a recent issue of *ComputerEdges*, a San Diego computer magazine that includes a hefty used-computer classified ad section, Apple IIc systems were going for an average of around \$600. Equipped with a monitor, a second disk drive, and in many cases a printer, the used IIc systems ranged from \$350 to \$1,000 (a IIc with 640K of RAM). Apple IIe sys-

tems were priced higher—the rugged expandable computers started at \$650 and topped out at \$1,300, but averaged about \$850.

Depending on the package, the age of the Apple II, the condition of the equipment, and the included software, you can find deals and dogs. But when you consider that a new IIc Plus, which is the cheapest Apple II, runs \$675 without monitor, printer, or software, and that the IIe is almost impossible to get, the used-computer route could be your best bet for a second machine.

Check your local newspaper's classified ad section, or give a used computer broker like the Boston Computer Exchange a call if you don't live near a major metro area. The Boston Computer Exchange will try to match you with a seller for 10 percent of the action (the seller pays the commission). Contact the Exchange at (800) 262-6399 or (617) 542-4414.

## You Can't Do That

*AppleWorks GS* is a window on the future of Apple II software. It may be a cracked window, what with its frequent system crashes and its multitude of quirks that users are only now discovering, but it's still a clear enough window to see that true 16-bit software for the IIcs is here to stay.

Many of the early users of *AppleWorks GS* were *AppleWorks Classic* pros, people who had spent years with *AppleWorks* and wanted something more than just a fast version of a four-year-old program. (In fact, these were the people who made early *AppleWorks GS* sales so good—35,000 during the first three weeks, the grapevine said.)

*AppleWorks GS* is particularly rough on traditional *AppleWorks* users, who must forget virtually everything they've learned. A prime example is in the *AppleWorks GS* database module.

The database is extremely flexible and, in its Form view, lets you customize how each record shows on the screen.



# COMPUTE! *specific*

There's also a List view, which puts the database information in a spreadsheetlike format, each record on a line, each field in a cell. So far, this should sound familiar to *AppleWorks* Classic users.

But while you can switch from Form view to List view in *AppleWorks* (using the Open Apple-Z combination) and see the record in the Form view that you selected in the List view, that's impossible in *AppleWorks GS*. Select a record while in List view, switch to the Form view, and you'll see an entirely different record. It's not a randomly selected record, but the last one displayed in that format. More than likely, it's the first record in the file.

There is no work-around. The only way to keep both the Form and List view synchronized is by manually moving the scroll thumb until the appropriate record is on the screen in both views. Alternately, and easiest even though

it's time-consuming, you can use the Find command on the Organize menu to shift to the correct record.

What a pain.

## Talk It Up

When the Apple IIGs debuted over two years ago, some of its most enthusiastic fans were educators. Teachers nearly drooled over the IIGs's 15-voice sound chip, seeing (or hearing) in that chip a potentially powerful teaching tool. Digitized and synthesized speech were the promises that teachers took to heart.

It's only been recently, however, that the major educational software publishers have come through with their end of the bargain—talking IIGs software.

Three packages in particular are worth noting. Two of them, *Talking Math and Me*

and *Talking Reading and Me*, come from Davidson (3135 Kashiwa Street, Torrance, California 90505; 213-534-4070; \$39.95 each). Although they play the same way their non-talking ancestors do, these IIGs-specific programs use higher-quality graphics and speech that has to be heard to be believed. Children get to choose between two voices—an adult's and a child's. Both voices are female—in fact, the adult voice is the digitized voice of a Davidson employee.

The third package is *The New Talking Stickybear Alphabet*, from the Weekly Reader Software series (Optimum Resources, 10 Station Place, Norwalk, Connecticut 06058; 203-542-5553; \$49.95). As with the Davidson programs, *Talking Stickybear Alphabet* is a remake of an earlier success, but adds sound and speech. The quality of both is just as good as, if not better than, that found in the Davidson programs.

Neither Davidson nor Optimum took many chances with these releases; they were proven sellers *without* speech and so are guaranteed to do well *with* it. Apple IIGs owners, whether schools or parents, want more than just a crisper picture on the monitor for the money they've spent. It looks as if they're finally getting the same extra in their software that they've paid for in their hardware.

## Full of GS

Almost all of the hot Apple II software action is in IIGs-specific packages. Although there's an occasional great piece of software that runs on all Apple II's (an example is The Learning Company's *Children's Writing & Publishing Center*), the really good stuff is only released for the IIGs.

*Zany Golf*, an offbeat ver-



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— Sally Ryce, Finance Director

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# COMPUTE! *specific*

sion of miniature golf, is a good case in point. The IIGs game from Electronic Arts (1820 Gateway Drive, San Mateo, California 94404; 415-571-7171; \$39.95) puts 18 eclectic holes in front of your putter. There's a windmill, of course, but it's on the first hole, leaving the real fun for the next 17. A bouncing hamburger, rising walls, high-speed fans, a moving hole, and even lasers come into play before the game's over. Naturally, *Zany Golf* makes use of the IIGs's great graphics-and-sound capabilities, and you use the mouse to aim and hit the ball. The game plays quickly and, until you reach the 18th hole, addictively, as you keep going just to see the next crazy, Rube Goldberg-like setup. The 18th hole is a miniature-golfer's nightmare, for its two levels are studded with pitfalls and barriers that misdirect and vaporize your ball. The only thing going for you is that you can stockpile balls during your run for the last hole. Just hope you have at least a dozen ready when you waltz up to the last tee.

Another example of innovative IIGs software that will never make it to the IIe, IIc, and IIc Plus computers is *Cartooners*, also from Electronic Arts (\$59.95). This animated movie maker is a fun toy and tool for children of all ages, though the package says to keep it in the hands of kids 6-12. Ten background scenes are included, as are more than 40 characters that you can place, turn, walk, and spin across the stage. Although the characters are generic cartoon figures, some, like the big, bad wolf and the little, pink pig, are sure to find favor with the kids. You can easily add text in speech balloons that move with the actors, and you can insert sound effects (the *boing* effect, for instance, sounds like something from a Wile E. Coyote cartoon) anywhere in the animation. Within a few moments of popping in the disk (more like a few minutes, because *Cartooners* is one of the slowest-loading IIGs programs around), you'll know how to change one of the animated shorts included with *Cartooners* or how to build your own version of *Steamboat Willie*.

Don't expect either *Zany Golf* or *Cartooners* to migrate down to the 8-bit Apple II computers. Their graphics, sound, memory requirements, and interface are strictly IIGs fodder. The trend is already clear—if you want to stay at the cutting edge of Apple II software, you need hardware to match.

—Gregg Keizer



Commodore recently published a new technology report, hinting at the direction the company intends to take with the Amiga. The report described in detail such mouth-watering hardware as the Professional Video Adapter, Commodore's broadcast-quality plug-in board meant to give the Amiga built-in Targa-like capabilities. The PVA, which is planned only for the A2000, will occupy the video slot and a Zorro slot and will include a genlock/keyer, a realtime frame grabber and digitizer, broadcast composite output, and video-paintbox/special-effects software. Given NewTek's problems with bringing out the Video Toaster, Commodore may be able to grab the professional video market for itself.

Another device discussed in the report is a combination hard disk and RAM expansion for the A500. The autobooting 20-megabyte hard disk plugs into the expansion port and contains a controller and chip slots for up to 2 megabytes of RAM, making the A500 a formidable home machine. The rumor is that the hard disk/RAM combo will be unbeat-

ably priced, but the disk is very slow—about 85-ms access time. That's still faster than floppies, though.

The A2500UX, the UNIX Amiga mentioned in an earlier column, may appear in the second quarter of this year. AMIX, the Amiga version of UNIX, will run concurrently with AmigaDOS, so you'll still be able to play *Arkanoids* while running those atmospheric turbulence simulations. Watch also for official announcements of such advanced hardware as Commodore's Transputer boards for parallel processing at the speed of a mainframe, and a graphics card for realtime 3-D animation at a resolution as high as 1024 x 1024 pixels.

As is customary with Commodore, the new technology report didn't include price information or ship dates. You can always try to pry the information out of the company by contacting Commodore Business Machines, 1200 Wilson Drive, West Chester, Pennsylvania 19380; (215) 431-9100.

## Apple Sauce

Many industry insiders acknowledge that the Amiga 500 hurts Apple IIGs home market sales. Compared to a \$2,000, similarly equipped Apple IIGs, the A500 is a real bargain. Amiga developers should take note and start working on better educational software.

Now, if only Commodore could hone the Amiga operating system to match its superior hardware, Apple would really have something to worry about—the recent price hikes on Macintoshes have also left Apple vulnerable to less expensive competitors. Workbench 1.4 holds some real promise in that regard, but more about that in a future column.

## Genlock Games

Video-hardware developers are entering the expanding Amiga desktop-video field. Magni Systems (9500 SW

Gemini Drive, Beaverton, Oregon 97005; 800-237-5964), a small company started by engineers with a long list of credentials, designs award-winning broadcast-video equipment, but now the company has introduced a broadcast-quality genlock for the Amiga 2000. The Magni 4004 Video Graphics System consists of two Zorro plug-in cards and an external controller. One card interfaces with the Amiga RGB graphics system; the other contains a broadcast encoder with internal black-burst and sync generators, a genlock, and its own system clock. The controller box has sliders for fading video in and out.

As you might expect, the Magni Video Graphics System's top quality comes at a list price to match: \$1,695 for the two-board set, plus \$300 for the controller box. Video professionals will definitely want to check out the Magni System.

If you're just getting started with desktop video, you might want to consider the Amigen genlock, from Mimetics (P.O. Box 1560, Cupertino, California 95015; 408-741-0117). This little unit's signal may not be as good as the Magni's, but it's fine for recording Amiga graphics on your home VCR, and remains the only low-priced (\$179) genlock on the market that works with any Amiga.

The Amigen plugs into the RGB port and has composite video in and out jacks (RCA), plus a pass-through for the RGB signal so you can hook up your monitor and run the genlock at the same time. There are no external adjustments, knobs, or sliders, however.

## Latest Models

Commodore's shipping two new Amigas: the Amiga 2000HD and the Amiga 2500. The 2000HD package consists of an A2000 with a formatted 40-megabyte hard disk and Commodore's new 2090A hard disk controller, which autoboots with the 1.3 ROM and 1.3 Workbench. The Amiga 2500 is an A2000HD equipped



# COMPUTE! *specific*

with the A2620, Commodore's 68020 accelerator board, and two megabytes of 32-bit RAM. Both machines are hardware- and software-compatible with earlier Amigas.

You won't need to buy a whole new Amiga to get the new boards; Commodore is selling the hard disk, the 2090A controller, and the A2620 accelerator board separately. The A2286, AT-compatible Bridgeboard should also be available by now. List price for the 2090A is \$399; the A2500 runs \$4,695—not bad for a machine with better performance than a \$9,000 Mac II's.

## Amiga Antics

The near demise of the Atari ST in the United States has left the home computer field with three major players: Commodore, Apple, and Tandy. For-

mer Atari boosters are moving over to Amiga with some interesting new products.

One of the best-known ST developers is Antic Software (544 Second Street, San Francisco, California 94107; 415-957-0886), which publishes the Cyber series of CAD, 3-D, and animation software for the ST, as well as the magazines dedicated to Atari computers.

Sources at Antic tell me they are planning an Amiga magazine as well. A good measure of the growing popularity of the Amiga is how many new Amiga publications are coming out. [In fact, COMPUTE! Publications recently introduced a new Amiga magazine of its own, *COMPUTE!'s Amiga Resource*. Look for it on your local newsstand—Ed.]

Antic's Amiga offerings include *Zoetrope*, an animation program written by Jim Kent, creator of *Aegis Animator*, and a series of 3-D object clip-art disks that work with *Script 3-D* and *VideoScape 3-D*.

## Plague Ship

Antic also offers the Amiga *Pioneer Plague*, an arcade shoot-'em-up with a twist—Antic claims it's the first Amiga game with all HAM graphics. The premise is that Earth has sent out the self-replicating space probe Pioneer Probe Mark IV to terraform all the planets in the galaxy so that they will be habitable for Earthlings. The Pioneer Probes have mutated, though, so they use planet inhabitants as raw material for constructing planetwide megalopolises.

You must stop the spread of the Pioneer plague by shooting down as many Probes as you can find. You have an airship with photon missiles and several drone protectors. The Probe has Shark Fighters, Homers, Air Mines, and Boxers. Once you've obliterated the menace on one planet, you must warp to the next infected

planet, with battles en route. Some strategy is involved: You can program your drones to execute various attack and defense maneuvers, and you can, if necessary, take shortcuts from one planet to the next using map overlays provided with the game.

The 4096-color graphics in *Pioneer Plague* are indeed impressive, especially the planet views (although the HAM files are so big that only a few planet views fit on one disk). The realism extends to the smoothly scrolling, very detailed cityscapes, where most of the gameplay takes place. The driving score creates tension before each big battle. It will be hard to port this game to another system and retain the same interest level.

I have only a few complaints: All the colors on the control panel make it hard to read; and the cityscapes and attackers are not well differentiated from planet to planet, even though the planet types



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— Douglas Banker, Rock and Roll  
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are different. I also found the arcade action a mite too fast—but maybe I'm just getting too old to monitor the tactical displays while shooting at attackers, deploying drones, avoiding the control towers, stealing fuel from depots, and choosing the next planet.

Now let's see a HAM game with excellent gameplay, 3-D ray-traced overscan animated graphics, speech synthesis, engaging characters with minds of their own, a real narrative, and an UNDO function. Anyone ready for the first ten-floppy game?

— Steven Anzovin

notes on your computer—often a preferable method.

But *QuickLetter* isn't just another word processor—cum—desk accessory. You can get a public domain package if that's all you want. *QuickLetter* stores letterhead stationery images, keeps track of addresses, and creates envelopes easily. Right now, the package comes with *SpellsWell*, so you even have a spelling checker.

## Breaking and Entering

Before complicated networks and E-mail and special-interest bulletin boards, there was Sneakernet. Sneakernet required no special protocol, no special cables and terminal software. To communicate on Sneakernet, all you needed to do was take a disk from your computer to someone else's, stick the disk in that remote drive, and copy some files— instant data transfer. Well, almost instant.

For many of us, Sneakernet is still the way to go. We exchange public domain games with friends at work, we take our word processing files to laser printing services, we share particularly useful budget templates with business colleagues. But what happens if I send you a picture for one of your word processing files and you don't have a graphics program? What happens if you send me a *MacWrite* file when all I have is *WriteNow*, and you forgot to save it in ASCII format? How do we share incompatible files?

Mediagenic's TENpointO division has just released a package that could help those of us using Sneakernet. *Open It!* prints files to disk so that you can manipulate them even if you don't own the program used to create them. You can use *Open It!* on an electronic network, too—if you must.

Printing to disk works just like printing to a preview screen. You see the document as it will look on paper. You can even do a little touch-up on the file: You can change fonts and scale the image. Then either convert the file to importable text or copy the image to the clipboard and

you're ready to paste it into your word processing or graphics file. *Open It!* lets database and spreadsheet users separate items with commas, tabs, or returns, so some of the data can be preserved as it moves from its original incarnation to *Open It!* to its final destination.

Last but not least, *Open It!* includes a public domain version that you can send with any *Open It!* file. I don't need to own *Open It!* to be able to use your files. I can't do as much fiddling around with the program as you can, but at least I can get your files into my computer so that I can work from there.

It's important to understand that you can only open files that can be printed. I wanted a peek at a file I couldn't identify, but it wasn't a printable document.

My only gripe with the program is that you have to go through the printing procedure before you can see the file. Printing to disk should be implied by opening a file in *Open It!*. Outside of that glitch, the program is easy to use and can be very helpful.

*Open It!* costs \$89.95. You can get more information from the TENpointO division of Mediagenic, 3885 Bohannon Drive, Menlo Park, California 94025; (415) 329-0500.

## Business Focus

Also from TENpointO: *Focal Point* has been revamped and renamed as *Focal Point II* (\$199.95; \$89.95 for an upgrade). It's a powerful organizer for business people who want to use *HyperCard* to its fullest potential.

The application is a collection of interrelated cards: An appointment book stores daily engagements, a to-do list helps prioritize and track each day's tasks, a monthly calendar easily stores regular appointments and special occasions, and a phone directory and dialer tracks outgoing and incoming calls. Then there are cards for keeping track of records: client records, vendor records, and financial records. There's a project-management module and a task-assignment

module. You can even set up an electronic mail system.

It's overkill for the home, but not for the home business. If you have enough RAM to run your Macintosh applications from *HyperCard*, you can benefit from *Focal Point II*. But you should compare it with similar packages like *QuickDex* or *SideKick*.

## Ahoy Maties

If you've been reading *COMPUTE!* for a while, you already know our general opinion of *Pirates!*: We love it. (We gave it our 1989 *COMPUTE!* Choice Award in the Historical Game category, for instance.) Until now, though, Macintosh users have been left high and dry. Finally, we can sail the ocean blue with the rest of the micro-sea dogs.

Maybe the game suffers a little on the Macintosh's black-and-white monitor, maybe the mouse isn't the ideal input device for fencing and sea battles, maybe the hornpipe music doesn't go on long enough, but *Pirates!* is as entertaining as any game I've played.

In this simulation, you play the role of a seaman. You pick what kind of sailor you're going to be. Did you know there was a difference between a pirate and a buccaneer? Can you attack the French if you've made friends with the English? You'll learn about all of these subtleties in the game. As an apprentice, you get a lot of help from outsiders. The game really makes it easy for beginners to become addicted.

I'm not crazy about simulations, but this one is absorbing. The skills are easy to learn, but hard to master. You get a feel for sailing, for using a sexton, and for firing cannons on other ships—first you must turn to a vulnerable broadside position and then you fire.

MicroProse has put together a good manual, with rules, tips, and historical information. *Pirates!* costs \$59.95. For more information, contact MicroProse, 180 Lakefront Drive, Hunt Valley, Maryland 21030; (301) 771-1151.

—Heidi E. H. Aycock

MAC

*QuickLetter* (\$124.95), from Working Software (740 Front Street, Suite 318A, Santa Cruz, California 95060; 408-423-5696), is a new addition to the word processor ranks with a twist—it's a desk accessory. At first, I was skeptical: Is there room for still another word processor?

For a word processor desk accessory, there is. For one thing, you can use it for short notes while you're playing games. For another, you can use it for short idea sketches while you're writing in your full-blown word processor. The program can really come in handy.

Imagine how handy it could be if you didn't use a word processor very often. If you use a spreadsheet or a graphics package most of the time, you might find yourself jotting notes on paper. With *QuickLetter*, you can jot those



## ATARI ST

*Macro Mouse* (\$29.95), a macro recorder from Antic Software (544 Second Street, San Francisco, California 94107; 415-957-0886), holds as many as four macros in memory. These macros can record all keystrokes and mouse movements, so you can automate almost any task.

*Macro Mouse* is a desk accessory which can be activated

by either selecting it from the Desk menu or pressing a hot key. A small menu pops up when *Macro Mouse* has been activated, at which point you can record, play, load, or save macros. Macros can insert specified text on the screen, loop through a specified section of the macro for a selected number of times, loop until a special code word is input, and chain to another macro (allowing for macros of virtually unlimited length). *Macro Mouse* can be configured by a separate program to set buffer sizes and also to autoloading as many as four macro files when it's first activated. It can even be set to autorun one of the loaded macros, very neatly circumventing the ST's inability to autorun a GEM-based program.

*Macro Mouse* also comes with a utilities program that duplicates many of the control-panel functions and adds several utilities such as a calculator, a free-RAM indicator, a

disk-write verify switch, a screen-to-print echo, a screen snapshot (*DEGAS* format) utility, and a hot key to enable a warm or cold reboot. Best of all, this utility doesn't take up a desk accessory slot but simply adds commands to the *Macro Mouse* menu.

### Package Deal

Michtron (576 South Telegraph Road, Pontiac, Michigan 48053; 313-334-5700) has released a collection of the company's powerful utilities called *Utilities Plus* (\$59.95). *DOS Shell* is the command line interface which uses MS-DOS-like commands and runs batch files. *Superdirectory* categorizes files and records file-content comments (as many as 25 characters); it also finds, sorts, edits, and prints directories. *M-Disk* sets up a ramdisk and print spooler. And *Stuff*

features 21 useful utilities for such tasks as reordering the execution of *AUTO* folder programs, comparing binary files, autobooting a selected GEM program, encrypting files, selectively enabling *AUTO* folder programs and desk accessories, searching for text strings in files, and displaying program files in binary and hex. This package bundles programs which were originally sold separately for more than \$200. It belongs in the software library of any serious ST user.

### Less Basic BASIC

*GFA BASIC* has become the language of choice among ST users, and version 3.0 (\$79.95) is the newest incarnation of the runaway best seller. The package, formerly marketed by Michtron, is now part of the Antic Software line (Antic



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— David Babb, Attorney

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# COMPUTE! *specific*

Software, 544 Second Street, San Francisco, California 94107; 415-957-0886). The new editor is similar to the one in version 2. A menu bar holds commands for loading, saving, and editing programs. You can select the commands by using a function key or by clicking on the menu selection with the mouse. Enhancements to the editor include access to desk accessories and customization options for printing program listings.

There are over 400 commands available, including advanced loop commands (DO, WHILE, LOOP, and UNTIL), decision commands (IF, ELSE, ELSEIF, and CASE), and structured commands (PROCEDURE and two kinds of FUNCTIONs). With the PROCEDURE and FUNCTION commands, you can build *GFA BASIC* programs in segments, to which variables are passed and from which values are returned. A full complement of commands for file

operations, sound generation, reading joystick and mouse input, and advanced arithmetic calculations are included.

A wide range of error handling and debugging commands are also available, such as a command to run procedures after each command is executed, providing a way to check on a program in progress. Also included are interrupt programming (EVERY and AFTER), graphics commands, and even turtle graphics commands. GEM support extends to alert and dialog boxes, menu setup and processing commands, event messaging, and GEMDOS, XBIOS, BIOS, VDI, and AES calls by name. Even the GEM arrays (INTIN, ADRIN, and so on) can be accessed directly—no need to PEEK or POKE. Support for windows isn't appreciably better than it was in version 2—opening multiple, overlapping windows, for instance, still requires too much work.

Antic is rewriting the program manual to fix some serious problems. People who buy Antic's *GFA BASIC 3.0* will get the current manual plus a card which can be returned to Antic for a free copy of the revised manual. People who purchased version 3.0 from Michtron may buy the upgrade manual for a nominal fee from Antic. Antic also plans to make *GFA Artist* and *GFA Draft* available.

All upgrades of Antic's *GFA* products will be available through Antic regardless of where the original program was purchased.

Michtron published many books to support *GFA BASIC*, and Antic plans to make available as many as possible. Michtron retained the rights to *GFA Reboot Camp* (\$12.95), a beginner's book about *GFA BASIC*. While it isn't as detailed as other books and doesn't touch on the more complex commands, it's an excellent text for getting started.

Michtron also kept the rights to *GFA BASIC Programmer's Reference Guide* (\$19.95), a much more advanced book. The first section largely duplicates the information in the manual, but in a friendlier way and with more complete examples. Sample programs abound. Advanced subjects such as sound, animation, input/output, and VDI/AES are covered.

Check with Antic for *Programming with GFA BASIC 3.0* (\$12.95), which covers dialog boxes, menus, the resource construction set, sorting, structured programming, Line-A calls, debugging, GDOS applications, and new variable and pointer types. There's also a section on how to handle windows. Many sample programs are included, and the explanations are clear and well illustrated. Utility programs include a resource analyzer, a 3-D function plotter, and an icon creator.

—David Plotkin □

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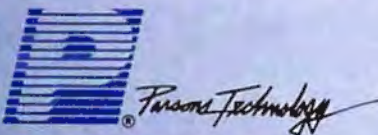


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# REVIEWS

## ////// **fast** looks

**Ace a Zero, Win Wealth, Design Forms, Battle Evil, Twist Prints, Fly with 3.0, Stop the Presses, Sneak in the Sky, Balance Home Books, Land a Punch, and Link Up Your PC**

Each month, "Fast Looks" offers up snapshots of some of the most interesting, unusual, or important software and hardware for the Amiga, Apple II, Atari ST, Commodore 64/128, IBM PC, and Macintosh lines of personal computers. Get the last word on what's new—here, fast, first.

### Battery Watch

Ping! That flicker you just saw on your laptop's screen was your computer's last spark of power. Your built-in battery is dead, and there's no outlet on United Airlines at 30,000 feet.

Unless you have ESP, you never know exactly when a laptop's battery might fade. That's why *Battery Watch*, a TSR program from Traveling Software, is such a great utility. You set it once by telling it how much juice is left in the battery (the best time is right after a full recharging), and from then on it tracks your computer's power consumption and keeps a relatively accurate estimate of how much longer you can run the machine. You can call up a bar indicator at any time by pressing a hot-key combination.

*Battery Watch* also solves another major laptop problem, a phenomenon that eventually reduces your laptop's ni-cad battery life to nearly 0. When you recharge a battery that's only partially discharged, you're actually "training" it to provide power for a shorter period of time. *Battery Watch* offers a deep-discharge option which returns it to its maximum charge life.

*Battery Watch* is an elegant solution to problems nearly all laptop own-

ers encounter. If you live on the road, your only companion your trusty computer, pick up this utility.

— GK

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### Neuromancer

You wake up in a bar in Chiba City, a sleazy section of Tokyo. A hot cyberspace cowboy—a sort of superhacker—able to penetrate corporate databases—you're down on your luck. Your computer deck is in hock. But you've got a few credits, a few contacts. With the right hardware, software, and skills, you could be back in cyberspace.

William Gibson's speculative novel *Neuromancer* comes to life in this excellent adaptation. Through conversations with other characters—both in person and via communications networks—you're able to build a picture of a dark, futuristic world where money and information are all that matters.

Despite a regrettable tendency to mute the grittiness of its fantastic world with adolescent jokes, Interplay has accomplished quite a bit in *Neuromancer*. Its setting and plot are well realized and commendably rich. Using an efficient point-and-click interface, you can maneuver your character through both real and electronic worlds that are convincing and self-consistent.

Good graphics, an excellent soundtrack by DEVO, and an easily mastered interface help make this a convincing and entertaining software novel.

— KF

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Commodore 64/128—\$39.95  
IBM PC and compatibles version tentatively scheduled for April release—\$44.95

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



**Battlehawks  
1942**

Climb into the cockpit of a carrier-based fighter or bomber and get ready for a seat-of-the-pants, sophisticated, World War II naval air-combat simulation. Depending on the mission you select and the country you fly for, *Battlehawks 1942* lets you pilot a Japanese Zero fighter, Val dive bomber, or Kate torpedo bomber, or an American Wildcat fighter, Dauntless dive bomber, or Avenger torpedo bomber.

Fly and fight in four famous naval air battles—Coral Sea, Midway, Eastern Solomons, and Santa Cruz—each offering four specific missions for Japanese and American pilots. As a U.S. pilot in the Coral Sea scenario, for example, you pilot a Dauntless in a dive-bombing attack on the damaged Japanese carrier *Shoho*, or you fly a Wildcat to escort other U.S. bombers and defend the *Lexington* against attack from Kate torpedo bombers, or you defend the *Yorktown* from a dive-bombing attack by Vals. Assume the role of a Japanese pilot in the same battle and you fly a Zero protecting the *Shoho* or *Shokaku* carriers, pilot a Kate on a torpedo-bombing attack of the *Lexington*, or bomb the *Yorktown* with your Val.

Four training missions let you perfect your fighter intercept, fighter escort, and dive- and torpedo-bombing skills. During these training missions, you'll face only limited opposition from the enemy. In addition, you can modify any of the regular active-duty missions. For instance, you can fly the mission in newer or older models of the same plane, take along unlimited fuel or ammunition, make your plane invincible, put yourself a few thousand feet above the enemy at the outset of the mission, or select the skill level of the enemy pilots you'll face. When you customize a mission, however, the results won't be recorded onto your permanent service record.

*Battlehawks 1942* isn't a completely realistic simulation. There aren't any takeoff or landing sequences to master: You begin and end airborne. Also, while a steep climb will invariably stall your aircraft, the program is very forgiving and, unless you stall at a low altitude, it's easy to recover.

What is amazingly realistic about *Battlehawks* is its detailed, animated graphics. Everything you see, from the water and ships below to the enemy fighters darting evasively across your gunsight, appears solid, 3-D, and true-to-life. Though few of us have actually

flown a combat mission in a World War II-era fighter or bomber, anyone who's ever watched filmed footage of naval air combat will agree that this game replicates the action as well as, if not better than, any other aerial-combat simulation for the PC.



Go up against enemy ships and fighters in *Battlehawks 1942*.

With many air-combat games, you battle wave after wave of robotic enemy fighters that come directly at your plane and fire a few machine-gun blasts before peeling off in a steep bank to the right or left. *Battlehawks*, on the other hand, challenges your dogfighting skills with enemy pilots who aren't locked into specific attack patterns. Just when you think you've seen the enemy from every possible angle, a Zero will swoop by frighteningly close to your windscreen.

In fact, the onscreen action of *Battlehawks 1942* is so detailed and realistic that it's almost impossible to fully appreciate the view while piloting your aircraft. Fortunately, if you remember to toggle on your onboard camera just before the action gets heavy, you'll be able to watch an instant replay of your dogfight or bombing run.

You can watch the replay from almost any vantage point. While in Replay mode, you can increase or decrease the altitude of the camera, reposition the camera to directly behind your own plane, or move the viewing angle around by using either a joystick or a mouse. All these possibilities let you not only relive the glory of a triumphant dogfight or successful bombing run, but also analyze your mistakes.

*Battlehawks 1942* comes with an exceptional 128-page manual. It covers everything you need to know to take to the skies and also provides a historical overview of the four battles and reference information concerning flight fundamentals, aerial tactics, and Japanese and American aircraft and warships.

With its detailed animation, worthy adversaries, and photo replay, *Battlehawks 1942* promises aerial thrills

and combat chills for even the most jaded personal computer fighter pilot.

— Bob Guerra

**Battlehawks 1942**

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**Wealth  
Insurance**

Economist Paul Erdman predicts the U.S. economy is headed for a major recession/depression in the 1990s. But never fear—he has a game that can help you survive this impending financial catastrophe.

*Wealth Insurance* simulates a depression's impact on your net worth within five different scenarios, including the Great Depression, the 1961 Recession, and the Reagan Boom. Two other scenarios—a 1990s recession and a 1990s depression—are based on historical trends of various economic indicators. Each scenario is modeled after actual stock prices, interest rates, real estate prices, and income tax rates of the period. You are randomly assigned a starting financial position: poor, middle class, or rich. As in real life, you win when you increase your net worth by making astute investment decisions.

Well-designed screens assist you through each three-month turn. A screen shows the current Dow Jones Industrial Average and your net worth, monthly income, and cash position. As the game progresses, screens display news bulletins and investment advisor reports.

You can call up summary screens to examine your stock or real estate holdings and transactions. These screens display information like recent price action and costs (for stocks) and sale price, fees, loans, payment, and more (for real estate). You can print the screens if you want a paper record.

The game year starts with *Wealth Insurance* computing your federal tax status. To make things interesting, you may get a 10-percent salary cut or even



lose your job. You may reduce expenses for food and charity by 10 percent if finances get too tight. You might also receive an inheritance—good news!



**Shrewd investing will make you a winner in *Wealth Insurance*.**

Every three-month snapshot includes the effects of mortgage, taxes, and insurance for your real estate holdings. The computer advisor recommends actions generally accepted by financial consultants of your scenario's time period. For instance, if you have negative income and little cash, your advisor will suggest selling assets to avoid bankruptcy. Oddly, the recommendations didn't always match my financial situation. Fortunately, you can either take this advice or make your own decisions.

Depending on the scenario, a game spans six or eight years. Just as there are loopholes in life, there are ways to boost your game rating by manipulating your net worth—but you'll have to discover them on your own.

Investment choices are severely limited; simplifications in securities choices, tax rates, and real estate investments restrict the game's realism. You have, for instance, only 11 choices in the stock market: seven blue chip stocks, Treasury bills, corporate bonds, gold, and silver. For real estate investments, you are limited to one house and one duplex in California, Illinois, New York, or Texas, and one piece of land in each of three states—California, New York, and Texas.

In the futuristic scenarios, state taxes are always 5 percent of wages even though Texas and Florida have no income tax. There are no deductions for taxes paid on rental real estate, and your own home is always in California. For purchases, you have a choice of five fixed- and six adjustable-rate mortgages.

The first half of the 40-page manual, written by Erdman, explains the business cycle and its effects on wealth building. There's sound investment advice here for playing the game's future scenarios and for managing your fi-

nancess during the upcoming decade.

The last half of the manual contains some errors. It says the game requires a color monitor, but monochrome is one of the installation options. Also, instructions to insert the program disk into drive A (if you're installing on a hard disk) are missing. And the manual's half-inch illustrations are too small to convey much information.

An explanation of the assumptions used in the game would have been better than the glossary provided. For example, you can sell short, but only for one three-month turn and only if your assets are sufficient. The manual doesn't define what *sufficient* is. You just have to experiment, changing the size of your short sale until the program accepts it. That's the kind of figuring a computer game should do for you.

*Wealth Insurance* gives novice investors a historical portal to the financial world and offers a "flight simulator" opportunity to explore the heady atmosphere of finance without risking a real crash. Its limitations make it a simple game instead of an in-depth simulation that can accurately score your financial survival.

— Glenda McClure

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**FormSet**

Any business, large or small, has to keep a lid on expenses. Business supplies, especially printed forms, can fill a balance sheet with red ink if they're not controlled. SoftView, with its Business Forms Edition of *FormSet*, can help you maintain the health of your bottom line.

*FormSet's* discrete stock of 65 pre-designed business forms comes with client and vendor addresses configured for standard left-window envelopes. The program allows easy, automatic insertion of information at appropriate places within individual and linked forms. The program's appeal obviously depends upon the degree to which you're locked into your existing business forms. If your business is young

enough, or flexible enough, to adapt to the program's forms, then all the better.

On the IBM PC, *FormSet* uses a runtime version of Microsoft Windows as its interface and allows input from a mouse or the keyboard. I prefer the mouse; without it you'll have to execute double keystrokes (F5 and the Alt key twice) because of a Windows anomaly. SoftView promises to fix this in a future release, but, for the time being, it's annoying.

You can use *FormSet* to produce master documents for photostats. But if you want to fill out the forms and keep running records of outstanding receivables, payables, or inventories, go right ahead. Fill out the forms directly from the computer screen; where applicable, *FormSet* lets you itemize.

Forms are divided among five menus: general, accounting, payables, personnel, and sales. Individual forms cover everything from inventory summary to payroll records. You begin by completing a customization form which identifies your company, address, and phone number. The program transfers your company name and address, in the appropriate format, to your letterhead and all of the remaining forms. An included utility even lets you import company logos or artwork from any standard paint program.

For the most part, *FormSet* is a breeze to use. The roving pointer makes the pull-down menus quickly accessible. You can load one or several forms and print them either blank or with company-pertinent data. If you're using a mouse, the shape of the cursor shows you where data entry is possible. In most instances, data is formatted automatically. A clipboard lets you cut, paste, and copy. Online directions are available if you need them. If several forms are open, the windows are stacked like filing cards. *FormSet* lets you shuffle through them or open them selectively.

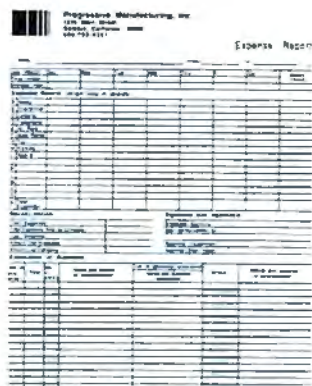
SoftView has built some effective protective features into this program. If you incompletely fill out a purchase order, for example, and then try to print it, *FormSet* will warn you that the order is missing data. By hitting the F3 key, you can go right to the lines on the form where you failed to insert data.

The program will let you mark fields as missing or put in estimated amounts for projections. Form menus visually flag form status: An incomplete form is identified with a question mark; a complete form, with an asterisk.

*FormSet* isn't designed to be a full-blown accounting package, but it can take care of simple invoicing and in-



ventory needs. With linked forms, the pertinent entries you make in one form are automatically selected for inclusion on related forms. This feature precludes operator error and ensures consistent data entry. When you save a data file, all the data entered into all forms is assembled into a single file. When you recall the saved data, all needed forms are automatically opened.



### Boost your business's bottom line with FormSet's predesigned business forms.

You can import data from other applications as long as these applications can generate ASCII text files, separate data fields by tabs, and record data by returns. (Most accounting, spreadsheet, and database programs can produce these kinds of data files.)

FormSet accommodates many printers, but for presentation purposes it's best to have either a laser printer or high-resolution dot-matrix printer. If you're planning to use a paint program for importing logos or artwork, a high-quality printer is requisite.

FormSet offers coherency, usefulness, and, most of all, economy for almost any business. If used as designed, it should pay for itself in short order.

— Bob Gingher

### FormSet

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## Rocket Ranger

Before the days of television (and long before home computers), kids all over the country looked forward to Saturday-matinee serials at the local theater. Munching candy and popcorn, they watched spellbound as Flash Gordon, Buck Rogers, and other fantastic heroes performed hair-raising feats using rocket ships and ray guns. Long lost, but never forgotten, the matinee serial returns to the screen in the form of an interactive computer game from Cinemaware called *Rocket Ranger*.

As the hero, Rocket Ranger, your job is really cut out for you. The game begins with an urgent message from twenty-first-century scientists: The Nazis won World War II! By sending you a jet-propelled rocket suit, ray gun, and secret decoder wheel from the future, the scientists hope that you can alter history and save humankind—a rather difficult assignment for even the most intrepid adventurer.

Playing the part of Rocket Ranger was difficult at first. The game's instructions are a bit complex; it took a while to figure out what I was supposed to be doing. Once I got the hang of it, though, I realized that *Rocket Ranger* works on several levels, with plots and subplots that all tie together. Winning requires a knack for arcade action, strategic thinking, timing, and, most of all, patience.

Your ultimate goal is to stop the Nazis from spreading their reign of terror over the entire planet. To do this you must find their five secret rocket labs, obtain the components to build yourself a rocket ship, and then capture enough Lunarium fuel to fly to the source of the Nazi's power, the moon. Along the way, you must also rescue a kidnapped American scientist and his beautiful daughter. (After all, it wouldn't be a matinee serial without a young damsel in distress, would it?) While this is a fairly straightforward plot, there are many subtle steps involved. The first few times I played, I had a hard time just getting off the ground, let alone trying to save Professor Barnstorff's beautiful daughter.

The game opens at Fort Dix, New Jersey, which is your base of operations in your secret war against the Nazis. The dazzling graphics include the Ft. Dix Menu, which gives you choices of either going to the War Room, Fuel Depot, or Rocket Lab, or taking off (Take-off) with your rocket pack.

You play much of the game from the War Room, where you send orders

and receive reports from your five secret agents, who help you locate and infiltrate targets. A detailed world map shows your location as well as that of agents, zeppelin fleets, bases, factories, and targets.



Secure the Earth from Nazi terror by attacking the secret moon base in *Rocket Ranger*.

In enemy territory, you'll find yourself involved in arcade action against squadrons of ME-109 airplanes, antiaircraft guns, zeppelins firing aerial torpedoes, ack-ack batteries, and fist-fighting guards. The arcade sequences are extremely detailed on the PC in CGA mode and are even better in EGA or Tandy 16-color mode. I found that the animated sequences worked well in CGA mode on an 8-MHz machine, but for 16-color mode I would highly recommend a PC of at least 12 MHz. I would also advise that you use a joystick for maximum effectiveness during the arcade sequences.

Even after you've battled the Nazis on Earth, the game is far from over. You must fly to the moon for the final assault, where you must eliminate a squad of Nazi Zombie Women before the air, heavy with Lunarium dust, begins to affect you. Saving the world isn't easy, even with twenty-first-century technology. It took many hours before I discovered the secret behind the Nazi's leap in technology.

Cinemaware has included keyboard functions for changing the game speed, pausing and resuming, turning off the sound and/or music, and toggling the CGA color palettes. The music, terribly loud and obnoxious on my PC, was the first thing to go (the sound on the Amiga version is much better). And since I don't relate well to purple grass, it was great to be able to toggle the color palette, too.

If you're a fan of movie serials, if you like adventure mixed with arcade action, or if you just want a shot at saving the world, then you'll like *Rocket Ranger*. But don't forget the popcorn



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and soft drinks before you sit down to play.

— Joey Latimer

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Apple IIs (\$49.95) and Atari (\$49.95) versions are planned, although no release dates are available.

brand masquerading as a real rodent, worked just fine.)

Once Twist is started, you use a pop-up list box to choose the file that you want to print. Either whole files or ranges of cells (only when Twist is used as an add-in—an unfortunate oversight) can be selected, and you can add attributes such as underline, bold, italics, and color to designated characters. It's easy to set margins, paper size, character and line spacings, and whether you want bidirectional printing. Type sizes can be changed to accommodate from 28 to 120 lines per page (in draft or high-quality type style). Varying the size of your print lets you emphasize more important information.

The second member of this printing trio, Shout, lets you create a banner by printing from one to six lines horizontally across your computer paper. The size of the type decreases as the number of lines increases; a one-line banner prints letters as tall as the width of the page (generally 8½ inches), while a six-line banner contains lines about 1½ inches tall.

As with Twist, you activate commands in Shout through menu choices. When you create a new file, Shout presents a simple text editor that lets you enter and edit your information. It offers you a choice of four typefaces—Times Roman, Script, Olde English, and Sans Serif—which can be printed in one of three modes—Graphics, a slow high-quality print; Auto, a draft-quality print that forms banner letters from the letter being printed (a large *D* would be formed of regular-sized capital *D*'s); and Manual, which lets you choose the character that forms the banner letters. For example, banner characters could be created with asterisks or dollar signs.

Shout also offers a set of 52 graphics in such categories as playing cards, arrows, animals, sports, hand signals, and holidays. Symbols, typefaces, and colors (if you have a color printer) can be mixed on the same line, and typefaces and colors can be changed before or after you enter text. Creating my first banner took less than a minute.

Disk Spool II, the last of the trio, can be loaded through your AUTO-EXEC.BAT file when you start your computer. That way, it's ready to use with any application, not just with *Twist & Shout*. An added utility, PRINTII.COM, prints any text file from the DOS prompt. Menu commands let you suspend, restart, and clear the print spool file. Although more complicated than the other two programs, Disk Spool II is still fairly simple and its commands

	January	February	March	April
Personnel	\$225,000	\$200,000	\$200,000	\$225,000
Budget	\$225,000	\$200,000	\$200,000	\$225,000
Shipping Costs	\$225,000	\$200,000	\$200,000	\$225,000
Subtotal	\$675,000	\$600,000	\$600,000	\$675,000
Cost of Sales	\$125,000	\$100,000	\$100,000	\$125,000
Marketing Costs	\$25,000	\$25,000	\$25,000	\$25,000
Shipping Costs	\$25,000	\$25,000	\$25,000	\$25,000
Subtotal	\$175,000	\$150,000	\$150,000	\$175,000
Profit	\$500,000	\$450,000	\$450,000	\$500,000
Operating Expenses	\$40,000	\$40,000	\$40,000	\$40,000
Marketing Expenses	\$40,000	\$40,000	\$40,000	\$40,000
Shipping Expenses	\$40,000	\$40,000	\$40,000	\$40,000
Subtotal	\$120,000	\$120,000	\$120,000	\$120,000
Profit	\$380,000	\$330,000	\$330,000	\$380,000

*Twist & Shout* prints text sideways and also lets you create banners.

are straightforward.

For those who need help, *Twist & Shout's* user and reference manuals are clearly written and offer good indexes. Context-sensitive help is available at the touch of a function key.

At less than 60 bucks, *Twist & Shout* offers great value. Pick it up if you need a fast, reliable way to squeeze your spreadsheets onto regular-sized paper or if you're tired of waiting for your printer to continue working. But most importantly, get *Twist & Shout* if you're the one in charge of the office birthday party banners.

— Lynne Frey

## Twist & Shout

*Twist & Shout* is more than an indispensable utility program for people who do a lot of printing. It's actually three programs in one package: Twist prints spreadsheets or text files horizontally across your computer paper; Shout prints oversized alphanumeric characters and graphics to produce banners; and Disk Spooler II lets you send a file to a printer or to disk while you continue work on your computer.

I like software that gets me going quickly—it took me less than five minutes to get *Twist & Shout* from installation to the opening screen. The program isn't copy-protected, and it's guaranteed to work with any dot-matrix printer and most ink-jet and laser printers. If your printer isn't on the list, Software Toolworks promises to make it work with *Twist & Shout*—or your money back. It runs on IBM PC, PS/2, and compatible computers.

*Twist & Shout* incorporates the same instinctive menu format into all three programs. To display a menu or select a command, you use the cursor keys to highlight it on the screen; then press Enter. As a shortcut, you can choose a command by pressing its first letter, such as *Q* for Quit.

Twist works as a stand-alone program, but the company says it will also work as an add-in for *Lotus 1-2-3* or *Quattro*. (Add-in means you can install the program so that it runs from within *1-2-3* or *Quattro*.) Twist reads *1-2-3*, *Quattro*, and *Symphony* files directly, as well as any text file. Mouse support is provided when you use the program as a stand-alone. (My mouse, an off-off

## Twist & Shout

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## Flight Simulator 3.0

The third edition of Microsoft's *Flight Simulator* is the latest threat to productivity in the workplace. All over the country, thousands of *Flight Simulator* fans who have seen the new version on their home computer have been heard to mutter, "Wow, this is great! But I'll bet it would *really* cook on the 386 machine I have at the office!"

If you're a fan of *Flight Simulator* version 2.0, take a look at version 3.0. The whole thing appears to have been recoded. Microsoft has finally done away with the copy protection, so the whole program can now sit fat and hap-



py on your hard drive. It also has joined the rest of the game industry in supporting EGA, VGA, and Tandy 16-color graphics. The bad news is that you'll have to pay full price for the upgrade; there's no trade-in policy.

If you're new to *Flight Simulator*, this is the package to get you started. The 200-page manual takes you step by step into the program. The software takes over from there with a series of well-done flight-training lessons that will teach you everything from straight and level flight to aerobatics.



Take your Learjet in for a three-point landing with version 3.0 of *Flight Simulator*.

You can run the program entirely from menus, which you can access at any time during your flight. Any changes you make will occur after you've exited the menu screen—no need to reboot. The first menu, Mode, lets you choose how you want to operate the system. Normal Flight, Flight Instruction, and Entertainment are just a few of the options available. My favorite feature is the Instant Replay, which runs continuously so that anytime you do something really spectacular (like zipping beneath the Golden Gate Bridge) you can go back and see it again or even save it to disk.

If you tire of serious flying, you'll be glad to hear that Microsoft has greatly expanded the entertainment options in this version. The World War I Ace game is still here, but it's much more challenging—you can't zip over to enemy territory, land at the enemy base, and blast your foe's planes as they come down the runway anymore. Other entertainment options include a crop-duster game, formation flying with a computer-controlled plane, and an option to fly with another player over the phone lines with a modem.

The Navigation menu includes all the instrumentation you could ask for. If the terms *VOR*, *OBI*, *ADF*, and the like aren't in your vocabulary, don't worry; the book does a good job of explaining them. Navigation is not nearly

as mysterious as it sometimes sounds. Learn a few quick facts and you can fly anywhere on the map. Autopilot is also included, but I couldn't get it to track a VOR station.

Where *Flight Simulator* really shines is in its View and Environment selections. Multiple windows make the combinations of views almost limitless. Windows can be dropped in anywhere on the screen. You can make them bigger or smaller, narrower or wider—it's up to you. Each window can display a variety of views or an overhead map. Don't need the instruments? Get rid of them. Want a full-screen chase-plane view as you do a loop? You've got it.

The outside environment is equally controllable. The time of day, season, wind conditions, and cloud cover can all be adjusted as you wish. You can even toss in an anvil-shaped thunderstorm or two to avoid. Morning and dusk flights are particularly stunning.

The total simulation is built around the Cessna Skylane Turbo RGI aircraft, but you can also fly a Gates Learjet or a Sopwith Camel. Each aircraft has very different flight characteristics, but changes in the basic instrument layout are minimal. Some of the Cessna's characteristics, in particular, seem different from those in version 2.0. For example, it takes a little longer to speed up and slow down. Speaking of taking awhile to speed up, wait until you try the Learjet. Jet engines must "spool up" to provide more power, and the simulation faithfully includes this fact. Come up short on a landing approach, and full throttle may not help much.

Scenery Disks used with version 2.0 can be converted for version 3.0. This conversion should also allow you to install these copy-protected disks onto your hard drive or onto a 1.2-megabyte floppy disk. If you store them this way, the next scenery area will automatically load as you enter a new zone. The conversion procedure is the one item not fully covered in the manual, but the README.DOC disk file gives you a complete set of instructions.

Aside from all this, you can create your own startup demos; use a keyboard, mouse, or joystick; choose from over 100 airports; and fly by landmarks like the Statue of Liberty. Best of all, in most of the software stores I've visited, there is little if any increase in price over version 2.0.

If you earned your wings on an old *Flight Simulator* version, you'll enjoy and appreciate the improvements made to version 3.0. If you're new to the hangar, this is the package to start with.

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— Richard Sheffield

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 **The Children's Writing & Publishing Center**

Kids are like revolutionaries. Give one a printing press, control of the printed word, and you may be lighting a fire you can't put out. *Viva la revolución.*

Desktop publishing, long the rage among grownups, in effect stuffs a printing press inside a personal computer. Graphics and type combine to allow the masses to turn out a blizzard of sophisticated documents. *The Children's Writing & Publishing Center (CWPC)* brings the vaunted power of the press to the small people who inhabit our homes and schools. The combination of kids, computers, and *CWPC* may well spawn a generation that isn't afraid to write book reports, thank-you letters, and class newsletters.

The key to *CWPC*, and the reason it so aptly serves its audience (ages 9 and up), is its simplicity. The Learning Company, *CWPC*'s publisher, knew exactly what to include and what to leave out.

There are only two possible document formats—the Report, Story, or Letter format and the Newsletter format. The former produces one- to four-page, one-column documents appropriate for school reports, letters to grandma, and short short stories for friends; the latter creates single-page, two-column newsletters. Each format has only two possible layouts—with a heading and without.

Having selected the format type and layout style, the pint-size publisher advances to the main editing screen. A row of boxed icons with labels runs across the top of the screen. This menu bar includes the selections Font, Picture, Next, File, and Print. The choices are self-explanatory and available by

pressing a single key. Another key-stroke, and an appropriate menu pops into place. Choices within these menus are easily understandable and limited, to keep confusion to a minimum. Pick Picture, for instance, and the subselections Select Picture, Move Picture, and Erase Picture appear.

Most of the main editing screen, however, is the Workspace. This is where kids type text, edit sentences, and place pictures. Both the heading (if there is one) and the body of the document are created on this screen. The only difference is the amount of allotted space and the final printed size. Kids with limited patience will like the fact that typing and correcting require a minimum of fuss.

Font selection, always an important part of desktop publishing's success, is good, if a bit limited: three small lower-/uppercase, three large lower-/uppercase, and two huge uppercase fonts. Although text can be underlined and centered on the page, the only feature worth the name *advanced* is one that lets writers cut out sections and erase or move them to another part of the document.

Placing pictures is as easy as typing text. Over 100 color pictures and nearly two dozen predesigned headings are included with *CWPC (The Print Shop)* graphics can also be used). Kids select a picture, then move it to an exact spot (if it's going in a heading), or to the left or right side of the page (if it's being dropped into the body copy). They can even flip graphics backward or upside down. Text automatically moves to make way for the picture.

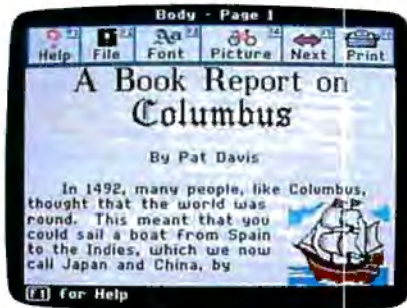
Saving and retrieving work is a snap. So is printing, although the selections here may mystify youngsters who aren't familiar with terms such as *Slot* and *Card*. An adult may need to configure the printer setup.

The results of all this journalistic sweat? Attractive documents, especially if a color printer is used (the Image-Writer II with an Apple II computer, for example). Print quality is good, though not great. In all my tests, the print was too light for my liking.

The 120-page manual may seem too much, but it is well organized, offers numerous tips, and serves as an adequate reference. More likely to be used, however, is the program's built-in help function, which is available at the press of a couple of keys and which can immediately answer most questions.

*CWPC* effortlessly guides kids through the mechanics of creating and printing their writing. By funneling their efforts into limited channels,

*CWPC* lets kids think more about *what* they're writing, not *how* they're writing. And because the final product is good-looking, kids will find it easier to show their creative writing to teachers, parents, even friends.



*The Children's Writing & Publishing Center is desktop publishing for the small set.*

Anything that makes kids want to write—in this video era—is top-notch in my book. As a parent, a former teacher, and a writer, I applaud a product that gets kids excited about the written word and the crafting of imagination.

I give *Children's Writing & Publishing Center* a standing ovation.  
— Gregg Keizer

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 **F-19 Stealth Fighter**

Want to *really* push the envelope of personal computer military simulations? Then point the nose of a Stealth fighter into the sky and hang on. Micro-Prose's latest release, *F-19 Stealth Fighter*, boosts graphics animation and functional realism to the blast point.

With *F-19*, you fly a variety of missions in the most well-publicized top-secret fighter plane ever built. From your first training mission—a strike against a Libyan radar station—you move to subsequent missions in the Persian Gulf, the North Cape area of



Norway, and in Central Europe. Flying conditions affect the rules of engagement that you must follow and can range from cold war to all-out conventional war.

In a cold-war situation, you must use the F-19's stealth capabilities to their fullest as you sneak up and destroy your designated target and then slip away. During a conventional war, however, it's all right to take out anything and everything that gets in your way. Missions become increasingly difficult, but if you perform successfully, you can advance from second lieutenant to brigadier general while collecting a variety of service ribbons and medals.

Originally released for the Commodore 64/128 as *Project Stealth Fighter*, F-19 has been dramatically overhauled for the MS-DOS environment. One of the biggest improvements is the increased variety of views available to you as a fighter pilot. Besides the standard front, rear, left, and right views from within the cockpit, F-19 offers several outside views.

The Chase Plane view follows your every turn and dive, the Tactical view keeps both your plane and the enemy's plane onscreen at all times, and the Reverse Tactical view takes the enemy's perspective. There's also a Side view and even a Missile view that lets you ride a Sidewinder right into the fuselage of an enemy MiG—shades of *Dr. Strangelove*. Most of these views let you zoom in and out or toggle between a standard 60-degree viewing angle and a wide-angle viewing arc of 120 degrees.

Detailed briefings and debriefings are available. At the briefing screen, you are presented with a map of the mission area; you can review specific aspects of the mission by choosing the appropriate menu item. By selecting Mission Targets, for example, your primary and secondary targets show up as P and S on the map. This information is essential because it can help you design a flight plan that exploits weaknesses in the enemy's air-defense system.

Before embarking on your mission, you can select four kinds of armaments from an arsenal of 18 types of weapons. These include several types of radar- and infrared-guided air-to-air missiles as well as laser-guided and free-fall bombs. Some missions require that at least one of your four weapon pods be loaded with such things as a 135mm infrared camera (for surveillance), an auxiliary fuel container with a 1900-pound fuel capacity, or special equipment that you must secretly airlift into strategic locations.

Debriefings occur after you have completed your mission. Starting at the time of takeoff, a digital clock runs as your course is traced on a map that displays the entire mission area. The clock stops running at major events such as the firing of weapons or the destruction of targets. These events are depicted by graphic inserts similar to the computer-generated graphics used by network-news broadcasts to illustrate the unfolding of events, such as the United States' bombing of Libya.



**F-19 Stealth Fighter has you flying top-secret combat missions with state-of-the-art military hardware.**

The mission debriefing shows exactly how each phase of your mission has added to your cumulative rating. During the Libyan training mission, for example, you may receive 78 points for destroying your primary target, the SAM radar station at Tripoli, but only 27 points for taking out the missile gunboat that's patrolling off the coast.

The first section of *F-19 Stealth Fighter's* 192-page manual guides you step-by-step through your first couple training missions, while the second section provides detailed operating instructions. Subsequent sections include descriptions of advanced techniques and tactics and a guide to weapon systems capabilities.

*F-19 Stealth Fighter* isn't the last word in military aircraft simulations. But if you're a would-be combat flyer itching to get into today's headlines through the cockpit of one of the world's most sophisticated aircraft, this package will give you wings.

— Bob Guerra

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**Flight notes**  
 # 6A

✦ **Exploring Stealth Mission**

Several man-years went into developing *Stealth Mission* for the Commodore 64/128 computers. The program incorporates many new design concepts. Target-hit detection, for example, is embedded within the *Stealth Mission* scenery structure itself. This lets the software designer easily assign a different score value to each potential target, including negative scores for destroying targets that should be avoided (hospitals, for example). Programmable scoring is just one unique feature of this third-generation flight simulator.

✦ **Stealth Mission Reviews**

While we don't like to brag, we certainly can't argue with *Stealth Mission* reviews like these. *Ahoy* magazine (7/88) writes that this simulator "pushes the C64/128 envelope beyond the blue horizon, to a whole new level of animation and frame rates... absolutely incredible." *Stealth Mission* "... sets new standards at the top of the C64 flight simulator heap," according to *Info* (5-6/88). *Commodore* (2/89) calls *Stealth Mission's* combination of strategy and action "truly superior to others. Only a flight simulation this good could come from SubLOGIC." *Stealth Mission*, winner of the 1988 Consumer Electronics Show "Best Strategy Game" Software Showcase Award. What more can we say?

**Top Selling Commodore 64/128 Products This Month:**

1. *Flight Simulator II* (\$49.95)
2. *Stealth Mission* (\$49.95)
3. *VEL* (\$39.95)
4. "Western European Tour" Scenery Disk (\$24.95)
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**Quicken**

Most people are reluctant to change their accounting practices, preferring to muddle through with a system they understand—no matter how inefficient. Computerizing their finances sounds like a good idea, but most personal and home-business accounting packages are too complicated or too inflexible.

*Quicken*, Intuit's checking-account management program, overcomes the complexity hurdle by modeling itself after your checkbook and performing the same functions: You can enter deposits and withdrawals, automatically total your balance every month, and print custom checks on your printer.



Use *Quicken* to write checks and to keep tabs on your personal finances.

The program's interface is reasonably simple to master and avoids accounting jargon. The Write Checks screen, for example, looks just like a checkbook; you fill out the check side and the program fills out the stub and computes the new balance. But *Quicken* can do more than just keep your checkbook. It can set up separate accounts for home and business (or any other account you like, with no limit to the size and number of accounts) and assign each transaction to a separately named category. For example, every payment for office supplies can be tagged as belonging in the Office Supplies category; then, at the end of the year, *Quicken* can list every office-supply expense and tell you the total amount you spent in that category. (The program supplies a list of suggested categories for home and business transactions, but you can devise your own categories or edit the ones provided.)

When April 15 comes around, *Quicken* can pull out all transactions with labels that correspond to categories on Form 1040 and Schedules A, B, C, D, and E, and total them so you can enter them onto your tax return. (It works especially well with a computer tax program like *MacinTax*.)

Just automating the addition and subtraction of checkbook entries (no more pencils and stubs) can save you a lot of time and aggravation. And if you need to find an old transaction, *Quicken*'s fast search feature lets you search by category, date, or amount—better than looking through old stub booklets or canceled checks. You can also tag regular payments, such as loan payments and first-of-the-month bills, and print those checks in batches. *Quicken* will address the checks for use with window envelopes, which are available by mail along with tractor-feed blank checks; the checks are accepted by nearly all financial institutions in the U.S.

With *Quicken*'s report generator, you can sort transactions by payee, category, or date, and then print detailed reports for tax and accounting purposes. If you take the time to enter all your transactions—cash, credit card, savings account, dividend, and so on—*Quicken* can provide you with a complete statement of your financial position at any time. There's nothing like a well-organized, complete, and up-to-date financial report to convince a bank to approve a personal, mortgage, or small-business loan. (The Macintosh version includes a *HyperCard* stack so you can link your data with other *HyperCard* stacks and make use of its extensive reporting capabilities.)

Although designed for home and small-business use, *Quicken* can also serve a business with several employees. It tracks gross wages, state and federal withholding taxes, and FICA for each employee. Building on its basic checkbook concepts, you can set up budgets and compare actual expenses and income against the budget figures, create profit and loss statements, and track accounts payable, accounts receivable, and cash flow. *Quicken* will even export data as SYLK files for use in a spreadsheet. You might not use all these features at home, but it's nice to know they're there.

Any accounting package, even one as easy to use as *Quicken*, requires some effort to learn. You have to enter your basic financial information when you begin with the package, and again every month at check-writing time. You must also enter all checks you write manually, like checks to the supermarket, or your balances will be inaccurate.

*Quicken* requires that you think systematically about your money, which may be difficult to do at first. But once you develop the habit, the benefits you derive in having accurate, comprehensive, and accessible financial re-

ports, in automating routine check writing, and in knowing just what's happening to your money make the effort well worthwhile. It almost makes accounting fun.

— Steven Anzovin

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**TKO**

Johnson hit the ropes and dropped to the canvas for an 8-count. I had him now. A couple of quick jabs and a right hook sent his energy level to zip and he kissed the canvas again. The crowd went wild, but the round ended before I could finish him off.



Be a contender for the championship boxing belt with *TKO*.

I won that fight on points but I had hoped to add a knockout (KO) or at least a technical knockout (TKO) to my statistics in this power-packed boxing simulation from Accolade, appropriately called *TKO*.

You may have watched two fighters go a few rounds in other boxing simulations, but have you ever climbed through the ropes and faced another boxer yourself? That's what you do in *TKO*. Your opponent is right in front of you. He's just a jab away, and he wants to rearrange your face.

*TKO* lets you choose a fighter, give him a name and a boxing style, and even select a face you like (or don't like). You can select a power hand and



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## REVIEWS

a best punch, set speed and power ratios, and even decide if your fighter will tire quickly or is prone to getting his face cut. *TKO* lets you fine-tune your boxer's attributes. Decide on a three-round, five-round, or ten-round match and step into the ring.

You can challenge a friend in a two-player version or take on one of eight computer contenders. The disk saves the win/loss statistics of the one-player bouts; two players pummel each other just for bragging rights.

The Main Event shows you and your opponent from the chest up in split-screen. When your boxer throws a punch, you see a gloved fist slam into your opponent. Connect with an uppercut and watch his head snap back. Watch your own eye turn black when his jabs land on you. The graphics render the damage on each boxer's face as the bout progresses.

To the right of the animated figures is an aerial view of the ring. You can't control your fighter's footwork, but the boxers do move about the ring, depending on the blows being thrown. Back an opponent into the ropes or a corner and your punches increase in power.

A digital clock counts down each three-minute round, and numbered boxes indicate which round you're in and the winner of each. Beneath each fighter is an Energy Bar. Watch it carefully and fight conservatively if your energy level drops too low. Become more aggressive when your opponent's energy drops, because he'll fall when it reaches 0.

If you study your opponent's fighting style before a bout, you can set your guard position accordingly. If his strong punch is a left to the head, lift your guard. You can also protect your throat, chest, or stomach with a flick of the joystick. That defensive position remains in effect until you change it.

The nine positions on your joystick correspond to the nine target areas you can aim for. For example, the upper left position throws a left at your opponent's eye. The center aims for his mouth and a lower right throws a right to his body. Press the fire button to throw a punch or to block your opponent's.

After each round, a statistic screen provides a blow-by-blow account of the fight, including the number of head and body blows attempted and landed. It

also indicates the winner of each round. If you're taking a pounding, press a key when you're between rounds and review each boxer's attributes. You may want to adjust your defense and concentrate on your most effective punch.

Boxing may not appeal to everyone, but fight fans will like *TKO*'s unique first-person perspective. Instead of shouting advice from ringside, tape your hands, put on the gloves, and climb through the ropes. See if you're a boxer, brawler, bleeder, or bum. You always said you could've been a contender; here's your chance to prove it.

— Tom Netsel

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Because the PC-Link network supports only MS-DOS machines and is designed specifically for the *PC-Link* software program, it can offer many advantages over its larger (and less specialized) competitors. Menu bars, pull-down menus, windows, and dialog boxes simplify each step from log-on to log-off. A unique security feature eliminates the need for passwords by encoding your program disk and automatically verifying that code prior to each session. Furthermore, this carefully designed software/network combination automatically handles technical obfuscations like parity, data bits, stop bits, and control codes.

Such efficiency comes at a price, however. You need MS-DOS 3.2 or later, a PC with a minimum of 384K of RAM, and a modem. Any Tandy or other Hayes-compatible modem will do. The software also requires a moni-



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tor and a CGA, EGA, VGA, or Hercules-type graphics adapter.

The *PC-Link* package, available at your local Radio Shack store, includes two 5¼-inch disks, a 3½-inch disk, two manuals, and a registration certificate. It also entitles you to one month of free basic access (nights and weekends) and two hours' worth of time on PC-Link Plus, the network's premium service.

Before logging on for the first time, you must configure the software. Use your mouse to move the cursor to Set PC-Link Info in the menu bar, or hit F3 from the keyboard. Select Set Telephone Info; then choose the appropriate modem speed and enter the correct phone number for calling from your area. After that information is accepted, activate the Set Modem Info window and complete a few additional details.

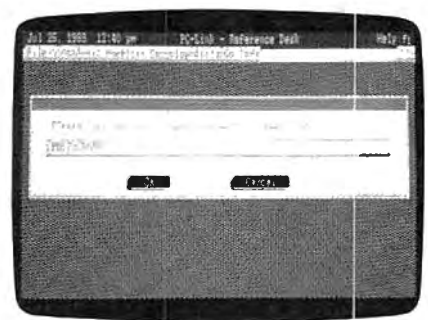
You're now ready to make your first call. Select the menu bar's Sign On option: As soon as the network answers, it recognizes new users and presents a sign-up screen. The system requests the usual personal details, poses a few survey questions, and hangs up. Quantum personnel will call back to verify your identity. Once the verification procedure is completed, you can reconnect and begin exploring.

As with other information services, PC-Link's world is divided into a hierarchy of sections and subsections. However, everything available falls into one of two major areas—basic PC-Link and PC-Link Plus.

Basic PC-Link contains ten subdivisions, including Tandy Customer Support, Reference Desk (where you can search Grolier's 20-volume *Academic American Encyclopedia*, electronically thumb through thousands of cross-referenced articles, or research colleges and universities), the Quiz Center, and the Software Buyer's Guide (for up-to-date information on new software releases). Keep up with the latest through NewsLink Headlines, and track the market with Dollars and Cents.

Premium services are grouped together in PC-Link Plus. From here, you can send and receive electronic mail, move freely through "conference rooms" for group discussions and scheduled lectures, or shop in an electronic mall. Publisher's Connection provides a direct link between software users and publishers. Students can request homework help from experienced teachers at the Learning Center or take courses at PC-Link's online college (no college credit, but tuition is low). Software buffs can download public domain and shareware programs or preview commercial programs.

One thing that sets PC-Link apart from more established competitors is its fee structure. For \$9.95, you have unlimited access to PC-Link services from 6:00 p.m. to 6:00 a.m. weekdays and all day weekends and holidays. Prime-time users pay a surcharge of \$0.15 per minute. Each minute on PC-Link Plus costs an additional \$0.10, regardless of time of day. Charges are the same no matter what the speed of your modem, so owners of a 300-bits-per-second (bps) modem can justify upgrading to a 1200- or 2400-bps unit.



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Overall, Tandy and Quantum have created a very enticing service. Dollar for dollar, PC-Link is hard to beat. In ease of use, it sets a new standard that others will be hard-pressed to match. And while it's true that broader-based services generally boast longer membership lists, all PC-Link users share a common interest—MS-DOS computers. PC-Link's computer forums and software libraries ignore all but PC-related material, but many users will have no interest in other computer operating systems anyway.

Whether you own a true-blue IBM PC or a compatible like a Tandy 1000 SL, if you're interested in serious telecomputing, you should test-drive the *PC-Link* demo. It could be the introduction you need to the electronic world beyond your monitor.

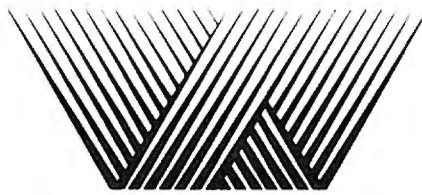
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EGA Screen Photograph of **TRACON**





continued from page 10.

## Tandy-Built

Agreements with Digital Equipment (DEC) and Panasonic have boosted Tandy's prominence in the computer-manufacturing arena. While other PC-compatibles makers fight for market share, the Texas consumer electronics giant has roped a lucrative deal for its Fort Worth computer-factory corral.

Under the DEC agreement, Tandy will build personal computers according to DEC design specifications. Then DEC will distribute and market those computers under its own name. Famous for its minicomputer systems and its workstation networks, DEC has never been able to match that success with its own PCs, a line starting with its ill-fated, noncompatible Rainbow.

DEC says its customers will be able to integrate the Tandy-built computers into existing and planned minicomputer installations. Complete design specifications

have yet to be released.

Ed Juge, Tandy's director of market planning, says that companies like DEC are looking to capitalize on Tandy's ability to manufacture computers efficiently, reliably, and inexpensively. He says Tandy will be able to increase its own market share through the venture because the agreement will give Tandy added credibility with business customers.

Panasonic has also sought Tandy's help in building personal computers to be sold under the Panasonic label. As a leading consumer electronics company, it hopes also to capitalize on Tandy's economies of scale. It's less expensive for Panasonic to use Tandy's facility than it is for Panasonic to build its own computers.

There will be some important differences between the Panasonic and Tandy computers, even though both will be built at the same facility. For example, the Panasonic-brand



computers won't offer the DeskMate interface or MS-DOS in ROM, and they won't carry Tandy's sound chip. Both the ROM and the sound features are included with Tandy's 8086 and 8-bit 80286 computers like the Tandy 1000 SL and 1000 TL.

Even with those differences, it will be hard to avoid conflict when it comes to sales. "They will compete with our machines; there's no question about it," said Juge. "Anybody who sells a PC is a competitor."

Juge went on to say that if Panasonic hadn't asked Tandy to manufacture its machines, it

probably would have found another supplier. "If you have to lose market share, you might as well lose it to yourself," Juge said. Tandy will supply all the raw materials and oversee the entire construction process.

Tandy has been building personal computers at its Texas plant for nearly ten years, says Juge, and in that time has radically cut the number of machines produced that are prone to failure. Testing makes up 75 percent of the manufacturing process; only 25 percent of the process is actual construction.

— Peter Scisco

## An Offer You Can't Refuse

If you believe Brad Fregger, president of Software International, almost every flight simulator package sold in this country ends up on a closet shelf. What customers bring home for computer entertainment too often ends up being hard work—and who has time these days to work at being relaxed?

To underscore Fregger's point, Software International will sell its *Pharaoh's Revenge* arcade-action game for \$5.

Fregger said he got the idea after he visited several computer dealers throughout the northwest United States. He said that those dealers told him that most first-time computer buyers took home MS-DOS clones, and for entertainment they almost always left the store with a flight simulator because simulators have become synonymous with computer entertainment.

"It makes me sick to my stomach to hear that," Fregger said. "Most of the people I talk to in the industry can't get off the ground with a flight simulator." What happens, he explained, is that computer entertainment packages are perceived as too difficult to play—which means losses to videogame makers. "Nintendo is fun. Computers are difficult and complex. That's the attitude."

"Complexity is killing this industry," Fregger said. A lot of people don't understand how productive they can be on computers, he continued, because they are turned off by the industry's emphasis on features. "To reach that 80 percent of the population we haven't reached yet, we have to talk about what computers can do." He hopes that by introducing customers to a simple arcade game like *Pharaoh's*

*Revenge* he can broaden the appeal of personal computers. "The offer is a little step to show that computers aren't as complex as people think."

Fregger said that computers haven't yet become a mass consumer product on the level of VCRs because the industry is afraid that if it goes after less computer-sophisticated customers it will lose some of its established base: enthusiasts and hobbyists. "We're selling [to] the same customer over and over," he said.

Software International isn't just interested in games, however. The company also markets a line of software, called ByteSize, with what Fregger calls "targeted features." Packages include *Home Inventory*, *Mailing & Phone List*, *Stock Portfolio*, and *Hard Disk Log*. A simple word processor and personal finance package are in the works,

bringing the total number to 19. The packages retail from \$21.95 to \$29.95 and are available at most software stores and some computer-dealer outlets.

Fregger said the ByteSize products let users become productive without bogging them down with topheavy features and unintelligible documentation. "They do only the things you need to do to get the job done," he said.

To receive a copy of *Pharaoh's Revenge*, send \$5 and a letter detailing your frustration with complex computer games to Brad Fregger, Publishing International, 333 West El Camino Real, Suite 222, Sunnyvale, CA 94087. The game is available for IBM PC and compatible, Apple II, and Commodore 64/128 personal computers, so be sure to specify which version you want.

— Peter Scisco



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## Court Games

And you thought games were only for fun. You never knew they were serious, serious business, did you?

Nintendo, the home-arcade-game giant, has been charged with violating federal antitrust laws in a suit brought by Atari Games (a privately

manufacturers from working on the Nintendo system. The only reason for such chips, claimed Atari Games, is to monopolize the making of Nintendo cartridges. (Nintendo manufactures all cartridges for its licensees.)

According to the com-

produced several) through its Tengen subsidiary.

Hitting back, Nintendo sued Atari Games and Tengen in January, charging breach of contract, trademark violation, unfair competition, conspiracy, and violation of federal racketeering laws. Atari

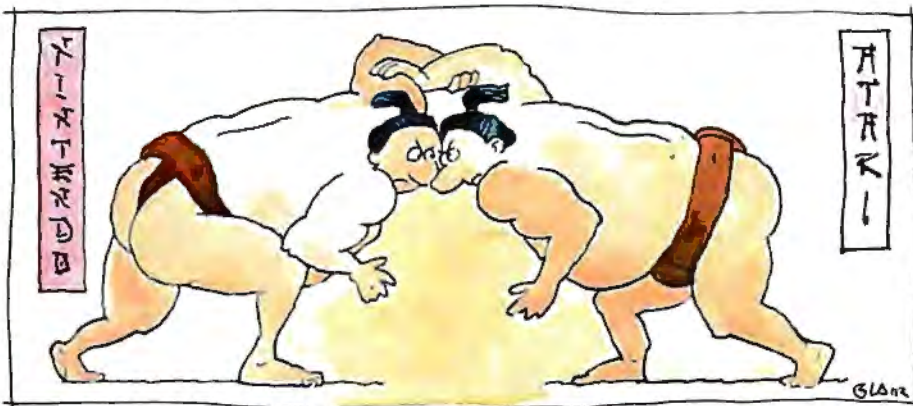
infringement or patent violations in the Tengen cartridges.

Meanwhile, the Software Publishers Association (SPA), a group of more than 400 software developers and publishers, threw its support behind Tengen. Nintendo created a shortage of cartridges by its policy of controlling all aspects of cartridge manufacturing, the SPA said as it applauded Tengen's move to produce Nintendo-compatible cartridges.

Although third-party cartridges would break the Nintendo lock and probably reduce prices and make more games available, many potential publishers of such cartridges voiced concern over the possibility of a future game glut. Everyone remembers the Atari videogame debacle in the early 1980s, when cartridge manufacturing was uncontrolled and games became so plentiful that prices took a nose dive and a lot of publishers took it on the financial chin.

No one wants to replay that game.

— Gregg Keizer



Harry Blair

held company not associated with computer manufacturer Atari Corporation).

In its \$100 million suit, Atari Games claimed that Nintendo inserts *lockout* chips into its game machines and into its cartridges to prevent game cartridges made by other

plaint filed in December, Nintendo controls the American home videogame industry, with 80 percent of the system market and 100 percent of the cartridge-manufacturing market. Atari Games plans on selling its Nintendo-compatible cartridges (Atari Games has in-

Games used confidential information available to it as a Nintendo licensee, said Nintendo, when it put together its compatible cartridges. Nintendo struck another blow by revoking Tengen's Nintendo license and threatened more charges if its engineers found copyright

## Help Line

NEC's corporate motto, "Computers and Communications," becomes tangible with the introduction of the company's HELP Phones. The telephones, developed to address emergency needs, use 512K of RAM to manage sophisticated emergency monitoring and assistance call services as well as to digitize outgoing messages.

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In addition to its emergency features, the phone includes 17 programmable one-touch dial buttons. Prices for the HELP Phone range from \$119 to \$199, depending upon the model. NEC's Help Center is staffed 24 hours a day and is listed with Underwriters' Laboratories. There's an annual fee for the Help Center service.

— Keith Ferrell



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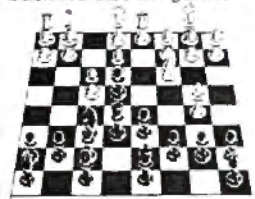
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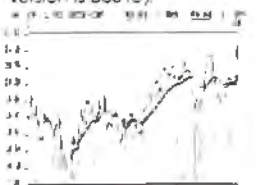
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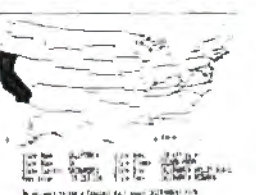
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# levitations

## Any Boob Can Take a Nintendo Cartridge and Shove It into a Slot

continued from page 88

meetings, and any local rally held by SWAN, the soon-to-be formed Senators' Wives Against Nintendo coalition. Here's the official SWAN song, with deepest apologies to Meredith Willson and to Professor Harold Hill.

"Wait a few billion nanoseconds, friends! Either you are deliberately ignoring significant data or you are unaware of the potential of disaster indicated by the presence of a Nintendo game machine in your home. A Nintendo game . . . just because we're all busy finding our own space and channeling spiritual entities . . . just because we listen to new-age music . . . because it's 1989 . . . doesn't give our kids the right to surf along the wave of life using a light pistol as a crutch.

"Now I'm a computer-game player, a Mac/Amiga/Atari/PC game player, and I'm always proud to boot up. I consider the time I spend in front of a CRT to be golden. Helps develop programming awareness . . . solid keyboard technique, you know . . . spreadsheet savvy. Did you ever try to fly between the World Trade Center Towers at Mach 3? Well, just as I say, it takes reading skills, intellect, and mechanical dexterity to install games on a PC. But I say any boob can take a Nintendo cartridge and shove it into a slot . . . and they call *that* entertainment.

"I'm telling you, it's the first real step on the road to pixelization. First it's a little bit of *Duck Hunt*. Then *Legend of Zelda*. And before you get back from your week at Club Med, your kid will be playing *Super Mario Brothers 2* for Oreos in a Cardin jogging suit . . . listening to some out-of-town video guru . . . hearing tell about power-pad controllers . . . not a wholesome joystick—no—but the kind where your kid stands *right on the switches!*

"Now friends, you can grok what I mean. You got two-, four-, six-, eight-hundred K on a disk . . . those disk drives spell the difference between a technocrat and a prole . . . that starts with *P* which rhymes with *T* which stands for *Tapes*.

"We got trouble. Right here in Silicon Valley . . . with a capital *T* without a *V* . . . that stands for *Tapes*. We got trouble . . . right here in Silicon Valley. We've got to figure out a way to keep the young ones conscious after school.

"Our children's children gonna have trouble . . . oh, we're in terrible, terrible

trouble . . . I'm talkin' 'bout the V-necked Reebok young ones . . . peeking in the Toys "R" Us window after school. Hey, look friends—we got trouble right here in the Valley . . . with a capital *T*. Hey, can't you see we're played for fools?

"Now all week long our Silicon Valley youth will be oblitterin' . . . blitterin' away aliens, Nazis, PR folks, too. Get the cart in the socket . . . never mind taking mom in for liposuction or swabbing the Jacuzzi. Never mind pumping gas for the parents until they're caught on a Saturday night with the BMW empty, and that's trouble . . . oh, we're in terrible, terrible trouble. That game designed by the Kanji lackeys is the devil's tool. Hey, look friends—we got trouble in Silicon Valley . . . we're in totally awesome trouble with a capital *T!* Hey, where's the brie . . . let's go to the pool.

"Now all you folks are the right kind of parents . . . I'll be perfectly frank . . . did you ever wonder what kind of conversation goes on while they're loafin' around that game? They'll be punchin' out Tyson, doin' Double Dragon, mowin' down Contras, hangin' out all night with Teenage Mutant Ninja Turtles, braggin' all about how they're gonna get brand-new wireless controllers. One fine night they'll leave your living room and head direct for Tokyo . . . stainless steel balls, springed levers . . . Pachinko! Gonna drag your son and my daughter down to the depths of that mechanical mind drug! Friends, the bullet train has your name on it!

"Trouble . . . right here in Silicon Valley, with a capital *T* . . . don't look at me . . . they're your kids, too. Hey, look dudes—we're in trouble, I mean gnarly trouble . . . remember windsurfing, MTV, and righteous brew?

"Parents of Silicon Valley . . . heed the tell-tale signs of video co-option! When your kids go out, are the lime green high-top sneakers retied around the waist? Are there power-controller callouses on their index fingers? Are they starting to memorize jokes from poorly dubbed Japanese sci-fi? Are certain words creeping into their conversation? Phrases like *Power up* and *Go for it, Mario!*?

"Well, we're in trouble—I mean big-time, wide-screen trouble. If they don't learn *Lotus 1-2-3*, then they'll all be fools. There's no golden parachute future when your rip cords are tied to video hog slop . . . we're beggin' you, please. . . .

"Say *No* to sleaze.

"And take up pool." □



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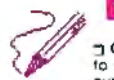
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**“We Got  
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Valley...With a  
Capital T  
Without a  
V...That  
Stands for  
Tapes.”**

Those of you who were expecting major-league coverage of the Winter Consumer Electronics Show (CES) would be well advised to do an impromptu shuffle of your expectations. I had intended to attend CES in January, of course, but certain things stood in the way. Money, for instance.

The advent of the tax-filing season and its attendant liabilities weren't the only things moderating my yen for CES. Trying to take in both Winter COMDEX and CES typically means spending eight days in Las Vegas over the course of seven weeks. That may be fine for inveterate gamblers and lounge lizards, but it usually takes me at least four months to recover from a typical run of Vegas trade-show press parties. Winter COMDEX normally occurs in the first two weeks of November, which barely gives one enough time to wake up by Thanksgiving. Despite a prolonged relationship with a case of generic aspirin, I still spent most of Thanksgiving dinner discussing the future of OS/2 with the turkey.

When January rolled in with the New Year, the idea of spending another three or four days in Kenoland was about as appealing as a John Travolta film retrospective. CES just isn't that much fun anymore for journalists covering personal computers. In recent years, that part of CES dedicated to home computers has been steadily eroded and encroached upon by Nintendo and Sega videogame and cartridge-software exhibits.

In fact, the only interesting rumors floating around before the show were that Nintendo and/or Sega would unveil their new game machines based on 16-bit processors and that Commodore would publicly or privately show an under-\$200 home videogame machine that would essentially be an emasculated Amiga 500. Both rumors turned out to have as much substance as your typical Apple “look and feel” lawsuit. I got several firsthand reports from friends who had to attend, all of them punctuated by uncontrollable yawning.

While most of the computer press talks down when the subject of Nintendo comes up, I'm in no position to take potshots. Back in 1973, Nolan Bushnell's *Pong*, the first hit commercial videogame, showed up in a local tavern I frequented on a semiprone basis. In a desperate effort to save the bulk of my disposable income, I shelled out over a hundred bucks for the home version the moment it hit my local Sears Roebuck. Three months of nonstop high-pitched pings

convinced most of my neighbors either that my apartment housed a government radar installation or that I was watching reruns of “The Enemy Below” 24 hours a day.

I graduated to the Sears Video Arcade machine, the first available incarnation of the Atari 2600. The 2600's graphics may have been crude, but they were in color. For months, the only available cartridge was *Land/Air/Sea Battle*, which, like disco lessons at Arthur Murray, served up two dozen monotonous variations on a mildly amusing theme.

In time I grew tired of the blips, bleeps, and bleeps and turned my attention to microcomputers. The hook was set one Saturday afternoon by an Atari 800 running *Star Raiders*. The hook hasn't come loose yet. While little of my computing time today is spent playing games, I'm never averse to booting up new entertainment titles for a quick look.

What's the point of all this witless meandering? Namely to provide a framework for stating that I don't see any imminent threat to the youth of America in the Nintendo craze. I don't care for Nintendo games, but I care even less for endless local news vignettes and “20/20” segments on Nintendo fever. Anyone whose brain cells are more or less intact may recall that in the early eighties we managed to survive tidal waves of truly distasteful Atari VCS games such as *Porky's*, *Texas Chainsaw Massacre*, and gamy raunch like *Custer's Revenge*. Last time I checked, shopping malls were no longer peppered with arcade zombie six-year-olds panhandling quarters, and the words *Coleco* and *Intellivision* have vanished from the vocabulary of prepubescents.

I can't find fault with the kids or manufacturers of videogames—check out mom and dad first. Parents who would rather plunk their kids in front of the Nintendo eight hours a day than spend time with them themselves are probably much less interesting than the games the kids play.

The personal computing industry can put down dedicated videogames, but it's a resoundingly hollow denunciation. Much of the pontification is a product of financial pixel envy. Check out *Operation Wolf* on the Amiga. It's a lot bloodier than on Junior's Nintendo.

As a public service to the guardians of our taste in entertainment, I'd like to provide a prefabricated speech suitable for delivery at PTA, Jaycee, or Young Republican

*continued on page 86*



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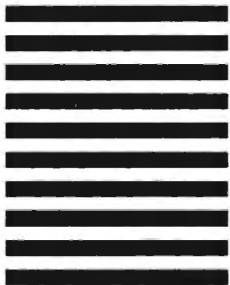
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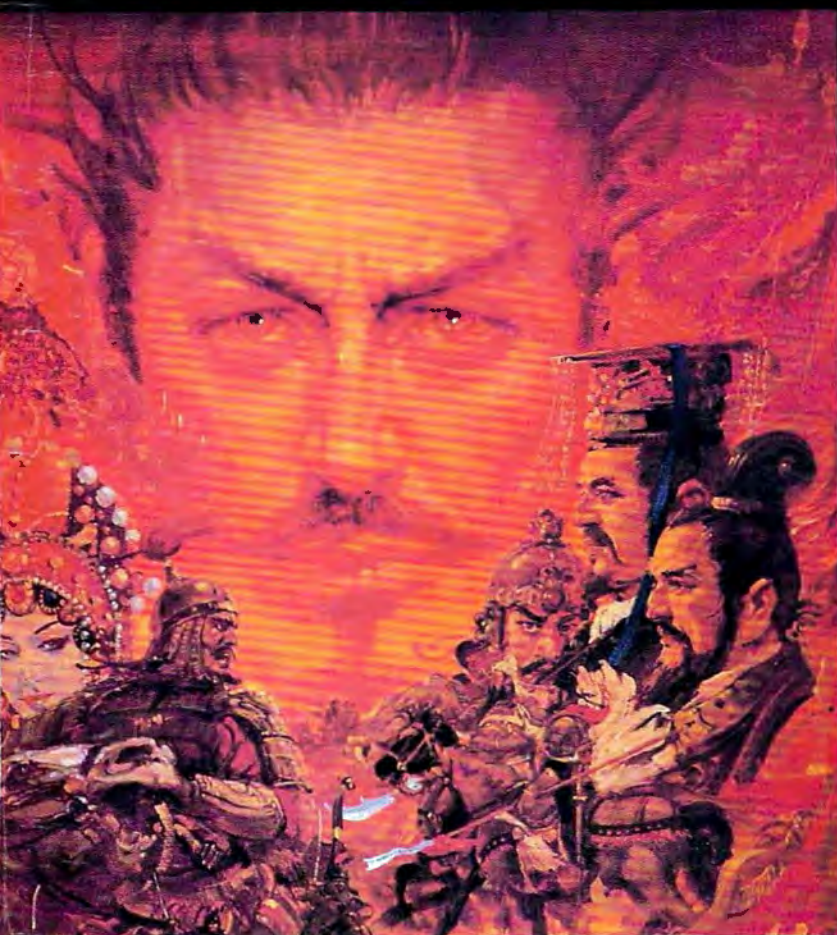
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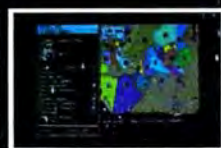
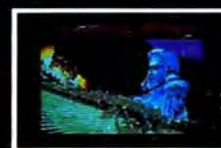
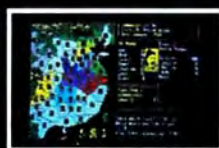
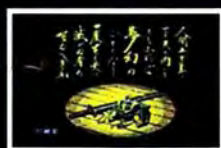
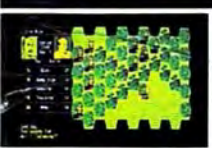
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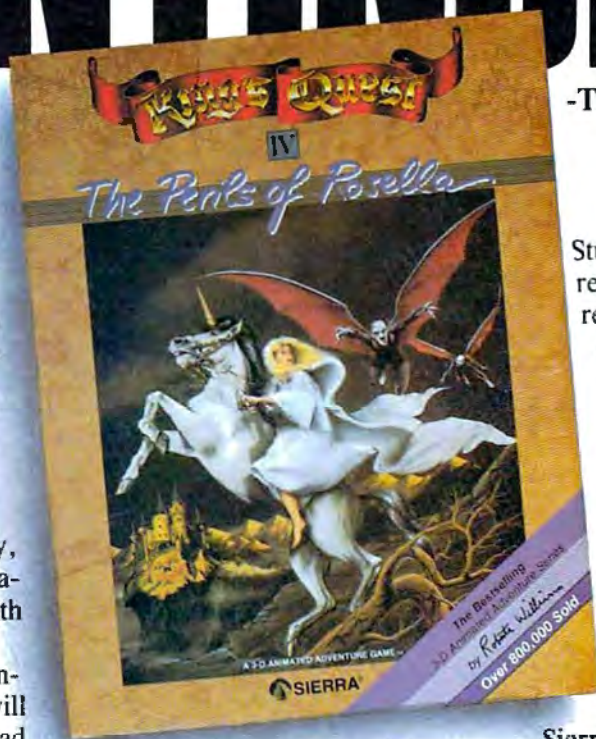
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