

EXCLUSIVE!
Ultima VI
(See page 84)

GET THE SCOOP! Laptop Travel ■ User Groups

April 1990

COMPUTE!

THE CHOICE OF HOME PC ENTHUSIASTS SINCE 1979

PC SOUND GETS SERIOUS!

5 Versatile Sound Cards Let You

- ▶ Create Special Effects
- ▶ Write Music
- ▶ Enhance Business Presentations

CLOSEUP!

- ▶ Boston's Computer Museum
- ▶ Sierra's Roberta Williams
- ▶ Tandy's \$999 Laptop

MUSIC-MAKING
Disk Offer
(See page 34)

USA \$2.95 Canada \$3.50

04



0 71486 02193 3



The Ad Lib Music Card: Open your ears and blow your mind.



Asteroids are hurtling by. Enemy photons are destroying the rear deflectors. Engines strain as they reach critical mass. Suddenly you hit the retros, loop around, and fire with everything you've got.

And what kind of awesome, breath-taking music is your computer playing? "Bleep, bop, beep." Pretty weak, eh?

We'll listen up. Because now there's the Ad Lib Music Card. It's the digital music synthesizer that's conquering the final frontier of truly realistic game playing—totally ear-blasting sound.

Confront the dark overlord, and Ad Lib's 11-piece orchestra will back you up with gutsy, heart-swelling music. And if you meet

an untimely death, rest assured that Ad Lib's funeral dirge will bring tears to the eyes of your loved ones.

In fact, the Ad Lib sound is so hot, major game developers are now designing dozens of new adventures with special soundtracks just for the Ad Lib Music Card.

Call us at 1-800-463-2686 for the name of your nearest dealer, for more information, and for the ever-growing list of major game titles with spectacular Ad Lib soundtracks.

Add the missing dimension to your games with the Ad Lib Music Card. From a solo to a symphony, Ad Lib's music makes the adventure come alive.



Ad Lib Inc., 50 Staniford Street, Suite 800, Boston, MA 02114. 1-800-463-2686 in U.S. or Canada. 1-418-529-9676 International. Fax: 1-418-529-1159.

New Compatible Games.

Here are just some of the hottest new computer games designed for use with the Ad Lib Music Card:



Lucasfilm's Their Finest Hour:
Battle of Britain



MicroProse's
F-15 Strike Eagle II



Taito's Arkanoid II
Revenge of DOH



Activision's
Ghostbusters II



Sierra's
Hero's Quest



Lucasfilm's Indiana Jones
and the Last Crusade

System requirements: IBM PC, XT, AT, or compatible with 256K RAM, DOS 2.0 or higher, CGA, EGA, or monochrome graphics adaptor, and headset or external speaker.

© 1989 Ad Lib. Ad Lib is a registered trademark of Ad Lib Inc. IBM is a registered trademark of International Business Machines Corporation.

Circle Reader Service Number 190

The current tools of management aren't good enough.



Introducing ARRIBA, the software you can't manage without.



Arriba is a powerful Personal Information Management System, not just an electronic file cabinet. There's no tech-ese to master. No complex maneuvers on the keyboard to call up your information. Just pop-up menus that make it easy to start using Arriba the day you load it on your computer.

"Arriba is a strong and flexible package, one that just may meet your information-management needs head-on."

COMPUTE!

Arriba helps you manage people, tasks, and events. Organize your thoughts, ideas, notes, schedules and contacts into cohesive action plans. Cross reference names and phone numbers to task lists, task lists to project folders, project folders to status reports, and more.

"If you've entered the information in Arriba, you can find it—fast."

COMPUTE!

Arriba's full-text search technology finds any piece of information in seconds. And it isn't limited to just pre-defined key words. If you can remember any part of any note, Arriba can find it.

"Arriba is highly customizable and can be adapted easily to handle information specific to individual needs."

Infoworld

Arriba's flexible approach lets you manage your personal information the way you want—by using the built-in applications or by customizing your own folders.

Friendly. Logical. Powerful. That's Arriba. No wonder BYTE calls it, "The Painless PIM."

GOOD Good Software Corp.

It's not just our name, it's our commitment.



1-800-272-GOOD

Call now for a free demo package!

COMPUTE!

THE CHOICE OF HOME PC ENTHUSIASTS SINCE 1979

CONTENTS

IN FOCUS: SOUND ON THE PC

HIT IT, MAESTRO! /22/ JOEY LATIMER

The latest sound hardware will have your PC singing.

MY VIEW /32/ DAN RUE

Set up your own home music studio.

COMPUTE!'s APRIL SHAREPAK DISK /34/

Play and record PC music, name that tune to score, learn Morse code, and hear real digitized sounds on your computer.

COMPOSE YOURSELF! /36/ RICHARD C. LEINECKER

Unleash your musical genius with software and your PC.

RESOURCES /42/ EDITORS

Find sound advice for making sweet PC music.

DEPARTMENTS

NEWS & NOTES /6/ EDITORS

CES avalanche, home business boost, failed memories, Dalai Lama E-mail, collector computer game, Commodore's secret CD system, and more that's new.

LETTERS /12/ EDITORS

Designing a better home, *SharePak* crunch, and a DOS command library.

COMPUTE! SPECIFIC

MS-DOS /14/ CLIFTON KARNES

Commodore 64/128 /15/ NEIL RANDALL

Apple II /16/ GREGG KEIZER

Amiga /16/ DENNY ATKIN

Macintosh /18/ HEIDI E. H. AYCOCK

REVIEWS /84/

Ultima VI • *Personal Office* • *Star Trek V* • *Typewrite 3 in 1* • *Lucky Star 386SX* • *Omni-Play Basketball* • *Basic Tools* • *Tax Shop 1040* • *MechWarrior* • *College Bound* • *PreScript* • *HeadStart Explorer* • *Fool's Errand* • *Windwalker* • *Sword of the Samurai* • *Starflight 2*

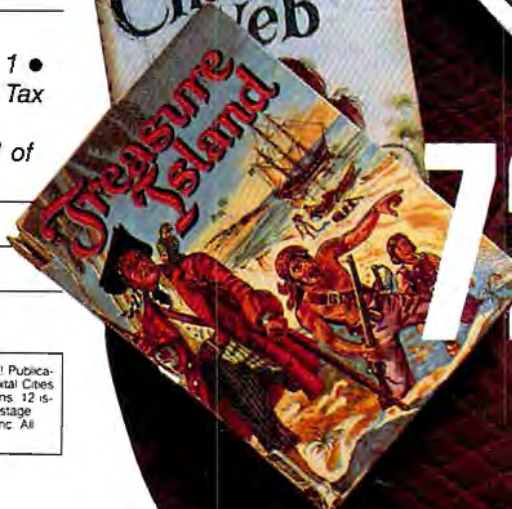
NEW PRODUCTS /123/ MICKEY McLEAN

HOTWARE /128/ SOFTWARE BESTSELLERS

36



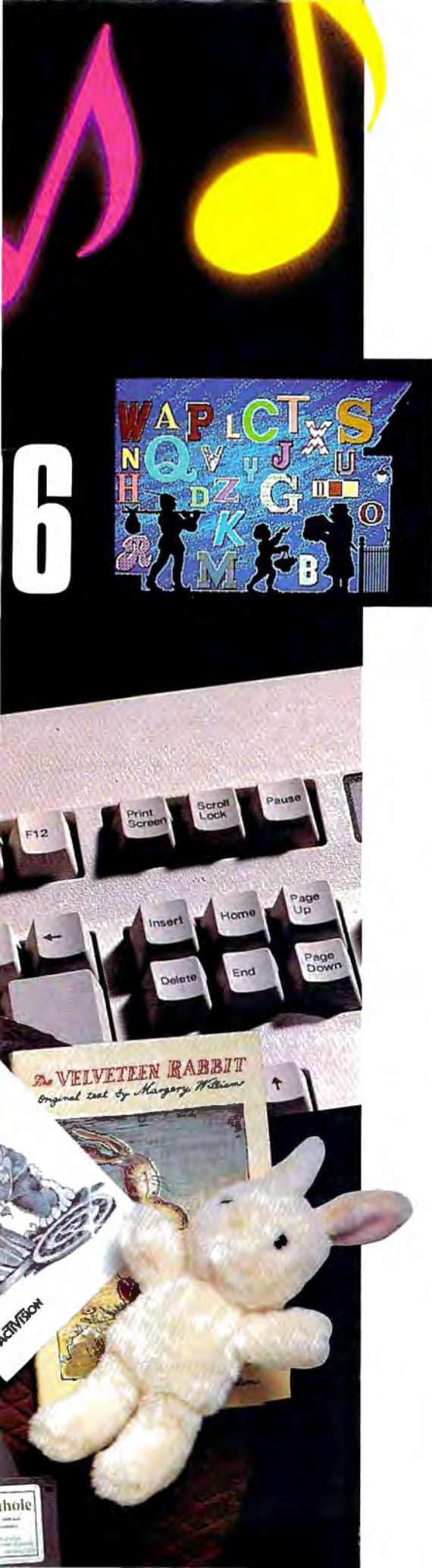
Charlotte's Web



the Manhole

72

COMPUTE! The Choice of Home PC Enthusiasts Since 1979 (USPS 537250) is published monthly by COMPUTE! Publications, Inc., ABC Consumer Magazines, Inc., Chilton Company, one of the ABC Publishing Companies, a part of Capital Cities ABC, Inc. Editorial Offices are located at 324 West Wendover Avenue, Greensboro, NC 27408. Domestic Subscriptions: 12 issues \$19.94. POSTMASTER: Send Form 3579 to: COMPUTE!, P.O. Box 3245, Harlan, IA 51537. Second-class postage paid at New York, NY and additional mailing offices. Entire contents copyright © 1990 by COMPUTE! Publications, Inc. All rights reserved. ISSN 0194-357X.



PRODUCTIVITY

COMPUTE! CHOICE /44/ PETER SCISCO

The Tandy 1100 FD laptop isn't heavy, but it's no lightweight.

USER GROUPS /50/ TOM NETSEL

When it comes to computers, there is strength in numbers.

PC PRIMER /54/ HINTS AND TIPS FROM OUR READERS

Protect your AUTOEXEC.BAT file and *WordPerfect* shortcuts.

ENTERTAINMENT

COMPUTE! CHOICE /56/ MICKEY McLEAN

Hardball II blends statistics and action for a pennant winner.

GAMES BY WIRE /62/ MICKEY McLEAN

Modem play and online entertainment spark new fire.

GAMESCOPE /70/ HINTS AND TIPS FROM OUR READERS

Battletech strategies and driving lessons for the racing circuit.

LEARNING

COMPUTE! CHOICE /72/ HEIDI E. H. AYCOCK

Explore *the Manhole*'s fascinating interactivity.

WELCOME TO MY MACHINE /78/ KEITH FERRELL

Stroll through computer history and a giant machine.

HOMEWORK /83/ HINTS AND TIPS FROM OUR READERS

Online tutorials and electronic pen pals.

COLUMNS

EDITORIAL LICENSE /4/ PETER SCISCO

Sound on the PC comes into its own.

IMPACT /48/ DAVID D. THORNBURG

Choose the right synthesizer for your computer music.

DISCOVERIES /76/ DAVID STANTON

Tinkering with your machine can lead to unexpected rewards.

GAMEPLAY /60/ ORSON SCOTT CARD

A new role-playing game that isn't.

CONVERSATIONS /120/ KEITH FERRELL

Roberta Williams tells stories with a PC.

OFF LINE /127/ DAN GOOKIN

Start your journey toward computer guruhood today.



EDITORIAL LICENSE

P E T E R S C I S C O

Now hear this: *sound on the PC*. In the Oxymoron Hall of Fame, those words must share a shelf with *junbo shrimp* and *deficit spending*. It's a phrase that sends Amiga heads into spasms of laughter. Utter those four words, and Macintosh users sadly shake their heads. As for C64 and Apple IIGS users, they must wonder what the fuss is all about (Sound from your computer? But hasn't everybody always had that?).

I've taken my share of verbal abuse for the vile noises that emanate from the tiny tinny speaker in my PC. But no more. Thanks to some third-party hardware and some clever hackery, my PC sounds pretty darn good. I wish that my machine used sampled sound and not synthesized sound, but all in all I'm pretty satisfied. It could be better, and someday soon it will be, but for now I'm happy.

So why has it taken so long? Why has PC sound remained so largely unexplored? Except for some notable products like *The Music Studio* and Ad Lib's Personal Music Composition System, PC sound products have traditionally attracted little attention or support. Even though research reflects the importance of music composition to home computer use (in a recent Dataquest survey, 20 percent of home computer users said they produced music with their computers), low-cost solutions to the PC sound dilemma have only recently reached the market.

Sound ranks with memory management as the last frontier of PC hardware development. By tracking the development of the PC platform, you could infer that there hasn't been a demand—either real or imagined—for sound on the PC. It beeps. It boops. It crackles like a ham radio 300 miles deep inside a Siberian snowstorm. What more do you want?

Plenty. The clamor for PC sound comes from the most ignored segment of the MS-DOS market—the home

computer enthusiast. It's the home computer user who makes the MS-DOS platform jump through hoops. We don't concentrate on just one task; we demand that our machines prove themselves capable of handling many jobs, from text processing and number crunching to flight simulation and reading comprehension. To do all these things, and to do them well, we need great graphics, decent processing speed, a world of software, and *sound*.

For all their talk of multimedia, Microsoft and IBM have barely addressed the pitiful sound capabilities of the PC. But smaller companies have stepped into the breach. Sound cards and lyrical software aren't the purview of computer-generated music-composition companies any longer. Mainline computer entertainment companies are looking at sound as a way to set their products apart. Sierra



has embraced the world of music and sound in its adventure titles, from *King's Quest IV* to *Leisure Suit Larry III*. Electronic Arts kicks car-racing games into overdrive with the sound of its *Indianapolis 500: The Simulation*. Companies like Access Software, Brøderbund, Mediagenic, and Data East have incorporated hardware-independent sound into their products, with different levels of success.

The one piece of sound-intensive software I'm still looking for is a music-composition package that incorporates the guitar tablature inter-

face, rather than the keyboard or the score metaphor. Like most kids who came of age in the rock-'n'-roll era, I chose the guitar as the musical weapon of choice. I can't read music, but the fret board on my Gibson is like an old friend. Just once, I'd like to play the blistering solo that my heart sings but my fingers can never master. It might not get me on stage, but, man, it sure would sound sweet.

On the hardware side, Creative Labs has repackaged its musician's sound board as an under-\$100 entertainment product and released another card that boasts digital sound capability. Covox offers a card reminiscent of the Atari ST sound chip, and RolandCorp has shrunk its MT-32 modular sound system down to an add-on card.

Now that the number of players has grown, some of the MS-DOS heavyweights are looking toward sound as an integral part of the total personal computer package. Tandy offers a proprietary digital-to-analog chip in its SL and TL home computers. IBM's much-rumored low-end multimedia machine, scheduled for release in the late fall, is said to feature stereophonic sound. The much ballyhooed HeadStart CD-ROM systems feature CD-quality sound at less than \$2,000 (for the XT version).

Unless IBM sets an MS-DOS sound standard by default, you can plan to see a handful of add-on sound cards battling for support over the next few years. Already the window of opportunity is closing, with Ad Lib, RolandCorp, Creative Labs, and Tandy ahead of the pack. Developers will, for the short term, support most of these products, just as they support a variety of graphics modes.

For PC enthusiasts looking for sound advice, this month's In Focus section probes the pros and cons of the top MS-DOS sound products. The race for band leader is a long way from over, but when hardware and software companies start taking PC sound seriously, we all come up winners. □

Screen shots represent Commodore 64 and Amiga versions others may vary. Amiga is a registered trademark of Commodore/Amiga, Inc.

UBI SOFT
Entertainment Software
 PRESENTS

THE WINNING TRIO

ADVENTURE



Prove your birthright through strategy and strength. Amaze the town with your superior archery, arm-wrestling, sword-play, and dice-throwing skills. Ultimately, you must build a following that not only respects you, but will go to war for you!

You are alone... a single warrior in a country of traitors, spies and assassins. You are unknown... the forgotten son of the dethroned king. Can you recover the throne? Only a true Crusader of Justice could succeed at such a feat. Deceit and treachery abound!

Take charge. Prove you are IRON LORD - The Crusader of Justice! You owe it to your homeland. Your father, and most of all, to the future of your kingdom!

ACTION



"DON'T GET PUFFED OUT..."

That's the challenge in this addictive arcade-style game.

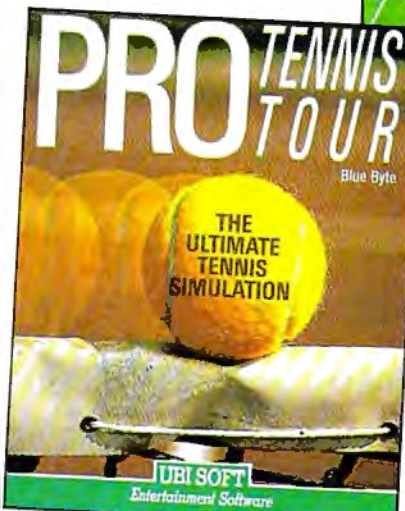
- **Avoid the enemies...** Ghosts, Acid Puddles, Flying Dragons, and Snakes lurk around each corner.
- **Choose your character:** Puffy is powerful, but Puffyn has the speed!
- **Explore twenty different levels** and settings, each offering secret passageways filled with demons.
- **Race through the mazes** quickly or accumulate points by exploring each level in full.
- **Enjoy** the colorful graphics and entertaining sound effects.

SPORT



Skate Wars the sport of the future, combines the skills of soccer with the thrills of Rollerball, played in a space age ice stadium! Lead your team to victory through a series of deadly hazards: crevasses, ramps, jumps, all while competing against the ruthless tactics of your opponents. You'll have to play dirty to win. Maim, trip, push, and shove... show no mercy. Only the brave win, or even survive!

Distributed by
ELECTRONIC ARTS

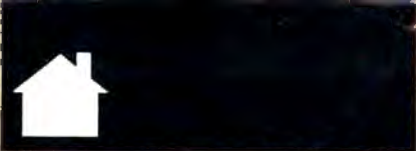


Warm up on one of six practice programs containing three levels of increasing difficulty. Put away shots like a Pro! Master back-hand volleys, passing-shots, and other winning tennis strokes.

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

Compete against your friends, even if they aren't internationally ranked! Amaze the grandstand with an instant replay in 3-D animation. More than 300 animations with zoom effects.

Travel around the world and play at four international tournaments. Test your abilities on grass, clay or cements courts.



NEWS & NOTES

DID YOU CD THAT?

Commodore Business Machines didn't seem to be displaying anything new at CES—just a bundled C64 system and its current Amiga and PC-clone lines. Behind closed (and locked) doors, though, Commodore was indeed showing something new. Informed sources say CBM gave select showgoers a sneak preview of a new CD-ROM

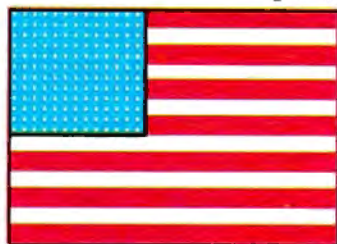
game machine. This 68000-powered game machine is said to be based upon the Amiga graphics chip set. Using compact discs instead of cartridges for storage allows games to have hundreds of megabytes of graphics and sound. If Commodore brings the game machine to market, consumers should prepare for severe sticker shock—sources say the platform will retail for around \$600.

—DENNY ATKIN

HOME BUSINESS BOOST

Home office workers looking for free advertising can contact MountainView Systems (930 South Washington Avenue, Suite 111, Scranton, Pennsylvania 18505; 717-342-2302) and request a data-entry form for inclusion in the *Homebased Business Directory of North America*. Scheduled for publication in the fourth quarter of 1990, the directory will list home businesses as well as goods and services available to home businesses. Your business might also get a mention in the company's monthly newsletter.

—RICHARD C. LEINECKER



NO THANKS FOR THE MEMORIES

U.S. Memories, a cooperative set up by a number of American semiconductor manufacturers to help reduce reliance on Japanese chip suppliers, was dissolved on January 15 before it could produce a single chip.

The cooperative was backed by a number of U.S. technology firms, including IBM, DEC, Advanced Micro Devices, Intel, LSI Logic, National Semiconductor, and Hewlett-Packard. Several companies, such as Apple and Sun Microsystems, decided not to back U.S. Memories and instead signed long-term supply contracts

with both foreign and domestic chip manufacturers.

U.S. Memories would have reduced dependence of American industry on overseas-manufactured memory chips, but it appears that many manufacturers decided it wasn't worth the financial risk because chip prices had dropped significantly in previous months. When U.S. Memories was first proposed, one-megabit DRAM chips cost over \$30 each. Now they sell for well under \$10.

—DENNY ATKIN

TREASURE TRAP

The Esmeralda's gold is just a few inches away, but it might as well be a mile. You can't reach it without help, and only the jellyfish has any friends in this algae-covered wreck.

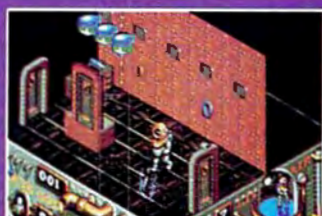
A poisonous stingray races straight at you. Your air supply is running low. What else could go wrong...

➔ Plunge through 100 multi-level rooms to find the Esmeralda's fabulous treasure of gold bars.

➔ Dodge crabs, elude eels, sidestep sea urchins — it's dinner time at 50 fathoms and you're the main course!

➔ Solve unusual puzzles and find your way past clever traps — the right strategy will make you rich!

➔ Capture friendly fish, pick up important keys, locate vital tanks of air — be careful or the last words you hear will be a garbled "Glub, Glub!"



ELECTRONIC
ZOO

Available for IBM/Tandy/compatibles, Amiga and Atari ST at a retailer near you, or call the zoo keeper at (301) 646-5031. Suggested retail: \$39.95.

Circle Reader Service Number 155

3431-A Benson Avenue • Baltimore, Maryland 21227

Treasure Trap™ is a trademark of the Electronic Zoo Limited Partnership. All other product names are trademarks of the respective manufacturer.

WINTER CES: DISKS IN THE CARTRIDGE-GAME DESERT

Sega Sega Sega. Nintendo Nintendo Nintendo. NEC NEC NEC. You almost couldn't find the computers between the game machines at the Winter Consumer Electronics Show (CES) held in Las Vegas in early January. Several leading computer software publishers moved their exhibits into trailers, recreational vehicles, or hotel suites, away from the convention center.

Physically overshadowed by game machines, traditional computer software nonetheless made one of its strongest recent CES showings. CES is an entertainment-oriented show, and the majority of products on display were games, some of which are complete and should reach retailers by spring; others will be available later in 1990.

From around the show... There's a *Crime Wave* coming from Access in the form of a new action game that pits you against heavily armed enemies.

Accolade continues to deepen its products and broaden their scope, showing a science-fiction adventure, *Day of the Viper*, as well as two combat simulators, *Strike Aces* (modern air combat) and *Gunboat* (river patrols).

What do Michael Jackson, Buffalo Bill, and Elvira have in common? All are represented in new games from Box Office Software. The titles are *Buffalo Bill's Rodeo Games*, *Elvira's Horrorsoft: A Personal Nightmare*, and *Michael Jackson's Moonwalker*.

Britannica Software sets sail with *Guns and Glory*, a recreation of World War II naval warfare.

Moving past its arcade orientation, Data East showed *Drakkhen* and *Chamber of the Sci-Mutant Princess* (two role-playing games), *Bo Jackson Baseball*, as well as an action game, *The Untouchables*.

Typically, Electronic Arts covered a lot of entertainment ground, ranging from the ancient Rome of *Caesar* to the silly slopes of *Ski or Die!* to the deadly skies of *LHX Attack Chopper*. EA's affiliate labels displayed even greater diversity of approach. France's UBI Soft will deliver medieval role-playing in *Iron Lord* and futuristic adventure in *B.A.T. (Bureau of Astral Trouble-Shooters)*. Strategy master SSI returns to the world of *Advanced Dungeons & Dragons* in *Champions of Krynn* and to World War II in *Second Front*. Arcade classic *Ahered Beast* will be out from Sega, along with *Turbo Out Run*, a sequel to the popular racing game.

A new Electronic Arts affiliate, Parker Brothers, showed off the computer version of Trivial Pursuit. Cinemaware took flight with *Wings*, a World War I flight simulator, and added *T.V. Sports Basketball* and *Baseball* to the popular T.V. Sports line. Interstel displayed its first graphics adventure, *At Earthrise*, and a man-to-man combat simulator, *D.R.A.G.O.N. Force*. Miles Computing went undersea for *Aquanaut*, while New World Computing offered two fantasies, *King's Bounty* and *Might and Magic II*, in addition to *Nuclear War*, a humorous strategy/action game.

Two long-awaited products were unveiled at the Electronic Arts exhibit in Vegas: Three-Sixty's adaptation of the Larry Bond classic of modern naval strategy, *Harpoon*, and Lucasfilm's much-anticipated fantasy game, *Loom*.

Movie and book adaptations are the name of the game at Intracorp, with *Bill and Ted's Excellent Adventure* and Tom Clancy's *Cardinal of the Kremlin* both announced at CES.

MicroProse affiliate Medalist International takes two approaches to science fiction in *Midwinter*, set in a new ice age, and *Star Lord*, a game of galactic conquest. Paragon Software will bring Marvel Comics' *Punisher* to violent computer life, and it will translate the science-fiction role-playing classic *Megatraveller* to disk.



Take to the skies or to the water in Accolade's combat simulations, *Strike Aces* (pictured above) and *Gunboat*.



Ultima fans receive the sixth installment of the popular fantasy role-playing game. (See our review on page 84.)

Mediagenic showed its computer translation of *Power Drift*, Sega's arcade hit. Mixing other media, Infocom brings George Alec Effinger's ambitious fiction to electronic life in *Circuit's Edge*.

Newly acquired by Software Toolworks, Mindscape showed off *Guns and Butter*, the latest game from Chris Crawford.

Origin's Richard Garriott, a.k.a. Lord British, showed off the sleek, redesigned Ultima interface, making its debut this spring with *Ultima VI*. Chris Roberts, fresh from his *Times of Lore* triumph, offered glimpses of a refreshingly literate, albeit desolate and dangerous, future in *Bad Blood*.

The storytellers at Sierra unveiled *Iceman*, an antiterrorist thriller, and *Conquests of Camelot*, a serious look at the Grail quest.

Taito announced an ambitious schedule, highlighted by *New Zealand Story*; an adventure involving a kiwi (the bird, not the fruit); *Chase H.Q.*, a car-chase epic; *Operation Thunderbolt*, a sequel to *Operation Wolf*; and *Ninja Warrior*, whose title explains itself.

Visitors to Virgin Mastertronic's suite literally saw spots. *SPOT the Video Game* makes the 7-UP soft-drink character the central figure in a gorgeously animated strategy game.

All in all, this was one of the most exciting Consumer Electronics Shows in years; 1990 may just mark the beginning of a computer-entertainment renaissance.

—KEITH FERRELL

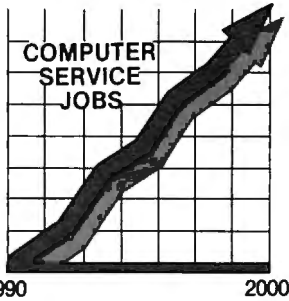
5 sure steps to a fast start as a high-paid computer service technician

1. Choose training that's right for today's good jobs

Jobs for computer service technicians will almost double in the next 10 years, according to the latest Department of Labor projections. For you, that means unlimited opportunities for advancement, a new career, or even a computer service business of your own.

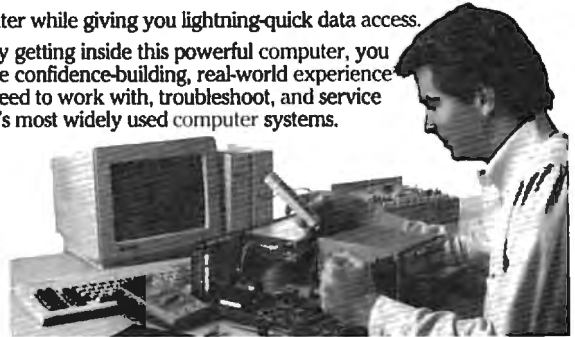
But to succeed in computer service today, you need training—complete, practical training that gives you the confidence to service any brand of computer. You need NRI training.

Only NRI—the leader in career-building, at-home electronics training for more than 75 years—gives you practical knowledge, hands-on skill, and real-world experience with a powerful AT-compatible computer you keep. Only NRI starts you with the basics, then builds your knowledge step by step until you have everything you need for a fast start as a high-paid computer service technician.



computer while giving you lightning-quick data access.

By getting inside this powerful computer, you get the confidence-building, real-world experience you need to work with, troubleshoot, and service today's most widely used computer systems.



4. Make sure you've always got someone to turn to for help



Throughout your NRI training, you've got the full support of your personal NRI instructor and the entire NRI technical staff. Always ready to answer your questions and help you if you should hit a snag, your instructors will make you feel as if you're in a classroom of one, giving you as much time and personal attention as you need.



2. Go beyond "book learning" to get true hands-on experience

NRI knows you learn better by doing. So NRI training works overtime to give you that invaluable practical experience. You first read about the subject,

studying diagrams, schematics, and photos that make the subject even clearer. Then you do. You build, examine, remove, test, repair, replace. You discover for yourself the feel of the real thing, the confidence gained only with experience.

3. Get inside a powerful computer system

If you really want to get ahead in computer service, you have to get inside a state-of-the-art computer system. That's why NRI includes the powerful new West Coast 1010 ES computer as the centerpiece of your hands-on training.

As you build this fully IBM AT-compatible micro from the keyboard up, performing key tests and demonstrations at each stage of assembly, you actually see for yourself how every section of your computer works.

You assemble and test your computer's 101-key "intelligent" keyboard, install the power supply and 1.2 meg 5¼" floppy disk drive, then interface the high-resolution monitor. But that's not all.

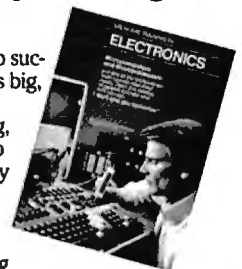
You go on to install a powerful 20 megabyte hard disk drive—today's most-wanted computer peripheral—included in your training to dramatically increase the data storage capacity of your



5. Step into a bright new future in computer service—start by sending for your FREE catalog today!

Discover for yourself how easy NRI makes it to succeed in computer service. Send today for NRI's big, 100-page, full-color catalog describing every aspect of NRI's one-of-a-kind computer training, as well as training in robotics, TV/video/audio servicing, electronic music technology, security electronics, and other growing high-tech career fields.

If the coupon is missing, write to: NRI School of Electronics, McGraw-Hill Continuing Education Center, 4401 Connecticut Avenue, NW, Washington, DC 20008. AT & IBM are registered trademarks of International Business Machines Corp.



NRI School of Electronics

McGraw-Hill Continuing Education Center
4401 Connecticut Avenue, NW, Washington, DC 20008

For career courses approved under GI Bill
 check for details.

- CHECK ONE CATALOG ONLY
 Computers and Microprocessors
 Robotics
 TV/Video/Audio Servicing
 Telecommunications

- Security Electronics
 Electronic Music Technology
 Digital Electronics Servicing
 Computer Programming
 Basic Electronics

Name _____

Address _____

City _____ State _____ Zip _____

Accredited Member, National Home Study Council

198-040

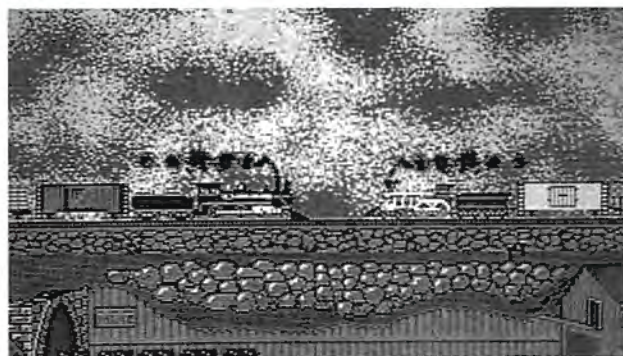
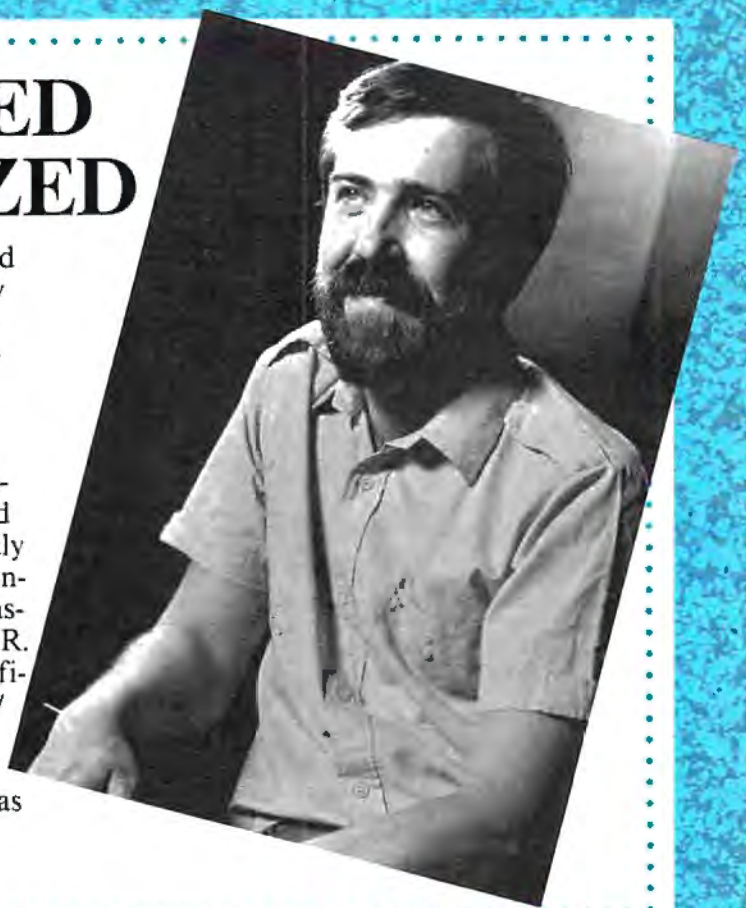
AMERICANIZED AND TETRISIZED

Soviet software author Alexey Pajitnov visited the United States for the first time in January to make an appearance at CES. Two of Pajitnov's 15 games, *Tetris* and *Welltris*, are available in the West from Spectrum HoloByte.

Enjoying the spirit of *glasnost*, Pajitnov hobnobbed with fellow developers and press representatives at a pair of get-togethers sponsored by Spectrum HoloByte. The 35-year-old Moscovite's English is very good, thanks partly to his wife Nina's occupation as an English language teacher. Pajitnov works as a scientific assistant at the Computing Center of the U.S.S.R. Academy of Sciences, where he works on artificial intelligence, voice recognition, and CAD/CAM software.

Excited by the success that *Tetris* and *Welltris* have enjoyed in the West, Pajitnov has new games in the works.

—DENNY ATKIN



Build a rail empire in *Sid Meier's Railroad Tycoon*, coming soon from MicroProse.

BUT THERE'S NO GUN, MAJOR BILL!

The Winter Consumer Electronics Show echoed with the sound of train whistles. The promotional whistles offered audible augmentation to MicroProse's upcoming railroad simulation.

Sid Meier's Railroad Tycoon, scheduled for spring release, puts you in command of the resources needed to launch and nurture a railroad empire. The game, which stretches from the nineteenth century to the present, offers scenarios set in the United States, England, and Europe.

Many observers remarked on the nonviolent nature of the game, something of a departure for MicroProse, which has traditionally produced sophisticated combat simulators.

"Wild Bill" Stealey, founder of MicroProse and former fighter pilot, was overheard muttering, "Maybe we can put a gun on a flatcar!"

—KEITH FERRELL

HALT! COMPUTER POLICE!

What does a computer company do when the details of its newest computer are leaked to the press two months before the official announcement? If the company is Apple Computer, it puts several former FBI agents on the payroll and sends them out to track down the culprit.

According to the *Wall Street Journal*, the trail led to RasterOps, a manufacturer of high-end monitors and display cards. Despite the company's agreement to keep the computer a secret, a RasterOps employee showed a Macintosh IIci prototype to the editors of *MacWeek*. The editors examined and photographed the computer for several hours and published a detailed account on the front page of their magazine.

Neither company will say what happened to the employee, but RasterOps will continue to receive support as a Macintosh developer.

—DAVID ENGLISH



CALLING ALL COLLECTORS!

Limited editions have a way of repaying investments. At least, that's the hope of Publishing International, which has released 1000 copies of *Ishido* in a \$495 edition aimed at the Macintosh collector's market.

Each copy is signed and numbered by producer Brad Fregger, designer Michael Feinberg, and programmer Ian Gilman. Reflecting its special nature, the limited edition is boxed in a handcrafted walnut case.

Fregger says that a mass-market version of *Ishido* may be released for the Macintosh, MS-DOS, and Amiga markets in the future.

—KEITH FERRELL

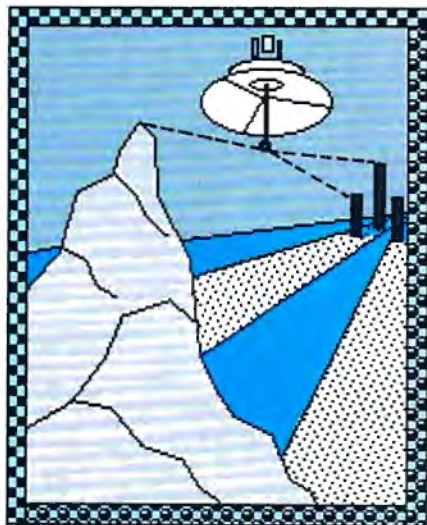
LIGHTER LAPTOPS

Psion attracted lots of attention at CES with its Mobile Computer series. The MC-200, MC-400, and MC-600 are the size of a two-inch-thick looseleaf notebook and weigh approximately 4½ pounds.

The MC-200 (\$1,199) and MC-400 (\$1,699) use Psion's proprietary multitasking operating system, whose graphical interface utilizes a built-in touch pad. Built-in software includes a word processor, a personal and business database, and a communications program. Each computer also can record, edit, and replay speech. It takes only 300K of RAM to store more than an hour's worth of speech.

The MC-600 (\$2,999) is an MS-DOS, PC-compatible machine. All three computers have four solid-state drives that utilize Intel's new Solid State Flash Memory technology. These matchbook-sized solid-state disks eliminate conventional mechanical drives and extend battery life significantly; up to 75 hours of continuous operation is possible using eight AA batteries on the MC-200.

—TOM NETSEL



TIBETNET

Even the Iron Curtain can't stop the moving electrons of a telecommunications network. And now the Dalai Lama and the members of his movement in China are using telephone lines to communicate with the outside world. They use SEAdog telecommunications software (System Enhancement Associates, 21 New Street, Wayne, New Jersey 07470; 201-473-5153) to facilitate the transfer of information.

Messages coming in from the Himalayan mountains on a regular basis bolster Tibetan resistance to Chinese oppression. If an execution is about to take place, for example, support groups can immediately mobilize to try to thwart it.

Bill Van Glanh of SEA said the system's Wide Area Network still faces some problems. International phone lines aren't always free of static and noise, for example. Poor connections corrupt electronic information with stray characters (fax images are plagued by distortion). Also, wide variations in time zones present difficulties for global system updates.

—RICHARD C. LEINECKER

□



LETTERS

Better Design Needed

Bruce Haase didn't go quite far enough in his review of *Abracadabra's Design Your Own Home* (January 1990).

The biggest weakness is in its output capabilities. For example, although it supports EGA/VGA color, it only prints in black-and-white. All the great color hatching and filling one does onscreen won't appear on paper. The resolution of the output is also the lowest possible due to a generic printer driver.

Another complaint I have is with the dimensioning of the finished drawings. It takes hundreds of lines to make up a floor plan. In *Design Your Own Home*, the user is required to manually remeasure each line in order to place the dimension markers. The user manually creates the extension lines, arrows, dimension lines, and text. This measuring is awkward to accomplish because it requires the user to redraw the line to be measured.

This program has potential but lacks some basic functions for a program in its price range.

JEFF A. SAWYER
WOONSOCKET, RI

No Room to Share

I have the November *SharePak* disk, and when I try to uncompress the file CM170, I get a message that says *compressed file too large for disk*. Please explain why this happens.

RALPH MELUCH
FAIRVIEW PARK, OH

You need to uncompress the files to an empty floppy disk or to a hard drive with sufficient free space. If you have the file CM170.EXE on the same floppy disk to which you are uncompressing, there won't be enough room for all of the files. Your best bet is to use the MENU program on the SharePak disk to uncompress the files. While compressing the files on the SharePak disk adds a few extra steps before you can get the programs up and running, it allows us to fit almost

twice as many programs on each monthly disk.

Command Line Confusion

I look forward to reading the "PC Primer" column every month because of the useful bits of information that can be picked up for using DOS.

Is there a manual that contains every DOS command and explicit instructions on their use and function?

Thanks for a truly superior magazine!

JOHN R. HENSON
LIVERPOOL, NY

There are many MS-DOS tutorial books available. Beginning MS-DOS users should check out the Second Edition of Quick & Easy Guide to Using MS-DOS, by Strawberry Software and Bonnie Derman (\$14.95, ISBN 0-87455-218-4), available from COMPUTE! Books, Chilton Book Company, One Chilton Way, Radnor, Pennsylvania 19089; (800) 345-1214. This book teaches commonly used MS-DOS commands in a procedural manner. Intermediate and advanced users wishing to master commands such as EXE2BIN should get a copy of DOS Power Tools, by Paul Somerson (ISBN 0-553-34526-5). This 1250-page tome covers the inner workings of everything from ANSYS to XCOPY and includes a disk packed with utilities that would be worth the \$44.95 price by itself. It's available from Bantam Books, 666 Fifth Avenue, New York, New York 10103; (212) 765-6500.

Correction

The publisher of *Destroyer Escort* was listed incorrectly on page 46 of our January issue. The program is a MicroProse product.

Do you have comments or questions? Send your letter, along with your name, address, and daytime telephone number, to COMPUTE! Feedback, P.O. Box 5406, Greensboro, North Carolina 27403.

COMPUTE!

THE CHOICE OF HOME PC ENTHUSIASTS SINCE 1978

Editor Peter Scisco
Senior Art Director Janice R. Fary
Features Editor Keith Ferrell
Assistant Editors Denny Atkin
David English
Michael Hudnall
Richard C. Leinecker
David Hensley, Jr.
Manager, Disk Products Tom Netsel
Assistant Features Editor Elizabeth Casey
Editorial Assistants Mickey McLean
Copy Editors Karen Siepak
Karen Uhendorf
David Thornburg
Contributing Editor
ART DEPARTMENT
Assistant Art Director Robin L. Strelow
Mechanical Art Supervisor Robin Case
Junior Designers Scotty Billings
Meg McArn

PRODUCTION DEPARTMENT
Production Director Mark E. Hillyer
Assistant Production Manager De Potter
Production Assistant Barbara A. Williams
Typesetting Terry Cash
Carole Dunton

Advertising/Production Assistant Tammie Taylor

ADMINISTRATIVE STAFF
Executive Assistant Sybil Agee
Senior Administrative Assistant Julia Fleming
Administrative Assistant Linda Benson
Customer Service Coordinator Elfreda Chavis

COMPUTE! PUBLICATIONS
Group Vice President William Tynan
Publisher/Editorial Director Lence Elko
Associate Publisher/Editorial Associate Publisher/Advertising Managing Editor Bernard J. Theobald, Jr.
Editorial Operations Director Kathleen Martinek
Editorial Marketing Manager Tony Roberts
Advertising Marketing Manager Caroline D. Hanlon
Kathleen Ingram

ABC CONSUMER MAGAZINES, INC.
President Gary R. Ingersoll
Senior Vice President Richard D. Bay
Director, Financial Analysis Andrew D. Landis
Director of Circulation Harold Buckley

CIRCULATION DEPARTMENT
Subscriptions Jeanne Andrews
Maureen Buckley
Jenny Lam
Raymond Ward
Newsstand Peter J. Birmingham
Jana Friedman
Customer Service (800) 727-6937

ABC Consumer Magazines, Inc., Chilton Company, One of the ABC Publishing Companies, a part of Capital Cities/ABC, Inc.
Robert G. Burton, President
825 Seventh Avenue
New York, NY 10019

ADVERTISING OFFICES
New York: ABC Consumer Magazines, Inc., 825 Seventh Ave., New York, NY 10019. Bernard J. Theobald, Jr. Associate Publisher/Advertising, (201) 989-7553 (201) 989-7554 FAX.
Greensboro: COMPUTE! Publications, 324 West Wendover Ave., Suite 200, Greensboro, NC 27408; (919) 275-9809. Kathleen Ingram, Marketing Manager.
New England & Mid-Atlantic: Bernard J. Theobald, Jr. (201) 989-7553. Kathleen Ingram (919) 275-9809.
Midwest: Standard Display and Full-Page Mail-Order Ads—Starr Lane, National Accounts Manager, (708) 790-0171; 1025 Crescent Blvd., Glen-Eliyn, IL 60137.
Midwest: Fractional Mail-Order Ads—Lucille Dennis (312) 726-6047 [Chicago]; (713) 731-2605 [Texas]; (303) 595-9299 [Colorado]; (415) 248-8222 [California]; 1290 Howard Ave., Suite 303, Burlingame, CA 94010.
Southwest: Rick Rosner, Western Accounts Manager, (213) 649-4100; 5757 W. Century Blvd., Suite 270, Los Angeles, CA 90045.
Northwest: Jerry Thompson, Lucille Dennis (312) 726-6047 [Chicago]; (713) 731-2605 [Texas]; (303) 595-9299 [Colorado]; (415) 248-8222 [California].
Southeast & International: Bernard J. Theobald, Jr. (201) 989-7553, Kathleen Ingram (919) 275-9809.

Address all advertising materials to Tammie Taylor, COMPUTE! Publications, Inc., 324 West Wendover Ave., Suite 200, Greensboro, NC 27408.

Editorial inquiries should be addressed to The Editor, COMPUTE!, Suite 200, 324 West Wendover Ave., Greensboro, NC 27408.

PRINTED IN THE U.S.A.



Join Our Reader Research Panel!

Open House . . . and you're invited to participate in a new and extremely important program for *COMPUTE!* magazine readers. In order to fully understand your opinions, attitudes and reading preferences, we are establishing a Reader Research Panel.

Scientifically selected samples of our panel members will receive up to four survey mailings over the next 12 months. Survey results will help us to better design *COMPUTE!* magazine with your interests in mind.

Please apply to participate in our Reader Research Panel today by completing the attached application form and mailing it back to Data Processing Firm, Media Research Associates, no later than April 30, 1990. All statistical information must be provided in order to select a panel representative of our entire readership. All information will remain confidential.

If selected, you will be contacted accordingly. Thank you for your cooperation.



William Tynan
Publisher

RSVP to: Media Research Associates
230 Park Avenue, Suite 1567, New York, NY 10169

Application Form *COMPUTE!* Magazine Reader Research Panel
ALL INFORMATION WILL REMAIN CONFIDENTIAL.

- | | | |
|--|--|---|
| <p>1. Are you Male <input type="checkbox"/> Female <input type="checkbox"/></p> <p>2. What is your marital status?
 Married <input type="checkbox"/>
 Single <input type="checkbox"/>
 Widowed <input type="checkbox"/>
 Separated or Divorced <input type="checkbox"/></p> <p>3. What is your age?
 Under 25 <input type="checkbox"/>
 25-29 <input type="checkbox"/>
 30-34 <input type="checkbox"/>
 35-39 <input type="checkbox"/>
 40-44 <input type="checkbox"/>
 45-49 <input type="checkbox"/>
 50-54 <input type="checkbox"/>
 55-59 <input type="checkbox"/>
 60-64 <input type="checkbox"/>
 65+ <input type="checkbox"/></p> <p>4. What was your total household income (from all sources) in 1989?
 Under \$25,000 <input type="checkbox"/>
 \$25,000-\$34,999 <input type="checkbox"/></p> | <p>\$35,000-\$39,999 <input type="checkbox"/>
 \$40,000-\$49,999 <input type="checkbox"/>
 \$50,000-\$64,999 <input type="checkbox"/>
 \$65,000-\$74,999 <input type="checkbox"/>
 \$75,000-\$99,999 <input type="checkbox"/>
 \$100,000+ <input type="checkbox"/></p> <p>5. What is the highest level of education that you have attained to date?
 Attended High School <input type="checkbox"/>
 Graduated High School <input type="checkbox"/>
 Attended College <input type="checkbox"/>
 Graduated College <input type="checkbox"/>
 Post-Graduate Study <input type="checkbox"/></p> <p>6. What group below best describes your occupation?
 Professional/Technical <input type="checkbox"/>
 Manager/Administrator <input type="checkbox"/>
 Clerical/Sales <input type="checkbox"/>
 Craftsman/Foreman <input type="checkbox"/>
 Other Employment <input type="checkbox"/>
 Student <input type="checkbox"/>
 Not Employed <input type="checkbox"/></p> | <p>7. How did you acquire this copy of <i>Amiga Resource</i>?
 (Please check only one answer.)
 I subscribe and received it through the mail <input type="checkbox"/>
 Another member of this household subscribes and received it through the mail <input type="checkbox"/>
 I bought it at a grocery, newsstand, drugstore, etc. <input type="checkbox"/>
 Another member of this household bought it at a grocery, newsstand, drugstore, etc. <input type="checkbox"/>
 Other (specify) <input type="checkbox"/></p> <p>Name _____
 Address _____
 Apt. # _____ Phone _____
 City _____
 State _____ ZIP _____</p> |
|--|--|---|

COMPUTE!
THE CHOICE OF HOME PC ENTHUSIASTS SINCE 1979



COMPUTE! SPECIFIC

MS-DOS

It's still early in 1990, but I may have found my nominee for Best Utility Program of the Year: *Control Room* from Ashton-Tate (20101 Hamilton Avenue, Torrance, California 90502; 213-329-8000; \$129). *Control Room* is an amazingly powerful and flexible tool that manages and customizes most aspects of your machine's environment, including your keyboard, disk, video, memory, and configuration files (AUTOEXEC.BAT and CONFIG.SYS).

Additionally, the program offers virus checking, macros, system benchmarks, an English-language analysis of hardware, file encryption, file undeleting, and much more, all from a single integrated interface.

Control Room does so much, in fact, that it's difficult to describe. Perhaps the best way to get a feel for the program is to walk through its installation and use.

First, *Control Room* consists of two main programs: CRLOAD, a TSR (Terminate-and-Stay-Resident program) that implements your system settings and CR, the control room itself, a command-line program for changing CRLOAD. In use, you never worry about CRLOAD after it's placed in your AUTOEXEC file; all your dealings will be with CR.

Control Room has a distinctive look. The screen is di-

vided into two parts: a menu bar and a panel. The top line is devoted to the menu, and the rest of the screen is filled with the selected panel. Each panel contains blocks with information and system settings.

If a panel takes more than one screen, there's a scroll bar—or as Ashton-Tate calls it, an *elevator bar*—that slides the panel. You can navigate menu selections and inside panels with cursor keys, the tab key, or a mouse. In practice, this interface is intuitive and exceptionally easy to use. You'll probably never need to read the manual.

Running CR for the first time is a noteworthy event. The program gives your hardware a complete physical, examining your keyboard, disk drives, memory, video, and more. When the analysis is over, you have both a snapshot of your system to help you customize it and a quick reference you can review at any time.

When you start to customize, a good place to begin is with your keyboard, the first selection on the menu. Here, you can change the size of your keyboard buffer; activate quick-stop cursor braking; set the buffer's beep to soft, medium, or loud; and adjust the keyboard's repeat rate and delay.

You can also set the Num-

Lock, ScrollLock, and CapsLock keys to be on or off at boot time. In addition, there are controls for setting your key click to none, soft, medium, or loud. (I always thought an audible key click was silly, but after trying it, I've found I like it.)

Next, select the desired macro environment. *Control Room* has three types of macros: a small set of predefined macros for things like the date and time; bank macros, which uses preassigned banks of keys, such as Shift-F1 through Shift-F10; and variable macros, allowing you to map a macro to almost any key. You can adjust the size of your macro buffer from 300 to 3000 keystrokes. If you don't want to use macros, they're easy to turn off.

CR's next panel, Disk, provides a battery of statistics on your hard disk, but the panel's main function is to allow you to set up a cache and turn head parking on or off.

Control Room's cache can be placed in conventional, expanded, or extended memory, and there's an optional track read-ahead feature. This is a safe, read-only, fault-tolerant cache, meaning that data entering and leaving the cache is checked for integrity. True to *Control Room*'s have-it-your-way philosophy, you can set the fault tolerance to either a

high or low level of checking.

As with every *Control Room* panel, as you make adjustments, you can see the amount of memory your settings will use displayed at the bottom of the panel.

The next panel—General—lets you adjust the date and time, display parameters (25- or 43-line EGA display, for example), the program's virus scanning, printer redirection, and screen blanking.

For now, we'll skip CR's Help, Memory, Config, Expert, and Summary panels and go right to Tasks, which shows the memory requirements of your CR settings. With most options active and a 256K cache in extended memory, CR uses about 25K; with a 47K cache in conventional memory, the program soaks up just 64K.

After reviewing the settings, select Quit. If you've made changes that won't take effect until the next time you boot, the Quit panel lets you know; otherwise, it updates both the in-memory portion of *Control Room* and the CRLOAD file on disk so the next time you run the program you'll have your new defaults. If your changes affect memory requirements, the Quit panel informs you.

Control Room is such a great idea it's amazing that no one else has done it. With this single program, you can replace scores of TSRs with one, save some precious RAM, and keep your AUTOEXEC.BAT file sweet and simple. While 1990 isn't over yet, I'm ready to put *Control Room* in this year's winner's circle.

Fade to Black

Screen blankers are controversial. They appeared soon after the first wave of monochrome-equipped PCs because monochrome displays have a tendency to burn in; that is, when an image is left on the

USEFUL UTILITY
AGING GRACEFULLY
PRESCHOOL DELIGHT
ADIOS AMIGA 1000
INTELLIGENT TANK

screen for a long period, it etches itself into the phosphor. Screen blankers saved monitors.

Things are different with color displays, however. Most hardware gurus argue that CGA, EGA, MCGA, and VGA displays just don't burn in. Nevertheless, screen blankers have remained popular. Why? Because we aren't sure that color monitors won't burn in, and we don't want our monitor to be the one to prove that they'll burn.

There's another reason, too: security. Many people like to be able to turn off their screen whenever they wish, and they're reassured knowing that if they leave their PC with some sensitive information on the screen, it will soon be blanked.

I'm looking for the ideal screen blanker. It would have on-demand blanking triggered by either a hot key or a mouse movement; it would be sensitive to movement from keyboard, screen, mouse, or any combination of the three; it would unblank with either mouse movement or a key-press; and while it was blanked, it would put some random entertainment on the screen to remind me that the computer wasn't turned off. And it would be small—less than 2K. (Mac users have a blanker—*Pyro*—that just about fills the bill.)

My ideal screen dimmer may not exist—yet—but while I'm waiting, I've found two excellent substitutes. The first is the blanker that comes with *Control Room*. It offers settings for 3-, 5-, 10-, and 15-minute delays, and it's sensitive to the mouse.

If all you're looking for is a blanker, however, *Control Room*'s power may be overkill. For those who want a stand-alone program, there's *VGA Dimmer* from Revolution Software (320 Route 24, Chester, New Jersey 07930; 201-455-0995; \$29.95). Although you might not guess it from its name, *VGA Dimmer* blanks monochrome, CGA, EGA, MCGA, LCD, as well as VGA, screens. It offers on-demand blanking (press the Shift key three times) and timed blanking (you set the interval), and it blanks every screen I've tried, including text and graphics.

To load *VGA Dimmer*, simply type DIMMER/*n* at the DOS prompt, where *n* is the number of minutes of delay before the program blanks. If you want to disable the program, you can

type DIMMER/0 or press the Alt-PrtScr hot-key combination. To reenable it, give the DIMMER command again or press the hot key. To remove the program from memory, simply type DIMMER/X. If you forget any of these commands, help is always available with the /H switch.

VGA Dimmer is not sensitive to video activity, which is often a plus: You can blank the screen while you're downloading or compressing your hard disk, to give two examples. While neither the *VGA Dimmer* nor the *Control Room* blanker is the blanker of my dreams, they're both solid contenders.

Command Ease

Minimal effort and maximum productivity—that's everyone's goal. But when it comes to typing complicated commands at the DOS prompt, that hardly ever seems to be the reality. A couple of keys can help, though. The F3 key allows you to recall a previous command line so that you don't have to type the whole thing over again, and the right-arrow key recalls the command line a character at a time.

Also, a public domain program called *Stack* gives you a window that lists previous commands, and it allows you to randomly select from them rather than having to type the command at the prompt again. You can find this program on CompuServe, GEnie, and other bulletin boards and services.

—Clifton Karnes



Not so very long ago, owning a computer signified that you were part of a brave and somewhat frightening new world. Consequently, computers came to be associated with youth, excitement, innovation, and the future. When the Com-

modore 64 came along, with its gigantic 64K of memory, sparkling colors, and honest-to-goodness music and sound capabilities, it heralded a very bright future.

Then business set in.

Read through any number of PC-based magazines on your favorite newsstand, and what you get is the sound of an industry in the throes of middle-age crisis. These magazines ignore games, entertainment software, sound, and in many cases even graphics. In their place, they concentrate on spreadsheets, database managers, and word processors; all of which are simply rehashes of existing products with a few more bells and whistles thrown in. All in all, following their concerns is about as exciting as following the stock market if you don't own any stock.

Interestingly, though, the 64 user base is aging as well. Go to any computer show with 64s in evidence, and pay attention to those who continue to show a strong interest in the machine. You'll get some kids, certainly, and that's always a good thing. More frequently, though, you'll find that 64 owners tend to be men in their late 40s through early 60s. Not a bad thing, but certainly an interesting one.

Youth, of course, has been seduced by the video-game explosion. Besides, many now have computers in schools. All of which means that the home-computer industry has passed its age of innocence and true innovation.

Battling Bishops

The games, however, keep on coming, and they continue to exploit the machine's hardware to its fullest extent.

Interplay (1555 Corporate Drive, Costa Mesa, California 92626; 714-545-9001; 39.95) has released *Battle Chess*, previously available for Amigas and IBM compatibles. Interplay has designed such strong titles as the Bard's Tale series, *Neuromancer*, and *Tass Times in Tonetown*, and they carry that spirit of innovation into this fine effort.

The idea behind *Battle Chess* is simple: Take chess and animate it. Many computer-chess programs have some rudimentary animation. But *Battle Chess* takes the approach several steps farther. Each piece not only walks, wiggles, or clomps its way to its

new square, but when a piece captures an enemy piece, it defeats it in an animated battle.

The most interesting of these are the magic users, especially the queen. When capturing, the queen casts spells, and depending on the enemy piece, something different happens each time. Other notable pieces are rooks, who become lumbering stone giants, and bishops, who glide soundlessly.

Battle Chess is no slouch as a chess opponent, either. The game has seven levels (far more than I need to prove my mediocrity) and a host of options (including a 2-D screen for faster play). But the point is sound and animation. Because of its attractiveness, the game is an ideal forum for teaching chess to beginners; they will move pieces around just to see what happens in the battles.

Bumpers and Nets

Innovation is foremost in *Ballistix*, the new graphics-rich entry from Psygnosis (Century Buildings, Tower Street, Liverpool L3 4BJ, United Kingdom; \$29.95). As its cover indicates, *Ballistix* combines soccer and pinball with the aim being to outscore your opponent. You score a goal by maneuvering the ball into the net at your opponent's end of the playing field. But getting there is more than half the fun.

You'll find yourself constantly fighting against gravity; only by hitting the ball properly can you move it at all against this substantial force. As in pinball, there are bumpers to contend with and to use to your advantage. To make things more interesting, each level is entirely different from the previous one. And if the ball hits the arrows, it speeds practically beyond your control.

Ballistix is colorful and unusual—and very addictive.

Savage Dungeons

Much less innovative, but quite enjoyable to play, is *Savage*, a fantasy action game from Microplay (180 Lakefront Drive, Cockeysville, Maryland 21030-9917; 301-771-1151; \$29.95). Similar in concept to games such as Psygnosis's *Barbarian*, *Savage* has you maneuvering a heroic warrior through the dungeons of a castle (and several levels) to defeat the castle guardians. If you succeed, the game changes to a

first-person view through the savage's eyes, and eventually you'll need to have your pet eagle do your fighting for you.

— Neil Randall

APPLE II

Wake up, sleepyhead!

That's what your preschoolers say at the crack of dawn, right? Usually on a Saturday, when all you want to do is get a little more shut-eye, right? Tired of feeling guilty when you send them downstairs to the television. Instead, plop them on a chair in front of your Apple II's and stick McGee in the disk drive.

McGee is a preschooler simulation—that's simply the best way to describe the program. It's also one of the most charming and original software packages around. Billed as an independent exploration for ages 2-4, McGee is controlled solely by the mouse. Reading skills aren't required since the program contains no words.

McGee is the kid in McGee. He (or she—your child can imagine McGee to be either gender) wakes up in his bedroom. You'll hear digitized sounds and voices from the start. Notice the four icons at the bottom of the screen? Your child uses the mouse to shift a selection outline from one icon to the next. A press of the mouse button sends McGee into action.

Kids delight in watching McGee bounce a ball, talk to his bunny-rabbit puppet, ride his hobby horse, and then head out to the hallway. After all, there's a whole house to explore! McGee can wander into Mom's bedroom (even wake her up), the bathroom (get ready for some laughs when the toilet icon is chosen), or downstairs for more fun.

The graphics and sound are excellent. The artwork is crisp and the background sounds are realistic. McGee

gets into everything, but it's a pleasure to watch your children discover the new world inside their computer. My in-house preschool-software expert thoroughly enjoyed McGee.

For more information about McGee, contact Lawrence Productions, 1800 South 35th Street, Galesburg, Michigan 49053; (800) 421-4157. McGee retails for \$39.95.

EduFest?

It seems like the rumors from last fall's AppleFest are coming true. Recent reports from Cambridge Marketing, purveyors of AppleFest, indicate that the show will be turned into an all-educational software show.

No big surprise, considering the pre-Christmas news of 1989: Apple stock took a dive, primarily on the basis of lower-than-anticipated Apple II sales.

In May, look for the Boston AppleFest to target teachers using Apple II's. There's talk about including MS-DOS machines in the show.

If you thought Apple II owners were mad when AppleFest let a few Macintoshes through the AppleFest doors, you ain't seen nothin' yet.

Weatherman

Twisting tornado funnel clouds. Hurricanes dashing spray high over harbor jetties. Lightning stabbing into pine forests. The weather may be something everyone talks about, it may be something you can't do anything about, but it's sure to get kids interested.

The weather around us makes for fascinating study. National Geographic's *The Weather Machine* is a multimedia Apple II software/workbook/filmstrip package perfect for junior and senior high school students.

Kids learn how weather works, observe the ever-changing patterns in the weather, and even make primitive forecasts—all with recent data from the National Weather Service. Students can look into the causes of drought, examine how the jet stream affects the weather thousands of feet below it, and learn how to read a weather map. Students can use the Apple II to display, produce, and print colorful hi-res graphic maps using real Weather Service data.

As an excellent companion to the courseware kit, The National Geographic Society

also offers The Weather Machine Telecommunications Service. This electronic service brings real weather, in realtime, into the modern-equipped classroom. With a subscription, you can download current National Weather Service data into *The Weather Machine* for map display and printing.

Neither *The Weather Machine* nor the Telecommunications Service is very cheap; the courseware kits sell for \$159.95, and the Service's introductory price is \$125.00 for connection from January 1 to August 31, 1990. But for the science room of choice, for anyone wrapped up in the clouds, it's worth the money.

For more details about *The Weather Machine* and its Telecommunications Service, contact National Geographic Society Educational Services, P.O. Box 1640, Washington, D.C. 20036; (800) 368-2728.

— Gregg Keizer

AMIGA

The computer industry has changed a lot over the years. Early computer enthusiasts were willing to get their hands dirty and write their own programs. As the industry developed, the wealth of commercial and public domain programs made creating your own software largely unnecessary.

Still, it's fun to create your own software. Unfortunately, the complexity of programming the Amiga has held a lot of people back. You'd like to write a new text-file reader, but you just don't have the time or inclination to read the *ROM Kernel Reference Manual*.

Inovatronics has come to the rescue with the most impressive program to hit the Amiga market since the original *DeluxePaint*. *CanDo* (\$149.95) is billed as "interactive audiovisual authoring software." Imagine taking the Macintosh's *HyperCard*, but adding support

for all of the Amiga's features and making it even easier to use—that's *CanDo*.

CanDo lets you create full-blown Amiga applications using a point-and-click interface and a simple script language. No more initializing strange data structures or tracing down compiler errors. Creating a program (called a *deck*) with *CanDo* is almost as easy as using the *WorkBench*.

What can you create with *CanDo*? Sample decks packaged with the program include a text-file reader, address book, appointment calendar, clock and memory-meter utility, and a puzzle. You can create slide shows, text editors, directory utilities, and even games with a minimum of effort with this program.

Objects that you can use in *CanDo* decks include IFF graphics, sampled sounds, *DeluxePaint III* AnimBrushes, text-editor windows, scrollable lists, button gadgets, and pull-down menus. You can also call external programs such as music players from within decks. Decks can send and receive ARexx macro language commands. My first *CanDo* application was a simple text editor with 3-D gadgets, scroll bars, and a file requester—and I created it in less than five minutes.

CanDo is an Amiga program I can recommend to everyone. Artists can create gadget-controlled slide shows; hobbyists can easily create their own utility programs, and parents and educators can create professional-quality graphic tutorials and quiz programs with minimal effort.

Best of all, *CanDo* decks can be bound as stand-alone programs, so you don't need *CanDo* or a special browser program to use them.

To find out what you can do with it, contact Inovatronics, 8499 Greenville Avenue, Suite 209B, Dallas, Texas 75231; (214) 340-4991.

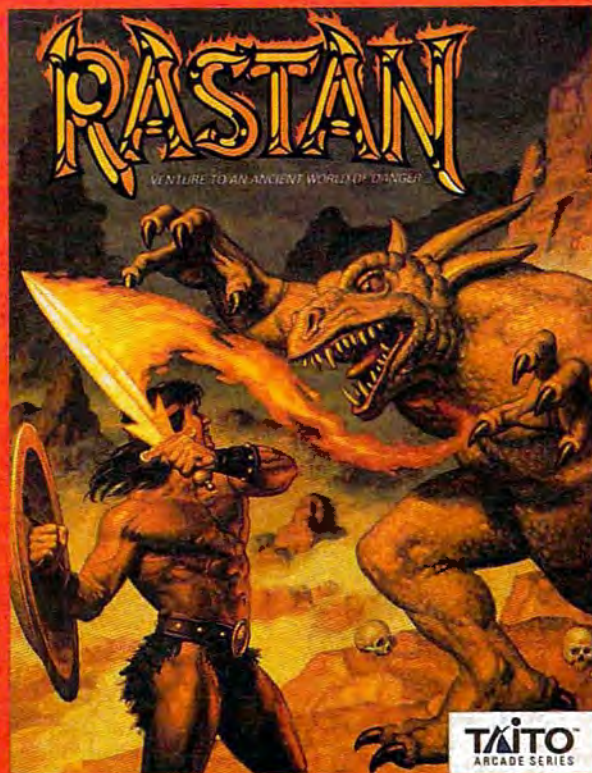
Block Mania

I thought *Tetris* was the most addictive game ever developed. I was wrong. I should have never opened the seemingly innocuous box from California Dreams containing *BlockOut*; now I'm hooked.

BlockOut (\$39.95) is a game based on the Soma cubes that were popular in the late sixties. It's basically a three-dimensional version of *Tetris* where you drop blocks into the bottom of a pit. It's not

"EAT SWORD, LIZARD LIPS!"

NOW,
DRIVE A
#1 ARCADE
HIT TO
THE HILT.



The Time: Many centuries ago, before man's fate was clear.
The Place: Lograth, the mythical land of perdition and doom.

You are Rastan*, the bravest warrior lord in Lograth. The malevolent Castle King holds the world in his deadly reign of darkness. A life-or-death confrontation is your destiny.

Endowed with iron strength and lightning reflexes, you set forth. Your perilous quest to save the land takes you over raging rivers and volcanic gorges. Horrid gargoyles, demonic dragons, and the wretched servants of the Castle King must taste the fire of your sword.

So summon your courage and call upon all of your might. For you are the legendary Rastan. In the ultimate Boy Meets 'Goyle arcade epic. From Taito.



Traverse treacherous torrents of whitewater and chasms of fire.



Employ all of your cunning to conquer the Castle Guardians.



The path to victory is fraught with bloodcurdling dangers.



Wield your fearsome battle-axe against the Hordes of Giga.



Slay the forest's foul fauna with your mighty Fire Sword.



Capture strong magic weapons to end the reign of terror.

TAITO

Look for this Taito hit at your local retailer, or call 1-800-663-8067 for further information.

Actual IBM VGA and Apple II GS screens shown. Other computer formats may vary. Taito* and Rastan* are registered trademarks of Taito America Corporation. Copyright © 1989. All rights reserved. IBM and Apple are registered trademarks respectively of International Business Machines, Inc. and Apple Computer, Inc.

Circle Reader Service Number 181

a ripoff of Spectrum Holo-Byte's game, though. *BlockOut* demands its own unique strategies, especially on the upper levels where the action is fast and the shapes of the blocks would confuse even Escher. This program adds a new dimension to the falling-block-game genre—I can't recommend it highly enough.

BlockOut is available from California Dreams, 780 Montague Expressway, Suite 403, San Jose, California 95131; (408) 435-1445.

Adios, Amiga 1000

It looks as if the Amiga 1000 may soon be an orphan computer, at least as far as Commodore is concerned. In a surprise move, CBM reinstated its Amiga 1000 + \$1,000 = Amiga 2000 trade-in offer in early February. The trade-in program, which at press time was scheduled to end March 31, is designed to give Amiga 1000 owners one last chance to upgrade to the A2000.

According to the rumor mill, the company is making this offer because the soon-to-be-released Kickstart/Workbench 1.4 combination and Enhanced Chip Set (ECS) aren't compatible with the A1000. CBM has said all along that the ECS wouldn't work in the Amiga 1000. However, users and developers have always assumed that the 1.4 system software would, because all you usually need to upgrade the A1000's system software is a new Kickstart disk. However, it seems Kickstart 1.4 has gotten a lot bigger than previous releases. That's no problem for the A500 and A2000, since you can plug in a 512K ROM chip in place of the older 256K chip. However, the Amiga 1000 stores Kickstart information in a special 256K bank of write-protected RAM, which isn't big enough to hold Kickstart 1.4.

While you could build an adapter board that would let you plug the 1.4 ROM chips into an A1000, CBM has apparently decided not to go that route. It's offering the trade-in as a final opportunity to move up before it drops support for the A1000 and as a way to get the model off the streets. With CBM's previous trade-in offer, users could often buy back their A1000s from the dealer who made the trade. Not this time; CBM wants the dealer to send it the keyboard.

While the trade-in is a no-

ble gesture on Commodore's part, it's a shame to see the company take the attitude that it wants to get the A1000 off the market. Third-party products could (and still might) allow the Amiga 1000 to run 1.4 and even the Enhanced Chip Set.

One such product is the Rejuvenator, an add-in board designed by Greg Tibbs. The Rejuvenator gives the Amiga 1000 many of the A2000's features.

Replacing the Kickstart RAM daughterboard in the A1000 with the Rejuvenator allows you to use the Enhanced Chip Set so that you can take advantage of the new high-resolution noninterlaced graphics modes. It also adds one megabyte of chip RAM (the 512K on your motherboard becomes fast RAM). The Rejuvenator supports both 256K and 512K Kickstart ROM chips, so it should be compatible with 1.4. Finally, it has a slot that will accept many boards designed for the A2000's video slot, such as MicroWay's FlickerFixer.

The projected retail price for this board is \$500-\$600, about half the cost of trading up to an A2000. Plus you'll still be able to use all of your A1000 peripherals, many of which won't work with the A2000.

Unfortunately, Commodore's desire to get the A1000 off the market may keep the Rejuvenator from seeing the light of day. Producing an expensive hardware product for an orphan computer is risky, but the Rejuvenator could keep the A1000 from becoming an orphan. If Tibbs decides to go ahead with production, you'll read about it here.

—Denny Atkin



Ever since I first heard about *Omega*, Origin's futuristic tank game, I've been tapping my toes, waiting for it to come out for the Macintosh. After a few

months' delay, it's finally available. The game has received rave reviews on other platforms, and, when you take a look at it, you'll certainly understand why.

Omega looks like a tank simulation, but, in fact, it's an artificial-intelligence simulation. As an employee of the Organization of Strategic Intelligence, you have access to a tank designer's tool box. You determine the class of tank, its fuel capacity, scanning and firing range, and so on. To make the game even more realistic, you must work within a budget—a budget that increases with success.

After you've chosen your tank's characteristics, you write the artificial-intelligence instructions that tell the tank what to do. Here's where the game really distinguishes itself from all of the other games. Through a special interface, you click on buttons and choose options. In the end, you've written a computer program. Figuring out the best combination of commands and conditional statements is a puzzle that will entertain you for hours.

What do you mean, you don't know how to write a computer program? *Omega* can teach you the basics. And, the next thing you know, you'll be shopping for Pascal compilers.

Maybe that's a little too optimistic. Maybe you never want to learn to program. Regardless, *Omega* is a fun game and a real challenge.

For more of a challenge, trade tank programs that you've designed with a friend who plays *Omega* (on any type of computer) and see who builds a better war machine as your tanks battle it out.

The game costs \$49.95, and you can contact Origin at 136-B Harvey Road, Londonderry, New Hampshire 03053; (800) 999-4939.

System Seven

Apple has updated its developers on the company's progress toward completing System 7.0. Here's the word from the corporate orchard in Cupertino.

Apple will release the newest version in the summer of 1990. The package will include a new Finder, outline fonts, the Interapplication Communications Architecture (which provides hot links between Macintosh programs), and virtual memory (which lets your hard disk operate as

though it were extra RAM).

The advent of this new and powerful system marks another step in the reduced attention to the home market. Has anybody out there got an extra megabyte of RAM on the home front? Without two megabytes of RAM, you'll be stuck with the less glamorous older systems. Of course, they've worked pretty well for many of us all along. Perhaps the new system will separate the family-room computer from the office machine. Perhaps Apple plans to develop a whole new line of home computers. Speculation about a low-end Mac runs rampant.

Of Mazes and Men

If you like fantasy role-playing adventures, try *Citadel: Adventure of the Crystal Keep* (\$49.95). It's got all the elements of a good story as well as the qualities of a dungeon-exploration game.

As the story goes, the Lady Synd and her Blood Guard had maintained peace and harmony in the land for as long as most folks could remember. One day, though, a mysterious cloaked stranger asked directions to Lady Synd's Citadel. The land would never be the same. The Citadel was swallowed up by the Earth, and all that remained was the roof of the highest tower.

To play the game, you define characters by their ancestors, their class, and their upbringing. Gather some companions from the town tavern, and enter the darkness of the Citadel, long buried under the power of darkness.

You control the party by clicking on arrows on the screen, dragging objects in and out of windows, and getting information from menus. The interface is very Mac-like, and the graphics are sharp.

So far, and I admit that it's not very far for me, the game has been a lot of fun. I'm still trying to grab a torch from the wall so I can light my way through the maze. Part of the game is figuring out how to keep your torches lit because they have a tendency to burn out. The torch puzzle adds an extra sense of urgency to your quest.

For more information, contact Postcraft International, 27811 Avenue Hopkins, Suite 6, Valencia, California 91355; (805) 257-1797.

—Heidi E. H. Aycock

RAMBO III

**NOT MILITARY. NOT
MERCENARY. AND
YOU'RE DEFINITELY
NO TOURIST...**

**SOVIET COMMANDER:
"WHO ARE YOU?"**

**RAMBO: "I'M YOUR WORST
NIGHTMARE."**

Remember that line? Now YOU can deliver it to the enemy—in person. Thirty miles over the Afghanistan border, Soviet forces are torturing your friend and mentor, Colonel Trautman. You're the only man alive with enough guts,

Amiga game screens.



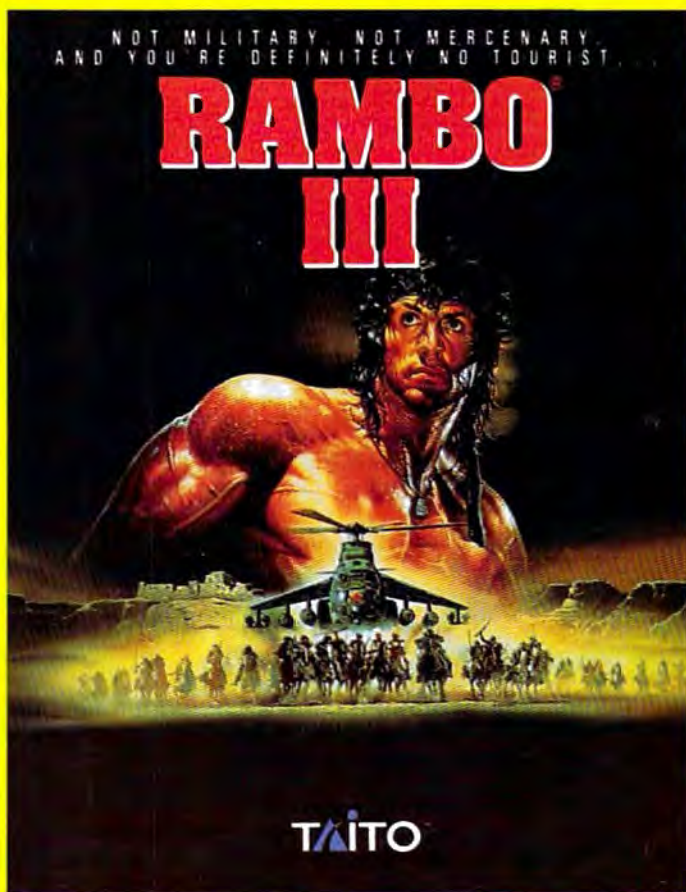
It takes more than muscle to de-activate electronic gates, cross treacherous mine fields, and find the keys to Trautman's cell.



Ever fly one of these things? With the enemy breathing down your back, that Hind chopper's the best way out of this bell hole.



It's just you and your hijacked tank against anti-tank missiles and choppers. Sight in and rearrange that balance of power!



**SUPPORTS
AD LIB AND
CREATIVE MUSIC
SYSTEMS CARDS!**

**NOW AVAILABLE
FOR IBM, TANDY,
AND COMPATIBLE
COMPUTERS.**

brawn, and resourcefulness to single-handedly rescue the man who taught you how to fight. Every Soviet commando, tank, and attack chopper in the sector is on your tail. It's the ultimate contest for the ultimate fighter.

TAITO™

If you cannot find this product at your local retailer, Visa/Mastercard holders can order direct anywhere in the United States by calling toll-free 1-800-937-0015.

Game Design, ©1988 Ocean Software Ltd. RAMBO is a registered trademark of Carolco. ©1989 CAROLCO. Ocean is a trademark of Ocean Software Limited.

Taito is a registered trademark of Taito America Corporation. ©1989 Taito America Corporation. All rights reserved.

Amiga, IBM, and Tandy are registered trademarks respectively of Commodore-Amiga, Inc., International Business Machines, Inc., and Tandy Corporation.

CREATIVE LABS, INC.

SOUND BLASTER

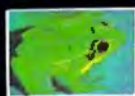
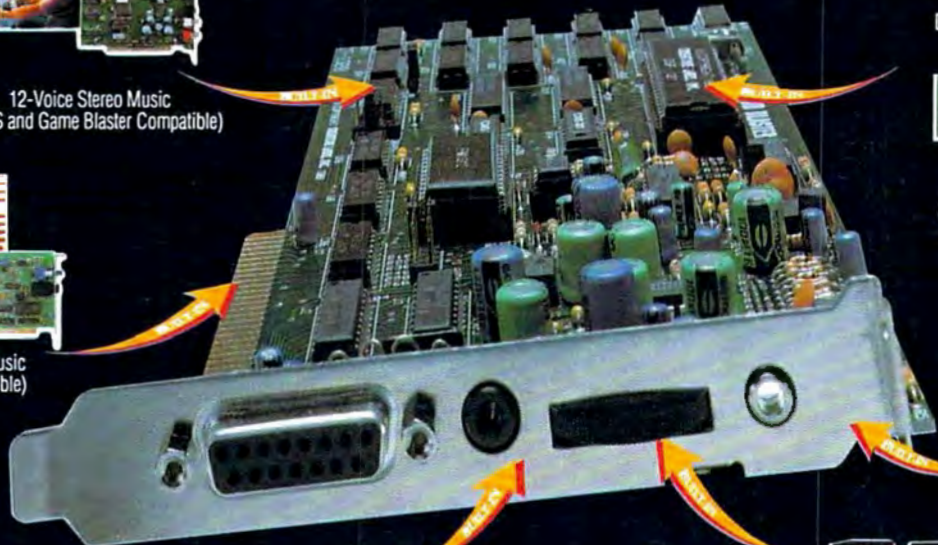
ALL-IN-ONE SOUND CARD FOR YOUR PC



12-Voice Stereo Music
(C/MS and Game Blaster Compatible)



11-Voice FM Music
(AdLib* compatible)



Digitized Voice Channel
(DAC)



Audio I/O Card



Voice Input/
Microphone Jack & Amplifier
(Digital Sampling)



Joystick
Game port



MIDI Interface



Stereo Speaker Connector
(with Amplifier)

Some of the major Software Companies
developing for SOUND BLASTER

- Accolade
- Broderbund
- Capcom
- Cosmi
- Creative Labs Inc
- Data East USA
- Dr. T's
- Electronic Arts
- Epyx
- First Byte
- Gamestar
- Kyodai
- Lucasfilm
- Magnetic Music
- Mastertronic
- Michtron
- MicroIllusion
- Microprose
- Omnitrend
- Optronics
- Origin
- Sierra On-Line
- Software Toolworks
- Spectrum Holobyte
- Taito
- Twelve Tone Systems
- Voyetra



SOUND BLASTER plugs into any internal slot in your IBM* PC, XT, AT, 386, PS/2 (25/30), Tandy (except 1000 EX/HX) & compatibles.

This package includes:

- SOUND BLASTER CARD
- C/MS Intelligent Organ Software
- Talking Parrot Software
- VoxKit Software
- 5.25" and 3.5" disks enclosed

System Requirements*

- 512 KB RAM minimum
- DOS 2.0 or higher
- CGA, MGA, EGA or VGA compatible graphic board

Brown-Wagh Publishing

1-800-451-0900

1-408-395-3838 in CA

16795 Lark Avenue, Suite 210 Los Gatos, CA 95030

**AdLib*
Compatible**

* IBM is a registered trademark of International Business Machines Inc. * Tandy is a registered trademark of Tandy Corporation. * AdLib is a registered trademark of AdLib Inc.



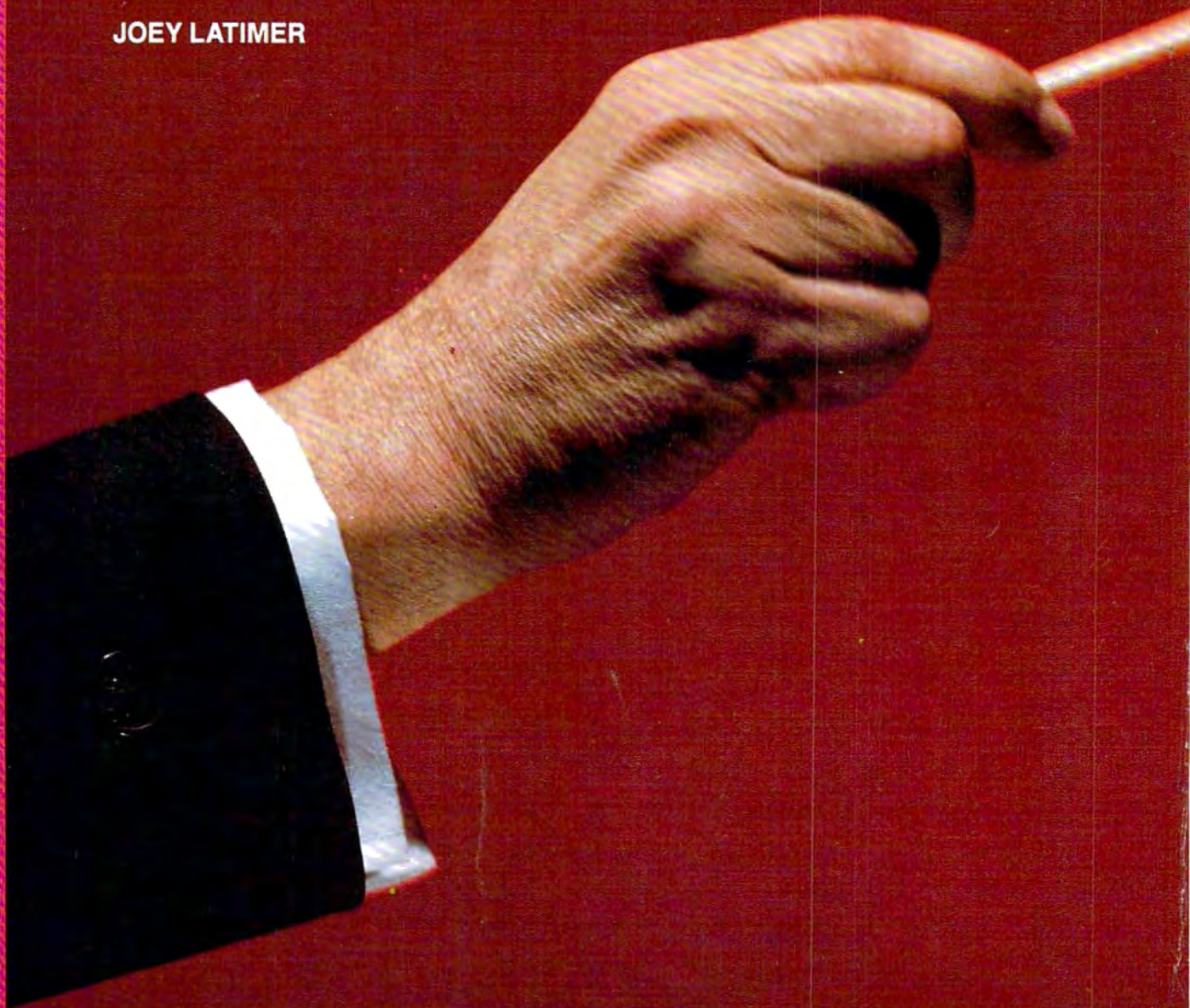
IN FOCUS

OPEN YOUR EARS AND QUIT BEING SO QUIET. BREAK INTO THE WORLD OF SONG WITH YOUR HOME COMPUTER. LATE TO THE DANCE, THE PC IS FINALLY PLAYING HOST TO THE SOUND HARDWARE AND MUSIC SOFTWARE THAT CAN PLAY ITS TUNE. BUT IT'S NOT EASY TO PICK FROM AMONG THE CACOPHONY OF CONTENDERS. FOR A LOOK AT THE LATEST IN SOUND HARDWARE FOR THE PC, TUNE IN TO "HIT IT, MAESTRO!" ON PAGE 22. NO MATTER IF YOU'RE A BUDDING MOZART OR A METALLICA MAVIN, MUSIC-COMPOSITION SOFTWARE CAN HELP YOU SETTLE YOUR SCORE. THEIR METHODS ARE DIFFERENT, SO YOU NEED TO FIND THE ONE THAT MATCHES YOUR OWN STYLE. LEND AN EAR TO "COMPOSE YOURSELF" ON PAGE 36. IF YOU WANT TO KNOW HOW THE COMPUTER-MUSIC REVOLUTION GOT STARTED AND WHERE IT'S GOING, AND YOU WANT TO SET UP YOUR OWN STUDIO, OUR "MY VIEW" COLUMN ON PAGE 32 SOUNDS JUST THE RIGHT NOTES. OUR APRIL *SHAREPAK* DISK INCLUDES A QUARTET OF NOTEWORTHY PROGRAMS THAT RANGE FROM AN ELECTRONIC JUKEBOX TO THE TRIVIAL PURSUIT OF MUSICAL KNOWLEDGE. FIND THAT LITTLE INTERLUDE ON PAGE 34. IF YOU'VE REALLY GOT THE MUSIC IN YOU, THEN YOU'LL WANT TO CHECK OUT "RESOURCES" ON PAGE 42. IT'S THE ONE SOURCE YOU NEED FOR TRACKING DOWN THE BOOKS, MAGAZINES, ONLINE SERVICES, AND USER GROUPS THAT WILL HAVE YOUR COMPUTER SINGING. CLAP ON YOUR HEADSET AND OPEN YOUR EARS AS WE EXPLORE

SOUND ON YOUR HOME PC

HIT IT, MAESTRO!

JOEY LATIMER



THE LATEST SOUND HARDWARE WILL HAVE YOUR PC SINGING

Speed, memory, storage, and graphics have for some years overshadowed the potential that good-quality sound offers to PC software applications. The built-in sound capabilities of most PCs consists of a tiny speaker and a tone generator that produces one note at a time. MS-DOS machines sound tinny; their musical arrangements are confined to a melody. PC owners haven't enjoyed the added dimension that sound brings to software programs. Nowhere is this more apparent than in entertainment and educational software—just how realistic is a flight simulator if the jet “beeps” down the runway?

Fortunately, circumstances have changed. Software companies are looking for sound hardware to make their sophisticated new products sound more realistic on PCs, and hardware manufacturers are popping up with fresh alternatives. Cooperation between hardware and software companies has resulted in several unique and effective solutions that many software developers are including as options in their programs. Foremost among these solutions are add-on sound boards, such as the Ad Lib, Game Blaster, Sound Blaster, Sound Master PC, and Roland MT-32.

Each board offers its own answer to the PC sound dilemma. Choosing from among them is mostly a matter of personal preferences and economics. So, whether you're an audiophile or a transistor radio buff, if you're a game player, a multimedia maven, or a music composer, this overview of the basic features, costs, pros, and cons of the major players in the PC-sound marketplace will have you singing.>

Ad Lib Personal Computer Music System

The main component of the Ad Lib PCMS is the Ad Lib Music Synthesizer Card, a half-size FM synthesizer card designed for IBM PCs and compatibles. The Ad Lib card can play up to nine different melodic instruments or six melodic and five percussion instruments separately or simultaneously. For audio output, the card features a 1/4-inch audio output jack, an amplifier capable of driving a small speaker, and a built-in volume control. The jack (along with the 1/8-inch miniplug adapter) can be connected to headphones, a speaker, or an external stereo system.

In addition to the synthesizer card, the Ad Lib PCMS includes software for composing and playing music. *The Visual Composer* (\$89.95) lets you write, listen to, and modify musical compositions without a great deal of music



knowledge. With the Jukebox program, you can select songs for your computer to play. With yet another Ad Lib program, *Instrument Maker* (\$49.95), you can design and edit instrument sounds for use with *The Visual Composer*.

I had no trouble installing the synthesizer card in my PC XT clone and hooking it up to the auxiliary jacks on my stereo. Firing up *The Visual Composer* first, I experimented using the 145 preprogrammed sounds, which include keyboards, strings, horns, and percussion instruments. I loaded *Instrument*

Maker next and experimented by changing various waveform parameters, modifying some of the old instrument sounds to create new ones. All of the instruments sounded a bit electronic to my ears, but most of them are recognizable and, when arranged together, produce as rich an ensemble as sampled instrument sounds.

To get a different perspective on the Ad Lib card's features, I booted up *Leisure Suit Larry Goes Looking for Love (In Several Wrong Places)*—also known as *L3L3*—an adventure game from Sierra that supports the Ad Lib card. The arrangement of Larry's theme song that poured from my stereo system made me feel as if I were playing a completely different game from the one I had played on my non-Ad Lib-equipped PC. It's a welcome and long-overdue game enhancement.

Pros: Heavily supported, large software base, good sound quality
Cons: No stereo, no digital sound/speech, moderately high price

Sound Support

It doesn't do much good to have a sound board if you can't find software to support it. I have a few cards in my garage that died due to little or no software support. To get an idea of the support behind these products, seven of the top entertainment software manufacturers and distributors gave us their strategies for present and planned support as of the start of 1990.

Accolade. Supports the Ad Lib and Game Blaster; is working on MT-32 support.

Electronic Arts. Supports the Ad Lib; 50 percent of its new programs will support the Sound Master PC; looking at Game Blaster and Sound Blaster; one new program (an Indianapolis 500 simulation) supports the MT-32.

Lucasfilm. Supports the Ad Lib, Game Blaster, and MT-32; is looking at the Sound Blaster.

MediaGenic. Supports the Ad Lib; is developing support for the Sound Master PC, Game Blaster, Sound Blaster, and MT-32.

Mindscape. Supports the Ad Lib; plans support for the Game Blaster.

Origin. Supports the Ad Lib; is looking at the Sound Master PC and Game Blaster; *Ultima VI* will support the MT-32.

Sierra. Supports the Ad Lib and MT-32; is looking at the Sound Master PC and Game Blaster.

Sound Master PC

The Covox Sound Master PC package includes a half-size card, two stereophonic minispeakers with connecting cables, and a user's manual. The circuit board features a minijack and two digital joystick ports. These joystick ports, unlike those found on most MS-DOS machines, accept Commodore, Atari, and other common game-machine-type joysticks for much smoother arcade action. You should note, however, that unless a game has been specifically designed for digital joystick input, these ports won't be of any use. (Very few MS-DOS programs have digital joystick drivers.)

The Sound Master PC card supports digital speech and sound through a DMA-driven (Direct Memory Access-driven) 8-bit digitizer. In addition, the on-board three-voice sound chip gives you the capability of layering multipart music with special effects in stereo—all while graphics are moving on the screen.

Installing the Sound Master PC board wasn't as simple an operation as was putting in the Ad Lib card. The Covox board has jumpers for setting I/O (Input/Output) ports, DMA channels, and Interrupt Request Lines. When I installed it using the default settings, it conflicted with another card I had installed in my computer. After a bit of detective work and screwdriver wrist action, I discovered that my mouse card and the Sound Master PC card were set on the same Interrupt Request Line. I was able to solve the problem, but nov-

continued on page 28

Other Voices

Besides add-on sound boards, there are other solutions for solving the PC sound problem. Tandy and Access Software have each come up with acceptable, yet very different, solutions.

For its 1000 TL and SL computers, Tandy has built in a custom sound chip, a headphone jack, and a microphone jack. The chip features three tone generators and a white-noise generator for three-part harmony and sound effects. Also included is a digital-to-analog converter for translating prerecorded digital sound, voice, or music into analog audio output (to play back through the internal speaker or headphone jack). You can use the microphone jack and audio input circuitry for recording analog sound, voice, or music and then convert those sounds to digital data. Many software developers and distributors support or plan to support Tandy sound in their products.

Access Software's RealSound allows the internal PC speaker to play back digitized sounds such as speech, music, and sound effects without adding any hardware. RealSound master recordings are electronically enhanced and then digitized on custom hardware. The effects are then edited for inclusion in computer programs. Software companies pay a fee to use RealSound in their programs.

Access suggests that you improve your PC's sound by replacing your PC speaker with a 3 1/2-inch speaker. If you'd rather, you can follow the instructions in the pamphlet included with RealSound products to build a cable to connect your PC to your stereo.

Ultima VI

The False Prophet



In a cataclysm of sound and light, a bolt of searing blue fire strikes the earth!



AWESOME!
256 - color VGA Graphics
DAZZLING!
Sound Board Music



SPECIAL Limited Edition OFFER

Celebrating ULTIMA's 10th Anniversary!

Ultima VI: The False Prophet

- EXCITING SPECIAL FEATURES at No Additional Cost... still only \$69.95
- Personally autographed by Lord British
- Exclusive taped interview with Lord British
- Unpublished game clues and hints
- Specially selected high quality moonstone
- FAST, FREE delivery - direct from Origin
- This "Special Edition" is not available in stores
- Hurry! Supply is limited

Call: 8am - 5pm (central), MC/Visa accepted. **1-800-999-4939**

ORIGIN
We create worlds.

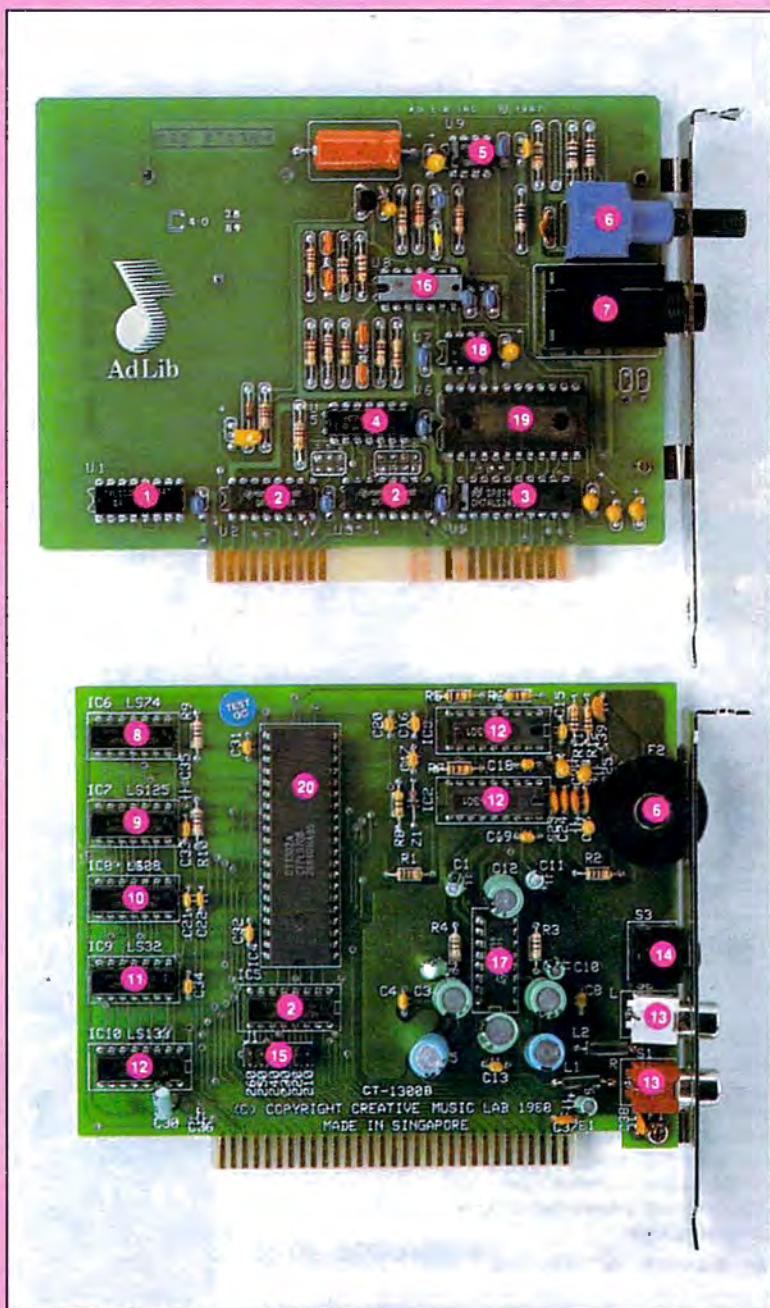


HIT IT
MAESTRO!

TOUR THE ORCHESTRA PIT

Take a look at the inner workings of two of these electronic orchestras. The card pictured on top is the Ad Lib synthesizer card; the card pictured at the bottom is the Game Blaster. We've labeled the major components so that you can see the principal players.

- 1 Dual JK Positive-Edge Flip Flop
- 2 Expandable 3/8 Decoder
- 3 Octal Bus Transceiver Noninverting
- 4 Hex Inverter
- 5 Low-Voltage Audio Amp
- 6 Volume Control
- 7 Audio Jack
- 8 Dual D Flip Flop
- 9 Tristate Quad Buffer
- 10 Quad Two-Input AND Gate
- 11 Quad Two-Input Positive OR Gate
- 12 CMS Sound Generator
- 13 Stereo Audio RCA Jacks
- 14 Stereo Mini-Jack
- 15 Interrupt Address Jumper
- 16 Quad Op Amp
- 17 Stereo Power Amplifier
- 18 Digital-to-Analog Controller
- 19 FM Sound Generator
- 20 CMS Digital Controller



Article continues on page 28 ▶

© 1990 Mark Wagoner

DOUBLE-TROUBLE COMPUTER CAPER!
 IT'S TWO EXCITING GAMES IN ONE!
 NOW YOU CAN THWART THE PENGUIN
 OR THE JOKER AND CRACK THE
 WORLD'S MOST BAFFLING CRIMES--
 AS **BATMAN, THE CAPED CRUSADER!**

THE NEW SOFTWARE ADVENTURES OF BATMAN



GOTHAM CITY... STRUCK BY A CURIOUS ONSLAUGHT OF EVIL ESCAPADES... FIRST, A FLOCK OF WEB-FOOTED WARRIORS... THEN, A BARRAGE OF BOMB-THROWING BUFFOONS. THIS COULD ONLY BE THE DIABOLICAL DOINGS OF YOU KNOW WHO...

AN UMBRELLA FACTORY? ROBOTIC PENGUINS? LOOKS LIKE THE INFAMOUS JAILBIRD'S OUT AGAIN ON ANOTHER FELONIOUS FLING!

CRUNK!

CAN YOU LOCATE THE PENGUIN'S MASTER COMPUTER, CLIP HIS WINGS, AND PULL THE PLUG-ON HIS SQUAWKING THUGS?!

WAAK! WAAK!

QUICK--TO THE UTILITY SCREEN! BATARANGES! BATEGRENADES! AND A BANANA, TOO--FOR BOOSTED CRIME-FIGHTING ENERGY!

BLAM!

HA! HA! HA!

A BOOBY TRAPPED FUNHOUSE? A CIRCUS OF CLONES? THE CROWN PRINCE OF CRIME IS ABOUT TO DEAL HIS MOST HEINOUS HAND, EVER!

CAN YOU RESCUE THE IMPERILED ROBIN? DETHRONE THE JOKER AND DEPUSE HIS TROUPE OF DOONSDAY DUPLICATES?!

Commodore 64®/128®
 5 1/4" Disk
 Joystick Required



TM & © 1988 DC COMICS INC.
 ALL RIGHTS RESERVED

Circle Reader Service Number 160

NOW AVAILABLE FOR IBM PC/COMPATIBLES

DATA EAST USA, INC., 1850 LITTLE ORCHARD ST., SAN JOSE, CA 95125 (408) 266-7074. © 1988 Data East USA, Inc.
 Batman, all related characters, slogans and indicia: TM & © DC Comics Inc. 1988. Game Design: © 1988 Ocean Software Ltd.
 Manufactured under license by Data East USA, Inc. Ocean is a registered trademark of Ocean Software Ltd.
 Commodore is a registered trademark of Commodore Electronics, Ltd. Atari is a registered trademark of Atari Corp.



ice PC users may need assistance.

The Sound Master PC has been out since the spring of 1989, but there isn't as much software available for it as there is for some of the other devices (this may change, however). One popular game, *SimCity* (Maxis Software), does take advantage of Sound Master PC's features. The realistic sounds of tornadoes, earthquakes, monsters, and more came through my stereo speakers and enhanced the program to the extent that I can't imagine playing *SimCity* again to the beeps from a standard PC. The best comparison I can make is to the digital sounds I've heard from Tandy TL or Apple IIGS games.

Pros: Gaining support, low price, supports digital sound/speech, includes stereo speakers and two digital joystick ports
Cons: Small software base, only three-voice sound chip, difficult installation, digital joystick ports don't work with analog joysticks

Game Blaster

The Game Blaster, a 12-voice synthesizer card from Creative Labs, resembles the Ad Lib and Sound Master PC cards. It plugs into any internal slot in your PC and includes a built-in power amplifier (2.5 watts), volume control, and a stereo output (1/8-inch stereo and two RCA plugs) for feeding headphones, external speakers, or your stereo system. It can play 12 channels of music simultaneously, panned left or right in the stereo mix. Installing the Game Blaster card posed no serious obstacles. I used an RCA-to-RCA cable to hook up the card to my stereo system.

I ran two programs through this card—*The Intelligent Organ* (an electronic player piano) and *Silpheed* (a sci-fi adventure game from Sierra). *The*



Intelligent Organ comes with over 80 songs stored on disk. You can select different instruments and various rhythm patterns to use while playing along on your computer keyboard. If you prefer, you can have the computer play Auto bass, Auto chords, and/or Auto arpeggios, much like a small Casio or Yamaha keyboard. The sound quality from the Game Blaster is very good, with great stereo imagery and texture.

To my ears, the Game Blaster sounds much like the Ad Lib, but in stereo—which is quite an improvement. *Silpheed*, which is bundled with the Game Blaster, uses the card to produce a stunning musical backdrop for its plot and provides an extra premium to users interested in buying a sound card for their PC.

Pros: Heavily supported, large software base, good stereo sound

Cons: No digital sound/speech

Sound Blaster

The Sound Blaster card just started to ship to stores last Christmas (see the COMPUTE! Choice for Entertainment article on page 88 in the December 1989 COMPUTE!). This 24-voice, half-size synthesizer card is an extension of the Game Blaster and offers compatibility with the Ad Lib. It includes 11 Ad Lib-compatible voices, 12 Game Blaster-compatible voices, one digital input and output, as well as decompression

hardware (for decompressing speech and sounds that have been compressed by software to save storage space). Like the Sound Master PC, the Sound Blaster contains a DMA-driven digitizer; but, unlike the Covox unit, you can plug a microphone or audio source directly into the Sound Blaster and digitize sounds. To top it off, the card includes a PC analog joystick port and stereo output jacks for hooking up to headphones, speakers, or a stereo, all driven by a four-watts-per-channel amplifier.

The Sound Blaster package comes with three software programs, including *The Intelligent Organ*. The other two programs take advantage of the Sound Blaster's digitizing capabilities. VoxKit, a voice-development kit, lets you record, compress, store, and play back digitally recorded speech and sounds. The Talking Parrot features a parrot on the screen that mimics your speech, talks back, makes outrageous remarks, and screams when you tickle it.

For an additional \$49.95, you can add a MIDI box to the Sound Blaster. It plugs into the analog joystick port and includes one MIDI In and three MIDI Out jacks, plus a joystick port (to make up for the one it uses). The Sound Blaster won't work with MIDI software from other companies, but Creative Labs says it's working on the problem.

Pros: Heavily supported (both Ad Lib- and Game Blaster-compatible), large software base, good stereo sound, supports digital sound/speech recording and playback, includes analog joystick port
Cons: No software to use all 24 voices at once; no built-in MIDI interface (contrary to its advertising), moderately high price >

continued on page 31

Melody Makers

To get in tune with the products surveyed in this article, contact the companies listed here.

Ad Lib

50 Staniford St.
 Boston, MA 02114
 (800) 463-2686

Ad Lib Personal Computer Music System (synthesizer card, *The Visual Composer*, and Jukebox)—\$245; Ad Lib synthesizer card with Jukebox—\$179

Covox

675-D Conger St.
 Eugene, OR 97402
 (503) 342-1271

Covox Sound Master PC—\$89

Creative Labs

Distributed by Brown-Wagh Publishing
 Suite 210
 16795 Lark Ave.

Los Gatos, CA 95030
 (800) 451-0900
 (408) 395-3838

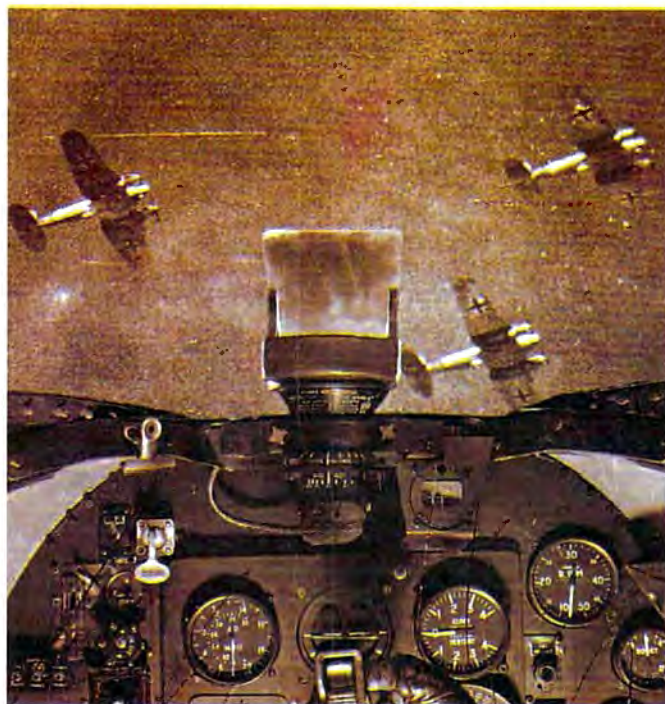
Game Blaster, *Intelligent Organ*, *Silpheed*, manuals—\$129

Sound Blaster, *Intelligent Organ*, Parrot and VoxKit programs, manual—\$239; Ad Lib, Game Blaster, or CMS card owners who send in their old cards when ordering—\$139

RolandCorp

7200 Dominion Cir.
 Los Angeles, CA 90040
 (213) 685-5141

MT-32 Sound Module, Roland MPU IPC MIDI Interface, Roland EASE Music Software, manuals—\$550; Micro Channel Architecture version—\$650



THE BATTLE OF BRITAIN. UP CLOSE AND PERSONAL.

One pilot described a World War II dogfight "like being on the inside of a beehive." And that's just what it feels like to

play *Their Finest Hour: The Battle of Britain.* The new air combat simulator from Lucasfilm Games that's keeping simulation buffs and action gamers alike on the edge of their seats.

Their Finest Hour includes all the acclaimed features of our *Battlehawks, 1942*. Plus a few new twists.

The Realism Is Unreal.

From the moment you pull back on the throttle, *Their Finest Hour* grips you with near-photographic realism of aircraft, smoke, terrain, and flying debris.

To really get your adrenalin pumping, we've added a cacophony of roaring engines, chattering machine guns, and thundering explosions.

How's That Again?

Want to show your friends how you erased that

Flying Pencil with fancy deflection shooting? *Their Finest Hour* lets you save your proudest combat performances to disk. And relive them in real time, fast forward, or frame by frame.



A Luftwaffe gunner position is the quickest way to get acquainted with the RAF.



Replay combat action sequences from any angle, even from the nose of a bomb!



breathe easier tomorrow. Who knows—you might even change history. And if you don't like the odds, *Their Finest Hour* lets you change sides.

LUCASFILM
GAMES

Look At Life From Both Sides Now.

Take on the Luftwaffe in a tough little RAF Hurricane or fabled Spitfire. Or test your skills at the controls of the Spitfire's nemesis, the formidable Messerschmitt 109. Pulverize ground installations from your Messerschmitt 110 fighter/bomber or your screaming Stuka. Or fly as pilot, bombardier or gunner in a Junkers 88, Dornier Flying Pencil, or Heinkel Spade.

Your success in each mission impacts the next one: knock out a radar installation today, and you'll

knock out a radar installation today, and you'll



IBM screens shown. Available for IBM (includes AdLib™ sound card support), Amiga, and Atari ST. TM and © 1989 Lucasfilm Ltd. All rights reserved. Lucasfilm Games, and Their Finest Hour: The Battle of Britain are trademarks of Lucasfilm Ltd. IBM is a trademark of International Business Machines, Inc. Commodore 64 is a trademark of Commodore Electronics, Ltd. Amiga is a trademark of Commodore/Amiga Inc. Atari and ST are trademarks of Atari Corp. AdLib is a trademark of AdLib, Inc.

Advanced
Dungeons & Dragons
COMPUTER PRODUCT

CHAMPIONS OF KRYNN

The first fantasy
role-playing epic
set in the AD&D
DRAGONLANCE®
game world!

CHAMPIONS OF KRYNN improves on the award-winning game system used in SSI's mega-hits *POOL OF RADIANCE* and *CURSE OF THE AZURE BONDS*. For the first time ever on your computer, you'll enjoy fantasy role-playing adventure in the legendary AD&D® game world of Krynn! Your quest: Defeat a vile plot by the forces of evil to establish the Dark Queen, Takhisis, as undisputed ruler of Krynn!



AVAILABLE FOR:
IBM & C-64/128.
APPLE II & AMIGA.

▶ **FREE POSTER!**
Inside every box.

▶ **CLUEBOOK!**
Coming soon to
a dealer near you.

To order: visit your retailer
or call: 1-800-245-4525 to
charge on VISA or MasterCard.
To receive SSI's complete
product catalog, send \$1.00
to: SSI, 675 Almanor Avenue,
Sunnyvale, CA 94086.



DragonLance®



ADVANCED DUNGEONS & DRAGONS,
AD&D, DRAGONLANCE, and the TSR
logo are trademarks owned by and
used under license from TSR, Inc.
©1990 TSR, Inc. ©1990 Strategic
Simulations, Inc. All rights reserved.



STRATEGIC SIMULATIONS, INC.™

HIT IT MAESTRO!

Roland MT-32 Multi-Timbral Sound Module

The Roland MT-32 is definitely the Mercedes in this group of sound boards. Rather than sliding into any open PC slot, the MT-32 has its own case and power supply. Because the MT-32 is actually a stand-alone MIDI module, it requires a MIDI interface to connect to the computer. The package I evaluated for this article included a Roland MPU-IPC MIDI interface, an MT-32 module, a MIDI connecting cable, and a Roland EASE MIDI recording program, made especially for using a MIDI keyboard with the MT-32.

Not lacking in performance value, the MT-32 is a 32-voice synthesizer (in a sense, it's eight synthesizers in one, with a percussion sound module) featuring 128 preprogrammed instrument sounds, 30 percussion sounds, and ten different digital reverb settings. It has MIDI In, MIDI Out, and MIDI Through ports, volume and tuning controls, and stereo outputs. For all practical purposes, it's a complete electronic orchestra—and you're the conductor.

Installing the unit takes about ten minutes and requires that you place the Roland MIDI card inside your computer. After closing your computer, you'll have to connect the Roland MIDI processing unit to the MT-32 and then connect the MT-32's stereo outputs to your stereo. In addition, you must run a DC power supply between the sound module and a local wall socket. Roland has eased this installation process by bundling many of the MT-32's features into its LAPC-1 sound card (\$595).

I was eager to see how the MT-32 handled the theme music to *Leisure Suit Larry*. After reinitializing the program to recognize the MT-32, I experienced the most beautiful music I'd ever heard coming from a computer program. The sounds reminded me of the New Age CDs I've heard. Amazingly, though, the MT-32 seemed to sound *better* than most of my CDs. That makes sense, because it's coming right from the horse's mouth—directly from the synthesizer.

After booting up EASE, the recording program included with the MT-32, I plugged in my Kawai K1 MIDI keyboard and laid down some tracks of my own, finding that I could quickly come up with songs using the same instruments as I'd heard in *LSL3*. I dubbed some chirping birds to my Polynesian melody, but that was just the beginning. I ended up messing with the MT-32 all night long. Al Lowe, watch out. Here I come.

Pros: Moderately supported, growing software base, fantastic stereo sound, large note capacity (32 voices), MIDI ports
Cons: High price, no digital speech

All Around, Sound

PC sound hardware has come a long way from beeps and boops. Recent developments have brought prices down, making sound and music peripherals

available to a majority of home PC owners, not just to professional musicians. Although each solution to the PC sound dilemma offers different benefits and trade-offs, one thing is for sure: Stick a sound board in your computer and it will be music to your ears. □

Joey Latimer composes music in his home-based MIDI recording studio in Idyllwild, California.

TOP GUNS.



If you're ready to soar to new heights, Suncom brings you the Analog Xtra™ joystick with a built-in throttle control that'll make you feel like you're in the cockpit of a F-16 fighter.

Or try the Analog Edge™ with two-way, switchable buttons...or the Analog Plus™ that features variable-speed, auto-fire for increased accuracy and greater control.

All three Suncom Analog joysticks are made with an exclusive, patented process known as *Injected Resistor Technology*.™ This feature allows you to fly missions long after other joysticks have waved their white flag.

Fly the new lineup of Analog joysticks from Suncom, and take control of the most challenging IBM® or Apple® software games.

Please, just remember to strap yourself in.



Analog Xtra for IBM only.



Suncom

TECHNOLOGIES 6400 W. Gross Point Rd., Niles, IL 60648 708/647-4040

Original art of FALCON AT, The F-16 Fighter Simulation supplied by Spectrum Halobyte.

Circle Reader Service Number 143



MY VIEW

D A N R U E

COMPUTERS AND
MIDI BRING

MUSIC TO THE MASSES

As an important expression of who we are and how we feel, music has always been an integral part of our culture. Fifty years ago, the popular adage was "a piano in every home." With the advent of rock-'n'-roll, guitar became the icon of popular music and, for the most part, remains so today. In the nineties and into the third millennium, we'll see the increasingly dominant presence of a new type of instrument: the synthesizer.

Just over five years ago, a technology was created that really packed the synth full of power. An interface was developed called MIDI (Musical Instrument Digital Interface) that let two synths speak to each other. More importantly, MIDI allowed synths to speak to personal computers.

Almost immediately, sequencer software started popping up. These programs used MIDI to digitally "record" your synth in a manner which mimicked the multitrack tape recorders of professional music studios. Sequencers, by digitally encrypting what

is played on the synthesizer, offer a huge variety of creative editing options, comparable to the options made available by using a word processor rather than a typewriter.

Another major type of software that was developed for the synthesizer is commonly called the editor/librarian. An editor allows you to program the sounds for a synth with your computer. The librarian allows you to categorize and store these sounds on your computer.

Finally, within the last year or two, the synthesizer has become surprisingly affordable. You can now get a professional-quality, expandable set-up for around \$2,000—that's less expensive than most pianos.

The heart of your system, obviously, would be the synthesizer. While there are dozens of buzzwords that your local music-store salesman will throw at you, the main thing you're looking for is a multitimbral instrument. This means that it can play more than one sound at a time (a crucial feature if you're going to be using it with a computer). The Roland D20, Ensoniq VFX, and Yamaha V50 are just three examples of this type of synth. While the prices of these instruments vary greatly, you can usually find a multitimbral synth for around \$1,300-\$1,500.

Next, you'll need to pick up a MIDI converter for your computer (a device that lets your computer send and receive MIDI signals). These devices come in several varieties; go for the simplest, least expensive one. The more expensive units are designed to work with large, multisynth professional studio setups. You should be able to pick up a converter for \$100-\$200.

Now it's time to shop for sequencing software. These programs vary in price and complexity as well. For the IBM PC and compatibles, popular software includes Twelve Tone Systems' *Cakewalk Professional*, Voyetra Technology's *Sequencer Plus Mark III*, Magnetic Music's *Texture*, Roland's *MESA*, LTA Productions'

Forte II, and numerous others. Examples of popular Macintosh software would include Mark of the Unicorn's *Performer*, Opcode's *Vision*, and Passport's *Master Tracks Pro*. Atari ST programs include Steinberg's *Cubase* and *Pro24*, C-Lab's *Creator*, Dr. T's *KCS* and *Level II*. For the Amiga, check out MicroIllusions' *Music-X* and Passport's *Master Tracks Pro*.

Many of the music software companies have toned-down versions of their professional packages at about half the parent program's price. So how much money are we talking about here? Well, the full-blown program will probably cost you anywhere from \$400 to \$600. The beginner's packages usually run around \$100-\$250. You might find that these smaller programs are more than adequate.

There was once a time when being a musician meant that you had dedicated a huge part of your life to the tedious, patience-trying physical practice required to master your instrument of choice. Now, with sequencers, you can create entire songs with complex arrangements and have no keyboard-playing skills whatsoever. These new instruments have even made it possible for paraplegics and other handicapped people to express their musical ideas where they had never been able to do so before.

And there you have it—music for the masses. As integral as telecommunications has become to business, so too will the computer entrench itself into the art of making music. Practicing becomes a matter of days (to read the owner's manuals) rather than

years, and the musician is now anyone with the inclination to create music.

Dan Rue is the assistant editor of Music Technology Magazine and a high-tech musician in his spare time.



NOW
AVAILABLE
FOR MS-DOS



Bard's Tale Fans, Rejoice!

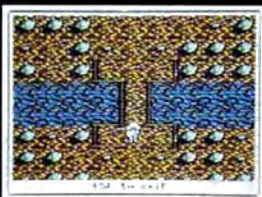
Dragon Wars™

The designers of the Bard's Tale™ series, Wasteland™ and Battle Chess™ wanted to pool their talents to create the ultimate role-playing fantasy. They knew it had to be a first rate story with state-of-the-art animated graphics. The result was Dragon Wars.

King Drake of Phoebus has declared all magic illegal – magickers have been slain or fled into exile. In retaliation, enemy islands have threatened to unleash their dragons – beasts who are the most destructive force in Oceana. Docked at a harbor in Dilmun, you are arrested on suspicion of spellcasting.

Imprisoned and stripped of everything but your wits, you are sentenced to life in a dungeon. Magic is your only salvation – a worldly possession in a world possessed.

- Over 60 monsters and 65 spells.
- Supports characters from Bard's Tale I, II, III.
- A unique combat system: choose complexity of combat resolution, determine spell strength, select tactics of ranged combat.
- An easy to use pop-up window system.
- Save the game anywhere.
- A paragraph book to enhance storytelling.
- No graph paper needed.



Feeling lost? Auto-map keeps track of your every move.



Graphics so real you can see the croc's scales ripple with his every breath.



Don't just stand around. There are so many secrets to uncover.

ACTUAL APPLE IIe
SCREENS

Interplay™

Interplay Productions
1575 Corporate Drive
Costa Mesa, CA 92626
(714) 549-2411

To order Dragon Wars, 1-800-969-4263
Available on the Apple IIe with 128K,
C-64 & MS-DOS. Cluebook Available.
Bard's Tale & Wasteland are trademarks of Electronic Arts.
Dragon Wars & Battle Chess are trademarks of Interplay Productions.
Commodore is a trademark of Commodore Business Computers.
Apple is a trademark of Apple Computer, Inc.

SPECIAL
DISK
OFFER

COMPUTE!'s SHAREPAK for IBM PC and Compatibles

Compiled by the Editors

TOP
QUALITY
SOFTWARE

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

COMPUTE!'s April disk offers four ear-pleasing applications: a PC-based piano program, a musical trivia game, a dot-and-dash drill, and realistic sound.



Pianoman

Unleash your musical talents as you play and record music on your PC keyboard. *Pianoman* lets you edit sound files, save your own compositions to disk, and load tunes created by others. Requires DOS 2.1 or higher.



Tune Trivia

Name that tune to score in this entertaining program for up to six players. A vast library keeps the game going for many hours without repeating the same songs. Answer trivia questions for extra points. Requires DOS 2.1 or higher.



Morse Code Trainer

Confused by all those dots and dashes? Increase your Morse Code proficiency and practice to pass the FCC amateur tests with *Morse Code Trainer*. Options include adjustable speed, a variety of word types, and more. Requires DOS 2.1 or higher.



RealSound Sampler

Experience the excitement of real digitized sounds with RealSound. Speed up the replay or slow it down. Turn the volume up or down. Experiment with the sound file for the highest quality output. Requires DOS 2.1 or higher.

YES! Send me the April 1990 COMPUTE! SHAREPAK for my IBM PC or compatible. I pay \$5.95 for each 5¼-inch disk and \$6.95 for each 3½-inch disk plus \$2.00 shipping and handling per disk.

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

_____ 5¼-inch disk _____ 3½-inch disk

Name _____

Address _____

City _____ State/Province _____ ZIP/Postal Code _____

Shipping and handling \$2.00 per disk

Total amount enclosed \$ _____

Mail coupon with payment to

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

Residents of New York, Pennsylvania, and North Carolina add appropriate sales tax for your state. All orders must be paid in U.S. funds drawn on a U.S. bank. MasterCard or VISA accepted for orders over \$20.00. Please allow 4-6 weeks for delivery. For delivery outside the U.S. or Canada, add \$1.00 for surface mail or \$3.00 for airmail. Offer expires May 23, 1990.

Available on 5¼-inch disk for \$5.95 or 3½-inch disk for \$6.95 (plus \$2.00 shipping and handling per disk).

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

Shareware Agreements

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

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

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

SPECIAL

SHAREPAK SUBSCRIPTION OFFER

Save 37% and get a
FREE disk.

For a limited time, *COMPUTE!* is making a special subscription offer for its monthly *SharePak* disk.

Here's a great way to get *COMPUTE!'s SharePak* delivered to your mailbox every month for the next year—without the trouble of having to order each disk. You'll receive the same great selection of shareware that we've tried, tested, and found to be of value to computer users like you. You'll get to try software that will entertain you, educate you, and make you more productive.

Each *SharePak* contains two to four high-quality shareware programs selected and tested by our staff. One recent issue contained *Directory Master*, *Skullduggery*, *MathMagic*, and *Quick Type*. Another included four handy utilities, *Shareware PC-KWIK*, *CompuShow*, *Flu Shot*, and *Fastbuffer*. Each month, we'll deliver more great shareware products right to your mailbox.

Subscribe today and

- Save time
- Save money (more than 37% off the regular price)
- Receive a FREE copy of *COMPUTE!'s SuperShell* DOS management program
- Receive coupons for savings on back issues, books, and disks offered periodically by *COMPUTE!*
- Get faster service. We'll send out subscriber copies as soon as they're duplicated. You'll spend less time waiting for the mailman and more time trying out and enjoying your disks.

Here's How to Subscribe

For all of this, you pay only \$59.95 for 5¼-inch disks or \$64.95 for 3½-inch disks. Mail the attached coupon today to enjoy the convenience of getting *COMPUTE!'s SharePak* every month at a great savings PLUS the FREE *COMPUTE! SuperShell* program.

FREE

with Paid Subscription

COMPUTE's SuperShell!

COMPUTE!'s SuperShell is an MS-DOS enhancement that makes performing DOS functions simple and easy. With *SuperShell*, you can copy, rename, move, delete, edit, and print files by just pressing a few keys instead of typing long, complex commands. If you have a mouse, you can sail through DOS by pointing and clicking. And with *SuperShell*, online help is always just a keypress away.

For power users, there are commands to change attributes, back up disks, use tree or directory displays, customize the program parameters and colors, execute DOS commands, view files inside archives, and more.

With *COMPUTE!'s SuperShell*, you can kiss the DOS command line prompt good-bye. Requires DOS 3.0 or higher.

SIGN ME UP! Start my one-year subscription to *COMPUTE!'s SharePak* right away. With my subscription, I'll get a FREE copy of *COMPUTE!'s SuperShell*, plus I'll receive periodic notification of special offers and discounts on other *COMPUTE!* products.

Subscription price: \$59.95 for 5¼-inch disks and \$64.95 for 3½-inch disks. For delivery outside the U.S. or Canada, add \$10.00 for postage and handling. All orders must be prepaid by check, money order, VISA, or MasterCard.

Check disk size desired: 5¼-inch 3½-inch
Name _____
Address _____
City _____
State/Province _____ Postal Code _____
Total Enclosed _____
MasterCard or VISA orders
Credit Card # _____
Expiration Date _____ Signature _____
Daytime Telephone Number _____

Send your order to **SharePak Subscription**
P.O. Box 5188
Greensboro, NC 27403

All orders must be paid in U.S. funds by check drawn on a U.S. bank, by money order, or by VISA or MasterCard. This offer will only be filled at the above address and is not made in conjunction with any other magazine or disk subscription offer. Sorry, but telephone orders cannot be accepted. This offer expires May 15, 1990.

COMPOSE YOURSELF

RICHARD C. LEINECKER

UNLEASH YOUR MUSICAL GENIUS
WITH THE LATEST GENERATION
OF PC SOUND DEVICES
AND SOFTWARE





Releasing musical talent with your PC has become a lot easier. Instead of relying on your PC's archaic, built-in speaker, you can now add hardware to your system and enjoy sounds ranging from simple polyphonic tones to digitized sounds to full-blown, multiple-voice, synthesized scores. And some pretty talented software is waiting in the wings to exploit the capabilities of these devices without sapping your creativity in the process.

Two problems have long faced composers. The first is "hearing" the piece during its development. Pierre Boulez claims to hear his best performances while reading scores in his study. But even after completing a rigorous course based on Paul Hindemith's *Elementary Musical Training* (which isn't so elemen-

tary). I still can't compete with Boulez—without the help of musical composition software, that is. Using these tools, I can literally hear the notes of my compositions through a speaker. Listening to the entire work, a single phrase, or a single voice is as near as a single keystroke or a short sequence of keypresses.

The second major dilemma facing composers, once they've finished a score and copied the separate parts, is getting a performance worthy of the work. While a graduate student at Cincinnati Conservatory, I faced this problem on a regular basis. Persuading musicians to commit themselves to your work between their own rehearsal and performance schedules and finding a suitable room or hall was a chore deserving a graduate degree of its own. What's more, the very short rehearsals prescribed by such arrangements never allowed enough time for your selected musicians to really





COMPOSE YOURSELF

get your composition right: There were always missed notes and misinterpreted passages. Now, with the benefit of music-composition software, I can simply tailor an instrument bank or patch library according to the instruments that my work calls for, hook up a recorder, and press a key. Look out Henry Mancini!

Play It by Eye

The Ad Lib synthesizer card is probably the most popular sound add-on available. Since it has nine melodic voices or five melodic and six percussive voices (you can configure the board either way), it's perfect for music that requires only a small instrumental group. That's enough for most aspiring artists because it covers chamber and jazz ensembles and instrumental rock bands.

Ad Lib's *Visual Composer* program, which you can purchase with the card or separately, is easy to use and quickly produces fantastic results. As a classically trained French horn player, I just had to satisfy some repressed urges to make some fast-moving, upbeat, pop music. To my surprise, my first experiment was a success.

The first thing I had to do was choose the instrumentation of my band. *Visual Composer* gives you a smorgasbord of choices with 96 predefined instruments. If those aren't enough, you can buy *Instrument Maker*, an Ad Lib program that lets you design your own instruments. I settled on a typical band: bass and snare drums, tom-toms, a cymbal, a high-hat, two electric guitars, and an electric piano.

Then I turned my attention to creating the notes.

With *Visual Composer*, I was able to set tempo, beats-per-measure, and volume anywhere within a piece. This capability let me use dynamics effectively and to do ritardandos at crucial moments. Computer-composition skeptics who fear that software programs may lock in the meter and tempo and not allow for metrical modulation and other such techniques shouldn't worry. I found Ad Lib's software particularly free from such constraints.

Take, for example, Leonard Bernstein's "I Want to Be an American" from *West Side Story*, in which the meter alternates between 6/8 and 3/4. Just to prove computer-music naysayers incorrect, during my initial experiments I constructed a simplified version that played as effectively as any Broadway performance. As a second test I took on Elliot Carter's *Canaries* for timpani, in which metrical modulation abounds. Although the complexity of the piece and the amount of time it took to transcribe it to the screen kept me from getting too far, I had no trouble capturing the essence of the piece in a short sample, changing meter, tempo, and subdivision every several measures.

Unfortunately, such techniques aren't effective in pop music, where a composer must rely on a steady beat with driving interest. I used 4/4 time with a bass drum on the first and third beats, along with a syncopated snare drum that punctuated the underlying bass drum to keep things moving.

After a couple hours of noodling with textures, metrical techniques, and sonorities, I had to force myself to determine the tune's overall form. Sketching it out before actually selecting pitches is a habit that's ingrained in most formally trained composers. Unfortunately, none of the software I looked at fostered this valuable habit. In fact, there's a real temptation to jump right in without the proper planning. It's like giving kids a recorder or a drum; they can't resist making noise. When you have a mouse in your hand and composition software in front of you, all you can think of is making more of those neat sounds. But the old adage *form before beauty* still holds true, so don't forget paper and pencil as you bring form, tonal levels, harmonic structures, and compositional procedures into shape.

Placing a note with *Visual Composer* is as simple as clicking or holding down the mouse button with the pointer in the right place on the onscreen score. Besides seeing the graphical representation, you hear each note as you place it. If you retain the most recent of these in your memory, you'll have a good idea of what the line sounds like. It's not totally necessary to keep them in your head, though, since playing a phrase is as simple as pressing the Ctrl-P key combination. I found that crafting an entire line before listening gave me a few more misplaced notes, but the overall effect, more times than not, contained a greater number of those sought-after, unanticipated, fresh turns



Figure 1

The Shape of Sound to Come

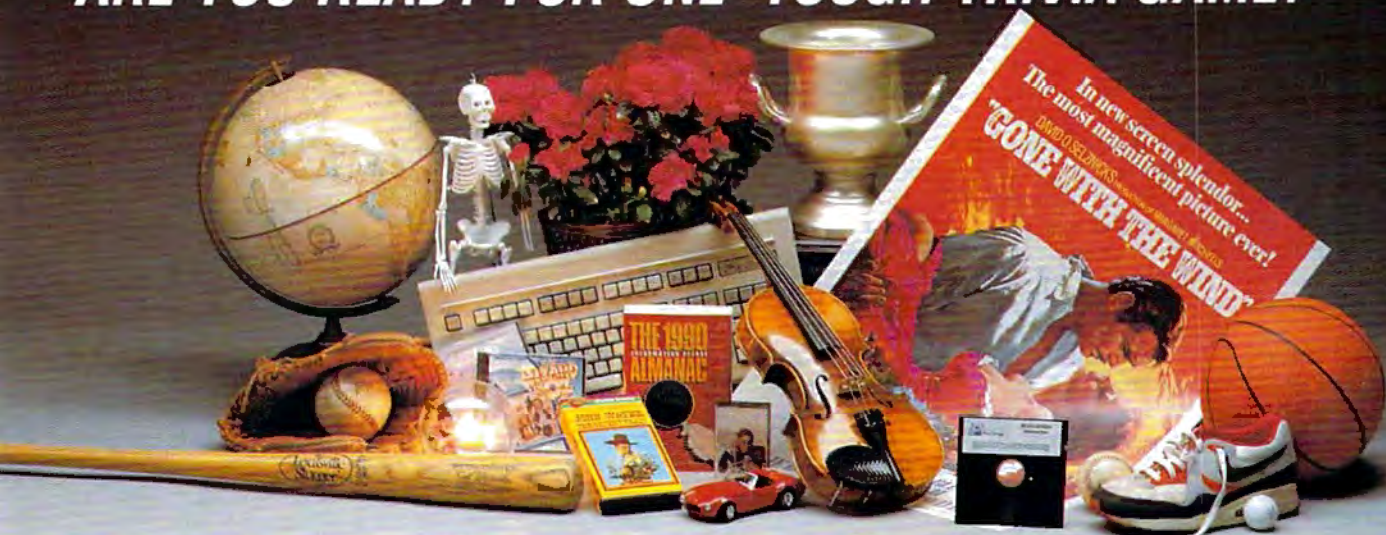
Here's my *COMPUTE!* theme song as composed with Ad Lib's *Visual Composer* (Figure 1), and as composed in a text editor for Creative Labs' *Composer* (Figure 2). The *Visual Composer* score simultaneously shows all voices, so it's difficult to pick out the parts. In general, however, the lower four voices are the percussion and the upper voices carry the melody and accompaniment.

The instruments in the *Composer* text file also feature the percussion in the lower voices and the melody and accompaniment in the top voices. I used the *Definst* program, which is part of *Composer*, to get just the right sounds that would match the Ad Lib timbres.



Figure 2

WHAT DOES S.W.A.T. STAND FOR?
 WHAT'S THE AVERAGE SPEED OF A GOLF BALL?
 ARE YOU READY FOR ONE TOUGH TRIVIA GAME?



PSST . . . INTELLIGENSIA IS THE ANSWER.

Sure, you know it all. You know who played Sam in "Casablanca," how many home runs Henry Aaron hit, and Thurston Howell's wife's name on "Gilligan's Island."

And you know how much FUN a good trivia game can be. But are you ready to match wits against Great Britain's hottest software trivia game? NOW, for the first time ever, **INTELLIGENSIA** is available in a special U.S. version!

Before you order, you should know that this is not some electronic version of a TV gameshow or a coffee-table boardgame. **INTELLIGENSIA** will test and expand your knowledge like no game you've ever played.

**IF YOU BOUGHT YOUR CHILD A CAVY,
 WHERE WOULD IT BE KEPT?**

The AMAZING thing about **INTELLIGENSIA** is the variety of topics. You get over 3000 questions fired at random from four different categories (Sports, Music, TV & Movies, and Pot Luck). Not only have we worked up a brand-new American version just for you, but we'll also offer you updates with additional questions, so your fun never stops!

HOW MANY TIMES DID JOHN WAYNE DIE IN HIS MOVIES?

INTELLIGENSIA features a multiple-choice format for intense one-on-one competition, and we didn't forget the bells and whistles. You get random bonus and extra-point screens, three speed-of-play options (Are you a Novice? An Amateur? A Professional??), and state-of-the-art sound effects. For the faint-hearted, the noise can be turned off. The fun just keeps on going!

WHAT DOES AN ANGRY OCTOPUS SQUIRT?

INTELLIGENSIA keeps track of personal "Best Scores," so any player can check the scoreboard and see who's hot and who's not.

The real question is:

CAN YOU MEASURE UP TO INTELLIGENSIA?

You'll find out now AND receive a FREE GIFT if you're one of the first 10,000 customers to order. We're giving away 10,000 copies of the best-selling, 992-page 1990 *Information Please Almanac*, a \$6.95 value, absolutely free!

We're so sure you'll love **INTELLIGENSIA** that we want you to try it risk-free for 10 days. If you don't think it's more fun and a bigger challenge than any trivia game you've ever played, return it for a full refund.

1-800-779-6000

(In Canada call 319-395-7300.)

Mon. - Fri. 8:30 a.m. to 9 p.m., Sat. 9:00 a.m. to 5:00 p.m. CST
 Or send check or money order payable to Parsons Technology.



Parsons Technology, 375 Collins Rd. NE, Cedar Rapids, Iowa 52402 USA

YES! Rush Me INTELLIGENSIA and my FREE 1990 Information Please Almanac

\$29 + \$5 shipping NOT COPY PROTECTED
 INCLUDES COMPLETE INSTRUCTIONS

PLEASE PRINT
 NAME _____
 ADDRESS _____
 CITY/STATE/ZIP/COUNTRY _____
 PHONE _____

CHECK MONEY ORDER VISA MASTERCARD
 CARD # _____ EXP. DATE _____

INTELLIGENSIA requires an IBM/Tandy/Compaq or compatible computer, 384K or more RAM and DOS 2.0 or higher. Add \$5 shipping/handling—\$10 outside North America. Iowa residents, please add 4% sales tax. CODE= 101



375 Collins Road NE, Cedar Rapids, Iowa 52402 USA



RESOURCES

FIND SOUND ADVICE FOR MAKING SWEET PC MUSIC

Periodicals

For timely information, check up on the many computer-music periodicals available in your library.

Electronic Musician—\$14.95 per year
6400 Hollis St.
Suite 12
Emeryville, CA 94608
(415) 653-3307

Music Technology Magazine—
\$12.95 per year
Music Maker Publications
22024 Lassen St.
Suite 118
Chatsworth, CA 91311-9847
(818) 407-0744

Keyboard Magazine—\$19.95
per year
UPI
20085 Stevens Creek Blvd.
Cupertino, CA 95014
(408) 446-1105

Associations

Organizations can present a great opportunity to learn from professionals and amateur musicians.

Center for Electronic Music
432 Park Ave. S
New York, NY 10016
(212) 686-1755

Computer Musicians Cooperative
3010 N. Sterling Ave.
Peoria, IL 61604
(309) 685-4843

Computers and Music
647 Mission St.
San Francisco, CA 94105
(415) 541-5350

International MIDI Association
11857 Hartsook St.
N. Hollywood, CA 91607
(213) 649-6434

The Washington Project for the Arts
New Music Program: MIDI
Workshops
400 7th St. NW
Washington, DC 20004
(202) 347-8304

ONLINE SERVICES

If you can't find a group in your area, you can learn from other composers through online services. Communicate in conferences and send correspondence through your modem. You'll also find public domain and shareware music-composition software that you can download.

CompuServe Information Service
P.O. Box 20212
Columbus, OH 43220
(800) 848-8199 (voice)

MIDI-Net
Dallas, TX
(214) 276-8902 (modem)
Oklahoma City, OK
(405) 733-3102 (modem)

MIDI/WorldMusic Roundtable
GEnie
401 N. Washington St.
Rockville, MD 20850
(800) 638-9636 (voice)
(800) 638-9636 (modem)

The Music Conference
Byte Information Exchange
1 Phoenix Mill Ln.
Peterborough, NH 03458
(800) 227-2983 (voice)

BOOKS

Computer music composition has spawned a library of books that share essential information. Get a head start on your own composing by tapping into these excellent sources.

■ *Alesis MMT-8 Sequencer*, by Dan Walker—\$24.95; *The EPS Sampling Book*, by Bobby Maestos—\$21.95; Alexander Publishing, Music Maker Publications, 22024 Lassen St., Suite 118, Chatsworth, CA 91311-9847; (818) 407-0744

■ *Computer Music: Synthesis, Composition, and Performance*, by Charles Dodge and Thomas A. Jerse—\$29.95; Schirmer, 866 Third Ave., New York, NY 10022; (212) 702-2000

■ *Creative Recording: Effects and Processors*, by Paul White—\$17.95; Music Maker Publications, 22024 Lassen St., Suite 118, Chatsworth, CA 91311-9847; (818) 407-0744

■ *Electronic Music Composition for Beginners*, by Robert Adams—\$29.75; Wm C. Brown Publishing, 2460 Kerper Blvd., Dubuque, IA 52001; (319) 588-1451

■ *The MIDI Book—Using MIDI and Related Interfaces*, by Steve De Furia, Joe Scacciaferro, and Ferro Technologies—\$14.95; *The MIDI Resource Book*, by Steve De Furia, Joe Scacciaferro, and Ferro Technologies—\$17.95; Hal Leonard Publishing, 8112 W. Bluemound Rd., Milwaukee, WI 53213; (414) 774-3630

■ *Musical Applications Microprocessor*, 2nd edition, by Hal Chamberlin—\$39.95; Howard W. Sams & Co., Department DM, P.O. Box 7092, Indianapolis, IN 46207-7092; (800) 428-7267

■ *Music Through MIDI: Using MIDI to Create Your Own Electronic Music System*, by Michael Boom—\$19.95; Microsoft Press, Sales Department, 16011 NE 36th Way, Redmond, WA 98073-9717; (800) 888-3303

There's nothing new about having everything you need in one place.

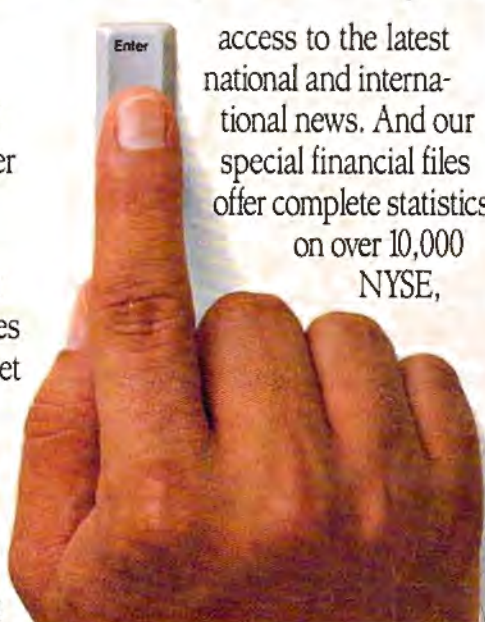


With CompuServe, it's all at your fingertips.

When you become a member of CompuServe, you join a vital, active community of over 500,000 friends and neighbors from all over the world.

Small-town friendly. We keep in touch with electronic mail and faxes, and by posting messages on our bulletin boards. We even meet in forums to discuss everything from science fiction to sharing software, and to get invaluable personal computer software and hardware support. And that's one of the best things about small towns: people helping people.

Big-city opportunities. But we can also shop coast-to-coast at hundreds of nationally known stores, and take advantage of a world-class library. We have



access to the latest national and international news. And our special financial files offer complete statistics on over 10,000 NYSE,

AMEX, and OTC securities.

We can even trade online with our local discount brokers.

And, just for fun . . . We've also got games — everything from trivia to TV-style game shows with

live entertainment to interactive space and fantasy adventures.

We've got airline schedules, so you can check out the bargains and book your own flights online. We even have listings from over 35,000 hotels.

It's not hard to get here. To get to CompuServe, all you need is a computer and a modem. We'll send you everything else, including a \$25.00 Usage Credit. In most places you'll be able to go online with a local phone call.

To buy a CompuServe Membership Kit, see your nearest computer dealer. To receive our informative brochure or to order direct, call 800 848-8199.

CompuServe




PRODUCT

TANDY 1100 FD Cat. No. 25-3530

Laptop Computer

A completely portable, full-function PC-compatible computer that includes the DeskMate[®] Interface and MS-DOS[®] in permanent Read-Only Memory



Ideal for anyone who travels or where workspace is limited. You can finish reports and memos, do spreadsheet calculations and more.

Mark Wagoneer

COMPUTE! CHOICE

PETER SCISCO

BUILT-IN SOFTWARE, LIGHT WEIGHT, AND AN AFFORDABLE PRICE MAKE TANDY'S NEW LAPTOP A CHOICE PICK

The phrase *notebook computer* gets bandied about quite a bit these days. Depending on your point of view, it's either one of those industry buzzwords cooked up every couple of years to entice consumers to go out and buy the latest and greatest technological wonders, or it's a succinct description of the latest personal computer frontier. In its ads, Tandy touts its new 1100 FD as a notebook computer, but don't be fooled. It's a laptop—a lightweight, well-designed laptop that may be the perfect tool for home computer users looking for an affordable portable.

The 1100 FD is no UltraLite. It weighs in at a little less than 6.5 pounds, without its rechargeable battery. That's a couple of pounds more than the NEC laptop that has everybody jumping through hoops, but the 1100 FD has something the UltraLite can't match—a price tag under \$1,000.

You won't mistake Tandy's latest laptop for a Poquet computer or a Zenith MinisPort, either. It beats both on price and offers the advantage of an industry-standard disk drive (unlike the Zenith entry). In short, Tandy's machine is the laptop for the rest of us—serviceable, compatible, and affordable.

The 1100 FD uses a V20 processor running at 8 MHz—no speed demon, but enough power for the road, and a satisfactory if not overwhelming processing speed. For students interested in a computer for college, this latest Tandy laptop has enough horsepower for any projects they're likely to take on, primarily word processing, spreadsheets, and databases. For power, Tandy's newest laptop comes equipped with an AC adapter and a rechargeable lead-acid battery. The manual maintains that you can run the computer from the battery for

TIMMY

3-4½ hours, depending on your degree of disk access. I found, however, that the low-battery light would come on, even after a full charge, if I left the computer inactive for a couple of days.

Besides its great price and relatively light weight, the 1100 FD has several other attractive features, including most MS-DOS 3.3 functions and Tandy's own *DeskMate* interface in ROM. The appeal here is a quick boot when you switch the machine on. There's no wait for disk reads; just hit the switch and you're up and running. To make productivity even closer at hand, Tandy has included its *DeskMate* Text program in ROM, so you don't even have to slip in a disk at all if you want to start typing right away.

For running your favorite programs, the 1100 FD comes standard with 640K of RAM. Using ROM-based DOS functions frees up the maximum amount of memory for your applications—an important point because Tandy doesn't allow for memory expansion in this system. That's not necessarily a fault, because Tandy knows its market and plans its products accordingly. The 1100 FD is aimed squarely at those users who demand functionality at a minimum price. For users who want color laptop displays, 386SX processing power, expanded-memory accessibility, there are other, more expensive machines available.

On the right side of the system is a single 720K 3½-inch disk drive. You may be able to start typing right away, but until you insert a disk there's no way to save your file. The 1100 FD ROM version of Text saves its files as ASCII, so you can port documents to most desktop word processors. You can, of course, run your own word processor from the floppy disk. But travelers seeking to keep the disks they carry to a minimum will welcome the built-in editor—it's not dif-

ficult to learn and offers all of the basic word processing from the function keys or from pull-down menus located along the title bar at the top of the screen.

The 1100 FD keyboard is well-spaced, with 12 undersized chiclet-style function keys along the top row. The short space bar adds space without hindering typing. The main keyboard has a pleasant, cushioned feel that softens the short throw of the keys. That short throw can be troublesome if you don't hit the keys assertively and dead center. That doesn't mean that you have to pound the keys unmercifully, but, if you're a fast typist with a light touch, the cushioned feel may mislead you and result in missing characters. I didn't find the keyboard especially objectionable (except for the small Enter key that requires a solid hit to activate), but I couldn't say it was state of the art. If you're considering the 1100 FD as your laptop, I recommend that you visit a Radio Shack store and spend some time typing on it. The feel of a keyboard is too subjective to leave to chance.

Also included on the keyboard is an embedded numeric keypad that you activate by pressing the special Function key (located at the bottom

left of the keyboard, between the Control and Alt keys) and then pressing the Key Pad key (located in the far upper right corner of the keyboard) simultaneously. The keypad option doesn't work in the word processing mode, but it's helpful for intensive number entry when using a spreadsheet. (Tandy's spreadsheet, called *Worksheet*, comes as part of the complete *DeskMate* package, which ships with the 1100 FD.)

The screen display is, to be quite honest, a singularly unflattering shade of green. By using LCD super-twisted display technology, Tandy is able to provide a measure of clarity without sacrificing pounds and dollars. It's not the kind of screen you'd want to play many games on, even though I did manage to play *Welltris* with some success in a reverse-CGA mode. Entertainment aside, text is quite readable. The screen tilts back for easy viewing from a variety of positions in varying light. A sliding bar to the left of the screen controls the contrast. If you're considering a laptop for your second computer, productivity (mainly word processing) will no doubt be your chief concern. In this area the



Mark Waggoner

1100 FD lives up to its potential.

When you leave the realm of Tandy's word processor, you can expect some aggravation. I tried running *Lotus Spreadsheet for DeskMate* on the system, but I found data entry to be agonizingly slow, even though it smoothly integrated itself into the familiar *DeskMate* interface. To be fair, the *Lotus/D* program is pretty large, and I would attribute the sluggishness I experienced to the software and not to the 1100 FD. If you want to crunch numbers and you aren't concerned with working within the 1-2-3 format, Tandy's Worksheet program runs fine on the laptop and gives you plenty of calculating power.

In another test, I loaded my traveling copy of *WordPerfect* (version 4.2) that I use on the road because it fits on one 720K disk. I found I could outtype the cursor, which is a surprise given that I'm a keyboard-watching typist and not known around the office for my blazing speed. Other laptops equipped with LCD screens have this problem when dealing with more sophisticated word processors, so the 1100 FD needn't feel like the Lone Ranger when it comes to subpar text handling.

Keep in mind that trade-offs are made when bringing any product to market, and in this case Tandy sacrificed speedy text handling for the low power requirements that an LCD screen demands (giving you long bat-

tery life) for the low cost of manufacturing such displays (cheaper than gas-plasma displays) and for a lighter weight (important when you're lugging your laptop around all day). If those requirements (battery power, light weight, and cost) are important to you, the performance sacrifice is worth it.

On the back of the system, behind a hinged panel, is one parallel and one serial port. These built-in features let you print on the road (with a portable printer) and telecommunicate with the office, with home, or with the school library. You can even hook up a mouse to use with *DeskMate*. Tandy sells a 2400-baud internal modem for use with the 1100 FD, but if you already have a desktop computer you may be better off buying one of the new pocket-size modems and running it through the serial port of both machines: twice the use at half the cost.

The entire system is housed in an off-white case. It feels comfortable under your arm, but it's a little too bulky to fit in most briefcases. Rather than the sleek, sharp lines of the UltraLite or the traditional square lines of the Toshiba series (or countless other laptops), the Tandy 1100 FD has a smooth, rounded look that I like a lot. It may seem a small point to quibble over, but aesthetics play a part in this technological world. A well-designed machine is not just a pleasure to work

with, it's also a pleasure to look at.

Beyond the hardware, the Tandy 1100 FD may finally give a lot of people reason to consider *DeskMate* as a graphical interface for DOS. By putting the interface in ROM, Tandy introduces a lot of users to an environment that allows for WYSIWYG display, task switching (a kind of poor man's multitasking), and ease of use. I suspect that a lot of 1100 FD buyers may not be *DeskMate* owners, and having it loaded on their laptop may make them converts. Of course, you can use a setup program included with the 1100 FD to bypass *DeskMate* and bring up the DOS command line when you boot up.

What makes *DeskMate* so appealing on this particular machine, however, is that it appears that Tandy has tweaked it so that its integrated applications run more smoothly on this laptop than do third-party software programs. I can't say for sure that this is true, but it makes sense that Tandy would have an advantage of knowing exactly how the hardware works so that its software operates at maximum efficiency.

What Tandy seems to be doing here is trying to broaden the laptop market beyond high-flying executives and gadget-crazy techno-whiz kids. It's the same approach that has given the company a big share of the home-computing market for MS-DOS systems, and the same philosophy that rests behind the firm's unyielding push to make its *DeskMate* interface the graphical environment of choice for users of 8088 machines.

The 1100 FD fits into that strategy by offering itself as a laptop for the common user: a fine second machine for home office workers who need portability, an easy-to-use and lightweight educational computer for the son or daughter going off to college, a solid performer for the small business with the small budget. By aligning itself with *DeskMate*, and by making good use of techniques like a ROM-based operating system and word processor, the 1100 FD goes a long way toward fulfilling the promise of a no-frills, industry-compatible laptop that all users can afford.



The lightweight Tandy 1100 FD laptop computer sports a nonbacklit green LCD display and a single 720K floppy drive, and it carries the *DeskMate* graphical interface in ROM.

1100 FD

TANDY 1100 FD—\$999.00
Rechargeable battery—\$29.95
2400-baud internal modem—\$199.95

TANDY
One Tandy Center
Ft. Worth, TX 76102
(817) 390-3011

NOW FROM THE EDITORS OF COMPUTE! & GAZETTE

Trial Subscription Savings Exclusively for Amiga Users

Here's great news for Amiga users! Now you can save a full 44% off the cover price—by saying "YES" today to a Trial Subscription to COMPUTE!'s AMIGA RESOURCE, the definitive guide to Amiga computing.

Whether you're into desktop video, sound and graphics, programming, art, music or games, COMPUTE!'s AMIGA RESOURCE will provide you with a wealth of columns, reviews, features, opinions and ideas that are sure to help you get the most fun, most productivity, most excitement from your Amiga computer.

Valuable "how to" articles, suggestions and applications.

Each exciting new issue will keep you up-to-date with the latest in Amiga news, trends and new product releases. You'll also get in-depth reviews and valuable buyer's guides on software and hardware that can save you plenty!

If you like to program, you'll thoroughly enjoy AMIGA RESOURCE's regular programming hints and tips. You'll learn the best language for programming... how to play sampled



sounds . . . and much, much more.

Save 44% with a Trial Subscription now.

Discover just *how much more* you can get from your Amiga computer by saying "YES" today to this Trial Subscription invitation. You'll get 6 big issues for just \$9.97—a saving of

44% off the cover price... 33% off the regular subscription price. Just return the attached reply card or complete and mail the coupon below now.

COMPUTE!'s AMIGA RESOURCE's optional companion disk means you get even more excitement from your Amiga computer.

If you like, you can get COMPUTE!'s AMIGA RESOURCE delivered with an optional companion disk *in each issue*. This ready-to-run disk comes with fabulous programs written in a variety of languages—complete with source code. You'll get great games, useful applications and valuable utilities. And you'll find full documentation for every program on the pages of COMPUTE!'s AMIGA RESOURCE. You'll also get stunning art and wonderful animations contributed by top Amiga artists. Best of all, 6 big issues, each with disk, cost you just \$39.95. You save 33% off the cover price. Simply check the appropriate box on the reply card or the coupon below.

**SAVE
44%
NOW**

Mail today to: COMPUTE!'s AMIGA RESOURCE
P.O. Box 3253, Harlan, IA 51593

YES! I know a great deal when I see one. Sign me up as a Trial Subscriber to COMPUTE!'s AMIGA RESOURCE.

- Send me 6 big issues of COMPUTE!'s AMIGA RESOURCE for just \$9.97. I save 44% off the cover price.
- Send me COMPUTE!'s AMIGA RESOURCE—complete with the optional disk containing at least 5 exciting new programs per disk. I'll pay just \$39.95 for 6 issues, each with disk—a savings of 33% off the cover price.
- Payment Enclosed Bill Me

Mr./Mrs./Ms. (Circle One) (Please Print)

Address (Apt. No.)

City

State Zip
Outside U.S. add \$6 per year for postage. Excluding Canada, all foreign orders must be in U.S. currency. Price subject to change.

GAH16

FOR FASTER SERVICE, CALL TOLL-FREE 1-800-727-6937

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

To my knowledge, there is no culture in the world that does not have music. Music is a communications medium that expresses ideas in ways that cannot be approached by poetry, painting, or any of the other arts. If visitors from another planet were to draw conclusions

based on interception of our radio broadcasts, they would think that we are a musical species that talks for only five minutes per hour to discuss news and traffic.

Yet, for all the unheard sonatas that echo from shower stalls, an amazingly large proportion of our population restricts its music appreciation to listening and doesn't play or compose music. True, many of us were trundled off to lessons at an early age, but, for many people, these forced lessons hurt musical interest more than they helped it.

The personal computer gives us new tools that make the exploration, performance, and composition of music far more accessible than it ever was. Music synthesizers were once relegated to the professional music store. Now you can find them at K mart.

Since you may be new to electronic music, here are some of the options that are open to you. Perhaps you've never played a musical instrument but have dreamed of jamming along with Chuck Berry or Itzhak Perlman. In your case, you'd love some of the computer-assisted performance packages such as *Jam Session*, available for the Apple IIGs and Macintosh from Brøderbund. This program plays rhythm and accompaniment tracks in any style you'd like, from Chicago blues to Chopin, and it lets you play riffs and melodies by pressing different keys on the computer keyboard. You have tremendous creative latitude with this program, yet it keeps you from playing "wrong" notes by restricting the tones you can generate at any given time. The music is generated by the

sound chip in your computer, so the quality isn't as good as that from a dedicated synthesizer, but the program is great fun to play with.

In addition to pianolike keyboards, synths can use guitar fret boards, drum pads, or even wind-instrument finger pieces. Traditional keyboards are the most popular, however, and virtually all low-cost synthesizers come with a traditional keyboard.

What should you look for when purchasing a synthesizer? First, be sure you like the sounds it creates. This seems obvious, but today's synthesizers have so many bells and whistles that it sometimes is easy to overlook the sound quality in making a purchase decision. When listening to the instrument in the store, bring your own headphones so you can hear the instrument without hearing the ambient store noise.

COMPUTERS HELP
**MAKE
 MUSIC**
 IN MIDI WAYS

You will probably find that the department store instruments lack the depth and richness of tone that are the hallmarks of a good synthesizer—you get what you pay for. Be sure to listen yourself. Every ear is different, so reviews of synthesizers are of limited help. It's kind of like buying a wine with "a touch of oak taste and an amusing bouquet." Give me a glass and I'll tell you if I like it.

Be sure your synth has a MIDI interface. This allows you to connect your equipment to your PC, to other

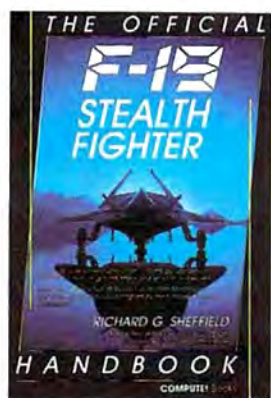
synthesizers, and to a host of other goodies you'll acquire in coming years. When you're ready to connect everything to your computer, you'll need to purchase a MIDI interface for your PC, unless you have one built in (as with the Atari ST and some Laser models). The most popular kind of MIDI software is the sequencer. This program lets your computer capture, edit, and play back performances. Think of it as a multitrack tape recorder that you can use to turn your instrument into a player piano. Once you get started, you'll find lots of other MIDI programs to keep you occupied.

The music field is very dynamic, and electronic music is growing by leaps and bounds. Looking into the nineties, I expect to see more musical compositions influenced by audience participation. The *Jam Session* program I mentioned is one example of this. Another of my favorites is in the Kodak exhibit at the EPCOT Center in Orlando, Florida. You create music by walking across colored tiles on the floor. As people move through the exhibit, the room fills with pleasant sounds whose patterns are largely influenced by the audience. Environments like these allow the audience to be listener, performer, and composer all at once.

But is it music? I hear this question a lot. It's important to realize that electronic instruments are a different breed. Just as the saxophone didn't replace the clarinet, or the piano didn't replace the harpsichord, I see no reason to think that synthesizers will replace any other musical instruments. Each instrument has its unique sounds and expressive quality. It's true that a lot of "bad" music is being created with synthesizers, but this is not the fault of the technology. Technology does not equal creativity. It never has, and it never will.

If you have a song in your heart that you'd like others to hear, you might want to look into ways to have your computer assist you in your creative expression. □

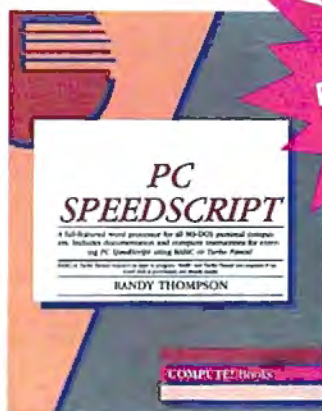
Whatever your home computing needs, **COMPUTE!** Is Your Home Computing Resource



The Official F-19 Stealth Fighter Handbook
by Richard G. Sheffield
Foreword by Major "Wild Bill" Stealey, president and cofounder of MicroProse
\$14.95 **192pp**
Learn the ins and outs of flying MicroProse's new F-19 Stealth Fighter flight simulator. Study the practical hints and tips for flying the simulator and performing ground-attack and air-to-air tactics. Then read all the background information in the book to learn to fly the real F-19. In the final section of the book, you'll find yourself looking over the shoulder of an expert F-19 Stealth Fighter game player as he carries out several dangerous missions.

Easy 1-2-3 for Small Business
by Sandra Cook Jerome, C.P.A.
\$18.95 **320pp**
This hands-on guide is perfect for small-business owners who need financial reports and information quickly. It is more than just another tutorial on Lotus 1-2-3; it's a guide to building practical spreadsheets. You get complete instructions for creating more than a dozen spreadsheets, including income statements, job costing, tax planning, balance sheets, and accounts-receivable aging. You'll even learn to write a business plan. Although written specifically for Lotus 1-2-3 releases 2.2 and 3, the spreadsheets in *Easy 1-2-3 for Small Business* are also compatible with release 2.01.

COMPUTE!'s Guide to Nintendo Games
by Steven A. Schwartz
\$9.95 **272pp**
A valuable buyer's guide, this book is packed with tips for better play and reviews of available game cartridges for the Nintendo Entertainment System. Each game description includes a screen shot; basic information such as type of game, number of players, and controller type; and ratings for the essential elements such as sound and graphics quality, violence, difficulty, and overall play value.



PC SpeedScript
by Randy Thompson, associate editor at COMPUTE! Publications
\$24.95 **224pp**
SpeedScript, a full-featured word processor and the most popular program ever published by COMPUTE!, is now available for IBM, Tandy, and compatible personal computers. From letters and reports to novels and term papers, *PC SpeedScript* handles all your word processing needs. This 5 1/4-inch disk contains the ready-to-run *PC SpeedScript* program and the *Turbo Pascal* source code. You do not need BASIC or *Turbo Pascal* to run the programs. The package includes a 224-page book with complete documentation and source code listings.

WORD PROCESSING PACKAGE

Quick & Easy Guide to Using MS-DOS, Second Edition
by Bonnie Derman and Strawberry Software
\$14.95 **224pp**
The second edition of this easy-to-use guidebook covers all versions of MS-DOS through version 4. Commands and directions are logically arranged for quick reference. Topics include directories, files, disk commands, screen and printer output, and more. It's the only MS-DOS book that employs a truly task-oriented approach.

PFS: First Choice Business Solutions
by Elna Tymes with Charles Prael
\$18.95 **256pp**
This book is a must for all PFS: First Choice business users. Automate office chores with a complete range of business models: inventory, forecasting, commission records, presentations, telecommunications, P & L analysis, and so much more. PFS: First Choice software from Software Publishing is not included.

YES!

COMPUTE! is my home computing resource. Please send me the titles checked below. I've enclosed \$2.00 shipping and handling for each book.

- COMPUTE!'s Guide to Nintendo Games (2214) \$9.95
- Easy 1-2-3 for Small Business (2052) \$18.95
- PC SpeedScript (1668) \$24.95
- PFS: First Choice Business Solutions (2087) \$14.95
- Quick & Easy Guide to Using MS-DOS, Second Edition (2184) \$14.95
- The Official F-19 Stealth Fighter Handbook (2176) \$14.95

- Subtotal
- Sales Tax (Residents of NC, NY, and PA add appropriate sales tax for your area)
- Shipping and Handling (\$2 U.S. and Canada, \$5 airmail per book)
- Total Enclosed

Check or money order MasterCard VISA

Signature _____ (Required)

Acct. No. _____ Exp. Date _____

Name _____

Street Address _____ (No P.O. Boxes please)

City _____ State _____ ZIP _____

Daytime Telephone No. _____

This offer expires July 31, 1990. All orders must be paid in U.S. funds drawn on a U.S. bank. Orders will be shipped via UPS Ground Service. Please allow 4-6 weeks for delivery.

MAIL TO COMPUTE!'s Bookshelf
P.O. Box 5188
Greensboro, NC 27403

0490C1

All books ship via UPS.





USER GROUPS WANT YOU!

TOM NETSEL

USER GROUPS HAVE A LOT TO OFFER, AND THEY'RE EAGER TO HAVE YOU JOIN

Recently, a woman in California called me with a problem. A relative had given her an orphaned computer and she was wondering where she could buy software for it. The computer had been out of production for several years, so I suggested she contact a computer user group in her town.

"What's a user group?" she asked.

What's a user group? Everyone who owns a PC should know about the benefits user groups offer. Many cities have several groups, and even small towns support at least one organization dedicated to helping PC owners get the most out of their machines. I steered my caller to a user group in her city. I'm sure by now she's found plenty of software, advice, and computer camaraderie.

Two or More, Gathered Together

User groups are formed when two or more computer owners meet on a regular basis to talk computers. In smaller towns a single group may support several types of computers, but most larger groups are dedicated to a particular computer. In addition to MS-DOS groups, there are Commodore 64 groups, Macintosh groups, and Amiga groups, as well as groups formed around



USER GROUPS WANT YOU

TI-99s, Apple IIs, Atari eight-bits, Tandy Color Computers, and even CP/M machines.

Most groups meet once or twice a month. Some boast several hundred members. Meetings are held in public buildings or auditoriums, computer stores, or private homes. Members range from senior citizens to children, and their levels of computer experience are equally diverse.

You don't have to be a computer wizard to join a user group. In fact, people new to computing often have the most to gain.

For intermediate and advanced users, groups usually offer a number of educational and informative programs. Many experienced computer users enjoy sharing their expertise by leading seminars and special interest groups (SIGs).

Let's take a look at a couple of typical user groups and see what they have to offer.

Who You Gonna Call?

The Connecticut IBM Personal Computer User Group was formed in 1982. A hundred or so of its 350 members meet the fourth Tuesday of every month in the auditorium of the Darien library. President John McGinley says a user group is an ideal organization for helping computer owners solve the myriad problems that can plague new and experienced users. "The absolute best reason in the world for someone to join a user group," McGinley says, "is that he has no other place to turn for help when he gets stuck."

Retail software stores may or may not offer help. Software publishers or distributors may provide telephone assistance, but lines are often busy. "When you do get through, you have to try explaining something you don't understand very well to someone who can't see your screen," McGinley says.

"When you need help, when you get stuck in front of a computer, dumbly looking at the thing and you simply don't know what to do next—that's where a user group comes in."

A California user group president concurs. "When I first acquired a computer, I couldn't wait to find a user group," says Jay Trachman, head of the Fresno PC Users Group. "I bought an XT through the mail, and I took it back to the dealer because I thought something was the matter with the machine. When I found out that there was a local user group that could offer help,

it was manna from heaven."

User group assistance is also free from commercial pressures. "Vendors are hard-pressed economically to provide the kind of services that they should," says Lee Levin, president of the Tucson User Group. "Since they are trying to be so competitive, what normally gets left out is service. We offer an opportunity to mix and meet with other people who are knowledgeable and to provide a help line for members to call with questions about specific hardware or software. Basically, we are a resource."

The Connecticut group offers a similar help service. "Our newsletter lists a panel of volunteers available to help members with various problems," says McGinley. "This is probably the greatest benefit anyone can gain from joining a user group. In fact, my argument is that if you own a computer and you don't belong to a club, you are being foolish and wasteful of your time. You can spend hours trying to research a problem when one phone call to a local expert can solve it in ten seconds."

A tougher problem for user groups is how to attract and keep veteran users. Special interest groups (SIGs) often help. SIGs usually meet at times other than the regular meeting and are devoted to one computer topic. There are SIGs for Lotus, advanced DOS, MIDI, and various programming languages. Telecommunications, word processors, databases, and spreadsheets are also popular SIG topics. Veteran members often lead these groups, and many attend SIG meetings to further increase their computer knowledge.

Meeting in Session

User groups frequently follow traditional meeting agendas. Group business and announcements usually come first, often followed by a question-and-answer session. "At our meetings," says McGinley, "we have a Random Access Session for 30 minutes where anyone can stand up and ask a question, offer something to sell, or ask how to hook up some device. Usually we get answers of one sort or another."

In Tucson, a panel of three experts from various fields answers written questions from the audience; then the floor is opened to further questions. After 30 minutes, the group takes a 15-minute break, during which members may visit vendor tables, where other members have items to swap, or they explore the group's disk library.

Practically every group has a library of public domain software. Topeka's collection includes 500 programs. Disks are available in 5¼- or 3½-inch formats and are sold for a dollar, says club president Robert Bowser.

"Recently we had one on a shareware program called *Family History System* that was very popular," Bowser said. "A number of people in our club are interested in genealogy, and it also attracted the interest of two or three people from the local genealogy club."

Many groups are open to the public, although some charge a small fee for nonmembers to attend. Practically all groups charge yearly



Several members of the Tucson Computer Society discuss a software program during a break at a recent meeting. Pictured from left to right are Don Williams, Lee Levin, Fred Mazoyer, and Rice Bullock.

dues. In Topeka, anyone may attend meetings for three months and receive copies of the monthly newsletter before paying dues, which are \$12 per year.

At the Fresno PC Users Group, dues are \$24 per year. "But meetings are open to the public as well as members," says Jay Trachman. "We don't turn anyone away."

The Tucson group sponsors a booth at a local computer show. To attract new members, it offers a free three-month membership to anyone signing up at its booth. Last year it attracted about 100 new members this year, according to Lee Levin. Dues are \$24 per year for individuals and \$30 per year for families.

Something for Everyone

After club business is settled and all the questions have been answered, most meetings have a featured speaker. Software or hardware demonstrations by group members, vendors, or software representatives are popular user group attractions. Industry representatives often donate products to be given as door prizes. The chance to win software, a 40-meg hard card, or even a printer is an inducement for many people to join their local groups.

Newspapers often announce user group meeting times and locations. Electronic bulletin boards—sometimes sponsored by user groups—often contain meeting announcements. Another way to find a user group is to ask at local com-

puter stores. Many stores post flyers announcing user group meetings.

Relations between user groups and computer stores can vary. It is not unusual for stores to offer discounts to user group members. In Tucson, computer dealers offer their facilities to groups for meetings and provide hardware to run the group's electronic bulletin board. "A few other stores refuse to cooperate at all," says Levin.

In Connecticut, McGinley has run into a problem with local computer stores refusing to cooperate with user groups. "The argument is that the club offers free help to computer owners, recommends certain makes of computers, and helps potential buyers find the best prices," he says.

In any group there are bound to be disagreements and controversies, but, by and large, user groups are friendly organizations with much to offer their members. Not all of the benefits are computer-related. "There is a lot of camaraderie in our group," says Trachman. "The PC user group has a wonderful way of cutting across generational lines. Any given night, we have young teenagers and old fogies—and everybody in between. But at the user group meetings, they help each other, they relate to each other as *users*. It is a very beautiful thing to watch. Here is a place where oldsters relate to kids and vice versa, without a lot of the nonsense that separates the generations." □

Boston Computer Society

While most user groups boast a few hundred members, a few supergroups have membership that runs into the thousands. The Boston Computer Society, for example, has almost 32,000 members!

"Until recently we've grown at an exponential rate. Now it is starting to moderate. I think we've got everybody out there who has a personal computer," says David Strickler, leader of the BCS's Digital Rainbow group and VAX group.

A group this size packs a fair amount of clout. Members get discounts at many computer stores, and they also enjoy access to the nationally recognized speakers who address the society. "We often have some very exciting topics," Strickler says. "I've seen everything from Steve Jobs debuting his NeXT machine at the Boston Symphony Hall to Bill Gates introducing the latest versions of [Microsoft] *Quick-BASIC* and *Quick C*."

The monthly general meeting is held in various locations around the city, depending on the size of the expected audience. Special interest groups (SIGs) may meet once or twice a month, but usually at a fixed location. "SIGs range from the IBM PC users group, which tends to have colossal meetings, down to groups which may have only ten people," Strickler says.

The BCS sponsors SIGs for most major computer brands, software groups, and other interests. There is a Lotus group, an *Aldus PageMaker* group, a computer-aided publishing group, one for telecommunications enthusiasts, and one for amateur radio operators. There is even a church and syna-

gogue group, plus one for people interested in construction.

The BCS office, which has a permanent staff of about 15 people, is open from 10:00 a.m. to 5:00 p.m. Staff is kept busy coordinating the BCS calendar and handling the society's tremendous amount of correspondence.

Six times a month, the BCS office holds an open house. During these times members may stop by the facility and use any of the society's approximately 30 computers and take advantage of its extensive software collection. "If you are thinking about buying a piece of software, you can go down to the BCS during open house, pull a copy off the shelf, pop it into a machine, and try it out for the next couple of hours," Strickler says. "It's a great resource for learning about a piece of software or hardware before you make the investment."

BCS members with questions about hardware or software can call any of the group's volunteer experts. Many user groups provide a similar service, albeit on a smaller scale. The BCS has about 700 volunteers. For example, if you have a question about a Digital VAX, call the BCS and it will give you Strickler's name and telephone number. "You basically have free technical support," he says. "That in itself is an amazing resource for [dues of] \$40 a year."

For more information on BCS, write the group at 1 Center Plaza, Boston, Massachusetts 02108, or call (617) 367-8080.

PC PRIMER

HINTS AND TIPS FROM OUR READERS

Here's a hint that I hope will help prevent your readers from encountering problems with their AUTOEXEC.BAT file, the file containing commands to be executed each time you start up your PC.

Most MS-DOS software packages come with an install program to make putting the software on your hard drive easier. What you aren't always told by the program, though, is that sometimes these programs modify, or even replace, your AUTOEXEC.BAT file. This can cause problems with some of your software and can ruin a lot of the hard work you put into configuring your startup file.

Preventing this is easy if you take a simple precaution beforehand. To keep your AUTOEXEC.BAT file from being trashed by install programs, you hide it from those programs by *not* calling it AUTOEXEC.BAT. You'll create a dummy file that will be easy to repair or replace.

Here's how you do it: First, rename your AUTOEXEC.BAT file to START.BAT. Now, create a new AUTOEXEC.BAT file that has only one line in it, START.BAT. Reboot your machine; it should start up just as it did before. The only difference is that you're executing an additional file each time you reboot. You probably won't even notice the tiny amount of extra time spent on startup.

Now, when an install program modifies your AUTOEXEC.BAT file, you can easily copy the new lines into your START.BAT file wherever you want them, and then delete them from AUTOEXEC.BAT. This will allow you, for instance, to make sure that device drivers are loaded before the new commands are executed.

And, if the install program does replace your original AUTOEXEC.BAT file, you only have to replace one line, not the entire file.

John Straub
Ridgefield, CT

More Perfect

Defining and editing blocks of text in *WordPerfect* always seems to take a lot of keystrokes. Here's a couple of tips for speedier editing. After turning on the Block Define function (Alt-F4), press the period key to define text to the end of the sentence. Press the comma key to define text to the next comma. This tip works for any kind of punctuation. If you want to define an entire paragraph, press the Return key after turning on the Block Define function.

Sterling Clay
Pinellas Park, FL

XCOPY to the Rescue

After doing some of my work at home, I often need to take my files to the office on a floppy disk. Sometimes I need to bring an entire directory with me. It can be a hassle to copy the directory if it contains more data than

**SAFER
BATCH
FILES
AND MULTIDISK
COPIES**

will fit on a floppy disk. Using COPY *.* eventually results in a *disk full* error; then I have to figure out a way to copy the remaining files. I usually resort to using *Xtree*, but sometimes I don't have this program available on the PC I'm using. I've found an easy solution to this problem. All you'll

need is DOS 3.2 or greater.

The XCOPY command is far more powerful than COPY because it has a number of command line switches that cause it to perform copies in different ways. These are all documented in your MS-DOS manual—I'm only mentioning one of eight handy switches here.

First, make sure that you're in the subdirectory that you want to copy. You'll get started with ATTRIB, another DOS command that sets the archive bits of each file. That's a complicated way of saying that it sets a flag so that DOS knows which files it has already copied, if you use the correct XCOPY switch when copying. Type ATTRIB +A *.* to set the flags.

Now, if you're copying to drive A, type XCOPY /M A:. Files will be copied until your disk runs out of space and gives you a *disk full* message. At this point, all you have to do is insert another disk, retype the previous command (or hit F3 and then Return), and wait for it to finish copying or tell you that that disk is full again. You may need several floppies if the subdirectory is pretty full.

If you've forgotten to format enough disks, it's OK. You can stop the copy process anytime and format more. The archive bits of the uncopied files are still set, so the system remembers where it left off.

You could create a batch file that does the work for you if you anticipate going through this process often. And if you specified the full paths, you could be in any directory and perform these operations. You could create a batch file in the root directory that copies multiple subdirectories.

Richard C. Leinecker
Reidsville, NC

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

A SYSTEM SIMULATION FROM MAXIS

BUILD ROME IN A DAY DESTROY IT IN AN HOUR!



IBM EGA screen



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

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

Satisfied SimCity players say it best...

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

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



The City Simulator

DESIGN AND BUILD THE CITY OF YOUR DREAMS.

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

OR TURN CITY LIFE INTO A NIGHTMARE.

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

SIMCITY TAKES ON A LIFE OF ITS OWN.

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

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

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



Distributed by Brøderbund

Available for: IBM & Compatibles, Tandy, Macintosh, Amiga and Commodore 64/128.

Maxis Software
1042 Country Club Drive, Suite C, Moraga, CA 94556
(415) 376-6434, FAX (415) 376-1823

Circle Reader Service Number 158

See Our Rave Reviews in:

- NEWSWEEK - May 29
- NEW YORK TIMES - June 15
- COMPUTE! - August
- COMPUTER SHOPPER - July
- BUSINESS WEEK - August 21
- INFOWORLD - May 15
- WHOLE EARTH REVIEW - Summer 1989



ENTERTAINIA

Mark Wagener



STATISTICS AND ACTION TEAM UP FOR A WINNING COMBINATION IN HARDBALL II

COMPUTE! CHOICE

MICKEY McLEAN

Game designers have been striving to create the perfect baseball simulation for years, starting with *Major League Baseball* for the Mattel Intellivision in the early 1980s. Early releases were either arcade games or statistically based simulations. Lately, software companies have tried merging the two formats with varying degrees of success. The most recent attempt, Accolade's *Hardball II*, is the best yet.

The game's predecessor, *Hardball!*, has sold over 500,000 copies since its release. Other publishers have come up with games that have surpassed it in terms of features but

not playability. With *Hardball II*, Accolade has tapped a need for a well-playing baseball simulation that successfully mixes arcade action and statistical performance while also allowing for general-manager and field-manager duties.

Hardball! required you to pitch, field, throw out runners, bat, run the bases, and steal bases. You were a participant, not just an observer. In other games, such as Electronic Arts' *Earl Weaver Baseball*, the computer handles most of the fielding, using statistics from actual major league teams to decide the outcome. The original *Hardball!* used two fictional teams with varying player statistics that influenced the play on the field but were never updated according to game performance.

Accolade's new release addresses this problem, but there's a catch. *Hardball II* retains all of the on-the-field action of *Hardball!* as well as a similar interface, but in order to face the best the big leagues have to offer, you have to build the teams yourself. The game's team editor permits you to create any team, from the World Champion Oakland Athletics to your company's softball team. You're limited only by disk space, but the process of creating a large number of teams requires a great deal of data entry.

For each player, you must enter statistics such as hits, runs batted in, errors, as well as wins, losses, strikeouts, and walks for pitchers. Physical attributes, such as whether the player is a right- or left-handed batter and whether or not he's a fast runner, must also be entered. The pitchers on

MINIMIT

each team's staff must be designated as either right-handers or southpaws. Their degree of control and endurance must also be included.

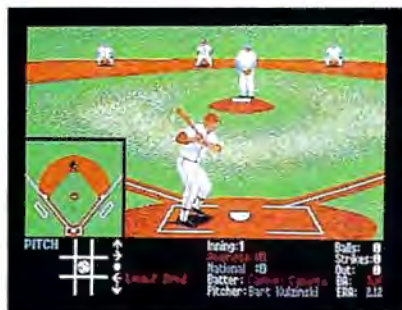
If you don't want to bother with creating your own teams, Accolade has included eight make-believe teams to choose from, including six from cities that have real major league teams. There are also two other teams, with exaggerated abilities, to help you practice.

Almost all other baseball games on the market feature major league teams, either included with the program or available separately on data disks. Peter Doctorow, vice president of product development for Accolade, offers several reasons why the Rickey Hendersons and Don Mattinglys of the baseball world were left out of *Hardball II*.

"We couldn't come to a consensus on who to include," Doctorow says. "We also like to differentiate our products from those of other companies.

"We believe the user would like the opportunity to enter his own teams. This way, he doesn't have to buy any extra disks," Doctorow adds.

Another explanation as to why major leaguers were omitted is that Major League Baseball charges a license fee, which would have added to the development cost of the software.



Choose from four different views, including from behind the batter.



One solution, should *Hardball II* become popular, is that teams created by other users may be made available for downloading through bulletin boards from around the country.

Hardball II offers many enhancements over the original *Hardball*!. The earlier game offered only one view, from behind the pitcher, which sometimes made it difficult for hitters to time their swings. The new version features a choice of four views. If you liked the original version, you can choose that view, or you can view the action from behind the batter, or from overhead. When playing against the computer, you can choose to automatically see the play from behind the batter while at the plate and from behind the pitcher when on the mound.

Statistics not only change from game to game, but are updated after every play, influencing the action on the field. If a player has a large home-run total, he's more likely to hit one out of the park than a singles hitter batting .213. The only missing option is a box score after each game—the only available stats are cumulative.

A nice touch is the addition of six major league stadiums, including Fenway Park, Yankee Stadium, Wrigley Field, Candlestick Park, Royals Stadium, and Toronto's brand-spanking-new SkyDome (minus the retractable roof—it never rains inside a PC). Accolade went to a lot of trouble to make each ballpark and its surroundings

look accurate. Fenway Park not only has the Green Monster in left field, but also the Citgo sign in the background. You can almost see the fans on the rooftops behind the right-field bleachers in Wrigley Field.

The stadiums not only look like the real thing, they play like them, too. Long fly balls that would be homers in other parks are easy outs when hit to Yankee Stadium's vast center field. You'll feel just like Carl Yastremski when you have to play a carom off the Green Monster. Your fielders need to be quick on their feet to chase down grounders racing across the artificial turf in Toronto and Kansas City. The only thing missing is the swirling wind of Wrigley and Candlestick.

In addition to the major league parks, Accolade offers the *Hardball II* Stadium with the deepest center field of them all.

Doctorow hints that more stadiums may be available soon on data disks, including some extinct ballparks such as Brooklyn's Ebbets Field.

The biggest addition to *Hardball II* is league play. You can still boot up and play a single game, but you also have the option to set up your own league using Accolade's or your own teams. If you want to start from

scratch, you can place all players in a pool and stage a draft for all teams involved. Trading between teams is also possible. Seasons can range from 1 to 99 games, with the program tracking the standings throughout. The only drawback is that all games must be played out, including ones not involving your team.

One complaint from players of the original game was the inability to pick off runners or force them into a rundown. They also couldn't retreat back to bases while running the bases. The new version adds these features and more.

Other improvements in this one- or two-player game include pull-down menus that guide you easily through all options and the ability to save up to five games. As with most games released today, *Hardball II* has off-disk copy protection in the form of a code wheel.

One thing *Hardball II* is not short of is options. If you're a baseball purist and believe pitchers should bat for themselves, then toggle off the designated-hitter option. You can also choose whether or not to display each player's input and whether player statistics and attributes affect the game.

If you make an incredible catch in the outfield or blast a homer into the streets behind Wrigley, you can see it all again with the Instant Replay feature. The replay's VCR-type controls allow you to view the play in slow motion, or, if you really want to gloat, you can advance the replay frame by frame. You can also fast-forward through the replay, pause it, or repeat it.

When your team is on the field, you can perform all the tasks of a real manager except fining your players. Reposition your infielders and outfielders, change your batting order, and make substitutions. One problem, however: You can't pinch-hit for your pitcher with any player other than another pitcher. The only way to bring a big hitter off your bench to hit in the pitcher's spot is to perform a double switch, which forces you to remove another player from the lineup.

In league action, you don't have to set up a pitching rotation because your pitchers only get tired during games. Their strength is replenished for your next outing. Requiring pitchers to rest several days would have made league play much more interesting.

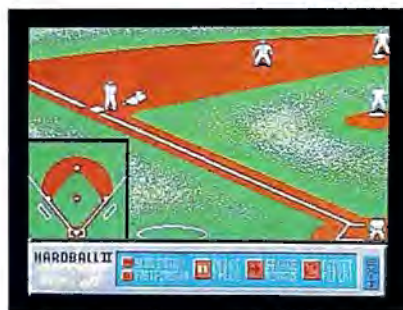
Your pitchers have access to five different pitches that can be thrown to nine spots around the plate. How well

they pitch depends on their attributes and stats. As manager, you can also warm up relievers in the bullpen and call for intentional walks.

At the plate, you can swing for the fences, take a normal cut, bunt, put the ball on the ground, or hit a sacrifice fly. You can also select which area of the strike zone to swing in.

While the stadiums are some of the most realistic around, the fans there might be disappointed if they're hoping to catch a foul ball. I have yet to see a foul ball or even a pop-up hit. Every swing has produced a ground ball, fly ball in play, or a swing and a miss. Accolade technicians say that fouls and pop-ups do exist but are very rare. Actual batters frequently foul off pitches; if that had been reflected in this game, it would have made it more realistic.

Fielding isn't as difficult as in some other baseball games. After a few games, you'll get the feel for where the ball is headed. The computer automatically selects the player closest to the ball. It's up to you to move him to the ball, catch it, and throw it to the



You can review controversial or outstanding plays with Instant Replay.

appropriate base. The keyboard controls for the game are fairly easy to use.

Hardball II's graphics are excellent, with large players and detailed stadiums. However, on most real baseball teams, players come in all shapes, colors, and sizes, but in *Hardball II* all the players look alike.

"We have put a lot of animation into the game," Doctorow says. "Each cell of animation takes space. If we change team colors, a player's build, race, or hair, it means more animation and more disk storage space."

The animation that is present is excellent, with players sliding head-first and making leaping catches, and left- and right-handed pitchers smoothly delivering the ball to the plate.

The game's sound leaves a lot to be desired, even with sound-board

support. The only realistic sound from an Ad Lib sound board is the organ, which plays Charge! and the national anthems (both Canadian and American). The crack of the bat sounds like a twig breaking underfoot, and the crowd may not do the wave,



Pull-down menus make it easy to choose options and manage your team.

but their cheering sounds like one crashing on shore. The only other notable sound is the music that introduces the game. Both sound and music can be toggled on and off.

Accolade's explanation for not fully exploiting sound boards and not supporting VGA graphics is that there's a low percentage of computer sports gamers who have such equipment. Doctorow says that most of the games currently in development at Accolade will support VGA.

Although *Hardball II* does not have all the features of other baseball simulations, it does have the best mix of arcade action and simulation currently available.

"We believe when you are playing a sports game, the major concern is playability," Doctorow says. "We spend a tremendous amount of time to make sure the playability is the best it can be."

If the action between the white lines is what's important to you, then *Hardball II* can provide you with everything but dirt on your uniform. If you also desire to be in control of a team, then Accolade can make a small-time Steinbrenner out of you as well. This is one baseball game that's headed for The Show.

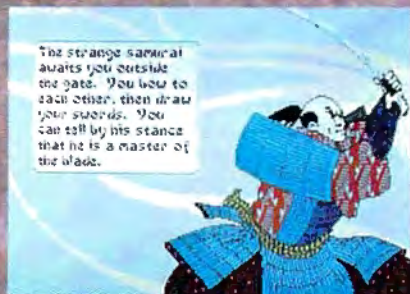
Hardball II

Amiga—\$44.95
IBM PC and compatibles with 512K and CGA, EGA, or Hercules; 640K required for Tandy 16-color; supports Ad Lib and Tandy sound devices; joystick optional—\$39.95; 3½-inch disk available for an additional \$5.00

ACCOLADE
550 S. Winchester Blvd.
Suite 200
San Jose, CA 95128
(408) 296-8400

Sam's trying to keep his head. Literally. But in *Sword of the Samurai*, he's up to his neck in trouble.

As an ambitious young Samurai, you struggle to move up the military and social ladder in 16th Century Japan. Defending your honor is crucial



to achieving your ultimate goal: to become Shogun, ruler of the realm! But every step of the way, you'll be opposed by ambitious enemy Samurai, each of whom employs a different scheme to deceive and destroy you.

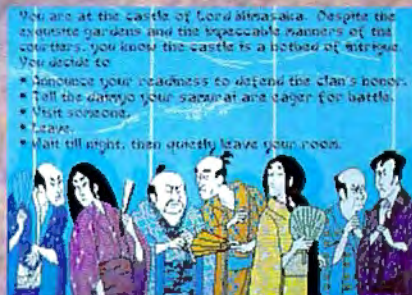
To survive, you'll need your wits as well as your weapons. You must outsmart clever political rivals who smile to your face, then work behind your back to blacken your reputation, kidnap your family or raise armies against you.

After class, Sam Bushnell will duel with a Ninja, defend his honor, become Shogun and rule feudal Japan.

Just for fun.

The action is fast and furious as you take on multiple warriors in darkened castles and remote villages. You'll also defend your honor one-on-one, using authentic Samurai swordplay against skilled opponents.

Sword of the Samurai has starting options for new players and four skill levels. A unique



system of menus and text windows will guide you in travel and bring each adventure to life. There's even a detailed political map to show you different provinces, each ruled by its own warlord.

All with authentic Japanese graphics and music, the smoothest animation, as well as the quick thinking and heart-racing action you've come to expect from MicroProse.

Remember, in *Sword of the Samurai*, there's more than your life at stake. There's your honor. So draw your sword and sharpen your wits!

Just for fun.



Can't find SWORD OF THE SAMURAI? Call (301) 771-1151 x200, weekdays 8:30 am to 5:30 pm Eastern Time and order by MC/Visa/AmEx or mail check/money order for \$54.95 (specify disk size). Free shipping in U.S. \$5.00 international. U.S. funds only. MD residents add 5% sales tax. MicroProse Software, Inc., 180 Lakeshore drive, Hunt Valley, MD 21030. For IBM-PC/XT/AT/PS2/Tandy/Compatibles. Requires 384K RAM. Supports MCGA/VGA, EGA, CGA and Hercules graphics.

MICRO PROSE
Just For Fun.

GAMEPLAY

O R S O N S C O T T C A R D

Some software publishers are playing their own little games—and they aren't plugged into a Game Boy, either. One publisher recently held a telephone press conference to announce a new line of fantasy role-playing games. The company's advance work was pretty intense: a videotape with a few screen shots (which looked good), and a lot of really tacky "mood" stuff that was only a little bit worse than those hokey Time-Life ads for its *Mysteries of the Unknown* series.

The videotape seemed to be promoting fantasy role-playing games *in general*, kind of like the "drink milk" and "eat beef" campaigns. There was almost nothing explaining why this company's games were particularly good or new.

It's as if we were all supposed to slap our foreheads and say, "Fantasy role-playing games *on the computer!* What a great idea!"

My speculation is that such head-slapping is exactly what happened at corporate headquarters. "Look at those Sierra people and the guys at Lord British, raking in all that dough. Why aren't we getting any of that?"

After viewing the video, I knew I had to call the company's phone-in show. I figured that anybody who would spend so much money producing something so embarrassingly bad had to be either phenomenally dumb, in which case the conference would be funny, or phenomenally arrogant, in which case it would be fun to write about it.

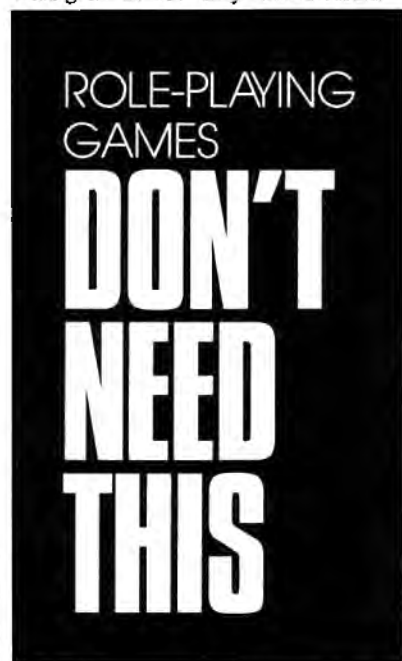
Naturally, the company wasn't paying for the call, which I suppose was all right for the guys on a magazine expense account, but I was spending my own dimes for the privilege of waiting on hold for a half-hour. High-tech delays are like airports—you sit around a long time waiting for the chance to move really fast.

Before the audience got to the question-asking part, we listened to a

presentation from the developers that was hilariously self-revealing about the way they think. They didn't start out telling us about the game. Instead they told us about how they were going to kill the competition. Most of their time was spent presenting information about how popular role-playing games are and therefore why it's a sound business decision to publish them.

Think about this: They were talking to people who write about computer games for a living, and they're announcing to *us* that it's a good idea to produce computer versions of fantasy role-playing games!

In fact, what we were hearing was not a presentation on why their games were great or how they differed from



the other games in the category—they mentioned the company's games almost as an afterthought. It seemed that what we were hearing was the presentation to persuade the company's brass to invest in this project.

I kept waiting to hear that, because the company was coming late to this genre, it had used its outside perspective to completely rethink the

whole human/computer interface, and thus had produced games that captured the spirit of role-playing games instead of imitating the tedious details. I waited for a whole hour.

Predictably enough, all—both?—of the company's innovations were in the techno-nerd area, the stuff that comes out when programmers say, "Hey, look what *I* can do!" Features such as alternating day and night have nothing to do with what makes a game great; they only have to do with what makes a game slick.

One of the reporters was an editor for a role-playing-game magazine—not a computer person at all. She pointed out that most of the fun in real-life role-playing games was the give-and-take. Players in a live game come up with completely off-the-wall, wonderful, creative ideas, and the live game master has to respond to them and improvise his brains out. Can your game deal with that sort of thing, she asked?

Actually, no, said the spokesman. There's no room for improvisation. Not only are we doing the same old thing, he seemed to be saying, but that's all that *anybody* can do.

I think he's wrong. I think an open-ended story game is possible. But that would be a real revolution in computer gaming. And we'll never get that from people whose idea of how to announce a new game is to tell us that their company is so big and cool that just by entering a category they'll dominate it.

By the way, even a bad review is a good review—name recognition is everything. That's why in this column I have carefully avoided mentioning either the company or the games themselves by name. I wouldn't want to be responsible for y'all standing there in Babbage's, scratching your head, saying, "I *heard* about this game. Can't remember what was said, but I know I've heard of it. I'll give it a try." It'll be easy enough to figure out which games I'm talking about—but only if you remember what I've actually said. My conscience is clear. □

ACTUAL 256 COLOR
VGA SCREENS

CRIME *wave*



A powerful crime syndicate has taken over large areas of our major cities turning them into vast criminal wastelands.

Arson, extortion, drug distribution, murder and now...terrorist abduction! You have just learned that they have taken the U.S. President's daughter and are holding her and our country hostage.

YOU'VE HAD A GUT-FULL! . . . YOUR PURPOSE: To wipe out this criminal organization and rescue the president's daughter. Even with the most sophisticated Assault Technology available, it won't be easy. You are the only one that can save the country from this sinister infestation . . .

Bring arcade action home like never before!

Crime Wave, with *Real Sound™* and 256 color digitized VGA graphics, puts you on the streets for real!

Real Sound™

ACCESS
SOFTWARE INCORPORATED

545 WEST 500 SOUTH, BOUNTIFUL, UTAH 84010
(801) 298-9077 1-800-824-2549

GAMES BY WIRE



MODEM PLAY AND ONLINE ENTERTAINMENT SPARK NEW FIRE FOR PC GAMERS

MICKEY McLEAN

After failing to ignite the market in the early days of computing, modem games are finally catching fire. It's a small fire at the moment, but it's growing. The first game designed specifically for modems, *Dan Bunten's Modem Wars*, matches two opponents, either human or computer, in a strategic game of phone-line war between either a Commodore 64 or an IBM PC or compatible. Although Electronic Arts released and marketed the game, designer Bunten said it has been difficult to convince publishers of the value of modem play.

"So far it has been a real struggle," says Bunten, currently at work on a modem game for MicroProse, tentatively titled *War Room*. "Publishers are used to distributing just disks, manuals, and boxes."

"We had three hurdles," says David Dempsey, an EA marketing representative, when explaining the obstacles that publishers face in selling modem-specific entertainment. "One: People have to have modems. Two: You've got to have a network of people to play. And three: You're spending extra money and time." Although hesitant to release another modem-specific game, EA intends to include modem play as a feature on future releases.

Modem-specific games and online entertainment remain in limbo between software publishers and telecommunications services, but there's hope that they may yet capture a significant share of the computer entertainment market—provided, of course, that they get the backing they need.▶

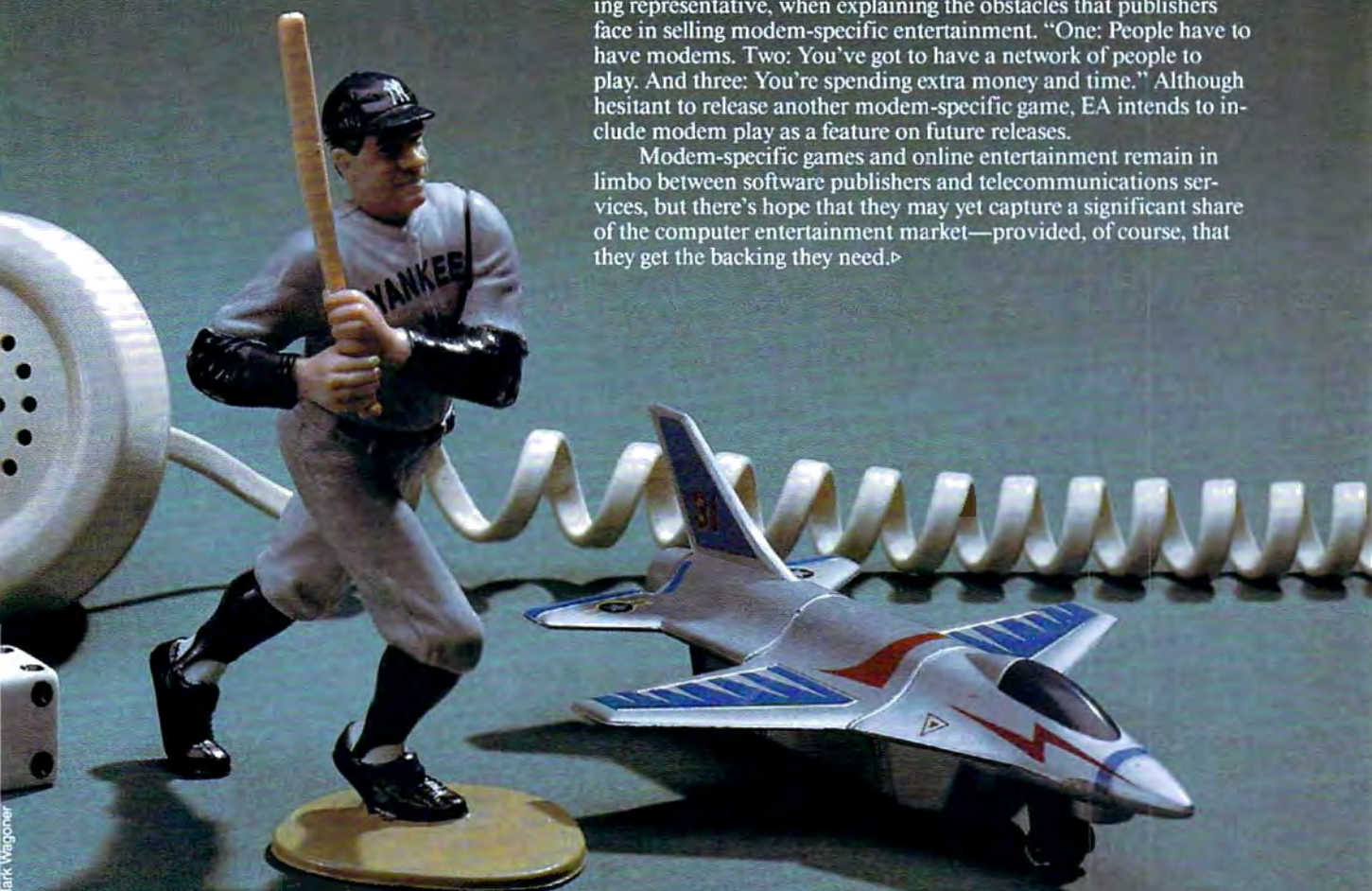


Photo © 1990 Mark Wagener



When you play chess on USA TODAY Sports Center's board, your opponent can be around the corner or in another state.

Bunten says that although the software publishers have the ability to produce topnotch products, they are unfamiliar with the market environment modem play offers. The market needs support from publishers and/or online services to reach its potential.

"It's ongoing involvement," he says. "Publishers sell their software only once. It's not a longtime sustaining service, and networks offer that possibility. But, someone is going to have to start from scratch, bite the bullet, and do a world-class product.

"I personally believe there is no way this won't succeed," he says. "There is a critical mass of modems out there and a voting populace that's saying, 'We want these types of products.'"

The success of modem games will depend on who steps forward to claim the market. Online services should be commended for providing games, but so far those games lack quality graphics. According to Bunten, services have been buying mostly public domain programs and don't want to spend a lot of money for top-quality games.

Early Efforts

Other notable attempts at establishing new frontiers in telecommunications entertainment include Lucasfilm Games and Quantum Computer Services' *Habitat*, which was a complete online multiplayer environment. It was beta-tested on QuantumLink in 1987 and 1988 and has since evolved into Club Caribe, a simulated vacation resort on Q-Link for Commodore 64 and 128 users. Subscribers create an animated character and interact with others online at the Club's bar, game rooms, and beach.

In 1987, MicroIllusions began marketing its One-to-One line of software products. The games have options that let you play against the computer, against another opponent in the same room, or against an opponent connected by modem. Games include *Turbo*, a racing shoot 'em up; *Fire Power*, an arcade-style tank battle; and *Galactic Invasion*, a space war between galaxies.

Standard Feature

MicroIllusions is not the only company offering modem competition. Spectrum HoloByte offers flying over phone lines for its *Falcon* flight simulator.

The sports world has not been forgotten, either, when it comes to modem play. MicroSearch's *Professional Football Simulation* is set up so that two Amiga users on separate machines can play head-to-head—they can even chat.

If you're into power playing, good and evil gods can battle it out from their own domain with *Populous* from Electronic Arts, which is available for the Amiga, Atari ST, and now IBM PCs and compatibles.

Origin's futuristic tank design and battle game *Omega* allows tank designs to be transferred by modem, even through Origin's own Origin Line Bulletin Board.

MicroProse's *War Room* can be played as a stand-alone game or against another opponent via modem. The game will include the ability to converse, joke, or insult your opponent by typing in a message. Initially the game will be available for the IBM PC and compatibles and will later be released for the Amiga and the Atari ST.

Wanted: Falcon Flyer

To make it easier for you to find opponents to play modem games, bulletin board services have begun to offer special interest groups for many of the games mentioned above. Besides lists of potential opponents, these groups can provide many useful hints and tips.

CompuServe, an online service, offers the Challenge Board for modem-to-modem players. There is a separate Challenge Board for each specific modem-to-modem game. If you are a *Falcon* player, for example, you can search the Board's database for a potential opponent within your local calling area. You can also add your name to the register so that other players can invite you to play.

Caller at 12 o'Clock High

Online services aren't restricted to maintaining bulletin boards for modem game players. The most talked about online game is GENIE's *Air Warrior*, which GENIE subscribers can play on Amiga, Macintosh, or Atari ST computers. A PC version of the game requiring CGA or EGA is in beta test on the network.

The game places you in the cockpit of either a World War I- or II-vintage plane. Download the game's software and manual to your PC at no charge (other than the standard online time charges). Practice your maneuvering and gunning offline, saving connect charges. Then, log on and do battle with other subscribers. You fly as part of one of three teams in the battle. The goal is to shoot down as many enemy planes as possible before they get to you.

Not only do you get to shoot at your computer colleagues from around the country with *Air Warrior*, you can also chat with them via your plane's "radio." GENIE is also in the process of adding ground support vehicles and planes

You've bridged mighty rivers and tunneled majestic mountains. Now you're at the throttle of an \$850 million Railroad Empire. With your next move, it could all go up in smoke.



Play the longshot. Exercise shrewd business savvy as you maintain a delicate balance between revenue-building passenger lines and empire-building freight lines.

You're at the helm of your own powerful *Railroad Empire*, having magnified modest capital



into a burgeoning enterprise. Strategically manage your resources to maximize your expansion across rivers, through mountains and over gorges. The ability to design and execute your master plan within a single year is your vital link to success. But remember, every action you take could make you or break you.

Discover the ultimate PC challenge of *Railroad Empire*.

The game includes maps and tools to build your own Transcontinental Railroad or Orient Express.

Railroad Empire.

All it takes is all you've got.

ARTDINK

Requires IBM PC or compatible with CGA or EGA, 384K RAM and DOS 2.11 or higher. Exclusively distributed by Setka Corporation, 20000 Mariner Avenue, Suite 100, Torrance, CA 90503. Phone: 1 (800) 462-5040. © 1989 ARTDINK. IBM is a registered trademark of International Business Machines Corporation.



Fly against top aces from across the nation in GENIE's *Air Warrior*.

such as bombers that allow more than one person to man the controls.

"We have up to 40+ people playing at a peak time," says Neil Harris of GENIE, which had over 177,000 subscribers in the U.S., Canada, and Japan by the end of last November and which has been adding between 4000 and 5000 subscribers a month since then.

"In the last year, [online entertainment] has been the single biggest growth area on the service," says Harris. "We measure success by online time, and fantasy and simulations have been the most popular areas. We have big plans for next year." GENIE will double its number of multiplayer titles and will no longer offer single-player games.

Harris is convinced that multiplayer games are better played on services such as GENIE rather than as stand-alones. "Multiplayer games work better online," he says. "You save time playing online compared to stand-alones. *Colonial Conquest* was a good six-player (stand-alone) game, but it takes a long time to play."

In addition to *Air Warrior*, GENIE currently offers several other multiplayer games, some with graphics and others that are text-based.

CompuServe, Prodigy, and the USA TODAY Sports Center also offer online games. Two of CompuServe's most popular games are the space battles *Mega Wars I* and *Mega Wars III*. Its newest multiplayer game is *Sniper!*, which is based on TSR's fantasy game of the same name.

Currently on Prodigy, you can play Broderbund's *Carmen Sandiego*, a Dungeons & Dragons-style maze game called *Mad Maze*, and *CEO*, a business simulation.

The USA TODAY Sports Center offers board and card games such as go, reversi, poker, blackjack, and chess. In the chess section of the service, you can challenge some of the game's grand masters or monitor them in action against each other or against Carnegie Mellon University's super chess-playing computer, Deep Thought.

Online Performance

One advantage of playing on an online service is

that people using different computer platforms can play one another. But does the type of hardware you possess affect how well games such as *Air Warrior* perform?

"The horsepower of your computer determines how many frames per second you see on the screen," GENIE's Harris says. "With the Amiga, the game can look just like a movie."

As for sound, games such as *Air Warrior* do not currently support IBM PC-compatible sound boards, but digitized sound effects can be downloaded if you're playing on an Amiga, an Atari ST, or a Macintosh.

Air Warrior has been optimized for 1200-baud modems. There is no noticeable improvement playing the game with a 2400-baud modem. And GENIE has apparently solved the line-noise problems that plagued earlier online games. "We're generally not seeing any line noise," Harris says. "We have also seen no difference in phone-line carriers."

Shooting Holes in Your Wallet

Despite their many advantages, online games can cost big money. Some *Air Warriors* have been known to run up bills totaling close to \$1,000 a month. Unless you have money to burn, you will either need to control your addiction to the game or try a service that charges a flat monthly rate or that allows you to play offline.

GENIE, which charges your account to a credit card, currently bills you by the minute, but it's looking at ways to help some of its subscribers control their online budget. "We may one day offer a flat fee," Harris says, "but not with our games' portion of the service."

If you are worried about keeping your children from running up astronomical VISA bills while trying to become the next flying ace, you can't lock them off from the service. Parents can control the online bill, however, by not giving their children the password. That way, kids can play only when a parent logs on for them. Setting a timer would be a good idea as well; it's hard to keep your eye on the clock when your enemy is flying up your tailpipe.

Prodigy, one of the newest online services, charges a flat monthly fee of \$9.95 and has local calling access in many major cities around the country. It offers services such as news, banking, and airline reservations in addition to graphically based games. Although the company says it will be adding some entertainment sections to its network, it's unwilling to elaborate.

Another new kid on the telecommunications block, and one who's trying to keep a lid on prices, is the Computer Sports Network, which specializes in sports games that you play offline. For IBM PCs and compatibles, CSN offers *Tournament Golf*, which requires Accolade's *Mean 18* golf simulation. To play in a tournament, you must download the weekly course and play each round offline. Once you've holed out on 18, you upload the results. Tom Brown, marketing director of CSN, says that if a player competes in all four tournaments held in any month, the month-

GET WITH THE PROGRAM!



Did you ever find yourself sitting in front of your television set shouting out the answers to the questions on your favorite TV game show?

You answer first but nobody hears you. Or so you thought.

GameTek was listening! And now, you can be part of the action ...practically right in the studio! GameTek has captured all of the excitement of the original programs on computer software. Each program was designed in full cooperation with the producers of each show to ensure that every game is packed with all the thrills and suspense of the original program!

Tune in to GameTek software, and get with the program!

GameTek™

2999 NE 191st Street • North Miami Beach • Florida 33180 • (305) 935-3995 • Fax (305) 932-8651

©1990 GameTek/IJE, Inc. GameTek is a Trademark of IJE, Inc. All rights reserved. WHEEL OF FORTUNE FAMILY EDITION is based on the television program produced by Merv Griffin Enterprises, a Unit of Columbia Pictures Entertainment, Inc. ©1990 Calton Productions, Inc. All Rights Reserved. JEOPARDY! 25th ANNIVERSARY EDITION is based on the television program produced by Merv Griffin Enterprises, a Unit of Columbia Pictures Entertainment, Inc. ©1990 Jeopardy Productions, Inc. All Rights Reserved. Nintendo and Nintendo Entertainment System are trademarks of Nintendo of America Inc. Hollywood Squares™ ©1986, 1988 Century Towers Productions. All rights reserved. Super Password™ ©1988 The Password Co. All rights reserved. The Price is Right™ ©1988 Price Productions Inc. All rights reserved. Press Your Luck™ ©1988 The William Carruthers Company. All rights reserved.

Circle Reader Service Number 135

ly bill shouldn't exceed \$20.

CSN's latest project is *General Manager Baseball*, which incorporates Random House's *APBA Major League Players Baseball*. Like *Tournament Golf*, the actual gameplay takes place offline, but because of the length of the season (a full 162 games), it will cost more to play. To help keep your costs down, CSN has put a ceiling on its online charges. Your time downloading necessary game and opponent team files will be billed at a maximum of \$40 a month.

CSN hopes to add a football game in time for the 1990 season and to improve its existing lineup. The company is currently negotiating with Accolade for upgrades to *Mean 18*.

Game Machines, Too

Online services and personal computers haven't cornered the market for modem play. Manufacturers of dedicated game machines like the Nintendo Entertainment System (NES) and Sega's Genesis also plan to enter the marketplace.

The Japanese version of Nintendo, called Famicom, already has modem capability. In the United States, Nintendo of America is laying the groundwork for an NES network. The Nintendo Control Deck will act as the CPU, while a modem and proprietary software will provide access to services such as stock purchasing and trading, home banking, and multiplayer entertainment for players from around the country.

More than 20 million U.S. households own an NES, according to Nintendo. This year, the company hopes to give all those customers access to the NES Network.

Nintendo has also approached GENie about the possibility of NES owners logging on to their online service, with less-than-positive results.

"They have taken a good hard look and are now pessimistic about going online," says GENie's Harris. "I don't think it will happen anytime soon."

One problem NES owners face is trying to compete with PC users at games such as *Air Warrior*. "You've got to have the horsepower to play well, and the Nintendo doesn't have it," Harris says.

Sega's planned TeleGenesis network allows players to compete against one another on their Genesis game machines, which will be linked by a specially designed TeleGenesis modem. The first game to be supported by the telecommunications system is *TeleGenesis Baseball*, which offers different perspectives of the baseball diamond for each player.

Calling into the Future

What is but a spark now may yet burst into a brush fire, but it remains to be seen if modem play can grab the attention of computer gamers and, from there, a large share of the computer entertainment market.

"People three years ago didn't know what a modem could do," says Robert Gehorsam, manager of editorial product development for Prodigy. "[The modem game market] should go through extreme rapid growth in the next few years, like software did in the early eighties. I predict double-digit growth in the next five years."

Whether or not other online services or software developers agree, one fact seems certain. The lure of multiplayer, simultaneous action among computer fans may be enough to fan the small spark of current modem games into a full-scale brush fire, one that would change the face of computer entertainment. "Once you have had the experience of playing online," says Harris, "you don't want to play stand-alone games again." □

Mickey McLean is an editorial assistant at COMPUTE! Publications and a charter member of the USA TODAY Sports Center online sports/entertainment network.

GET IN TOUCH

For more information about the products and services mentioned in this article, contact the companies listed here.

CompuServe
P.O. Box 20212
Columbus, OH 43220
(800) 848-8199
(617) 457-0802

Computer Sports Network
2900 Wilcrest
Suite 400
Houston, TX 77042
(800) 727-4636

Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
(415) 571-7171

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

Microllusions
P.O. Box 3475
Granada Hills, CA 91344
(818) 360-3715

MicroProse
180 Lakefront Dr.
Hunt Valley, MD 21030
(301) 771-1151

MicroSearch
9896 Southwest Frwy.
Houston, TX 77074
(713) 988-2818

Nintendo of America
4820 150th Ave. NE
Redmond, WA 98052-5111
(206) 882-2040

Origin
136-B Harvey Rd.
Londonderry, NH 03053
(603) 644-3360

Prodigy Services
445 Hamilton Ave.
White Plains, NY 10601
(800) 822-6922, ext. 591

QuantumLink
8620 Westwood Center Dr.
Vienna, VA 22180
(800) 392-8200
(703) 883-0788

Sega of America
P.O. Box 2167
S. San Francisco, CA 94080
(415) 742-9300

Spectrum HoloByte
2061 Challenger Dr.
Alameda, CA 94501
(415) 522-3584

USA TODAY Sports Center
Four Seasons Executive Center
Bldg. 9 Terrace Way
Greensboro, NC 27403
(800) 826-9688

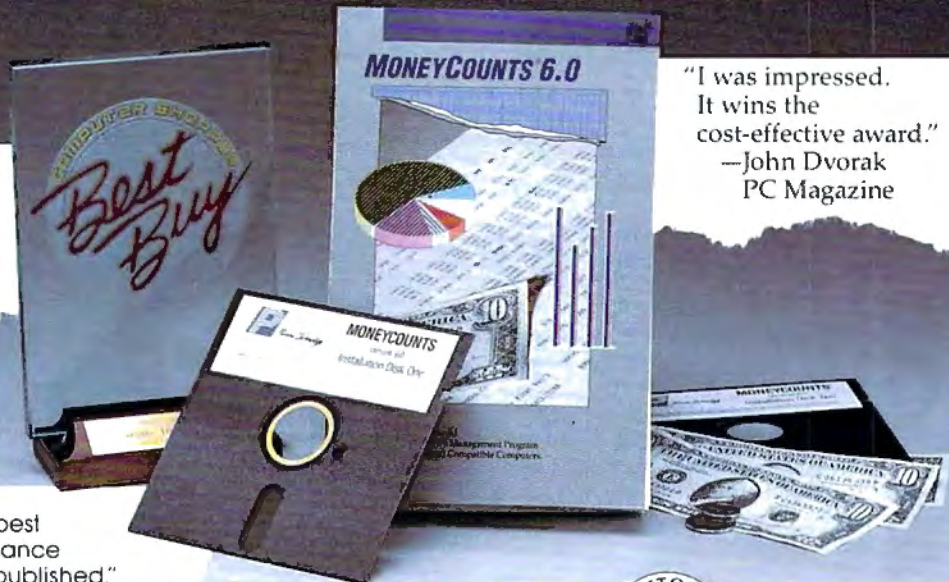


ANNOUNCING THE NEW \$35 MONEYCOUNTS SOLUTION...

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

"One of the best personal finance managers published."
—PC Computing Magazine

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



GUARANTEED.

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

—Leonard Hyre, PCM Magazine



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

- Manages your cash, checking, savings & credit cards.
- Prepares your budget and compares it against your actual results.
- Quickly balances your checkbook.
- Prints eight types of financial statements (including net worth) and six types of inquiry reports.
- Prints general ledger and accountant's trial balance.
- Lets you optionally save any report to disk or display it on screen. *You can even export directly to Lotus 1-2-3*, or Quattro.**
- Prints any type of pin feed (or laser) check.
- Handles up to 999 accounts and 100,000 transactions a year.
- Estimates your personal income tax.
- Links directly with the *PERSONAL TAX PREPARER* software.
- Analyzes financing options & savings programs — computes interest rates & loan payments — prints amortization and accumulation schedules.
- Manages mail lists — prints labels and index cards.
- Displays and prints three dimensional graphics (both pie charts and bar charts).
- Provides password protection, fiscal year support, pop-up notepad, pop-up calculator, DOS shell, automatically backs up your data files and much more.

Hard to believe the low price? Don't worry! There's no catch. *If you're not 100% satisfied, return MONEYCOUNTS within 30 days for a full refund (excluding shipping).*

Over 120,000 users have decided in favor of MONEYCOUNTS! Order today and see for yourself!

For Same Day Shipping

VISA, MASTERCARD & C.O.D. ORDERS CALL

1-800-223-6925

(In Canada call 319-395-7300.)
Mon. - Fri. 8:30 a.m. to 9:00 p.m.,
Sat. 9:00 a.m. to 5:00 p.m. CST
Or send check or money order payable to Parsons Technology



MONEYCOUNTS® 6.0

\$35 + \$5 shipping

NOT COPY PROTECTED

INCLUDES PRINTED MANUAL AND
FREE TECHNICAL SUPPORT

Dept. COM
375 Collins Road NE
Cedar Rapids, Iowa 52402

NAME _____

ADDRESS _____

CITY _____

STATE/ZIP _____ PHONE _____

CHECK MONEY ORDER VISA MASTERCARD

CARD # _____ EXP. DATE _____

MONEYCOUNTS 6.0 requires an IBM®/Tandy®/Compaq® or compatible computer, 384K or more RAM, DOS 2.0 or higher, 2 disk drives (or a hard disk). Works with all printers and monitors. Add \$10 shipping/handling outside North America. Iowa residents, please add 4% sales tax.

*Lotus 1-2-3, Quattro, IBM, Tandy and Compaq are all registered trademarks of Lotus Development Corp., Borland International, Inc., International Business Machines Corp., Tandy Corp and Compaq Computer Corp. respectively.



375 Collins Road NE
Cedar Rapids, Iowa 52402



Circle Reader Service Number 157

GAMESCOPE

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

Here's a hint for *Battletech: The Crescent Hawk's Inception* on how to get the chameleon mech to escape from the Jenners and keep it for the rest of the game.

When you face the Jenners, run north along the west electric barrier until it's destroyed. Then immediately leave the training area and head for the northwest exit. Make sure that you've previously mapped out a path that will lead you there and that your mech will fit through.

Once you're out of the city, you can flee from the Jenners (the flee option won't work while you're in the city). Save your game before trying this—you may not make it the first time, but with a little practice, it'll work.

Also, it's not vital that you win all the training missions. Even if you lose, it still raises your abilities; so lose a lot, especially when you're only fighting one or two mechs, to improve your skills.

When you get to the sixth mission, you should save the game before training. Jenners may appear, but if you reload and try again, they may not be there. By doing this, you may prolong your training time and allow enough practice to get your skills to a rating of excellent (the best I was able to achieve was a good rating in gunnery and an excellent rating in piloting).

You don't need to train for any weapons except rifles. Don't bother with inferior weapons. Use the short-range missile pack.

*Lin Tzeng
San Francisco, CA*

Konquering Karnov

On level 1 of Data East's *Karnov*, I found a secret warp to the end of the level. Go to the first ladder and retrieve it, but don't walk any farther. Go back to the dragon at the very beginning. When you walk past the dragon, you should be behind it. Go as far

as you can to the left. Now turn around and go back to the dragon. You should be able to see your player again. Place your ladder so that it appears in front of the dragon's eye. Go up to the top of the ladder and jump as far as you can to the left. When you come down, the screens should change. Go back to the left and the end boss will appear. Defeat him and you pass the level.

You can warp like that on almost all of the levels. All you have to do is defeat the end boss. (You may have to try this trick a few times.) If you don't warp, there are other hidden items. On the first level, go and defeat the first boulder thrower. Stand where he

BATTLE BASICS, DRIVING FUN AND DR. DOOM DILEMMAS

was standing and use your ladder to get an orb to double your firepower.

*Scott Balay
Denver, CO*

Mech Mania

If you're getting blasted by baddies in Activision's *Mechwarrior* and you need a moment to cool down before you can fire back, hit your jump jets. Jumping into the air will get you out of the line of fire and make you a difficult target to hit.

Don't be afraid to take on Medium mechs at the start of the game. You're smarter and faster than they are, and you'll make more money

fighting against them. Avoid the Heavies until you have a Medium mech of your own, though.

*Bubba Hargis
Hattiesburg, MS*

Track Tips

Here are some hints for Accolade's *Grand Prix Circuit* racing simulation:

- Choose the McLauren race car—it's the fastest.
- Don't try to pass too often in the first lap. Wait until the cars are spread out, then pass them one-by-one.
- Keep away from car number 5. Use Sakamoto. This driver will crash into you on purpose if you get too close.
- Watch your oil pressure and fuel closely when racing more than three laps.
- Brake as you come into a curve, and accelerate as you come out of it.

*Sunil Patel
Clinton, OK*

Defeating Doom

Here are a few techniques to help you win Paragon Software's *Dr. Doom's Revenge*. When you're playing Captain America as he fights the robot gorilla, always keep your distance.

Throw your shield at it as many times as you can until it gets too close to you. When the gorilla is too close to throw the shield, jump past it, run to the other side, and keep throwing your shield at the gorilla until you defeat it.

For Baltroc, the next enemy you'll encounter, you need to take the opposite approach. Get as close to him as you can. When you throw punches at him, your shield should block Baltroc's kicks. Keep punching and you should defeat him easily.

*Scott Balay
Denver, CO*

If you have game tips and shortcuts of your own, we'd like to hear from you. Send your tip, no matter how brief, to COMPUTE! Feedback—GameScope, P.O. Box 5406, Greensboro, North Carolina 27403. If we publish your suggestion, we'll send you a gift. ☐



MEAN 18 JUST GOT MEANER!

Announcing COMPUTE!'s *Mean 18* Course Disk

Six originally designed, challenging golf courses to add to your *Mean 18* collection. Each course has a unique theme. Play Apple Arbor, a genuine test of strategy; Pines Par 3, a fast-play course for which you'll need all your clubs; City Lakes, where water is your best friend and worst enemy; Island Green, which requires precise distance calculations and deadly accuracy; and much, much more.

This disk is designed to work with Accolade's *Mean 18*. The *Mean 18* program is sold separately.

Mean 18 Ultimate Golf is a trademark and copyright of Accolade, Inc. 1986, 1987, 1988, 1989

ORDER NOW!

- ▶ Only \$12.95* plus \$2.00 postage and handling.
- ▶ Available in IBM 5¼- or 3½-inch formats or in Amiga format.
- ▶ Send your order to GOLF, P.O. Box 5188, Greensboro, North Carolina 27403. Be sure to specify format desired.

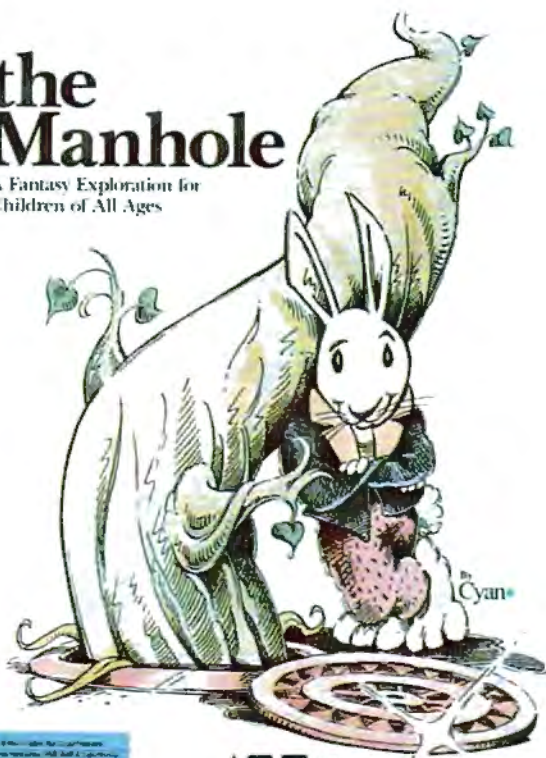
*Residents of New York, Pennsylvania, and North Carolina add appropriate sales tax. All orders must be in U.S. funds drawn on a U.S. bank. MasterCard or VISA accepted for orders over \$20. Include credit-card number and expiration date. For delivery outside the U.S. or Canada, add \$1 for surface mail or \$3 for airmail. Please allow 4-6 weeks for delivery.



LEARNIN

the Manhole

A Fantasy Exploration for Children of All Ages



ACTIVISION

ENDLESS
POSSIBILITIES IN
A WORLD OF
TEACUPS AND
DRAGONS

COMPUTE! CHOICE

HEIDI E. H. AYCOCK

How did I get into this teacup? Wasn't I just in that underground canal? That rabbit looks familiar. He's the one who offered me a cup of tea when I entered the fire hydrant. Am I boating through my own cup of tea? What kind of adventure is this?

It's *the Manhole*, an interactive story, a nonlinear tale. You can move through it in any direction, retracing your steps to your favorite places, trying out new pathways. Maybe it sounds like entertainment to you.

It sounded like entertainment to Activision. When the company released *the Manhole*, it didn't expect

anyone to classify the program as an educational package. The designers intended to sweep the entertainment market. Imagine their surprise when they discovered that kids might learn from their game.

They found that teachers let their students write stories about their adventures with the game; kids learned to use computers in a friendly setting; and parents sat with their children, following the free-form threads that weave through *the Manhole*.

The story passes through fire hydrants, castles, tunnels, and sunken ships. As you travel, you meet a hospitable rabbit, a sleepy walrus (who's plagued by too many visitors), a French tortoise, and a hip dragon. Each time you think you've found everything that talks, wiggles, or sparkles, you click on a new item and something else happens.

You could call *the Manhole* entertaining, but it works quite well at teaching, too. It works best at developing exploration and experimentation skills, something that's very important for young children.

Getting from place to place is easy. You just use your mouse to click on a door, and it opens for you. You click on the fire hydrant, and suddenly you're standing in front of it. In spite of the simple design, however, there are some problems. Sometimes you can't tell which objects are just for decoration and which are functional. You click on a torch, for example, and nothing happens. In the Macintosh version, which came out a year earlier, you could use the *HyperCard* trick of showing buttons, but the PC ver-

G

sion doesn't give you any hints. You've got to watch the hard disk indicator light to see if your click will have any effect.

What the PC version adds is color graphics. The pictures are two-dimensional, resembling storybook illustrations. The characters have wonderful personalities that are represented in the way they move, in their facial expressions, and in their demeanor. Of course, the VGA version of *the Manhole* is best graphically. The colors are vivid, and they'll catch any youngster's eye. It looks as though the programmers worked in VGA and then developed the EGA version as an afterthought. If you're using EGA, you won't be too disappointed, although the designers made some poor color palette choices. Some of the color combinations are dull, using browns and oranges in the dark areas, but the graphics are still delightful in spite of the limited palette.



Click on a special hole in the ship's deck and a group of colorful fish swim by you.



Mark Wagoner

As you journey, notice the animation. It's simple, card-flipping animation. You won't be impressed by the smoothness of the movement or the subtleties of the lighting. You will, however, feel as if you're taking part in an automated storybook. While this style of animation may have been partly dictated by the limitations of the development environment (memory, chip speed, hardware capabilities), it also adds a quaintness to the program that separates *the Manhole* from television cartoons and arcade games.

When the program opens, you start at a manhole cover that's barely holding back a beanstalk. The leaves move a little, tempting you to click on the manhole cover. There's a fire hydrant in the background; a few drips of water splashing to the ground call out for your mouse click. Move to the hydrant with your mouse; then click

and watch a spray of water shoot across the screen. Click on the beanstalk and watch it shoot into the sky. Now, you have three choices: up the beanstalk into the mysterious blue sky, over to the hydrant where you'll find a door, or down the manhole to the blue water below.

Already, you can see the beauty of this game. You have many choices, and most of them beckon you. If you don't have enough natural curiosity or if you can't pick out the choices very well, the game helps you along by drawing you graphically to the different options. At the same time, Activision doesn't force a choice like a cheap magician forces a card. Each direction is as enticing as the next because no direction is right or wrong.

Climb down the beanstalk to the small island where the tortoise lives. He speaks to you in French, and a small yellow fish leaps out of the water to translate. The digitized sound

effects aren't very good when played through the standard PC speaker. But the game does support the Tandy TL/SL sound chip and Creative Labs' Sound Blaster card, two of the few digital sound devices available for the PC. Support for the Ad Lib card and Roland sound device is also provided. If you don't use these configurations, you'll be disappointed with the quality of the voices. They're too fuzzy, so you can't understand what a character says. That's not a serious problem if you can read, but for a preschooler, the speech balloons simply aren't enough. Parents will have to read aloud what each character says. Future updates may support more digital sound systems.

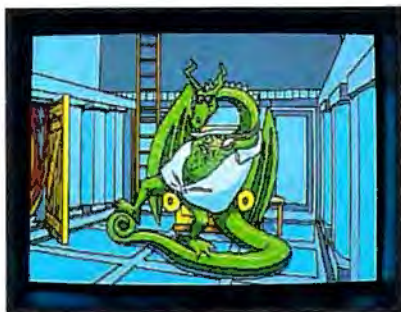
Meanwhile, back on the island, you may have grown restless. Jump in the water and watch the bubbles rise around you in shades of purple and blue. Below the surface, you find a sunken ship. You can head straight for the deck or make a pit stop in the crew's nest, where you can dance with the seahorses living there. In the ship, you'll find rooms full of more to explore—a rolltop desk houses a school of fish and an orchestra of animated musical instruments. A picture of a ship sinks when you click on it.

From the ship, you can take an elevator to the Hub of All Paths. Standing in the hallway, you can try one of four tunnels or climb up to the ceiling. More characters wait everywhere; they talk, offer you food and drink, and dance. They lead you to new corridors and to old friends. Don't think of *the Manhole* as a maze game in which you look for a way out or a fantasy game in which you score points or pick up treasures. There's no conclusive goal, nothing you're looking for as you follow the corridors and climb the ladders. Just learn to explore for the sake of satisfying your curiosity. That's how you win.

Behind all the wanderings and meanderings is an important educational element: Experimentation is encouraged at the same time as predictability is preserved.

Experimentation and predictability teach children how to learn. They try something, see how it works, and then try to reproduce that action. In *the Manhole*, everything is predictable. The trick is to experiment with everything so you can find how to activate each event. Some are simple. For example, every time you click on a certain part of the sunken ship's deck, a school of colorful fish swim by. Some cause-and-effect relation-

ships are more complicated. For example, you can visit the dragon's lair via several different routes. Sometimes the dragon is there and sometimes it's not. You eventually realize that when you travel through the tunnel to the front door of the dragon's cave he will be there, but if you climb down the ladder through the ceiling, he won't. Then, one day, you climb down the ladder and he's there. Unpredictable, you think. Finally, you realize that you can summon the dragon



Can you figure out how to summon the very cool dragon to his very hot pad?

from a special place outside the castle's tower. It doesn't matter what route you take, the dragon will always be home if you've summoned him.

Another good, educational aspect of *the Manhole* is how it exposes players to new ideas. The French-speaking tortoise won't teach any four-year-old



An elephant guides you through the twisted water tunnels in *the Manhole*.

child to speak a foreign language, but he might create an interest in other countries. In the rabbit's bookshelf, you find a set of books. They represent some of the best in children's literature—titles like *The Lion, the Witch, and the Wardrobe*, by C. S. Lewis; *Alice in Wonderland*, by Lewis Carroll; and *Winnie-the-Pooh*, by A. A. Milne. As you click on each book, the program gives you a short synopsis of the story. There's also a tome called *Philosophies of Intercultural Development*; if you click on that one,

the program tells you that this book is about nothing at all. In keeping with the theme of pathways leading through unusual places, you can go through the wardrobe in the Lewis book and find yourself near the castle where the dragon lives.

As good an educational program as *the Manhole* is, it's very demanding in terms of hardware—you must have a hard drive. More and more home computer packages require hard drives, but it's still a big investment. Activision couldn't have produced *the Manhole* without the benefit of mass storage because of the graphics, sound, and open-endedness. If you don't already have a hard disk, this program might justify buying one.

Besides a hard disk, you'll need a microprocessor with some zip. On an 8-MHz AT, the game is too slow. It plods along, seemingly ignorant of mouse clicks. You learn patience along with all the other lessons *the Manhole* teaches.

The most promising aspect of *the Manhole* is what it suggests the future of interactive computing will look like. As home computers become more powerful, we'll see more detail in these adventures. For every fish that talked when you clicked on it, there were two objects that did nothing. Perhaps future generations of interactive games will go much farther, allowing us to move in even more directions. Maybe we'll find surprises under the stairs and new friends when we climb the straw in the rabbit's cup of tea. Several events may take place at once, and the graphics will be more spectacular.

Activision has designed a wonderful little adventure through a fantasy world. It's simple enough for preschoolers, and it reinforces their exploratory learning styles. It's also fun for adults, complex and intricate enough to hold their attention. Most important, it is the beginning of a new era of home education and entertainment.

Although *the Manhole* is a closed set of events, it seems as though the possibilities are endless.

the Manhole

IBM PC and compatibles with 512K; EGA, VGA, MCGA, or Tandy 16-color graphics; and hard disk—\$49.95
Macintosh—\$49.95 (\$59.95 for CD-ROM version)

ACTIVISION
A Division of Mediagenic
3885 Bohannon Dr.
Menlo Park, CA 94025
(415) 329-0500



THE SMART TOOLS FOR COLLEGE PLANNING

From the admissions experts — all-new software packages every college-bound student will find invaluable:

College Explorer™

\$49.95. The college-search program with the most complete, accurate, up-to-date information available on more than 2,800 two- and four-year colleges. A 1990 *Compute!* "Choice Awards" winner and praised by *ALA Booklist*, *College Explorer* provides 600 different options — including setting, size, majors and sports. Priced at just a fraction of the cost of major competitive packages! Apple II family and MS-DOS.

College Planner™

\$29.95. The only software of its kind, *College Planner* was developed so junior and seniors can control their progress through the complex admissions process. Features include electronic calendars and checklists to help monitor important dates and deadlines. There's even a decision-making component for evaluating colleges. Apple II family and MS-DOS.

College Cost Explorer™

\$49.95. It's never too soon to learn about college costs — and how to meet them. That's why *College Cost Explorer* is designed for use from elementary school through the senior year of high school. Updated annually, it contains complete data on costs and financial aid policies at 2,800 two- and four-year colleges. Users can calculate expected family contributions and print out or store all personalized information. Includes glossary of specialized terms. The most comprehensive data at less than half the cost of competitive programs. Apple II family and MS-DOS.

To order these smart planning tools, credit card holders may call-800-323-7155.

Circle Reader Service Number 175



THE COLLEGE BOARD
43 Columbia Avenue, New York, NY 10023

The College Board and the acorn logo are registered trademarks of the College Entrance Examination Board. College Explorer, College Cost Explorer, College Planner, College Explorer V and College-Level Examination Program are trademarks owned by the College Entrance Examination Board. Copyright © 1990

GOLEM COMPUTERS

PLACE ORDERS TOLL FREE

1-800-248-0363

CA 1-805-499-0197

Monday - Friday 7am - 6pm
Saturday 9am - 4pm Pacific Time

ENTERTAINMENT

ACCOLADE Blue Angels	ea. 32
Bar Games, Steel Thunder	ea. 27
The Duel	30.
Scenery, Cars	ea. 14.
Jack Nicklaus Golf, The Third Courier	ea. 32.
Hardball II, Grand Prix, Heat Wave	ea. 27.
The Cycles, Don't Go Alone	ea. 27.
Eye of the Storm	32.
ACTIVISION The Manhole	32.
F-14 Tomcat, Face Off	ea. 30.
Death Track, Ghostblaster II	ea. 30.
Die Hard, Tongue of the Fatman	ea. 27.
Grave Yardage	24.
BRODERBUND Sim City	32.
Ancient Land of Y's	32.
CINEMWARE The Kristal	32.
Death Bringer, Three Stooges	ea. 27.
Rocket Ranger, Speedball	ea. 27.
Lords of the Rising Sun	32.
TV Sports Football, Dark Side	ea. 27.
DYNAMIX A-10 Tank Killer	32.
ELECTRONIC ARTS Ferrari Formula 1	27.
Bards Tale II	32.
Abrams Battle Tank	30.
Keef the Thief	27.
Lakers vs. Celtics, Madden Football	ea. 32.
688 Attack Sub, Pro Tennis Tour.	ea. 32.
Yeagers AFT II, F16 Combat Pilot	ea. 32.
INFOCOM Battletech	32.
INTERPLAY Battletchess	32.
Neuromancer	30.
LUCAS FILM Pipe Dream	27.
Their Finest Hour	42.
MICROPROSE	
M1 Tank Platoon, F-19 Stealth Fighter	ea. 47.
F-15 Strike Eagle II	37.
Red Storm Rising	36.
Stunt Truck Racer	24.
Weird Dream, X-men	ea. 27.
MICROSOFT Flight Simulator	40.
MINDSCAPE Outrun, Shinobi	ea. 27.
Balance of Power 1990	32.
Gauntlet II, Harley Davidson	ea. 27.
Star Trek V	36.
Thunder Blade	27.
ORIGIN Knights of Legend, Omega	ea. 32.
Space Rogue, Wind Walker	ea. 32.
Times of Lore	27.
SIERRA The Colonel's Bequest	40.
Leisure Suit Larry I, II, III	ea. 40.
Space Quest I, II, Gold Rush	ea. 32.
Space Quest III, King Quest IV	ea. 40.
Police Quest I, Manhunter I, II	ea. 32.
King Quest I, II	ea. 32.
Operation Wall	24.
SEPECTRUM HOLOBYTE Tetris	23.
Welltris	24.
Tank	40.
SSI Curse of Azure Bonds	32.
Dragons of Flame, Heroes of the Lance	ea. 27.
Pool of Radiance, Hillsfar	ea. 32.
TAITO Arkanoid II, Quix	ea. 24.
THREE SIXTY SOFTWARE Harpoon	40.
VIRGIN GAMES Double Dragon II	27.

JOYSTICKS

CH PRODUCTS Mach III	34.
Game Card	44.

EDUCATION

BRODERBUND	
Where in the USA, Where in Europe	ea. 32.
Where in the World is Carmen, Playroom	ea. 30.
Where in Time is Carmen	32.
DAVIDSON Math Blaster Plus, Spell II	ea. 29.
Math Blaster Mystery, Word Attack Plus	ea. 29.
Alge Blaster, Read & Roll	ea. 29.
Math & Me, Reading & Me	ea. 24.
ELECTRONIC ARTS Chessmaster 2100	32.
Mavis Beacon Teaches Typing	32.
THE LEARNING CO. Reader Rabbit	32.
Children Writing & Publishing	47.
Math Rabbit, Gertrude Secrets	ea. 27.
Magic Spells	27.
Writer Rabbit, Think Quick	ea. 32.
Midnight Rescue	32.

ALL ITEMS SUBJECT TO AVAILABILITY. PRICES & STIPULATIONS SUBJECT TO CHANGE WITHOUT NOTICE

To order call toll free or send check or money order VISA/MC, AMERICAN EXPRESS OR COD orders welcome. Personal and company checks allow 10 working days to clear. California residents add 6% sales tax. Shipping and Handling: Continental U.S. add \$5.00, APO, FPO Alaska, Hawaii and Canada add \$8.00. Call for hardware shipping prices. All sales final. Defective items will be exchanged or repaired at our discretion. Call for return authorization. School PO's welcome. Mail orders to:

GOLEM COMPUTERS

P.O. BOX 6698

WESTLAKE VILLAGE, CA 91359

1111 Rancho Conejo Blvd., #407, Newbury Park, CA 91320

FAX (805) 498-7689

Circle Reader Service Number 137

DISCOVERIES

D A V I D S T A N T O N

Setting computers apart from other electronic products is their versatility. Businessmen can do bookkeeping on them. Teachers can use them to write lesson plans and maintain grades. Students can use them to access extensive databases. Anyone who needs a little relaxation can always play a computer game. Musicians can hook them to MIDI-compatible keyboards to compose and play songs.

One of the most exciting aspects of working with computers, though, is tinkering—tinkering with new software, tinkering with DOS, tinkering with the Macintosh's System Folder, tinkering with add-on cards, and exploring capabilities built into computers but often overlooked. How many things can we hook to a personal computer? What kinds of tricks can we perform with such connections? What can be done with what we already have, and what new gizmos can we concoct to do even more? No matter how many uses computer fans have found, more possibilities await.

Of course, unbridled experimentation with hardware involves a certain element of risk. No one wants to trash an expensive motherboard. And there will always be those who question the wisdom and purpose of exploring the outer limits of a computer's capabilities. Practical considerations must ultimately prevail at school, too. Neither students nor their teachers have time to fritter away on seemingly pointless fiddling.

Still, some of the best ideas evolve from seemingly frivolous tinkering. In that spirit, let's consider some not necessarily new but sometimes overlooked things you could try with your computer if you had any reason or desire to do so. This time, we'll focus on sound.

Check to see if your machine has a headphone or an audio output jack. Apple IIGs's, Macintosh Pluses, most Tandy 1000s, and some other ma-

chines do. If yours doesn't but your computer does have an internal speaker, it's possible (even relatively easy) to install one. The process involves opening the computer, modifying the wiring to its speaker, installing a jack, and in many cases drilling an extra hole in the computer's case. While this is no job for a novice, any electronics technician or hobbyist should be able to do it quickly and inexpensively.

Why bother? To start with the obvious, headphones can spare your family the audio annoyances that enhance computer games and educational software but have a way of driving innocent bystanders crazy. Some headphones may plug in directly. Others may require a plug converter between the connecting cord and computer jack.



Your reward for figuring it all out? Less noise. At home, this is a great convenience. In school computer labs, it's a necessity. Of course, you didn't need me to tell you that, but you may not realize that a headphone jack can do more than just quiet things down around your house. It can make things louder!

Consider that your computer's sound chip probably produces much better sound than its puny internal speaker can handle. Hook up a good set of headphones, and you'll hear higher highs, lower lows, and greater volume. Even as I write, Music Stu-

dio's *Jukebox* is blasting away in my ears, demonstrating the real power of the Apple IIGs Ensoniq sound chip. Apple IIGs owners who ignore its headphone jack have never really experienced IIGs sound!

My favorite Macintosh audio experience comes free on Buick's advertising disk. It's just a short digitized musical phrase (*The great American road...*), but it clearly demonstrates the sometimes overlooked musical power of a Mac. And Tandy 1000 owners don't need an add-on board to experience the concert-quality soundtrack of Sierra's *King's Quest IV*. Tandy's three-voice sound chip and a decent set of standard headphones perform quite nicely.

Anyone with an MS-DOS computer and an 8- to 11-year-old child has a perfect excuse to buy The Learning Company's impressive new reading program, *Super Solvers Midnight Rescue*. Its arcade-game approach will motivate even the most reluctant reader. The program is destined to receive several software awards. But the real point here is that it contains some very catchy tunes that sound very impressive through headphones.

Still not convinced? OK, forget the headphones. You could use that audio jack to direct computer output to speaker/amps or to a full-size stereo or monaural amplifier. Doing so might require a specially designed cable, but making one isn't too difficult. Ten dollars, a little thought, and some elementary cable construction should get everything going. You could play *SimCity* loud enough to alarm your whole neighborhood.

And there's more. We frittered away one lazy winter afternoon running cables from computers to tape decks, to VCRs, and through VCRs to a television set just to see where we could send computer sound and what would happen when we did. Everything worked exactly as expected. Nothing at our house smoked or showed any other signs of discontent. The personal computer is made for some sound possibilities. □

DAMARK

INTERNATIONAL, INC.

THE "GREAT DEAL" CATALOG
1-800-729-9000
ORDER TODAY!!

LEADING EDGE

386 FULL 32-BIT COMPUTER & VGA COLOR MONITOR

- 100% IBM compatible.
- 32-bit 80386 microprocessor.
- 8/16 MHz speed (switchable).
- 40 MB—22 milli-second hard drive with integral 1:1 interleave controller.
- 1 MB RAM expandable to 8 MB.
- One 5.25" 1.2 MB floppy disk drive.
- Four 16-bit expansion slots. • Two 8-bit expansion slots.
- One 16-bit VGA video adaptor with 256K memory expandable to 512K, displays up to 1024 x 768 res.
- 1 Centronics parallel port. • 2 RS-232C serial ports.
- 80387 math coprocessor socket. • Zero wait state.
- Includes software: MS-DOS 3.3, & GW-BASIC.
- Supports all VGA/EGA/CGA/MDA/ Hercules® modes.
- Dim.: 15.5" x 15.9" x 6.1".



- VGA Color Monitor:**
- 14" high resolution tilt swivel monitor.
 - IBM compatible.
 - .31 mm dot pitch.
 - Analog input signal.
 - Resolution: 640 x 480.
 - Full 20 Month Factory Warranty!
 - Factory New & Perfect!

Mr. Sugg. Retail:
\$3,295.00

DAMARK PRICE:

\$1999⁹⁹

Item No. B-1937-133967
 Insured Ship/Hand.: \$40.00

XEROX

WIDE CARRIAGE DAISYWHEEL PRINTER WITH DUAL BIN AUTO SHEET FEEDER

635 DIABLO

- Print speed: 55 CPS.
- 255 typestyles & 15 foreign language daisywheels with 10, 12, 15 pitch and proportional spacing.
- 100% IBM compatible.
- Auto paper loading. • Full word processing capabilities.
- Max print line width is 13.2" and paper width is 16.5".
- Letter quality printer. • Prints 132 columns at 10 CPI.
- 158 columns at 12 CPI. • 197 columns at 15 CPI.
- Snap in IBM/Centronics interface cartridge (with cable) for instant compatibility with most microcomputer systems. • Quiet operation; noise level only 56 dBA.
- Can operate on 110/220 VAC 50/60 Hz.
- Printer weight: 30 lbs.



Dual Bin Sheet Feeder features:

- Includes Diablo F52 dual bin sheet feeder with 240 sheet capacity.
- Drop-in installation.
- Model #: 635.
- 90 Day Warranty!
- Factory New!
- Factory Perfect!

Mr. Sugg. Retail:
\$1,890.00

DAMARK PRICE:

\$299⁹⁹

Item No. B-1937-135350
 Insured Ship/Hand.: \$40.00

BLACK & DECKER

DELUXE WIRELESS SECURITY SYSTEM

- Intelligent home security system.
- Detects intruder during entry.
- Wireless for easy installation.
- Difficult to defeat because of new, advanced technology.
- Lamp command flashes lamp upon intrusion.
- Signal relay—relays entry sensor intrusion signal from a remote area of your home to controller.
- Tamper resistant. • 85 decibel alarm on inside siren.
- Piercing 120 decibel outside siren.
- Fail-safe battery back-up. • Low battery warning.
- 2 Year Warranty!



FACTORY NEW! FACTORY PERFECT!

Includes:

- 8 entry sensors, 1 system controller (includes inside siren), 1 signal relay, 1 lamp command, 1 outside siren, 2 window stickers, 1 yard sign, and complete hardware and batteries.

Mr. Sugg. Retail:
\$698.00

DAMARK PRICE:

\$299⁹⁹

Item No. B-1937-133389
 Insured Ship/Hand.: \$15.00

ZENITH

XT TURBO IBM COMPATIBLE COMPUTER SYSTEM

- 20 MB Hard Drive.
- One 720K 3-1/2" disk drive.
- 640K RAM.
- 84-key keyboard.
- 8088 16 bit microprocessor at 7.16 MHz.
- 14" high resolution black and white monitor.



- High resolution graphics: 640 x 200. CGA compatible. • Serial & parallel interfaces.
- Mouse port. • Includes: MS-DOS 3.2, MS-DOS Manager, GW-BASIC. • Dim.: 13"W x 14.5"H x 11"D (without keyboard).
- Model #: EZPC 20 plus EZA4 upgrade.
- Wt.: Approx. 28 lbs.
- One Year Warranty!
- Factory New & Perfect!

Mr. Sugg. Retail:
\$1,999.00

DAMARK PRICE:

\$799⁹⁹

Item No. B-1937-117721
 Insured Ship/Hand.: \$30.00



SHARP

COPIER/FAX MACHINE UX80

Sharp enforces strict quality control standards. These copier/fax machines are factory serviced, but like new! As a result, we can offer them to you at UNBELIEVABLE SAVINGS!

- Photocopier, fax machine and telephone in one!
- Sends an 8-1/2" x 11" page as fast as 4 seconds.
- Enlargement and reduction capabilities.
- 8 level half-tone transmission for fine detail.
- Automatic contrast adjustment.
- Multi-function telephone with on-hook dialing.
- G3 communication compatibility.
- Telephone/ fax automatic switchover.
- Thermal recording process
- Dim.: 13.9"W x 6.3"H x 16.1"D.
- Weight: Approx. 23.4 lbs.
- Model #: UX80.
- Full Factory Warranty!



Mr. Sugg. Retail:
\$2,295.00

DAMARK PRICE:

\$499⁹⁹

Item No. B-1937-133934
 Insured Ship/Hand.: \$29.50

SmartMax

Fax/Phone Auto Switch

- No need for a dedicated fax line.
- Fax/phone autoswitch allows your new fax to share existing phone line.
- Works on all Group 3 fax machines.
- Single switch to lock out either voice or fax calls.
- Front panel status lights indicate modes of operation.
- Smartmax handles power outages by automatically switching to phone-only mode.
- Allows manual override so you can send a fax to the person you're talking to on the phone.
- 24-Hour customer service line.
- Easy installation.
- UL listed
- FCC certified.
- Dim.: 4" X 7" X 1-1/2".
- Weight: 2-1/2" lbs.
- Model #: MX 1030.
- 2 Year Warranty!
- Factory New!
- Factory Perfect!



Mr. Sugg. Retail:
\$245.00

DAMARK PRICE:

\$149⁹⁹

Item No. B-1937-128934
 Insured Ship/Hand.: \$7.50



FOR FASTEST SERVICE CALL TOLL FREE

1-800-729-9000

CUSTOMER SERVICE: 1-612-566-4940

NAME _____
 ADDRESS _____
 CITY _____ ST _____ ZIP _____
 PHONE _____

QTY	DESCRIPTION	ITEM #	S/H/I	PRICE

DELIVERY TO 48 U.S. CONTINENTAL STATES ONLY



in MN add 6% Sales Tax

SUB TOTAL _____

Total S/H/I _____

GRAND TOTAL _____

Check/Money Order VISA SIGNATURE _____
 MasterCard Discover CARD NO. _____ EXP. DATE _____

Send To: DAMARK INTERNATIONAL, INC., 6707 Shingle Creek Parkway, Minneapolis, MN 55430

B-1937



WELCOME TO MY MACHINE

KEITH FERRELL

TOUR A GIANT COMPUTER AS YOU STROLL THROUGH COMPUTER HISTORY

Computers are smaller than ever—except in Boston. There, on Museum Wharf overlooking the harbor, the world's largest microcomputer takes shape.

When completed in mid-1990, the two-story Walk-Through Computer will occupy a 3500-square-foot gallery in the heart of The Computer Museum, the only museum of its kind.

The Walk-Through Computer will, likewise, be one-of-a-kind.

"It will be a working computer," says Dr. Oliver Strimpel, the museum's curator and associate director. "You'll go inside and see what it's doing, with flashing lights and giant replicas of chips—a whole roomful of things, all of them doing interesting tasks."

Museum with a Mission

Interesting tasks go on in virtually every aspect of The Computer Museum. The Walk-Through Computer is only the latest in an ongoing series of exhibits and galleries aimed at increasing the public's understanding of computers. Interactivity and hands-on displays are the rule, with education taken as seriously as exhibition.

Attracting close to 100,000 visitors each year, The Computer Museum is dedicated to displaying both computers and examples of their impact on society.

Since it opened in the mid-1980s, the museum has constantly expanded both the size of its collection and the scope of its exhibits, galleries, and programs. The museum now boasts the world's largest collection of post-1950 computers, and recent exhibits have shown the impact of those computers on art, entertainment, military defense, communications, and more. There's even a unique computer fashioned out of Tinker Toys and fishing line; it plays world-class Tic-Tac-Toe.

One of the highlights of the museum is the Smart Machines Gallery, the first permanent exhibit devoted to artificial intelligence and robotics. Using hands-on displays and clearly written explanations, the gallery gives visitors a chance to see the evolution of ideas related to machines that can actually think.

"The museum's mission is to educate and inspire all levels of the public in the history, evolution, technology, and impact of computers," Strimpel explains. As he is well aware, this is no easy task. "The exhibitions have to appeal to various levels and ages of visitor."

Still, it's a task that delights Strimpel. "We

get young children. We get adults who are scared of computers and keep their hands behind their backs. I have to tell them to go ahead and touch the interactive exhibits! You won't blow up Boston!"



Museum visitors can experiment with interactive voice technology at the Smart Machines exhibit.

The Trash Heap of Computer History

Ironically, the first piece obtained for the museum was bound for a landfill.

Strimpel explains: "The museum got started as an attempt to preserve the history of computing. The particular artifact that started it off was the Whirlwind computer, which was developed at MIT in 1951. This was the first computer to use core memory."

Despite Whirlwind's importance, the machine was heading for the technology graveyard. "Ken Olsen [president of Digital Equipment] and Bob Everett [president of Mitre] decided to save Whirlwind at the eleventh hour. That was in 1974."

Whirlwind was literally on trucks bound for the dump when Olsen and Everett stepped in. "They rerouted the trucks," Strimpel says, "and preserved the machine at Digital. A few more artifacts were collected. In 1979, it was decided to found a museum."

The Digital Computer Museum was established in 1979 as a private institution for the preservation of computer history. Housed in a building at Digital's Marlboro, Massachusetts, headquarters, the museum was primarily aimed at engineers interested in the history of computers. Gradually, though, larger goals—and the prospect of a larger audience—began to take shape.

A Fine Facility

By 1983, a general-interest computer museum was becoming a reality.

The museum took shape on the top floors of

WELCOME TO MY MACHINE

a beautifully restored nineteenth-century warehouse, part of the same facility that houses Boston's Children's Museum. There's plenty of room for expansion, and there are airy and comfortable exhibit spaces. The location is ideal—the contrast of computer equipment with brick walls and wood floors encourages contemplation. The museum's atmosphere and appointments seem to say, "Take your time. Don't rush." Exhibits are carefully spaced and uncrowded. A store on the museum's first floor offers books, posters, and other computer memorabilia.

The museum opened in its new quarters in November 1984. Strimpel joined the museum earlier that year, developing the museum's popular computer graphics gallery.

In place on Museum Wharf, The Computer Museum broadened its focus and goals. "We moved in a more educational direction, trying to explain computing to the general public."

Historical work has not been forgotten, though.

"Together with the Smithsonian, we're the only museum that collects historical artifacts from the history of computing. In fact, we have a collaboration with the Smithsonian not to compete against each other—there's enough work for both of us." The two museums share a common database, and, when an important item becomes available, representatives of the two institutions discuss which site is best able to use the piece. "It's an unprecedented arrangement for the Smithsonian," Strimpel says.

Education, though, is increasingly the focus of the museum's efforts.

"We think of the original engineering museum in Marlboro as Release 1 and when we opened here in 1984 as Release 2," Strimpel says. "Now we're planning Release 3. Basically, we'll be replacing all of the galleries except Smart Machines and make the machines even more appealing to the general public."

Striking a Balance

Which aspect of the museum attracts the public most?

"The public is most interested in the hands-on exhibits," Strimpel says. "We have over 60 such exhibits here, and our visitors really like to play with computers and see what they can do with them."

Paying careful attention to the public response has helped The Computer Museum's directors arrive at a threefold approach to education.

"First is Computer Evolution—where did computers come from? The second is how do computers work—what's inside that box? The third, and the one to which the largest amount of space will be devoted, is what computers do—computer applications. The Smart Machines Gallery shows applications in the areas of AI [Artificial Intelligence] and robotics; the Graphics Gallery is applications in the area of image processing and computer graphics. We're planning new galleries that show major applications of



PHOTO: © MARJORIE NICHOLS '88

Toy robots have a serious role to play in the history of computing.

Visit the Computer Museum

On your next trip to Boston, plan a visit to The Computer Museum. It's located at 300 Congress Street. For more information about The Computer Museum, call the museum's own talking computer at (617) 423-6758.

Hours

10:00 a.m. to 5:00 p.m. Tuesday through Sunday from Labor Day until mid-June
10:00 a.m. to 5:00 p.m. Monday through Sunday from mid-June until Labor Day
10:00 a.m. to 9:00 p.m. Fridays all year

Admission

Adults: \$5
Students and senior citizens: \$4
Children under 5: Free
Museum members: Free
Friday evenings: All rates half price
Call in advance for group rates (617-426-2800)

Memberships

Individual memberships cost \$30 per year and include free admission, special events, gift shop sales, a 10-percent discount at the gift shop, a gift shop catalog, a subscription to *The Computer Museum News* (a bimonthly newsletter), and *The Computer Museum Annual* yearly report and history of the museum.

Student memberships cost \$20 per year and include the same benefits as the Individual membership.

Family memberships cost \$45 per year and include the same benefits as the Individual membership for up to four immediate family members.

Contributing memberships vary in price and include the same benefits as the Individual membership, plus they are recognized in *The Computer Museum Annual* for their contributions, and their guests receive free admission to the museum. Contributing memberships include Friends (\$100), Supporters (\$250), and Donors (\$500).

For membership information, contact Membership Coordinator, The Computer Museum, 300 Congress Street, Boston, Massachusetts 02210; (617) 426-2800.

personal computers. That will show all of the applications of personal computers, from music to art, to organizing your life, organizing your money, communications, learning . . . about 12 different areas," Strimpel says.

Counterbalancing that exhibit will be another new gallery. "At the high end, we're planning an exhibit called The Networked Society. This will show how computers are used throughout the whole of society. Every time you pick up a telephone, you're using a computer. Every time you use an ATM, or make an airline reservation, or take out insurance, or go through a supermarket checkout line. The new gallery will show how computers are integrally tied in to all those activities," Strimpel says.

Computer Culture

As The Computer Museum, Release 3, takes shape, the essence is beginning to shift from historical computer hardware and software per se, to the computer's impact on our world. Examining that impact includes bringing in exhibits from outside the museum to complement those developed internally.

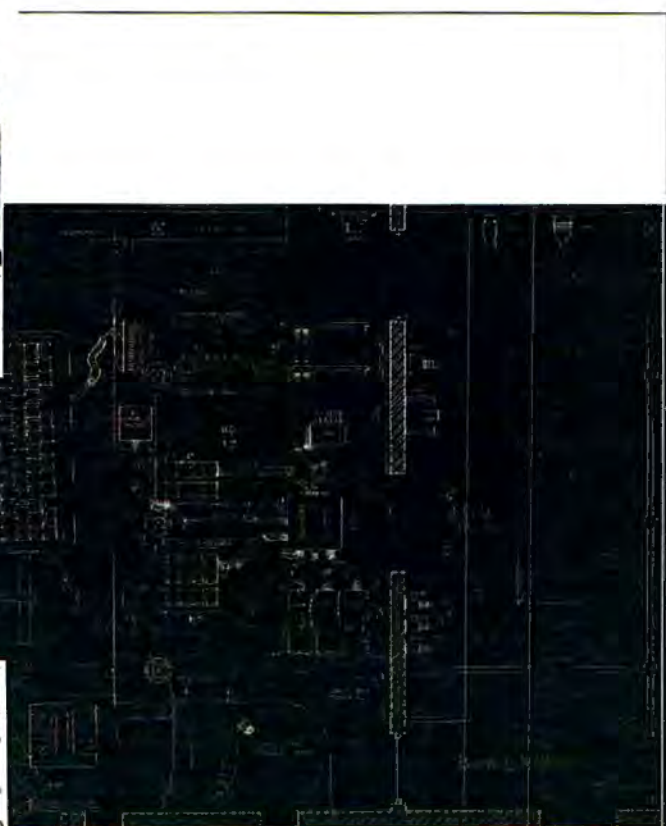
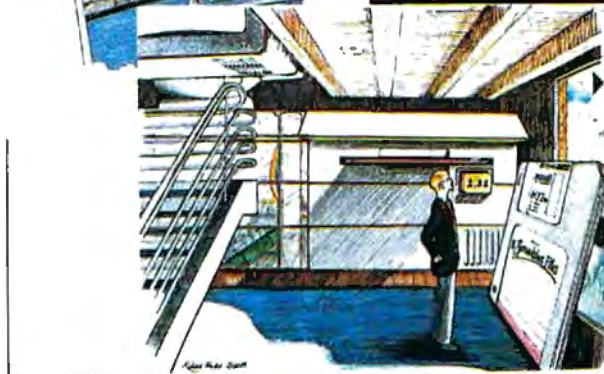
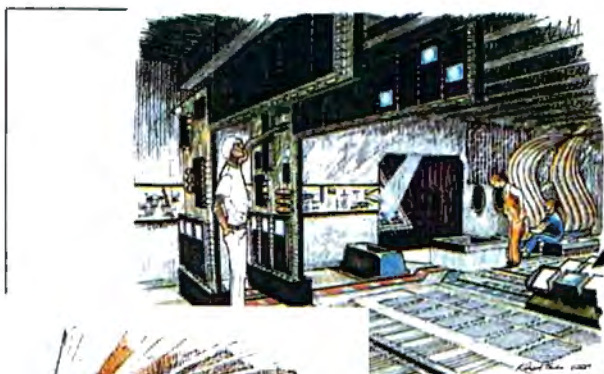
A recent success was "Computer Art in Context: SIGGRAPH '89 Art Show." For three

months in 1989, the SIGGRAPH exhibition displayed works of more than 50 computer artists from around the world.

The sheer variety of materials and media included in this exhibition gave visitors a sense of the artistic range the computer makes possible. Two- and three-dimensional works were on display side by side with kinetic sculptures and computer animation, interactive environments, and polydimensional films.

The arts play a large part in the museum and have proved to be among its most popular attractions. To that end, Strimpel points out another of The Computer Museum's ambitions.

"We feel very strongly that we want to get shows that are of international-jury quality. Not shows that we put together ourselves, though. The art community is sufficiently divided about what is computer art and what is good art, that we don't want to add yet another voice to that argument. Rather, we'd like to be the venue for internationally significant shows. While we don't *develop* shows on computer art, we do feel it's important to show the public that computers can do beautiful things. That's a very simple message. It's definitely part of the museum's interest."



In the Walk-Through Computer, a 1320-square-foot motherboard sports giant expansion cards.

GET ON THE FAS-TRACK!



Call us for your FREE 1990 Buyers' Guide—
128 pages of software,
hardware and accessories.
DISCOUNTS UP TO 45% EVERYDAY!

Productivity Software



Better Working
eight-in-one
\$38.95

PPS: First Choice \$99.95
Microsoft Works 2.0 \$104.95
Quicken \$39.95

Desktop Publishing & Graphics



Publish It!
\$114.95

Publish It!
Lite
\$35.95

The New Print Shop \$37.95
Banner Mania \$23.95
Children's Writing and Pub Center \$44.95
PC Paintbrush IV \$60.95

Mars-128 400 DPI Hand Scanner



New 5 inch, 400
DPI Hand Scanner!
Includes Halo
DTP Software.
\$179.95

Kraft Systems



KCIII
\$19.95

Serial Mouse \$43.95
Thunderstick \$28.95

Cardinal Internal Modems



Two models:
1200B or 2400B.
Includes software.

M1250 \$49.95
MB2450 \$82.95

Ad Lib Inc.

Ad Lib Music Card \$124.95
Ad Lib PCMS \$154.95

Utility Software



PC Tools
Deluxe 5.5
• Fast Hard Disk
Back-up
• Undelete files
• Disk Optimizer
• Much More!
\$76.95

Copy II PC \$24.95
SpinRite 2.0 \$65.95

Entertainment

688 Attack Sub \$33.95
A10 Tank Killer \$30.95
Blue Angels \$30.95
Colonels Bequest \$36.95
Curse of the Azurebonds \$33.95
David Wolf Secret Agent \$30.95
F-19 Stealth Fighter \$33.95
Hardball II \$25.95
Indiana Jones Last Crusade Adven \$32.95
Indiana Jones Last Crusade Action \$26.95
Lakers vs. Celtics \$33.95
Leisure Suit Larry III \$36.95
Vette \$33.95
Madden Football \$33.95
Mean Streets \$30.95
M1 Tank Platoon \$44.95
Populous \$33.95
Sim City \$32.95
Test Drive II \$27.95
Welltris \$23.95

Education



**Where in
Time is
Carmen
Sandiego**
\$29.95

Where in the World is C. Sandiego \$30.95
Where in the USA is C. Sandiego \$30.95
Where in Europe is C. Sandiego \$30.95
The Playground \$26.95
Math Blaster or Word Attack Plus \$30.95
PC Globe or PC USA \$42.95
Think Quick \$33.95
Oregon Trail \$26.95
Math Rabbit or Reader Rabbit ea \$26.95
Mavis Beacon Typing \$33.95



7030C Huntley Road • Columbus, Ohio • 43229

ALWAYS CALL **1-800-272-1600**

TOLL-FREE



1-614-847-4050 (Central Ohio)

U.S. F.P.O. and A.P.O. add 3% (minimum \$4.00) for each shipment.
No C.O.D. In Ohio add 5.75% Sales Tax. MasterCard, VISA, and
American Express—No extra charge. We accept purchase orders from
schools. Prices subject to change without notice.

FROM HOME TO SCHOOL AND BACK AGAIN, FAS-TRACK DELIVERS

Circle Reader Service Number 134

WELCOME TO MY MACHINE

Where Past Meets Future

From networks to computer art, desktops to mainframes, the acceleration of the computer revolution all but forces The Computer Museum to focus on the present and the future. Strimpel is determined, though, that the history of computing not be neglected. Preserving that history was, after all, the original impulse behind the museum.

"The history of computing goes back to pre-historic times, when people used devices to count their belongings. Then we moved on to counting sticks and other devices, on through instruments such as slide rules and so on," Strimpel explains.

"We have a reasonable number of mathematical instruments that predate the computer era," he says. "We also have quite a few punch-card machines from the early part of the century up through the thirties and forties. We have calculating machines from the late nineteenth century, such as the Comptometer and Leibnitz machines."

Strimpel does have a few regrets. "We don't have any Babbage material," he says wistfully, referring to the nineteenth-century English mathematician and inventor. "Most of that's at the Science Museum in London. There's only a finite amount."

Modern technology may play an unexpected role in bringing Babbage to The Computer Museum, however. "We're talking about the possibility of getting a hologram made of the Analytical Engine."

Where does Strimpel see the museum in ten years?

"I see the demand for the museum growing. Computers are becoming more and more important, moving into more and more spheres of life. As a result, there's a great demand for everybody to know something about computers, how they work, a little bit about where they came from, and so on.

"The museum can play a unique role in that. We have the history, we have the collection, the three-dimensional space, the exhibitory knowledge, and the knowledge of hands-on, interactive, informal education. The whole point of the museum is to offer that informal education—come and spend hours. Go at your own pace.

"I think that the kind of learning that can go on in museums can be very profound. Many great people say that they first decided to do physics or whatever as a result of a formative experience in a museum at an early age."

The thought gives Strimpel pause.

"That's really what I want the museum to provide. I think that's fundamental. If we influence a significant number of people to make important career decisions as a result of a visit to The Computer Museum, I think we'll have succeeded."

Keith Ferrell is features editor of *COMPUTE!*. He visits The Computer Museum every time he gets to Boston.



HOMEWORK

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

There are many online resources only a modem call away. Here are a few suggestions for using a modem to help educate yourself and your children that might even convince non-modem owners to go out and buy one.

GEnie now has online tutoring, classes, round-table discussions, and educational software that you can download. It's all in an area called the Computer Assisted Learning Center (CALC). The only CALC service that has an extra charge are the classes—all of the others are available at standard GEnie connect rates. All you need to access these services is a computer, a modem, and terminal software.

To get started, you'll need a GEnie account. If you don't have one, set your terminal software to half duplex and dial 1-800-638-8369; when you're connected, enter HHHH, and, at the U#= prompt, enter XTX99638,GEnie. You'll need to have a major credit card or checking account number ready.

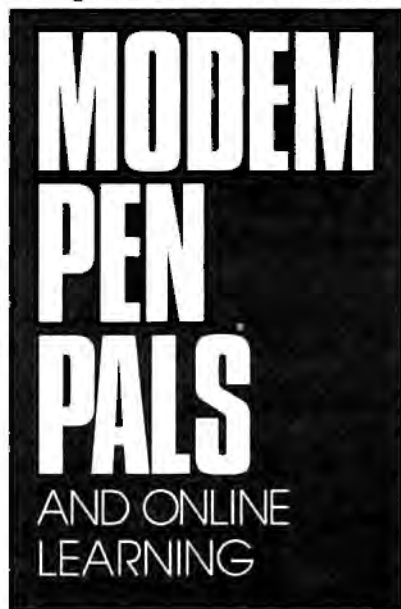
Once your account is active and you've logged on, type CALC at the main GEnie menu and you'll find yourself at the Computer Assisted Learning Center.

The first CALC menu entry gets you to the bulletin boards. These are discussion areas for questions, answers, and comments. Before you read any messages, take a look at the index of topics so you'll know which discussion is where. It would be a good idea to capture the index to a disk file for reference. Having this reference handy will help you keep connect time to a minimum, allowing you to get more bang for your buck.

The second menu choice leads you to the realtime classrooms. These aren't staffed at all hours of the day. To find out when the instructors are in, you'll have to read the hours on the bulletin board, Category 1, Topic 7. You'll also need to know the corresponding number for the subject that

you want. I found an easy way to do this. I went to the bulletin board menu, typed 1 for a category listing, and found Social Sciences was the fifth category. I went back and entered the realtime classroom, chose topic 5, and found myself in the Social Science tutoring area. When you first enter a classroom, type a question mark for a list of commands. When an instructor is at the other end, you'll be able to get most questions answered. The instructor should be able to help clear up cloudy areas with students' assignments and even help them with homework.

The third CALC menu choice gives you access to the software libraries. Most of these programs are free, although some of them are shareware.



They've all been tested to make sure they're virus-free. You'll find drills on almost every subject, games that reinforce learning, imaginative and creative software such as *Life*, and programs that help teachers. And if you compare the cost of connect time to the cost of purchasing commercial software, it's a bargain.

Other CALC menus let you register for the structured classes, send feedback to CALC, view announce-

ments, and take a survey. There's plenty to do, and, with careful usage, you should get more than your money's worth. Using a modem for online tutoring and education might be just the thing to get your child excited enough about learning to noticeably improve the next report card.

Electronic Pen Pals

It's hard to get kids to write, but practicing is the best way for them to improve their writing skills. Having a pen pal is a good way to practice communication skills and interact with someone in a different locale.

Having a pen pal has one disadvantage—there's a lag in time between sending and receiving letters. Younger people have trouble staying interested in something that doesn't provide results for days or weeks. Immediate feedback is always more effective, and your modem can give your kids the immediate response from a long-distance pen pal that will keep them writing.

How can you find electronic pen pals? You could start by posting messages on bulletin boards in your area. You can also post messages on national services like CompuServe and GEnie. When your child finds a pen pal, he or she can keep in touch using electronic mail on commercial services or private messages on BBS systems. Cost isn't that big a concern. If they compose their letters offline and upload them to their pen pal, it shouldn't cost much more than sending a regular letter. In any case, it gives kids (and adults, too) a reason to write more often and develop an important skill. And it's fun, too.

*Richard C. Leinecker
Reidsville, NC*

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



REVIEWS

SAVE BRITANNIA, ORGANIZE YOUR OFFICE, BE PERFECT, BEAM ME UP, TYPE WITH EASE, EXPERIENCE MEGASPEED, CRUISE IN STYLE, WIN A CHAMPIONSHIP, AND MORE.

ULTIMA VI

A fat, black cauldron stands alongside a stack of medieval shields and a massive two-handed sword, whose hilt leans precariously on a VGA monitor atop Lord British's desk. No, these aren't props scattered about to impress visitors or frighten away uninformed burglars, but the genuine articles vital to intrepid players of *Ultima VI: The False Prophet*, an impressively realistic fantasy role-playing game from Origin. The game commences with a movielike sequence so stunningly detailed and colorful that the introduction alone outshines most of the adventure games I saw last year. I enjoyed the VGA version, which draws on all 256 colors and employs them in a variety of exotic effects.

Your adventure commences, as it does in *Ultima IV* and *V*, with an urgent summons from Lord British. Only you, the Avatar, can save Britannia from a new race of gargoyle monsters—but things aren't quite as clear-cut as on your recent visits (you can play *VI* without having tried *IV* and *V*). The actual goal of the main quest becomes apparent only as you solve a substantial collection of miniquests, so I'll just say there's a surprising plot twist that's more reminiscent of what you might find in a novel than what you'd find in the plots around which role-playing games typically revolve. Though you may find more than one way to complete the game, there's but one satisfactory conclusion to the main quest. And though you probably thought Garriott, as Lord British, stayed in his castle while you were out

questing away in each *Ultima*, he reveals that he's also represented by another character in the game: Shamino, who appeared as a king in *Ultima I*, accompanies your party in *Ultima VI*.

While the tale is set in the land of Britannia again, numerous innovations—from the subtle to the shocking—give it the appearance of a whole new world. Have you ever noticed that many items, such as torches, are referred to only by name in an *Ultima*? For the first time, every single item is represented with its own picture. The detail of the game's graphics has increased fourfold, and many of



Save Britannia by defeating Gargoyle monsters in *Ultima VI: The False Prophet*.

the figures are animated. The effect: unsurpassed realism in every aspect of the adventuring experience.

Ultima veterans won't believe their eyes when they first reach a city, castle, or other structure (including, for the first time, pyramids). Rather than stepping on an icon representing the city and then waiting for its interior to load from disk, you'll simply stroll right through the main gate and down the streets of towns built right into the surface map; this feature accelerates gameplay by eliminating disk access. Dungeons and mazes are more interesting owing to the im-

proved graphics in the game's 1024 × 1024 map grid. There's more to this world than meets the eye.

You'll still face monsters galore, but combat assumes a fresh face as well. Instead of waging battles in a special combat arena, which requires disk access in the most recent *Ultimas*, you'll hack and slash and cast spells with the fiends right there on the main map. To simplify combat, you can put the entire party in auto mode and then lean back and watch them carry out the strategies you've assigned. (Incidentally, instead of the party icon, the game places all six party members on the screen.)

Magic spells are easier to cast, since their names are now spelled out in English in the menus; when cast, a spell's name is spoken aloud in its original Britannian, which you'll hear as digitized voices. Audiophiles using Ad Lib and Roland MD-32 sound boards can expect to hear some amazing sound effects and music.

The new combat and magic systems make *VI* far easier to master than any previous *Ultima*, so newcomers to the series won't have to memorize so many commands or thumb through the manuals as they play. Even veteran Orc-slayers will appreciate the new icon-based interface. Controlling your crew and manipulating all those artifacts, weapons, armor, and other items proves a remarkably more intuitive process, but anyone preferring the original keyboard commands can use them.

Ultima VI caps a decade of dungeoneering in grand fashion. To celebrate, Origin plans a special ten-year anniversary edition of the game, which it says will be available only through direct order. The company would not divulge any details, but rumors abound. Two of the best: Lord

British will autograph each one with the purchaser's name, and the manual will be bound in genuine dragonhide.

SHAY ADDAMS

IBM PC and compatibles—\$69.95

ORIGIN
110 Wild Basin
Suite 110
Austin, TX 78746
(800) 999-4939

PERSONAL OFFICE

Top Ten Software's *Personal Office* brags: *Working at home has never been this easy.* I agree. This software combination creates a smooth-working, complete office workstation. I found no flaws working through the tutorial, and soon I was effortlessly zipping in and out of a word processor, spreadsheet, database, communications program, and desktop organizer. How convenient not to have to return to DOS when you want to change to a different application. An integrated MS-DOS shell lets you do command line chores without exiting the program. The main menu lets you access all programs by highlighting choices with a cursor or pressing one of the ten command keys. And pressing F9 brings up help screens.

The word processor offers extensive options, including cut and paste; italic, bold, condensed, or underlined text; insert and overwrite modes; and word count. A notable feature is mail merge, which inserts fields from the *Personal Office* database into your document. With that capability you can personalize all kinds of business form letters, giving your home office a professional air and your business correspondence a personal touch. Save and Save As commands allow you to keep your original document on disk and also save an amended version. The only feature missing in this exemplary module is a spelling checker.

The spreadsheet module is almost as good as a full-blown spreadsheet program. The screen's first line under the menu bar shows the cell where the cursor is located, whether the cell is empty, and whether calculation is automatic or manual. The next line shows the cell's actual contents and the percentage of memory left for your data. Among the match functions are Sum, Average, Maximum, Minimum, Pi, Square Root, Absolute

Value, True/False, and Cosine/Sine. This spreadsheet is small compared with dedicated programs; however, with 52 columns and 200 rows, you can do a lot of figuring.

The database performs well. A powerful search feature lets you set up a simple or complex search path to find particular records. Another powerful aspect is the module's ability to sort records in a variety of ways. This database holds over 1000 records with 14 fields in each record.

I have high praise for the mailing-label function, which is part of the database. You can print as many labels as you want, and they can be of almost any shape or size. I liked being able to print a message on the bottom of each mailing label, such as *Urgent—Open Immediately.*

The communications program, when coupled with a modem, gives you access to online information, facsimile services, and other electronic networks. It supports many transfer protocols including ASCII, XMODEM, YMODEM, Batch YMODEM, Kermit, ZMODEM, and YMODEM-g.

Over half of *Personal Office*'s 200-page manual is devoted to explaining how the communications



Personal Office meets your home office demands with one convenient package.

module works. Fifty pages are devoted to the script language alone. The program has an error-correction feature called Microcom Networking Protocol, which enhances noise-free communications.

The desktop program contains eight features, running the gamut from a calendar to an expense calculator. Two unique features are postage and conversion calculators. Postage Rate calculates the cost of mailing a letter or parcel through the U.S. Postal Service; the four rates are first, priority, fourth, and special. This feature won't become obsolete at the next postage-rate increase, either, because you can change the rates.

Overall, the documentation is excellent, with a clear table of contents

and index. Customer support is described on the first page and can be contacted by modem, fax, or phone. A practical, easy-to-understand tutorial guides you through all of the programs.

Personal Office works well as a small-business or home office mainstay. If you want an integrated package that handles several jobs well and boasts an attractive price as well, you should consider it.

GLEND A MCCLURE

IBM PC and compatibles—\$79.95

TOP TEN SOFTWARE
P.O. Box 1450
Oakhurst, CA 93644
(209) 683-7577

WORDPERFECT 5.1



Over its long history, one common complaint against the PC's leading word processor was that it forced you to memorize scores of awkward key combinations. Its reliance on the Ctrl, Alt, Shift, and function keys makes *WordPerfect* no different from other MS-DOS-based word processors, yet critics focused on that particular element, often ignoring the program's otherwise fine design—including excellent support for practically every printer ever built.

Well, believe it or not, the latest upgrade to *WordPerfect* (version 5.1) adds menus and mouse support. After some initial skepticism, I found that even an experienced user can find menus helpful. Newcomers to this package will find that menus make navigating the program's complex array of options quite manageable.

The program's menu bar is unorthodox in that it remains hidden until you summon it with a hot key (you can set this up to be the Alt key; the default is the Alt+= key combination). You can also set up the program so that the bar remains visible at all times.

The company hasn't totally embraced the idea of a mouse. For example, you can use a mouse to pull down menus and to respond to *WordPerfect*'s many Yes/No prompts, but you can't use it to scroll through a document.

Besides menus and mouse support, version 5.1 incorporates 30 fea-

tures beyond version 5.0. These include the ability to construct tables; warm links to *PlanPerfect* (5.0), 1-2-3 (2.x), and *Excel* spreadsheets; support for scientific equations; automatic label making; support for 40-character filenames; dictionary-based hyphenation, and a shortcuts keyboard that links often-used commands with keyboard macros.

This latest update to *WordPerfect* will almost certainly keep this word processor at the top of the hill.

PETER SCISCO

IBM PC and compatibles with 384K (hard disk recommended)—\$495
Updates from previous versions—\$85

WORDPERFECT
1555 N. Technology Way
Orem, UT 84057
(801) 225-5000

STAR TREK V: THE FINAL FRONTIER

Space, the final frontier. These are the voyages of the Starship Enterprise. Its latest mission: to boldly go where no PC game has gone before.

Star Trek V wasn't a big success at the box office, but the computer game should do well at the software store's check-out counter. Actually four games with some stunning VGA graphics wrapped around them. Mindscape's *Star Trek V: The Final Frontier* is a package that should please arcade gamers, simulation fans, and Trekkies alike.

Most of the similarities to the movie end after the series of animated opening screens. The game starts with a view of the main bridge view screen. You give orders to each crew member by pressing function keys. For instance, pressing F3 will bring up a digitized picture of your helmsman, Commander Sulu, and a set of possible orders, such as Warp Speed and Plot Course.

As you begin your journey to Sha Ka Ree, your warp engines suffer an antimatter imbalance, and your ship is thrown into a perilous wormhole (and the first arcade sequence). Reminiscent of the wormhole scene in *Star Trek: The Motion Picture*, this sequence requires you to maneuver

your way through a twisting energy tunnel while avoiding (or destroying) asteroids that threaten to collide with the Enterprise. While you're at it, you



It's intergalactic adventure at warp speed in *Star Trek V: The Final Frontier*.

can use your tractor beam to capture dilithium crystals, which will provide extra power that you'll need later in the game. Using a combination of keyboard controls and orders to your crew, you'll find this wormhole sequence relatively easy to get through after a practice run or two.

As your ship emerges from the wormhole, you find yourself smack in the middle of a Klingon space minefield. Two counterrotating concentric rings of space mines are circling your ship. You can destroy the mines with your phasers, but there's a catch. These are gravitic mines, attracted to your ship. The rings begin closing in on the Enterprise as soon as you appear. To make matters worse, you must move closer to the mines to get within phaser range. As you approach the rings, the attraction increases and the mines close in even faster. With quick action (and a little extra phaser power from Scotty), you can blast a hole through the rings or destroy the minefield completely. Don't hang around for long after you escape, though, or you'll find your ship attracting stray mines.

After a safe escape, you're back on course to Sha Ka Ree. Here the game once again gets in sync with the movie as the encounter with the god-creature is chronicled in another series of animated pictures.

Before you're able to return to the Enterprise, you encounter Klingon Commander Klaa, who wants to take you back to the Klingon Empire for trial and execution. You've got to defeat him in hand-to-hand combat before you can return to the ship.

The Enterprise view screen is replaced with a view of Admiral Kirk and the Klingon, ready for combat. This sequence, similar to the fight scene in *Star Trek III: The Search for Spock*, is basically a slower version of

an arcade karate game. You've got to duck Klaa's blows while trying to knock him out. All you have to do to defeat the Klingon is stand there, wait for him to move, and punch him before he can punch you. It gets a little tougher on higher levels, but this is still the weakest portion of the entire game.

After you defeat Klaa, you beam back to the Enterprise and head back to Federation space. As a "guest" on your ship, Klaa proposes a duel using the Enterprise's Starship Mission Simulator. Since there was no ship-to-ship combat in *Star Trek V*, this is the only way that Mindscape could reasonably work in a space-battle sequence.

Hokey premise or not, this final sequence is where the game really shines; it's worth the entire price of the game. You're taken back to the bridge view, and your goal here is simple: Destroy the Klingon Bird of Prey. A 3-D wire-frame view of the enemy ship appears on the main view screen. Unfortunately, it's not always easy to keep the Klingon ship in your sights, as it has a cloaking device. Be prepared for some heated, fast-paced opposition. Your ships are evenly matched, and at higher levels you may encounter two or even three Klingon ships!

Combat is similar to what you'd find in a flight simulator, but without gravity or ground to worry about. Unlike some space-combat games, the action here is truly three-dimensional. You can't just turn left or right to aim at the enemy—you have to be on the correct vertical axis, too. Space-game and flight-simulator enthusiasts will really enjoy this portion of the game.

The first time you play *Star Trek V*, you must complete all four scenarios. After you've won once, though, you can skip to any sequence. You'll probably take advantage of this feature. The wormhole and minefield sequences aren't hard to master. The hand-to-hand combat game is boring even the first time—I welcomed the opportunity to skip it.

The game's graphics are superb. While the screens look good in EGA and Tandy modes, the MCGA/VGA screens are fantastic. Instead of just using a better palette for that version of the game, Mindscape included dazzling 256-color pictures. They're not digitized, either. This is some of the best art I've ever seen in a computer game. Sound is poor, though—the game supports only the standard PC speaker.

Star Trek V: The Final Frontier truly captures the spirit of the Star Trek universe, even if it does stray

from the movie's story line. But that doesn't hurt it—this is one game that's actually *better* than the movie.

DENNY ATKIN

Amiga—\$49.95
Atari ST—\$49.95
IBM PC and compatibles with 640K and EGA, MCGA, VGA, or Tandy graphics—\$49.95
Macintosh—\$49.95

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

TYPEWRITE 3 IN 1

Some of us learn to type by the hunt-and-peck system. I used this method when I was in school. Red-inked corrections contrasted nicely with the black typewriter print. A learned peer once wondered aloud why I didn't save everyone some trouble and do my work in longhand. What embarrassment I could have saved myself if only I had learned to type with Computer Trends' *Typewrite 3 in 1*.

This package combines a learn-to-type program, a mini word processor, and a typing game. It excels on all three counts. It's easy to install, very easy to use, and the manual is clear and concise. You can access the manual onscreen or summon online, context-sensitive help.

The learn-to-type module strives to avoid tedium. The beginner's level has more than 50 individual lessons, covering enough key combinations to include commonly used words. Both a keyboard chart (illustrating the position of the key and the finger you should use to type it with) and a window into which you type the designated letters are provided. When you become more proficient, you can remove the keyboard chart from the screen. You can have letters randomly generated, or you can concentrate on trouble areas for which you need practice. Setting the choices is easy. You can also create your own lessons (you might want to use specific text to test the typing of prospective employees) and edit existing ones.

The reporting facility of the learn-to-type program lists the letters in the lesson you just took, the letters with which you made mistakes, your accuracy percentage, and your typing speed in words per minute.

The mini word processor, al-

though not loaded with features, may be just what you need if you're just learning to use a computer. Among its features are word-wrap, paragraph reformatting, margin control, page numbering, footers, and the ability to create mailing labels.

While the clear manual is to be applauded, Computer Trends did make compromises in keeping it concise. To learn how to use the editing keys in the word processor and how to execute commands like copy, cut, and paste, you have to refer to the online help; the information isn't in the manual. To get help, you have to read the step-by-step instructions for operations, close the help screen, return to the text, and then remember the steps. I found it almost impossible and resorted to writing the steps down.

The game portion of the program was developed to strengthen typing skills. In it, a Raider Key chases your Player Key around the keyboard. You have to type a randomly generated letter as soon as it appears on the screen in order to elude the Raider. Like other portions of the program, the game module allows you to keep progress reports on each player.

The administrative portion of the program allows you to save, edit, sort, and print detailed progress reports on



Improve typing speed and confidence and have fun with *Typewrite 3 in 1*.

each person who uses any part of the program as well as institute a password system. Unfortunately, you can only save the progress reports if you have a hard drive. With floppies, each person prints his or her report immediately after completing a session.

Despite its documentation omissions, *Typewrite 3 in 1* is an excellent buy. It will quickly set you on a course to keyboard fluency. >

LYNNE FREY

IBM PC and compatibles—\$29.95

COMPUTER TRENDS
116 E. Washington
Ann Arbor, MI 48104
(800) 544-2597



RoboMan Exciting Arcade Action!

RoboMan is a high-speed action arcade game in which you pop balloons to acquire points while moving through 50 challenging levels of difficulty. Use jumps, super jumps, and springboards to reach strategically placed balloons and platforms.

But Beware!... misjudge a jump or walk off a platform and RoboMan could lose one of his "lives". Arcade animation, sound and high scores list add to the enjoyment of this addicting game!

Operating on IBM PC and true compatibles, **RoboMan** puts you in control of the action.

Pick up a copy of **RoboMan** at your local computer store — or call TOLL FREE 1-800-635-2425. Be sure to check out **Shuffle Mania!**, **Oligopoly**, **NFL Challenge**, **Basketball Challenge**, **PRO Challenge**, and **Bermuda Square**, other examples of First Class Software from XOR.

XOR[™]
CORPORATION

7607 Bush Lake Road
Minneapolis, Minnesota 55435
(612) 831-0444

LUCKY STAR 386SX

There are hundreds of companies peddling IBM compatibles. But finding an exceptional one at a reasonable price is as difficult as finding the Holy Grail. Lucky Computer has recently come to the rescue with an 80386SX-based, AT-bus personal computer that offers hard-to-beat features at a relatively low price.

The 386SX processor is the cousin of the more powerful 386DX chip. This means the Lucky Star can run any software that's on the shelves today and also run tomorrow's 32-bit OS/2 programs. In addition, it can take advantage of both extended and expanded memory.

The unit I reviewed came with 2MB of 80ns RAM in one-megabit chips. There's room for an additional 2MB of RAM on the motherboard. This means you won't have to go out and buy an upgrade board to add extra memory, plus you'll save additional money because one-megabit chips are less expensive, in the long run, than the 256K variety. At today's prices, you could populate the motherboard with 4MB for right around \$400.

This unit also comes with Super VGA, and the 256-color, 640 x 400 graphics are astounding. The images are incredibly clear and sharp, and they're as close to photographic-quality as I've ever seen on a personal computer.

The Lucky Star's compact tower case is a real advantage if the top of your desk, like mine, is usually full. When the time came to install my Ad Lib and Game Blaster sound cards, I anticipated a tight squeeze getting them in. I couldn't have been more wrong. There was plenty of room—in fact, there was room to spare. A clean, roomy, and uncluttered case is the mark of a good general design. If the engineers took the time to make sure the various components fit into the case properly, they probably took the time to make sure other engineering and design aspects were just as sound.

There's plenty of room to grow, too. Six 16-bit slots and two 8-bit slots are more than most people will ever need. My own AT has six slots, and I've often wished for two extra slots for my assortment of music cards.

The same might be true for a home-business computer that has two serial cards, a fax card, a graphics adapter card, and another card or two. With just the basics, you can easily fill six slots. Having two more slots gives you some breathing space.

The 44MB hard drive came formatted with DOS 4.01 already installed. The computer was up and running in a matter of minutes. I did, however, have to run the Setup program before the system would work with my printer.

When you first boot the computer, you can press the Delete key and go into a diagnostic section. The



The Lucky Star 386SX offers hard-to-beat features at a relatively low price.

diagnostics have easy-to-use menus, and the results of each test are easy to understand. When I ran the parallel-port test, I was instructed to run the Setup program so the system could recognize the printer port. The new setup took about 15 minutes (including the time it took to read the manual). After that, the documents went to the printer without a hitch.

If I had to choose one word to characterize the Lucky Star 386SX, it would be *speed*. This computer has a fast processor, a fast hard drive (28 ms), and the extra memory to let you do things even faster.

Let's start with the speed and power of the processor. Programs that require processor-intensive tasks are extremely fast on this computer. These kinds of programs include compilers, assemblers, graphics-processing and -conversion programs, and desktop publishing software. In each case, they operated significantly faster than on my AT. Spreadsheets and databases also benefit from a faster processor because they crunch numbers and manipulate large amounts of data.

The hard disk access on the Lucky 386SX is on par with most ATs. It didn't outperform any of the drives that I regularly use, but it was

about the same speed. There were no problems or errors.

Taking advantage of the large amount of memory, I installed both a ramdisk and a disk-cache program. This greatly increased the computer's productivity. I directed temporary files to the ramdisk when I compiled my programs, and this reduced the number of times the computer had to access the hard drive. With the disk cache installed, repeated readings of files were as close to instantaneous as you can get.

If you're looking for solid and reliable equipment that won't be outdated tomorrow—but at a price that you can afford today—consider Lucky Computer's 386SX. You can't go wrong with this powerful package.

RICHARD C. LEINECKER

Lucky Star 386SX Basic System—\$1,295
Review configuration (44MB hard drive,
2MB RAM, Super VGA, 1.44MB 3 1/2-inch
and 1.2MB 5 1/4-inch floppy drives, and
minitower case)—\$2,074

LUCKY COMPUTER
4151 Bellline Rd.
Suite 120
Addison, TX 75244
(214) 702-8588

STREET ROD



You're barreling down the highway in your cherry street rod at 90 mph as the tach pushes into the red. Signs and telephone poles fly by, and the engine's roar is music to your ears in *Street Rod* from California Dreams.

Street Rod tests your steering, reflexes, and cool as you drag down a quarter-mile straight or negotiate a two-and-a-half-mile course. But watch out, Jack! You could blow an engine, drop a transmission, get pulled by the cops, get bumped by your opponent, or even crash.

Strategy and style set *Street Rod* apart from other racing games. If you're to beat the King (top rod) by the end of the summer, you must know your engines and keep them in shape by tuning and checking them regularly, using the best parts, and spending your money wisely. At Bob's Drive-In, where street rods meet, you get a chance to check out the competition, even pop the hood, before making a challenge.

Style counts in this game, too. The Geek might race any car, but to challenge the truly cool opponents,

you must dazzle them with the right paint job, custom sticker, and body work. The King won't race just anyone.

The game's EGA and Tandy 16-color graphics are impressive (CGA is OK), and I like the attention to detail, such as the drive-in waitress on skates and the reflections in the rearview mirrors. A mouse, joystick, or keyboard may be used to drive and make selections, though controlling speed and steering with keys is a bit too challenging for me at 90 mph.

If you're ready for customizing, cruising, challenging, and charging ahead with a mean machine, Bud, burn rubber. This game's for you.

MIKE HUDNALL

IBM PC and compatibles with 512K—
\$49.95

CALIFORNIA DREAMS
780 Montague Expwy. #403
San Jose, CA 95131
(408) 435-1445

OMNI-PLAY BASKETBALL

Pulling a pro basketball team out of the division cellar and making a run for the World Championship is no mean feat, as I discovered midway through my third losing season in SportTime's *Omni-Play Basketball*. As a hard-core roundball fan, I've seen my share of computer basketball games. This is one of my favorites.

Like SportTime's other offerings, this program excels in its use of statistics. With *Omni-Play Basketball*, you help create a whole basketball world.

Continuing its tradition of marketing game-specific add-ons, SportTime plans several modules for this game, including *Pro League*, *College League*, *Fantasy League*, *Side-View Game*, and *Print Utility*. Using any of these modules requires first purchasing the centerpiece game, which incorporates the SBA League and End-View Game modules. As owner, general manager, and coach, you try to fashion a championship team.

In creating your own league, you define the number of minutes played per quarter, the number of games in a season (up to 21), and the playoff format (best of one, best of three, or best of five).

As Owner, you watch your team

through nine seasons. As General Manager, you make trades, recruit hot rookie talent, and improve your team at training camp. As Coach, you lead



You can coach your team to the world championship in *Omni-Play Basketball*.

your team on the floor, selecting defensive and offensive setups, calling strategic timeouts, monitoring injuries, and making key substitutions during crucial game periods.

Each player in the League is rated, on a scale of 0-9, for outside shooting, inside shooting, control, and speed. Make trades by bartering players, and sweeten the pot with Trading Points, awarded after each season (the teams finishing at the bottom get more points than those at the top). The program governs all arbitration. As your players age, you must seek other talent to blend in with your team.

Omni-Play Basketball puts a premium on strategy rather than on joystick reflexes. However, action-oriented hoops fans do have some control over players. The computer guides players through their defensive and offensive patterns, letting them set picks, dribble, pass, shoot, block, take charges, and steal. To get into the heat of the game, however, guide the action with joystick or keyboard commands.

Player control lacks the precision I would like. You can't, for example, switch defenders to stay in your opponent's face. Instead, the computer guides the entire team, and you must pick opportune moments for making specific playing decisions.

Defensive control can cause severe coach's anxiety. It's easy for the other team to break a forward into the lane or to free a guard on a pick (especially if you're playing the computer, which sees the floor better than Magic). I found my guys jumping around like aerobics-class dropouts while some Detroit sharpshooter launched a three-pointer.

Offense presents its own problems. Shooting and passing are governed by the fire button. A quick press

makes your player pass in the direction you've selected; a longer press makes your player shoot the ball. Frequently I tried to make a downcourt pass to a streaking forward, only to have my guard hurl an 80-footer. I wish SportTime had given me the option of two fire buttons: one for pass, one for shoot.

Serious hoops fans, not just arcade junkies, will relish the coaching control, which is where this game excels. From the bench you set up options to take advantage of your team's strengths and your opponent's weaknesses. For offensive rebounding strategy, you can direct your team to Hit the Boards or Protect the Fast Break. For offensive ball handling, have your team Work Inside or Work Outside, or set the variable to Normal for a mix of offensive shots.

If you're interested only in making the coaching calls, letting the computer guide the players, you can set the offensive variables to Work Clock (to eat up time on the shot clock before taking a shot), Quick Shot (to shoot as early as possible), or Mix (a combination of the two).

Defensive Rebounding strategy allows you to select Hit the Boards, Foul, or Set Up Fast Break. Position your players to Expect Inside (if you think your opponent will drive the lane), Expect Outside (if you anticipate perimeter shooting), Try Steal, or Normal (a steady, all-around defense). If the computer is guiding your players, you can also set your defense in Man to Man, Double Team, or Mix.

The Roster Option screen, a subset of the Coaching screen, is where you decide who will play. You can select View Stats for the game (including a Hot quotient, so you can track shooters on a streak) and, by choosing Subs, make key changes in your lineup. One especially nice touch, the Auto option, automatically selects your best lineup according to the strength guidelines you select (Outside, Inside, Speed, Control, or any combination of the four).

Omni-Play Basketball supports CGA and EGA graphics (the label also lists VGA, but it's no different from a 16-color EGA display). The players are small and interchangeable; there are no distinguishing characteristics between a 7-foot center and a 6½-foot guard.

The unspectacular graphics are a small trade-off for minimal memory requirements, smooth animation, and a depth and verisimilitude that many sports games lack. The only key element missing in this armchair coach's dream is a rookie lottery. Other than

that, *Omni-Play Basketball's* expandability, strategic bent, and overall loyalty to the game earn it a place on my All Star roster.

PETER SCISCO

Amiga—\$49.95
Commodore 64/128—\$34.95
IBM PC and compatibles—\$49.95
College League—\$19.95
Side-View Game—\$19.95
Pro League scheduled for spring release

SPORTTIME COMPUTER SOFTWARE
3187-G Airway Ave.
Costa Mesa, CA 92626
(800) 752-942

BASIC TOOLS

Believe me, I never thought I'd be excited about BASIC. But that was before I saw Finalsoft's *Basic Tools*. It adds a long list of functions that can dress up any BASIC program and elevate it to the level of commercial-grade software. Diehard BASIC programmers have been doing this for years, but now this comprehensive package makes the process easy.

Demo programs for the new techniques are printed in the manual and stored on disk. The fully commented code should answer most of your questions, but you can also consult the explanations in the manual. I'm equally impressed with the simplicity of the function calls. This is an idea whose time has come—simple calls for complex operations.

The first part of the tutorial covers windows—how to open, close, move, hide, and show them. With several calls, you can easily change many of the window attributes, including window title, footer, border type, and shadow. After running the canned demos, I tried an experiment. First, I moved a window across the screen and changed its color according to the screen position. This illustrated not only the ease of moving a window but also the visual effect of the different color combinations.

You can open up to ten windows simultaneously. The only difficulty I encountered with multiple windows was remembering which was currently active. You must hide the windows in the opposite order they're shown so the screen can be restored correctly.

Basic Tools fully implements text-scrolling capabilities within windows. It handles the clipping rectangles, text colors, and text-positioning for

you, along with some of the other nasty things that window text introduces.

When I read the manual for the first time, I came upon the SCINT10() function for calling BIOS video interrupts. Being able to do interrupts directly from BASIC is a welcome addition, but I would have liked to have seen a call for doing DOS and other BIOS interrupts.

There's also a memory-resident help module that can provide on-screen help for the functions at any time. It doesn't have a lot of detail—it's meant to provide quick help for those times when you can't remember an exact function call.

In addition to the Window Manager commands, there's an entire set of commands controlled by the File Index Manager. Included in the library of functions is a set of *dBase*-like commands for handling file records and fields. When used in conjunction with the window functions, they provide a powerful arsenal for writing BASIC programs.

Before you can use the File Index tools, you have to create an Index File with a special utility. (This should sound familiar to *dBase* programmers.) The same utility rebuilds and initializes your data files.

Once you've created the Index File, you'll be ready to access it from your code. Records can be updated, deleted, read, and written with easy-to-use commands. Other functions do such things as get file-structure information and tell you which is the next free record.

Finalsoft did everything possible to make *Basic Tools* powerful and easy to use, but it's difficult to do both. For instance, the File Index Manager isn't as easy to use as the Menu Manager. And without the included examples, it would have taken me much longer to learn *Basic Tools*. Finalsoft must have anticipated this last problem because it has included excellent example files.

If you want to add a professional touch to your BASIC programs without having to reinvent the wheel, *Basic Tools* is for you. The commands are functionally useful and relatively easy to use, and the Windows Manager will give your programs a professional appearance. That's a combination that's hard to beat.

RICHARD C. LEINECKER

IBM PC and compatibles—\$79

FINALSOFT
3900 NW 79 Ave.
Miami, FL 33166
(305) 477-2703

TAX SHOP 1040

Ahh, April! The weather warms. Minds wander. Hearts go pitter-patter. People seem to be lost in a daze.

Yes, Virginia, it's tax time again. And to help you through the writeoffs of spring, the kind folks at TenKey offer *Tax Shop 1040*. It's a program that turns your PC into a tax assistant, and the payoff is a smoother road to a finished tax return.

Tax Shop 1040 lets you choose your own approach to preparing tax forms. With the first approach, you can start with the various supporting schedules and complete the forms and schedules one at a time. After you complete each form, the appropriate information is automatically carried over to your 1040.

With the second approach, you start with the 1040. As you work on it, you can use the F5 key to zoom to a supporting form or schedule whenever it's needed. For example, if your total tax picture includes business income (figured on Schedule C and shown on line 12 of Form 1040), you can zoom from line 12 directly to Schedule C.

The program's onscreen displays closely resemble actual tax forms. A pop-up calculator and notepad are available, and a summary of how your return is shaping up is just a keypress away. The program also includes online help (with a topic index), a tax planner that lets you do what-if analyses, and a question-and-answer interview routine that's designed to help you focus on the necessary forms and schedules.

Tax Shop 1040 lets you print out a complete IRS-approved 1040 form on your dot-matrix or laser printer. Because it's IRS-approved, you can use *Tax Shop 1040* to prepare ordinary mail-in returns. The package also interfaces with a large number of optional state income-tax-return preparation packages.

A particularly intriguing feature of *Tax Shop 1040* is its ability to let you file your tax return electronically, which speeds your refund. Here's how it works. After preparing your return, *Tax Shop 1040* converts your tax data file into an IRS-compatible format. You then send the file with the ELF (ELECTronic Filing) extension to the IRS.

How does it get there? Since the IRS doesn't presently accept electron-

ic filings from individuals, you must do your filing through an approved intermediary (an Electronic Return Originator), such as TenKey. You simply send TenKey your tax file, along with a completed IRS Form 8453 (U.S. Individual Income Tax Declaration for Electronic Filing), plus attachments and a processing fee. Form 8453 is required by the IRS for each return that's filed electronically. It indicates that you've given your OK to have your return filed electronically. Your W-2s go with it. It also includes direct-deposit information—in case that's how you want your refund handled.

You can transmit your return to TenKey in one of two ways. If you choose the so-called Diskmailer ap-



Understand your finances and avoid tax headaches with *Tax Shop 1040*.

proach, simply use *Tax Shop 1040* to create the ELF file and mail the ELF data disk to TenKey (along with your payment, a signed 8453, and its attachments). Alternatively, you can transmit your tax return to TenKey with a 300-, 1200-, or 2400-baud modem. *Tax Shop 1040* even includes automatic-dialing software. To help you with the extra charges, TenKey lets you deduct \$1 from the \$12 processing fee for each mailing or modem transmission.

TenKey forwards your tax return by modem to the IRS. Within a few days, you'll receive an acknowledgment that the IRS has accepted and filed your return. According to TenKey, your refund will be deposited into your checking account within about ten days. Refunds that can't be directly deposited may take a few days longer.

The instructions that accompany *Tax Shop 1040* quote an IRS official as saying that the IRS is shooting for a "98-percent paper-free tax system" by the year 2000. As this is being written, however, there are a few constraints to keep in mind. Several forms, including the 1040A and 1040EZ, can't be filed electronically—electronic filers must use the regular 1040. Forms

2210, 4868, 4952, 4972, 6251, 8615, and 8814 also can't be included in an electronically filed return.

In addition, only returns with a refund due can be filed electronically. If your return shows a zero balance due, or if you owe tax, you can't (as of this writing) take advantage of electronic filing. Finally, electronic filing can't presently be used for filing amended returns.

The *Tax Shop* package includes two wire-bound manuals. One is a user manual that describes the functions of the program; the other is a guide to the tax forms. The language in the manuals (especially the use of the word *clients*) suggests that this package is aimed at tax professionals. Diligent taxpayers, however, shouldn't find the manuals too specialized to be useful.

TenKey offers *Tax Shop* in several versions, including *Tax Shop 1040*, discussed in this review. *Tax Shop 1040A* (designed for preparing forms 1040A and 1040EZ) is also available, but it doesn't include the electronic-filing option.

Does *Tax Shop 1040* make tax preparation fun? Not at all—but it does make preparing your taxes easier and faster. Two out of three ain't bad.

STEVE HUDSON

IBM PC and compatibles—\$69

TENKEY
7650 Municipal Dr.
Orlando, FL 32819
(407) 351-0966

FRIGHTMARE

Ghosts and ghoulies will be after you in *Frightmare*, an Accolade title released under the Advantage budget label. In typical arcade fashion, you must avoid the bad guys, destroy them with your arsenal of weapons, and progress through various levels. The premise: You're having a bad dream; the farther you progress, the closer you are to overcoming your nightmare.

I had some problems getting started, due mostly to errors in the documentation—even filenames are listed incorrectly. Also, the directions mention only joystick control, but I couldn't get mine to work. Finally, after experimenting with the keyboard, I was able to start the game and control the character.

Once underway, I had fun dodg-

ing ghosts, shooting ghoulies and monsters, and climbing and jumping. In addition to a lot of levels, you get a wide variety of screens.

Here again, though, some problems exist. Your character is always out of position, either above or below the game's ledges and objects. That programming oversight makes the game hard to play. Also, the moving objects interacted graphically with the background in some unexpected ways; in some instances, an image would change color slightly, depending on the background over which it moved. That's not a fatal flaw, by any means, but a sign that shortcuts were taken to keep the game's retail price low.

If you like to zap ghoulies and ghosts and you're the type that never reads instructions anyway, *Frightmare* might be worth a look. At least its reasonable price won't zap your bankroll in return.

RICHARD C. LEINECKER

IBM PC and compatibles and Commodore 64 floppy disk—\$14.95

ACCOLADE
550 S. Winchester Blvd.
Suite 200
San Jose, CA 95128
(408) 985-1700

MECHWARRIOR

The mission was almost complete. If I could just make it around this hill and rescue the hostages, I'd be back home enjoying a drink in no time. Rounding the corner, I spotted trouble—trouble in the form of an 85-ton giant robot aiming four medium lasers between my eyes. I hit my jump jets and ran for home, the right side of my torso a smoking mass of molten metal.

This is the universe of Activision's *MechWarrior*, a simulation based on FASA's *BattleTech* role-playing game. You pilot a giant war robot armed with lasers, particle cannons, and a variety of other deadly weapons. To the people around you, you seem to be an everyday Mech-driving mercenary, taking your lethal war machine into combat for any ruling power who will pay the price.

Your real goal is much more noble, however. You're out to find the marauders who killed your family and exact revenge upon them. You can't do this alone with your tiny Jenner Mech, though. You'll need an entire

lance of powerful mechs before you can take on the evil Dark Wing, scourge of the inner sphere.

First, though, you'll need some C-Bills, the local currency. So hire yourself out as a mercenary, kick some titanium tail, and build up your bank account. As you make more money, you can afford to hire pilots



Engage robots in mechanical mayhem for cash and glory in *MechWarrior*.

for your team and outfit them with mechs. As your team builds experience, you can move the members up to larger, more powerful mechs.

The main screen provides you with a number of icons that you can use to select these and other options. First you'll want to visit the Mech Complex and rearm and repair your Jenner. This will probably wipe out your bank account, so it's time to go into combat. Select the Contracts icon, request a mission, and then haggle your price.

When you've agreed on a fee, click the drop-ship icon and head into combat. The screen will change to show the view from your mech's cockpit. Familiarize yourself with the instruments, but don't take too long, as the enemy will probably be breathing down your mech's neck.

Operating a mech is like a combination of driving a tank and flying an aircraft. You can move the mech in one direction, swivel its torso, and fire in another. If you get into a bad situation, you can hit your jump jets, take off, and escape the line of fire.

The view from the cockpit window is excellent. Three-dimensional shaded polygons represent terrain and the other mechs. A sophisticated heads-up display projected onto the window makes targeting the enemy a snap.

Most mechs have a variety of onboard weapon systems. Be careful not to fire too quickly, though. The more you shoot, the hotter your mech gets. If your mech gets too hot, it will shut down, and you'll be a sitting duck.

If you accomplish your mission, you'll be rewarded financially and

with a percentage of the salvaged parts from the enemy mechs. Fail, and your reputation declines along with your bank balance.

When you have enough money, visit the local bar, hire some mech pilots, and outfit them with the best hardware you can afford. Combat gets a lot easier when you have three hired mercenaries helping you achieve your goal.

Keep an eye on the local news nets for information about the best areas to find mercenary jobs and for rumors that will eventually help you track down the Dark Wing. The local bartender is usually good for a few clues, too.

Although the game doesn't take advantage of the full VGA palette, the EGA and Tandy 16-color screens are excellent. The 3-D shaded polygons used for the cockpit-window views display the excellent quality and smooth animation I've come to expect from Dynamix, the developer who created *MechWarrior* for Activision. Sound support is good, too, taking advantage of the Ad Lib and Roland cards.

This is one of the most addictive games I've encountered in a long time. The combination of role-playing, strategy, and war-game elements wrapped around the robot simulation keep *MechWarrior* from becoming dull. The game is true to the Battle-tech saga, but even if you haven't played the noncomputer role-playing game, you'll still enjoy it.

DENNY ATKIN

IBM PC and compatibles with 512K; EGA, VGA, or Tandy graphics (640K required); 8-MHz or faster processor recommended—\$49.95

ACTIVISION
Distributed by Mediagenic
3885 Bohannon Dr.
Menlo Park, CA 94025
(415) 329-0500

COLLEGE BOUND

Once you've been accepted to college, you need to think about being away from home cooking, the family car, and your high-school sweetheart. You also need to plan a strategy for surviving final registration. And you might think about how you're going to deal with a roommate whose idea of a good time is throwing the wildest party of the century in your room the night before

your chemistry final. MCE's *College Bound* can clear your thinking on these topics and make your academic journey less perilous.

From the program's main menu, you can view one of six segments. Introduction explains the purpose of the program and presents the pros and cons of small and large schools. Away from Home provides suggestions for combating homesickness, making friends, and acting responsibly. Roommates covers desirable roommate characteristics, the dynamics of living together, and how to cope with an undesirable roommate.

Other program segments focus on the pluses and minuses of operating a car or bicycle and contrast dorm life with off-campus housing. Signing Up for Classes, the final section, helps you avoid the pitfalls of registration day and explains adding and dropping courses and the credit systems.

The majority of the program consists of pertinent onscreen infor-



Master Dorm Life 101 before you reach the ivory towers with *College Bound*.

mation, explanations, and suggestions. Interspersed throughout are graphics, preference tests, and quizzes employing multiple-choice, true/false, and fill-in-the-blank formats.

Overall, the quality of the writing is competent, as are the blocky yet colorful drawings. Sound is nonexistent. An appropriate musical score or some suitable sound effects might have livened up the program.

For the most part, the text and graphics flow smoothly from screen to screen. Control, via the keyboard, is effortless. Multiple-choice and true/false selections present few technical difficulties. However, in trying to serve the needs of thousands of prospective buyers with potentially tens of thousands of questions, the developers have had to rely on generalities. This unavoidable trade-off leads to blandness and naiveté. Comments such as "Some colleges are quite large, some quite small," or "Be nice, say nice things, and be yourself" do nothing for the college-bound student who

\$2.49
ea.
Less Than 10

The World's BEST 101 Programs

The World's BEST User-Supported Software for IBM PC Compatibles
All Disks Are Easy to Use—No Computer Experience Needed!!
Same-Day Shipping • UPS 2nd Day Air Available for only \$2 Extra
Toll-Free Order Line • Visa/MasterCard Accepted • FREE Catalog
Unconditional Money-Back Guarantee!!

\$1.99
ea.
10 or More

Act Now!!

3 FREE DISKS*

Limited Time!!

BUSINESS/ ACCOUNTING/FINANCE

- Financial Consultant** (1600) An effective money management system.
- Blakbook** (1603) Great for keeping track of addresses and phone numbers. Prints an address book.
- Form Letters** (1607) 100 business and legal forms (contracts, employment applications, filings, etc.).
- PC-Payroll** (1608,1609) A complete and powerful payroll system. (2 disks)
- Stock Charting** (1612) A complete portfolio system to track, analyze, and chart your stocks.
- Small Business Accounting** (1617) A must for all small business owners!
- Solve-It!** (1618) Does over 20 vital financial calculations including amortization, PV, FV, and IRR.
- PC-Books** (1621) A complete, easy to use bookkeeping system.
- PC-Loans** (1628) This package supports all common loan methods.
- Easy Project** (1629) A powerful project manager software package.
- FormGen** (1630) Design and print any office form, easily!
- Employee Management** (1641) A shockingly accurate employee personal file test that helps lower turnover.
- Biller** (1642) Complete time & billing program. Automates all your billing.

DATABASE/MAIL LIST

- File Express** (1700,1701) A powerful, easy to use database (2 disks).
- Mail List Manager** (1702) Keeps track of your mailing list and prints labels.
- PC-File:dB** (1705-1707) The most powerful dBASE compatible program available! (3 disks) **HD 512K**

SPREADSHEETS

- PC-Calc+** (1800-1802) The most powerful spreadsheet package. (3 disks) **512K**
- As-Easy-As** (1805) FANTASTIC Lotus 1-2-3 compatible spreadsheet.
- Lotus Macros** (1807) A large collection of Lotus macros and templates.

WORD PROCESSING

- PC-Write Macros** (1850) 100 great macros. For PC-Write users only.
- PC-Write 3.03** (1851-1853) The BEST word processor for under \$200! Has spell checking and hundreds of other features (3 disks) **512K**
- WP 5.0 Macros** (1857) Several macros for Word Perfect 5.0. (If you have WP 4.2, select disk #1856.)
- WP 5.0 Learning Sys.** (1863,1864) Helps you learn and master Word Perfect 5.0. (If you have WP 4.2, select disks #1861 & #1862.) (2 disks)
- PC-Type+** (1870-1872) Complete word processor with 100,000 word dictionary and mail merge. (3 disks)

BIBLE/RELIGION

- Bible-Q** (1551) Test your Biblical IQ!
- Church Database** (1554) Automates record keeping for churches.
- SeedMaster** (1555-1567) The complete King James version of the BIBLE on disk! (13 disks) **HD**

HOME BUDGETS/ FAMILY APPLICATIONS

- Home Budget Manager** (1103) Tracks all your household expenses and helps you to set budgets and goals.
- Express Check** (1104) Excellent checkbook program with reconciliation and great screen displays. **512K**
- Home Inventory** (1105) Keeps track of all your personal property.
- Edna's Cookbook** (1118,1119) An easy to use computerized cookbook. Comes with several great recipes—add your own favorites. (2 disks)
- Brother's Keeper** (1120,1121) A great genealogy program that allows you to trace your family history (2 disks).

EDUCATION

- French I & II** (1200,1201) Learn and practice French vocabulary (2 disks).
- Spanish I & II** (1205,1206) Test and train with these excellent Spanish vocabulary drills (2 disks).
- Geography** (1215) Learning is fun with this great geography trivia game.
- PC-Gradebook** (1217) Record and monitor your students' grades.
- Funnels & Buckets** (1219) A fun math learning game that kids love to play!
- World** (1221) A computer encyclopedia of global information. **CGA**
- Typing Tutor** (1224) Helps you improve your speed and skill. **CGA**
- PC-Professor** (1229) This program teaches BASIC programming.
- Balloon Speller** (1230) An introduction to spelling for children. **CGA**
- Math Lessons** (1233) A great program that teaches algebra. **CGA**
- Facts 50** (1234) A graphic geography lesson of the U.S. **CGA**
- Computer Tutor** (1235) Become a more effective computer user.
- Play 'n' Learn** (1236) A set of 6 learning games for preschoolers. **CGA**
- Presidents** (1240,1241) Learn much about the U.S. Presidents. (2 disks)
- Puzzle Search** (1249) An educational game/quiz of history and geography.
- School Mom** (1251) Teaches kids (2-14) the basics of art, music, spelling, English and math. FANTASTIC!

UTILITIES

- MasterKeys** (1400) Like Norton Utilities (recover deleted files, disk editing, change file attributes, etc.).
- SimCGA** (1404) Allows monochrome PCs to run many CGA programs.
- PC-DeskTeam** (1406) Several useful desktop accessories (clock, calendar, calculator, notepad, etc.).
- Automenu** (1409) A very professional hard disk menu system. Run any of your programs from a custom menu.
- SideWriter** (1410) Prints your spreadsheet print files sideways.
- Space Maker** (1412) This utility allows you to fit more data on any disk.
- ALT** (1413) It's like Norton Utilities, the Sidekick desktop accessories, and a menu program all in one!
- HD Backup** (1415) Allows you to backup/restore all the data on your hard drive with floppy disks. **HD**
- NewKey** (1416) Save time and increase efficiency by using this (the BEST) keyboard macro program

GRAPHICS/PRINTING

- Express Graph** (1106) Turns raw data into great business graphics.
- Banner Maker** (1502) Prints banners in various sizes, styles, and fonts.
- PrintShop Graphics** (1503) A large collection of Printshop clip art.
- PC-Art** (1509) A color graphics painting/drawing package. **CGA**
- Epson Utilities** (1514,1515) Enhance the print quality of your Epson-compatible printer. (2 disks)
- PC-Key Draw** (1520-1523) Powerful CAD design system. Works with mouse or keyboard. (4 disks) **CGA**
- City Desk** (1525) Simple desktop publishing for newsletters.
- Charts Unlimited** (1531) A design tool for creating any kind of chart. **CGA**
- PC-Draft** (1533,1534) A high-quality drawing program. (2 disks) **CGA**
- Rubicon Desktop Publisher** (1541-1543) Requires a LaserJet or Postscript compatible printer. (3 disks)

MISC. APPLICATIONS

- Bowling League Secretary** (1308) Manages your league and keeps stats.
- Personal Biorhythm** (1310) Will display or print a personal chart
- KwikStat** (1314,1315) A professional statistics package. (2 disks)
- Wisdom of the Ages** (1316-1319) Over 6000 great quotations from the greatest minds of history. (4 disks).
- Make My Day** (1627) Puts you in control by organizing your time!
- Piano Man** (1901) Compose and edit music or play the keyboard.

GAMES

- AdventureWare** (1934) Five excellent adventure games.
- Armchair Quarterback** (1905) A fun football strategy game.
- Baseball** (1916) Great arcade action and baseball strategy. **CGA**
- Bridge Pal** (1911) Play bridge anytime!
- Crime Lab** (1955) Play this exciting graphic murder mystery game. **CGA**
- 18-Hole Miniature Golf** (1915) Kids really love this one! **CGA**
- Flightmare** (1923) Futuristic fighter pilot arcade game. **CGA**
- Ford Simulator** (1956) A great driving simulation game from Ford. **CGA**
- Kid Games** (1938) These games are both fun and educational. **CGA**
- Kingdom of Kroz** (1952) An excellent, award-winning adventure game.
- Las Vegas Style Craps** (1914) Play and improve your skill. **CGA**
- McMurphy's Mansion** (1966) Search a spooky Scottish castle for treasure.
- Miramar Flight Simulator** (1967) You command a fully armed F-18. **CGA**
- PAC-Man & More!** (1930) PAC-Man and Ms. PAC-Man clones. **CGA**
- PC-Gammon** (1907) Play a tough computer opponent, anytime. **CGA**
- PC-Pro Golf II** (1975) Choose your club and swing away at one of the world's most beautiful country clubs (Amherst). Excellent graphics! **CGA**
- Pinball** (1941) Great sound and fast play on 5 different "machines." **CGA**
- Q-Bert** (1906) Play the classic arcade favorite on your computer. **CGA**

GAMES CONT.

- Scrabble** (1957) Test your word power with this always fun game. **CGA**
- Sleuth** (1903) Play detective in this "Who done it?" adventure.
- Sports Games** (1927) Bowling, archery, and pool. **CGA**
- Star Trek** (1948) Two versions for all you TREKies out there.
- Strategic Games** (1926) Fight on land and sea in this war simulation.
- Striker** (1904) Helicopter attack and rescue arcade game. **CGA**
- Trivial by PAS** (1953) Test your knowledge in several categories.
- Tune Trivia** (1968) A very fun version of "Name That Tune."
- Video Poker/Ultima 21** (1945) The BEST poker and blackjack games!
- Wheel of Misfortune** (1935) Like TV's Wheel of Fortune game.

IMPORTANT

CGA=Requires Color Computer
HD=Requires Hard Drive
512K=Requires 512K RAM

For multi-disk sets, count all disks in set.

* When you order and pay for 5 or more disks, select an additional 3 disks FREE (limit 3 free disks per order).

Name _____
Address _____
City _____
State _____ Zip _____
Phone (____) _____
Visa/MC # _____
Exp. Date ____/____/____
Signature _____

Disks Ordered _____
x \$2.49 or \$1.99 ea. \$ _____
 Need 3 1/2" disks?
Add \$1 per ea.
(include free disks) \$ _____
Shipping \$ 3.00
Foreign add \$2 \$ _____
 COD (U.S. only)
add \$4 if you require COD\$ _____
 UPS 2nd Day or
Priority (U.S. only)
add \$2 \$ _____

TOTAL \$ _____

Check/MO Visa/MC C.O.D.



ORDER TODAY
1-800-234-6467

needs advice on how to cope with campus crime, drug abuse, and even severe freshman depression. Instead of suggesting that only one TV or stereo is needed in a dorm room, tactics for handling a roommate's sleepover friend would be more apt.

Students from high schools that offer little or no college counseling might find this program helpful, as would guidance counselors looking for a way to introduce junior-high pupils to aspects of college life. The price, however, is a lot to pay for a program that fails to provide compelling insights or topically relevant information.

LEN POGGIALI

IBM PCs and compatibles—\$82.50

MCE

1800 S. 35th St.
Galesburg, MI 49053
(616) 665-7075

PRESCRIPT

Do you long to give your Hewlett-Packard LaserJet printer PostScript capabilities, yet balk at the high price of many adapters? If you do, then check out *PreScript* from Pan Overseas Computer.

The program comes in two versions. The standard version, priced at \$195, offers Adobe-compatible typefaces in Courier, Helvetica, Times Roman, and Symbol, with bold, italic, and bold-italic fonts. The deluxe version, at \$395, adds Avant Garde, Bookman, Helvetica Narrow, New Century Schoolbook, Palatino, Zapf Chancery, and Zapf Dingbat typefaces, again with bold, italic, and bold-italic fonts. The fonts are scalable, and while the documentation does not specify maximum size, 300 point prints very nicely.

The program requires an 80286 or 80386 computer, uses DOS 3.1 or higher, and is something of a memory hog. It demands 2 megabytes of extended memory on top of regular system memory, and the deluxe version will take up 2.5 megabytes of hard disk space. *PreScript* operates as a TSR (Terminate and Stay Resident) program, so you can drop in and out of printing applications without re-loading. To change printers, you must reboot.

Program documentation is clear and specific, and *PreScript* installs smoothly. The documentation con-

tains specific setup instructions for *Microsoft Word 5.0*, *WordStar 5.5*, *WordPerfect 5.0*, and such popular graphics programs as *PC Paintbrush*, *Ventura Publisher*, *Pagemaker*, *PFS*, *GEM*, and *CorelDraw*. An entire section is given over to the installation and use of the program in *Windows*.

Since my first interest is in word processing, I followed the setup instructions for *WordPerfect*. The setup went very smoothly for both *WP 5.0* and *5.1*, although some modification of the instructions is necessary for *5.1*. The interface with *WordPerfect* is transparent. The only weakness in the program appeared when the text was printed. *PreScript* is slow, very slow. Two minutes were required for each text page, in contrast to the 11 seconds required under Swfte's *Glyphix* program.

According to POC, *PreScript* is fast, so I called the Technical Support department to see if I had done something wrong. They were most cooperative and helpful and, after some questions about my machine configuration, told me that the cause was that my extended memory is located on an expansion board. POC claims that, for computers with extended memory on the motherboard, about 20 seconds per text page would be the normal printing speed.

Even accepting this limitation, I would be disappointed in a program that required twice as much time for printing as *Glyphix*. POC must have some reservations of its own, since it markets a speed-up card, the POC Laser Interface Card, for \$295.

Test prints of all the fonts in the deluxe packages produced highly presentable copy. You can probably find a font to suit your taste from *PreScript*'s wide selection.

WordPerfect has inherent graphics capabilities. A sample page of two complicated graphics figures printed very nicely under *PreScript*. Again, the program was a little slow in comparison with *Glyphix*, but not nearly as slow as with text. *PreScript* required almost 5 minutes to print the page that *Glyphix* printed in 2½ minutes.

Turning to a more specifically graphics-oriented program, I followed the setup procedure for ZSoft's *Publisher's Paintbrush* and installed it quickly and easily. The program went smoothly through its paces of constructing and printing a few graphics figures. Again, the output was most satisfactory.

POC emphasizes the compatibility of *PreScript* with *Windows*: that's what I expected and that's what I found. The procedure for installing

PreScript in *Windows* is a little lengthy, but the instructions guide you through the process. If you're a *Windows* user, you'll find that *PreScript* meshes smoothly and seamlessly with that interface and even offers a preview feature that permits you to view your document before it's printed.

Overall, *PreScript* emerges as a well-designed, well-documented program. It's clear that POC has gone to some lengths to ensure its compatibility with the popular word processing and graphics programs. My sole criticism: its speed. That can be offset in part if your extension RAM is on the motherboard, and it can be further improved if you wish to acquire the POC speed-up board. If PostScript emulation is on your wish list, *PreScript* may well be a likely candidate.

CHARLES IDOL

IBM 80286 or 80386 compatible, DOS 3.1 or higher, 3MB of RAM (including 2MB of extended memory); standard version—\$195, deluxe version requires 2.5MB of hard disk space—\$395

PAN OVERSEAS COMPUTER

44 Rt. 46
Pine Brook, NJ 07058
(201) 808-1900

POPULOUS

FAST LOOKS

You've had a hard day. You raised and leveled land for your followers, appointed a new papal leader, and sent floods and earthquakes to your enemies. All this and you have barely enough power left to bring on a good rain. What's a deity to do?

If your ego is ready for a stretch, you may be ready for the PC version of *Populous*. It's a game from Electronic Arts, in which you get to—if you'll pardon the expression—play god. Unfortunately, you're not the only supreme being in this world. There's another group of followers who look up to some other deity, and there isn't enough room in this world for both of you.

To play, you choose from 500 different worlds (consisting of ice, sand, grass, and ash terrains), direct the behavior of your followers (your goal is to increase their population), and perform a bit of old-fashioned divine intervention (if it's not beneath your theology to use a swamp or volcano on the unsuspecting followers of the other deity).

If you feel especially powerful, you can push the Armageddon but-

LOWEST PRICES! FAST DELIVERY!

Guaranteed

\$1.75 or
per disk 10 or more
\$2.25
per disk less than 10



Unconditional money-back guarantee! ■ Free catalog of over 200 programs with every order or by request ■ All orders shipped same day ■ Airborne Express overnight service only \$6.00

THIS MONTH'S SPECIALS

- Am-Tax, 1989 Tax Year (3989)**—Prepare your 1989 tax returns easily and quickly. 1040 and all schedules A-SE.
- Personal Budget Tools (3987)**—Great way to plan your household budget. Powerful and easy to use.

BUSINESS/HOME

- Express Check 3.07 (1117)**—A great program to manage your checking accounts! Even prints checks!
- Home Inventory 3.4 (3137)**—Helps you keep track of everything you own. Great for insurance.
- Painless Accounting 4.0 (3 disks) (1120)**—Easy to use and loaded with features. General Ledger, Accounts Receivable/Payable, invoicing, check printing and more. (HD)

DATABASE/SPREADSHEET/ WORD PROCESSING

- PC-Calc+ (3 disks) (3410)**—A very powerful spreadsheet.
- PC-File:dB (3 disks) (1330)**—An excellent dBase compatible data base program. Very powerful! (HD)
- PC-Stylist 1.2 (3917)**—Improve your writing style.
- PC-Write 3.02 (3 disks) (3820)**—One of the best word processors available anywhere. Easy to use and loaded with features including spell checker.

EDUCATION

- Amy's First Primer (1717)**—Six different learning programs for children ages 4-8. (CGA)
- Computer/DOS Tutor 4.4 (1415)**—Learn how to use your computer and DOS easily with this educational program. A must for anybody trying to learn about computers!
- The DOS Learning System (1417)**—Learn how to use DOS with this great tutorial. All versions of DOS 2.0-3.3.
- Funnels and Buckets (1727)**—A fun way to teach children basic math skills! (CGA)
- Lotus Learning System (2 disks) (1420)**—Learn Lotus 2.0 easily and quickly.
- Play 'n' Learn 2.03 (1735)**—A collection of six programs for children 18 months to 4 years. (CGA)
- Typing Teacher (1425)**—This disk contains 3 program designed to improve the speed and accuracy of your typing!
- World 2.93 (1849)**—The ultimate globe! Learn about cities, countries with this computerized globe. (CGA)

GAMES

- Arcade Games 1 (1811)**—Pac-man (3 versions!), Hopper, Space Invaders, Janitor Joe and others. (CGA)
- Arcade Games 2 (1812)**—Q-Bert, Donkey Kong, Breakout, Beast and others. (CGA)
- Arcade Games 3 (1813)**—Striker, Space War & more. (CGA)
- Ed's Chess (2425)**—The best chess game available anywhere. (It beat Chessmaster 2000)
- EGA Cunniff Football 2.3 (1927)**—The best football simulation anywhere. EGA or VGA Graphics required.
- EGA Games 1 (1911)**—A collection of the best EGA games including EGAroids, Reflex, Aldo, Flees and others. EGA or VGA Graphics required.

- Graphic-Less Games (2111)**—A collection of games that don't require color or graphics. (Will work on ANY system!)
- Great Adventures 1 (2531)**—Five exciting games.
- Kids' Games (2317)**—Fun for the under-12 set.
- Master the Market (2435)**—3 great stock market simulators!
- Mind Puzzles (2439)**—3 programs that challenge the mind! (CGA)
- Miramar Flight Simulator (2319)**—Go to Top Gun flight school and pilot an F-18 into combat. (CGA)
- Monopoly (2445)**—A great rendition of the classic game. Great color and sound! (CGA)
- PC-Pro-Golf 4.2 (2327)**—Tee it up, and play 18 holes! (CGA)
- Pinball 1 (1821)**—Five great pinball games. (CGA)
- Strategy Games (2461)**—Risk, Othello, Chess, Nyet (Tetris clone), and others. (CGA)
- Star Trek Games (2341)**—Three games: an arcade game, standard Star Trek game, and a trivia game.

MISCELLANEOUS

- Banner & Sign Makers (3215)**—Make banners or signs for any occasion. Works with any printer.
- Brother's Keeper 4.3 (2 disks) (3120)**—Excellent, full-featured genealogy program that's easy to use.
- Calendar Maker (3129)**—Create calendars for any month or year.
- Formgen 3.31 (3227)**—A very versatile form generator. Make any kind of form for business or home on any printer!
- Kwikstat 2.0 (2 disks) (3130)**—A complete, easy-to-use statistics package.
- PC-Key-Draw 3.65 (4 disks) (2780)**—An exceptionally powerful graphics program. Comes with a large collection of ready-made graphics. (CGA) (HD)
- Pianoman 4.0 (3147)**—Create and play music on your PC! Lots of fun!
- SpeedRead (1845)**—Learn to speed read!
- Willkit (3157)**—Prepare a will that is valid in all 50 states.

UTILITIES

- Automenu 4.5 (3515)**—Latest version of the most popular menuing program of all time!
- Backup Whiz 2.1 (3517)**—Back up your hard disk quickly and safely with this easy-to-use program.
- Best DOS Utilities (3525)**—Essential utilities for DOS. File finders, listers and numerous other handy utilities that will save you time. Very easy to use!
- Epson Utilities (2 disks) (3210)**—A collection of utilities for Epson and Epson-compatible printers.
- Mr. Label 4.1 (3235)**—Powerful & versatile label maker.
- PC-Deskteam 2.01 (3549)**—A Sidekick-like program with even more features!
- Professional Master Key (3555)**—A collection of utilities like Norton's. Recover erased files easily!
- Vaccines and Virus Killers (3627)**—A collection of utilities designed to protect your system from viruses! This disk includes Flu-Shot+ 1.52.

WORDPERFECT 5.0

- PC-Draft II (2 disks) (3760)**—Create clip art graphic files (in .WPG format) for WP 5.0. Includes dozens of images to help get you started. (CGA) (HD)
- WordPerfect 5.0 Art/Graphics (2 disks) (3710)**—Dozens of clipart images and clip art viewer.
- WordPerfect 5.0 Learning System (2 disks) (3730)**—Learn WP 5.0 easily and quickly with this great tutorial! (WP 5.0 is NOT required).
- WordPerfect 5.0 Macros (2 disks) (3720)**—Hundreds of helpful macros for WP 5.0.
- WordPerfect 5.0 Menu/Mice (2 disks) (3740)**—Menu systems, mouse drivers.
- WordPerfect 5.0 Tools (2 disks) (3750)**—A collection of 17+ utilities for WP 5.0.
(CGA) Requires Color Graphic Adapter (HD) Requires Hard Disk
Some of the programs we sell are "shareware." Shareware programs are copyrighted and require additional payment to the authors if found useful.

**Order Toll Free
1-800-876-3475**

**Information: 503-776-5777
Fax: 503-773-7803**

Name _____
Business/Company (if applicable) _____
Address _____
City/State/Zip _____
Phone _____
Method of Payment: Check/Money Order Visa/MasterCard COD
All checks must be payable in US funds. We cannot accept Eurochecks.

Disk size: 5 1/4" 3 1/2" (add \$1 per disk if you require 3 1/2")
No Disks _____ x \$ _____ = \$ _____
 Shipping \$ **\$3.00**
 Airborne Express, Overnight (add \$6) \$ _____
 UPS 2nd Day Air (add \$4) \$ _____
 COD (add \$4) \$ _____
 Foreign (add \$4) \$ _____
TOTAL ORDER: \$ _____

Card No _____ Exp. Date _____ Signature _____



**Reasonable
Solutions**

2101 West Main, Medford, Oregon 97501



Circle Reader Service Number 127

CMP 4/90

ton. Both populations will move to the center of the world and fight until one or the other side is destroyed. You can play against the computer, play against another human via modem or null cable, or have the computer play itself.

Because *Populous* is so complex, it will take you a while to get a feel for the game. Stick with it—this game offers more than just a few irreverent chuckles. Its easy-to-use interface and intricate strategies make *Populous* so absorbing you'll swear it's—dare I say it?—almost divine.

DAVID ENGLISH

Amiga—\$49.95
Atari ST—\$49.95
IBM PC and compatibles with 512K—
\$49.95

ELECTRONIC ARTS
1820 Gateway Dr.
San Mateo, CA 94404
(415) 571-7171

THE FOOL'S ERRAND

Shuffle a deck of tarot cards and lay them out one by one until the Fool shows his simple face. If you could ask him what he'd been up to, he would probably tell you to play *The Fool's Errand* and see for yourself. Here's one game in which you play the Fool as you wander in search of the 14 lost treasures of the ancient kingdom of Tarot, guided only by a magically corrupted and obscured map provided by the Sun. Finding your way will mean solving bewildering puzzles and thus earning pieces of the map.

Along the path from obscurity to heroism, you run into characters such as the High Priestess and Death, or astral figures, like the World and the Moon. The High Priestess, who has hidden the treasures, will trade your life for a dark quest she wants you to complete. The Moon, who calls the Sun a trickster, gives you advice on how to read the map. Each character provides clues, but each also sets a puzzle before you to stymie you on the path to success.

For a puzzling fool like myself, these 56 brainteasers are the real treasures. Some still seem simply unsolvable. Others were a snap. My favorites were the mazes. The Maze of Hedges opens with very few walls—just an en-

trance, an exit, and a few barriers. It looks so simple, but move a few steps, and a wall pops up. *Oh, hidden walls, you think. No problem. I can deal with hidden walls.* So you go a little farther and a great gust of wind blows you clear across the maze. Puzzled, you move a few more steps, unveil a few more walls, and *whoosh*, another wind whisks you across the maze. These bothersome breezes are random, so you can't use them to get out of the maze. Just go with the flow until you



Test your puzzle savvy and patience as you seek treasure in *The Fool's Errand*.

reach a wind-free zone. In another maze you must contend with hidden walls and hidden passages. If you measure fun by how much frustration you're willing to withstand, these mazes break the scale.

Other puzzles, though less spectacular, are equally entertaining. A series of buttons, when pushed in the right order, will reveal a phrase, boggling your brain for hours. Even after documenting what each button did, I had trouble solving these puzzles. For a mental rest from exasperation and logical calisthenics, I enjoyed the word searches.

Despite the neuron-wrenching challenges, *The Fool's Errand* is a perfect escape from real-world tension. Although you can't create characters and define them by 20-zillion attributes, the game has all the magical aura of a fantasy role-playing adventure. The puzzles are more interesting, the path more defined, and the story less dependent on ax-wielding ogres.

Aesthetically and technically, the game easily distinguishes itself in the world of magical mystery tours. Although you need a full 640K of RAM to run the game in VGA, the graphics are well worth it. However, if you live in a 16-color world, you'll be pleased, too. CGA players need not apply.

The cards have all the feel of a traditional tarot deck—beautiful images that reflect the nature of the character represented. The puzzles, particularly the jigsaw puzzles, are sharp and interesting. The font used for the

story scroll, alas, is choppy. But that's my only complaint with the visual effects.

The sound effects aren't any more impressive than the typeface. But the game doesn't rely on sound anyway.

Because *The Fool's Errand* comes on four disks, you really need a hard disk to run it. And no wimpy 256K or 384K of RAM for this game; you need 512K for EGA and Tandy graphics. Thankfully, the game works as well with a keyboard as it does with a mouse or joystick.

Even though *The Fool's Errand* requires a lot of horsepower, the fun is worth the requirements. I still haven't solved all the puzzles, so I still haven't seen the finale. But, I'm no fool. I'll keep trying.

HEIDIE H. AYCOCK

IBM PC and compatibles with 512K (640K for VGA)—\$49.95
Macintosh—\$49.95

MILES COMPUTING
5115 Douglas Fir Rd.
Suite 1
Calabasas, CA 91302
(818) 340-6300

DR. SWITCH

Growing numbers of applications offer the option of dropping to DOS from within the program. Once you're at the DOS prompt, you can theoretically run another program, although all too often you don't have enough memory to allow the new program to execute. *Dr. Switch* solves this problem—and then some.

The program moves your original application out of main memory, storing it to the most efficient available medium—expanded or extended memory or disk. Then *Dr. Switch* frees all available memory—saving a few kilobytes for itself and DOS functions—for use by the next program.

Doing all of this is simple, although the program's command structure may take some getting used to. The structure isn't complex, but it must be combined with the shell-to-DOS command of the original application, along with the path of the application you're getting ready to run. The program's straightforward manual walks you through most of the possible command combinations.

And the effort is worth it. Shell-



ing to DOS takes on a whole new meaning with *Dr. Switch* on call.

More memory available means you can run even large programs while other large programs are on hold. When you've finished, exit the new program and return to your original—exactly where you left off.

Or exit and move with *Dr. Switch* to the next program on your list—again and again! As I wrote this article, I shelled out of *Quattro*, into *Agenda*, out of that, and into and out of two other programs. All effortlessly.

Now, if only I can find my way back to where I started.

KEITH FERRELL

IBM PC and compatibles—\$59.95

BLACK & WHITE INTERNATIONAL
P.O. Box 1040
Planetarium Station
New York, NY 10024-1040
(212) 787-6633

SWORD OF THE SAMURAI

You creep noiselessly through the dimly lit halls of your daimyo's castle, intent upon finding his sleeping quarters. You plan to silently dispatch him to the land of his ancestors with a single blow of your *no-dachi* (great sword). You'll then take over his title and castle.

Suddenly, there's an excruciatingly loud creak as you step forward—the daimyo's trick nightingale floor has betrayed you. His guards will be here shortly and the only course of honor left to you as a samurai warrior is *seppuku* (ritual suicide). Luckily, your son is ready to take your position.

You may find yourself in this situation as you play *Sword of the Samurai*, a richly detailed evocation of sixteenth-century feudal Japan, when the code of the samurai placed honor and duty above all else.

You start as a young samurai of moderate honor and work your way to more exalted honor through the game's many adventures. Engage in political intrigue, worry about marrying well, form and break alliances, duel with swords, engage in military battles, and attack neighboring provinces during the game. You'll probably also have to rescue a kidnapped maiden. You may even risk dishonor or suicide by practicing treachery.

As your martial and diplomatic skills increase, you will become *hata-moto* (lieutenant), then *daimyo* (provincial ruler). Then you must work to conquer the remaining 47 provinces to become shōgun of all Japan, second only to the emperor.

Sword of the Samurai provides rousing gameplay for all tastes. There's arcade action in sword-fighting duels and melees. During these, you get overhead views of your war-



You can experience a slice of exciting samurai life in *Sword of the Samurai*.

rior character in mazelike castles, villages, or rice paddies while he fights hordes of guards or peasant bandits. There's strategic action in planning and directing battles between armies of foot soldiers, archers, mounted swordsmen, and musketeers with primitive harquebuses. And if that's not enough, during the course of play you move your character from place to place, meet with rivals and superiors, marry their daughters, hold tea ceremonies, deliver stinging insults to provoke duels, and offer to battle enemies to defend and enhance your clan's honor.

Your rivals and enemies act based on what you do. There's an incredible range of scenarios in this game. As you scheme to gain power and wealth, each action prompts logical responses from your rivals. With so many possibilities, each game takes on its own character, often markedly different from previous games.

You can be playing five minutes after removing the shrink-wrap, but don't skip the manual. Its 102 pages are full of fascinating details (like the nightingale floors—you can spot them if you're careful because the pattern of the flooring is subtly different) as well as an excellent portrayal of the culture of feudal Japan and its many subtleties. MicroProse has done an outstanding job; the game teaches you about another culture and even gets you thinking like a samurai.

When you start the game, you can practice duels, melees, or battles. Get in shape before launching into the

Save Your Copies of COMPUTE!

Protect your back issues of *COMPUTE!* in durable binders or library cases. Each binder or case is custom-made in flag-blue binding with embossed white lettering. Each holds a year of *COMPUTE!*. Order several and keep your issues of *COMPUTE!* neatly organized for quick reference. (These binders make great gifts, too!)



Binders

\$9.95 each;
3 for \$27.95;
6 for \$52.95

Cases:

\$7.95 each;
3 for \$21.95;
6 for \$39.95

(Add \$1 per case/binder for postage & handling. Please add \$2.50 per unit for orders outside the U.S.)

Send in your prepaid order with the attached coupon

CALL TOLL FREE 7 days, 24 hours
1-800-972-5858

Mall to: Jesse Jones Industries
Dept. COTE
499 East Erie Ave.
Philadelphia, PA 19134

Please send me _____ *COMPUTE!* cases binders.
Enclosed is my check or money order for \$ _____ (U.S. funds only.)

Name _____
Address _____
City _____
State _____ Zip _____

Satisfaction guaranteed or money refunded. No P.O. Box Numbers. Please allow 4-6 weeks for delivery.

full-scale game; it's frustrating to work through an hour's political intrigue only to be skewered by a rogue Buddhist monk in a sword duel.

Sword of the Samurai provides first-class graphics in VGA and EGA; even the CGA is acceptable. It sets the oriental mood with Japanese music that's recognizable on a plain-vanilla PC speaker but is glorious with an Ad Lib music card. I applaud the game designers who have made sure that the game plays well from the keyboard without a joystick.

After many hours of living in ancient Japan through this game, I have only one complaint: I find the stylized Japanese lettering used to present text throughout the program a little difficult to read, even on my VGA Plus monitor. My eight-year-old son has a particularly hard time with it, though he loves the game.

Oh, oh. Here come the guards. I hope my son has better luck with these thrice-cursed nightingale floors. They won't take me without a fight. Perhaps I can flee down this hallway and find the daimyo yet. To pay by seppuku for the dishonor of being caught in treachery is bearable, but only if I kill him first. Daimyo, here I come!

RICHARD O. MANN

IBM PC and compatibles—\$54.95

MICROPROSE
180 Lakefront Dr.
Hunt Valley, MD 21030
(301) 771-1151



POP QUIZ

Nothing fills a student with dread faster than hearing a teacher utter two words: *pop quiz*. Now a program called *Pop Quiz* makes life easier for teachers and students alike by offering flexibility and teaching potential.

With *Pop Quiz*, teachers enter their own questions and answers, correct and incorrect, on any topic. From this information, it designs true/false, multiple-choice, matching, or short-answer questions in any mixture or proportion.

If you want certain questions to appear on every exam, mark them as critical when you generate a quiz. Suppose you have 100 questions on U.S. history and you want a 25-question quiz with 20 percent of the questions true/false, 30 percent multiple

choice, and the remainder short answer. *Pop Quiz* pulls the questions at random, arranges them in the proper format, and prints them in minutes. A single student can take an exam at the computer, and *Pop Quiz* keeps track of the score.

Teachers should be careful when testing a student at the computer. The option that deals with short-answer questions is the weak link in *Pop Quiz*'s chain. A student's answer must exactly match the teacher's. For example, in asking what two minerals make up bronze, *Pop Quiz* expects you to answer *copper and zinc*; if you reverse the order and type *zinc and copper*, the program marks your answer incorrect. To its credit, however, there is an option that accepts either close or exact spelling.

Students can use the program as a study aid by entering their own data and using *Pop Quiz* as a flash card to reinforce their knowledge. The program works on any PC with a hard drive or two floppy drives. It's menu-driven, and up to 250 questions fit on a standard 360K disk.

Pop Quiz is a quick-and-easy tool for generating and revising quizzes—even if students won't appreciate it.

TOM NETSEL

IBM PC and compatibles—\$49.95
Teacher's edition—\$99.95

EURO GROUP PUBLISHING
5-B Gwynns Mill Ct.
Owings Mills, MD 21117
(301) 363-0409

STARFLIGHT 2: TRADE ROUTES OF THE CLOUD NEBULA

Space travel and conquest have been the twin themes of many an adventure game. Typically in these games, you travel through the galaxies shooting any object or creature in your way, with success depending more on your reaction time than on your skill. *Starflight 2: Trade Routes of the Cloud Nebula* takes a more realistic, in-depth approach to space travel.

Your mission is to find the source of the fuel substance known as

Shyneum and obtain the technology of your enemy, the Spemin. To accomplish this and to generate revenue, you must communicate with alien species encountered as you travel through space and gather information leading to goods, life forms, and minerals needed for trade. As in



Bargain with aliens and explore hundreds of planets in *Starflight 2*.

real life, prices and availability of items are constantly changing.

The game begins in Starport Outpost 1. This is your home base, where each journey begins and ends. Starting with a minimum of funds, you create a crew, train them, and equip your starship. The outpost contains six modules for completing these tasks and a docking bay for boarding your starship.

Select a crew from five different species (Human, Velox, Thrynn, Elowan, or Android), each with its own unique strengths and weaknesses. Any combination of these beings can be selected to make up your crew, and pictures of the beings, as well as information on their abilities, appear on a screen.

After selecting the crew members, decide whom to train and how much to train them. The rate of learning and durability of the species vary, and how much you will train them depends on your capital and the maximum skill level of the crew member. Of the six crew positions, initially the navigator and communications officer are the most important. The next position of significance is the science officer. He will take the sensor readings and analyze the planets you visit. Crew members selected for these three positions should be trained to the highest possible level. The better the training of individual crew members, the better their performance and your chances at success.

After your crew is trained, you supply your starship with weapons, shielding, engines, and other equipment. Initially, most of this equipment is beyond your financial means. Since communication is more appro-

appropriate than weaponry, other equipment may take priority.

Finally, you christen your ship and prepare for takeoff. You must calibrate the navigation system by using a printed trade map of the solar systems that comes with the program. This map helps you navigate about the stars and locate the solar systems marked as having trade centers. These trade centers, markets where you can buy or sell goods, are also the only place to obtain more fuel for your starship. The map indicates the surface temperatures of the planets by color-coding them. Because conditions have to be suitable for landing on a planet, this map is essential for your exploration.

After takeoff, get ready to enter hyperspace, where you see stars, continuum fluxes, and nebulas. The navigator will maneuver your ship as you begin exploration. Options include exploring nearby planets or finding "wormholes" in space which instantaneously transport you from one location to another.

Your trek through space will provide opportunities for many encounters with aliens who know about trade locations and have information essential to the completion of your mission.

Here diplomacy as well as knowledge about the aliens is necessary. Your well-trained science officer will interpret data collected by your ship's sensors, and your communications officer will translate the incoming messages.

Some aliens respond best to a stern posture while others prefer you to be submissive. Make a mistake or have a misunderstanding, and you may be obliterated. Until you are able to buy a strong arsenal and shielding to protect yourself, you are very vulnerable to attack.

Financing this adventure is an ongoing process. Planets along the way can be explored and excavated for minerals and other items of value. Collected while traveling across the surface of the planet in your terrain vehicle and sold at the trade centers, these commodities help you raise needed funds. Trade centers are found by wandering around on the planet. Once you find one, your bartering skills are put to the test.

With 150 star systems and hundreds of planets to explore, 30 alien species to deal with, and an open-ended story line involving numerous subplots, *Starflight 2* will provide you with hours of adventure. So if you're

ready to explore new worlds, board your starship and follow the interstellar trade routes of *Starflight 2*.

THOMAS J. MORRIS

IBM PC and compatibles, 384K—\$49.95

ELECTRONIC ARTS
1820 Gateway Dr.
San Mateo, CA 94404
(415) 571-7171



GRAMMATIK IV

No computer program can make you a great writer or eliminate the need for careful revisions, but *Grammatik IV* can help. It detects over 10,000 common writing errors, including incorrect verb forms, vague adverbs, wordy phrases, excessive passive-voice constructions, and incorrect punctuation.

You can customize the program by turning on or off the different rule groups. You can also choose any of five writing styles (Business, Technical, Fiction, General, and Informal) or create your own writing style. If you

This is as low as fax gets: \$195

\$195 9600-bps fax board for your PC!
Wow!

You want to get faxing, right? Well, you've come to the right ad. If you've got a PC with an empty half slot, you'll want to pick up the phone right now and get your order in for the new **Fremont FAX96**. It's only \$195 plus tax and shipping, but supplies are limited and you'll want to act fast.

The Fremont FAX96 gives you high speed 9600 bps performance and is fully compatible with all standalone Group III fax machines. It's new, and cuts no corners. It will even receive faxes without interrupting you while you're

working on your PC. Of course, at that price you don't get a voice answering machine or built-in modem or gloriously complicated menus.

What you do get is a way to send a fax whenever you need to get a message out in a hurry and don't want to go stand in line at the nearest fax machine. With your own FAX96 board, you have total control. And you get to see incoming faxes on your monitor before you print (or junk) them.

The Fremont FAX96 has automatic redial, in case the fax you're calling is busy. Your \$195 purchase also includes very simple "push-the-button" software that lives up to Fremont

Communications' **instant ON** philosophy. Installation is a snap: our installation software guides you through the few simple setup choices without the befuddlements of communications jargon. So to start faxing from your PC, just call, have your VISA or MasterCard ready, and we'll ship you a Fremont FAX96 complete with a 100% money-back guarantee. For \$195! That's as low as fax gets.

Order phone: 415-438-5000
Dealer inquiries 415-438-5016
FAX: 415-490-2315



FRECOM

Fremont
Communications
Company
46309 Warm Springs Blvd.
Fremont, CA 94539

Circle Reader Service Number 185

"A little board. A lot of technology. And a low price direct to you. Money-back guarantee. Give it a shot!"



Paul Masters, UC Berkeley MBA and Northern Telecom alum, is President of Fremont Communications

Productive! Fun! IBM Shareware!

As Low
as \$1.25

- Largest Selection
- Latest Programs
- Fastest Delivery
- Lowest Prices

- No Minimum Order
- Toll-Free Ordering
- No M/C Visa fee
- 5 1/4" or 3 1/2" Format



For
Shareware

BUSINESS & ACCOUNTING

GL, Forms, Flow Charts, Investments...

PC GENERAL LEDGER	BU 101	Double-entry accounting. If you're looking for an accounting program you should try this one.
MR BILL	BU 102	(2 disks) Ideal for general billing, invoices, Reports, audit trail.
FORM LETTERS	BU 103	Standard business letters. may be modified to suit most situations.
EZ FORMS-LITE	BU 104	Generate your own forms to your layout. A REALLY useful package.
PC PAYROLL	BU 106	(2 disks) 1989 Edition! Menu-driven system with reporting package.
PC ACCOUNTING SYSTEM	BU 107	(2 disks) Complete general purpose business accounting package.
CPA LEDGER	BU 108	(2 disks) General purpose GL system with extensive documentation.
EMPLOYEE MANAGEMENT SYSTEM	BU 110	Personality Analysis designed to help you reduce employee turnover.
FLOWCHARTER	BU 112	Excellent for producing flowcharts to depict project steps and workflow.
MUTUAL FUND FINDER	BU 129	Menu-driven program for preparing and submitting cost estimates and bid proposals.
FDS QUOTE	BU 121	
DOCKET MINDER	BU 122	This menu-driven program maintains a docket for a lawyer or law firm.
MEDLIN ACCOUNTING SHAREWARE	BU 123	4 packages for the small-med business. GL, A/R, Payroll, Accts pay.
SERVICE PLUS	BU 124	(2 disks) EXCELLENT maintenance and service call tracking system.
EZ FORMS EXECUTIVE	BU 125	The ULTIMATE forms generator. save a fortune on printing costs.
FORMGEN	BU 126	Another nice form generator - sophisticated but easy to use.
SOLVER+	BU 127	Comprehensive financial calculator. Includes 20 menu-driven financial calculators.
MED #1 1.04	BU 130	(2 disks) Complete medical office management system.
THE OFFICE PRD	BU 133	(2 disks) Excellent order entry package with windows and custom invoices, reports, labels, desktop etc. Good.
PC YELLOW PAGES	BU 139	(5 disks) One of the most effective marketing tools we've seen. Address merge, labels, fax mail, mail in database routines!
BILLING MANAGER 1	BU 141	(2 disks) A powerful, well-written time & billing program for professionals.
BILL POWER	BU 142	This is a nice employee tracker for a small business. Keep track of your employees' money and overtime with this nice finance manager.
TICKLEX	BU 143	A powerful tickler/calculator for home office and hard disk.
UPS MASTER	BU 144	If you ship by UPS then you need this complete shipping program.
PHONE	BU 146	Time your phone calls while you're on the line and save money.
DIR. PORTFOLIO MANAGER 2.0	BU 155	Investment analyzer and manager.
PAYROLL USA 2.11	BU 156	(2 disks) Another great payroll program from Animate Systems.
GENERAL LEDGER LITE 1.36	BU 158	Very professional, but user-friendly accounting package. Menu-driven mouse-compatible double entry system.
APPRTRK	BU 162	Store and retrieve information on job applicants.
FREIDAY 1.03	BU 163	Track important meetings, phone numbers, key contacts etc. (HD req'd)
FREIGHT+	BU 166	(2 disks) If you ship more than 10 packages a day, you need this one.
VID	BU 167	Video rental system. Ideal for retail business.
FAST STMT WRITER	BU 168	Complete & easy customer statements.
FAST INVOICE WRITER	BU 169	Fast & Easy customer invoices!
MICROSOFT CALCULATOR	BU 171	Multi-function business calculator with a 1,000 entry memory stack.
MARKET MASTER	BU 172	Sophisticated price forecaster for stocks, futures etc.
RACQTEXT	BU 173	Powerful word search application!
POFFORM	BU 174	Take information from your screen and merge it into a customized form.
MCE	BU 175	Memory-resident, pop-up phone directory, scheduler, calculator etc.
BILLPOWER PLUS	BU 176	(2 disks) Expanded version of BU 142. (HD req'd)
RESEARCH	BU 177	Research, evidence, and document organizer.
CONTACT 182	BU 186	Track computer usage, log in or billing purposes.
ADVERTISING RESPONSE MGR	BU 182	Measure advertising response and effectiveness.
SOFTSIZE	BU 184	(2 disks) A "multi-sizing" DOS system for the small retailer.
POLICY MAKER	BU 185	(2 disks) Inventory management utility!
CONTACT PLUS	BU 186	Index track of clients.
FORM LETTERS II	BU 189	100 more standard business letters!
LEGAL FORMS	BU 190	Over 100 different blank legal forms.
THE FRONT OFFICE	BU 191	(2 disks) System for prospecting, sales management, job costing, customer helping and control.

SPREADSHEET & UTILITIES

Templates, Macros, Utilities...

PC CALC+ EZ SPREADSHEET V.521	SP 101	(2 disks) Supports 123 clone, interacts with PC FILE +
AS EASY AS 3 01	SP 102	Simple to use but powerful system - ideal for beginners - one of the best.
LOTUS MACROS	SP 104	This powerful 3-dimensional spreadsheet lets you view data in a new light.
LOTUS TEMPLATES	SP 106	Save tedious work with these short-cuts for use with 1.2.3
PIVOT	SP 108	If you use Lotus, you'll love these ready-made applications!
QIBECALC	SP 110	Sideways print routine for SP 102
123 POWER WORKSHEETS	SP 112	123 Powerful worksheets - worth having if you use Lotus!
MPCALC PLUS	SP 111	(3 disks) Spreadsheet reader, writes Lotus files - needs GEM
WHITING WORKSHEETS	SP 112	(2 disks) Excellent budgeting tools for Lotus 1.2.3
LOTUS LEARNING SYSTEM	SP 115	(2 disks) Good, basic tutorial to learn Lotus 1.2.3 (1.2.3 req'd)
BEGINNING 1.2.3 TUTORIAL	SP 116	Workshops and tutorials for the novice 1.2.3er (1.2.3 req'd)
ADVANCED 1.2.3 TUTORIAL	SP 117	Designed for someone who has worked through the basics (1.2.3 req'd)
INCOME WK7	SP 118	Lotus WK for calculating income statements.

WORD PROCESSING

Style, Speller, Macros, Thesaurus...

PC WRITE	WO 101	(3 disks) Latest version animal merge and spell checking!
WORDPERFECT MACROS	WO 108	Over 80 macros for WordPerfect 5.0
EZ WRITE 2.3	WO 110	A first, highly functional word processor. Includes pull-down menus.
THESAUR V3.5	WO 111	Shareware's 1st thesaurus! Very useful for a variety of applications.
BASIC COPY MAKER 2.1	WO 112	Useful envelope printing utility for Epson MX, FX, LX or compatibles.
WORDPERFECT 5.0 T00KIT	WO 114	ASCII to WPS format converter plus lots of other useful utilities.
PRO SCRIBE	WO 115	Improve the impact of all your writing with this new program.
WRITER'S HEAVEN 4.0	WO 116	For PC Write versions 2.5 and up. A complete new set of command keys.
PC WRITE MACROS 1.2	WO 117	100 macros for this popular word processor. Requires PC Write 3.0 or later.
WORDPERFECT 5.0 POPUP	WO 118	This handy tool pops all the information on function keys up on the screen.
WORDPERFECT MENUS	WO 120	Pull-down menus for both 4.2 and 5.0
WORD PROCESSING FOR KIDS	WO 122	A WP program with all the basic features designed just for kids!
PC INDEX 1	WO 124	Save hours of work. Import a text file, and PC Index will create an index!
WORDS A EDITIS	WO 127	Text editor that FAST and EASY. ASCII text output makes this one ideal for preparing program source code.
THESAUR PLUS	WO 128	Another thesaurus from the author of Thesaur (WO 111). This version requires a hard drive. But it will "pop-up" over any other program.
CLICHE FINDER	WO 129	Search any ASCII file for file or back-ticked words or phrases and print a list of the words or phrases found. Clean up your writing style!
WORDPLAN	WO 130	A document processor for Lotus 1.2.3. Reads 1.2.3 files and produces custom reports and documents.
BLACK MAGIC	WO 131	(3 disks) Hypertext word processor.

DATABASE MANAGEMENT

dBase, Files, Routines...

PC FILE+	DA 101	(3 disks) The dBase killer! State-of-the-art DBMS.
DBASE III ROUTINES	DA 103	Over 80 helpful routines for the dBase III user. A must!
NEWBASE II 4A	DA 104	Excellent user-supported DBMS with full menu package.
WAMPUM 3.3S	DA 105	Latest version of this legendary dBase III/IV compatible clone.
DLITE 1.0	DA 107	Pop up dBase marvel - access to 10 dBase compatible applications!
GRAPHTIME II	DA 108	(2 disks) dBase Wampum 3.3S and Multi-Plus business graphics!
EZ DBASE TRAINER	DA 109	A really nice tutorial for dBase.
WYNDFIELDS 1.0	DA 110	Here's a great database that 3 disks squeezed onto one.
JAGER MANAGER 1.4A	DA 111	Information manager with database, dialing and calendar.
DBASE AUTO PROGRAMMER	DA 112	First class dBase system generator and documentation system.
PC FILE DB	DA 113	(3 disks) Direct access to dBase III Plus files.
ION 1.1-3"	DA 114	A great database mgmt system! Low to novice or a pro.
DALTE-PLUS	DA 115	(2 disks) dBase III/IV compatible (but 80% faster)! Over 1 million records.
SNAP	DA 122	(2 disks) Database and development system for dBase III. FoxBase and similar systems.
HYPERREZ	DA 123	Easy to learn, memory-resident hypertext system.
SOB	DA 124	Simple database manager for email systems.

Entrepreneurs! Join our growing list of dealers. Your investment in a Gemini dealer/distributorship is your key to an exciting and rewarding future. Call (206) 746-7671 for details.

EDUCATIONAL

History, Geography, Languages...

AMY'S FIRST PRIMER	ED 101	Routines for pre-schoolers with alphabet, counting, shapes and color.
EDUCATIONAL PROGRAMS	ED 102	A compilation of pre-school and elementary programs.
FUNNELS & BUCKETS	ED 103	Basic math principles. Children solve problems in arcade environment.
MATHPAK	ED 106	Lessons & tutorial in basic and higher math.
PC TOUCH	ED 107	Super typing tutor with on-screen performance data!
AMANDA'S LETTER LOTTO	ED 109	Learn the alphabet fun! 18 months+ children.
SPANISH	ED 112	(2 disks) Quality language tutor - beginner to advanced.
ALGEBRA	ED 113	Both integer and real computations - 1st class!
JAPANESE	ED 115	How oriental tutor - get this a month before you go!
SPANISH HANGMAN	ED 116	A fun way to learn Spanish! - recommended.
BEGINNING SPANISH	ED 118	Another excellent way to start learning this fascinating language.
RE-SCHOOL ED	ED 120	ABC fun keys. Clock & Mouse game. BabyMath. Animal Arithmetic.
WHIZZIG	ED 121	Problems on elementary math with 10 levels of questions.
TEEN ED 1	ED 124	Higher Math, Trigonometry, History, Biology, Geography, P. Algebra.
TEEN ED 2	ED 125	Algebra, Chemistry, Math, Spelling, Math, Astronomy, San Mateo.
HIGH SCHOOL VOCABULARY	ED 126	Multiple-choice quizzes with re-testing and clear definitions.
BALLOON SPELLER	ED 127	Here's a fun way to get to grips with word formation.
WISDOM OF THE AGES	ED 128	(4 disks) Wordwise classical data, quotes, thoughts, proverbs.
FRENCH I	ED 130	French for beginners - great!
FRENCH II	ED 131	Continues where French I leaves off.
GERMAN I	ED 132	An introduction to German.
READY FOR CALCULUS*	ED 135	Essential algebra/trigonometry review material.
LETTERFALL	ED 136	Improve your touch typing skills with 16 levels of practical.
CLASSROOM HELPER	ED 137	Computerized grade book, assignments, behavior records, printouts.
VIDEO CHEMISTRY	ED 138	Program for assisting in chemistry - valency and molecular combinations.
FACTS	ED 140	A kid's tutor for capitals, states and presidents.
COMPUTER TUTOR	ED 141	If you're new to computers, then this is a must for you!
THE PRESIDENTS	ED 142	(2 disks) Biographical and quiz system on all the US Presidents.
MICRO WORLD DATA BANK	ED 143	(5 disks) Detailed world mapping database produced by the CIA.
GOODIE MATH GAMES	ED 144	Math primer for pre-school and primary school. Classic arcade games.
PC BASIC PRIMER	ED 150	New! Menu-driven Basic tutor for beginners.
WORLD ATLAS	ED 151	(8 disks) Geographical information from the Rand McNally Atlas!
SAN MATEO SOFTWARE	ED 153	18 educational games from the San Mateo Office of Education.
BRANDON'S LUNCHBOX	ED 157	A collection of educational programs for pre-schoolers.
DOS LEARNING SYSTEM	ED 159	An excellent tutor for DOS - recommended for newcomers to DOS.
JOPU	ED 165	(2 disks) A PHONE TIC Dictionary!
PC ORIGAMI	ED 166	Master the ancient Japanese art of paper folding. (Basic req'd)
SCHOOL MOM	ED 167	A back to basics educational tool for children ages 4-14. Includes modules for music, art, spelling, English and math. (CGA req'd)
U.S. POPULATION DATABASE	ED 170	U.S. Census Bureau data on population from 1790 to the present!
CHEMVIEW	ED 171	Display a 3-D view of selected molecules. (EGA req'd)
CHEMICAL	ED 172	Create molecules using bonding input from the menu provided.

Call Toll Free for the Best Price on Formatted 3.5" and 5.25" Diskettes!

PROGRAMMING/SECURITY & HACKING

Tutorials, Assemblers, Generators...

C TUTOR	PR 101	(2 disks) Complete C tutor with examples ready to compile.
PC PROFESSOR	PR 104	Good BASIC tutor.
BASIC PROGRAM GENERATOR	PR 106	Write programs from manual. Good for business database applications.
TURBO Pascal TUTOR	PR 107	Learn how to use this great development package - recommended.
C COMPILER	PR 108	(2 disks) Comp. programming environment - source compiler samples etc.
OASIS 4.1	PR 116	Powerful programming tool for Turbo Pascal programmers.
SECURITY	SH 101	Bombardier. One-time passwords, passwords, encryption, etc. (13 disks)
UNPROTECT I	SH 102	Make personal copies of protected software.
UNPROTECT II	SH 103	(2 disks) More ways to copy.
UNPROTECT III	SH 104	Unprotected Software Protection.

Now Over 90 Programs in This Category - Call Toll-Free for Catalog!

NOTICE

For information on how to purchase stock in Gemini Marketing, Inc., contact:

KOCHCAPITAL 35 S. 148th Bellevue, WA 98005 1-800-777-1012	ESCALATOR SECURITIES 2300 Computer Ave. Suite 1-47 Willow Grove, PA 19090 1-800-338-9338
---	--

Or Your Own Broker!

GAMES

Chess, Planes, Adventures

JET FLIGHT SIMULATOR	GA 101	Stimulating and fast-paced fun!
GLOBAL THERMAL NUCLEAR WAR	GA 102	Light hearted play for the serious mind!
3-D CHESS	GA 103	Fantastic 2D and 3D play with many levels
ARCADE BASIC	GA 114	BASIC hacker fun! Pacman, Lunar Lander, Star Trek and Breakout!
POKER & ULTIMA 21	GA 116	Best poker we've seen, plus casino blackjack
ARCADE ALBUM	GA 119	Quality compilation includes Invaders, Asteroids, Frogger and PacMan!
DIGITAL BASEBALL LEAGUE	GA 120	The baseball simulation based upon real stats
GAMBLER'S DISK	GA 121	All the casino thrills - blackjack, slots, roulette, roulette
SPORTS & CASINO	GA 122	Old, gold, fortune, craps, monopoly & blackjack
EGA GAMES I	GA 125	Super fun for those lucky people with an EGA card!
EGA GAMES II	GA 126	More games using the EGA card. Adapting to best effect
MONOPOLY WITH GRAPHICS	GA 127	An old favorite cleverly programmed for absorbing fun!
PROFESSIONAL BLACKJACK	GA 128	Become a professional player with this realistic mentor - but save money!
TRUCKER	GA 132	Drive an 18-wheeler from Los Angeles to New York - absorbing
IBM HD INFILTRATION	GA 134	Exciting text adventure - you're a government agent in this one!
ADDICTION	GA 135	No less than 5 great text adventures
CUNNING FOOTBALL EGA	GA 137	New version 2.3! A dynamic game with excellent graphics - EGA req'd
PC PRO GOLF	GA 139	12 disks! A must for the golfing fraternity - good graphics
THE TREK	GA 140	Superb Star Trek game for EGA - light Klingons and Romulans
MAZE	GA 142	Wolfgang Piller's mind boggler - LENGTHY mental challenge!
TREK TRIVIA/KINGDOM OF KYRO	GA 144	Two more Apogee offerings for Star Trek and adventure fans!
MORAFF'S REVENGE 3.2	GA 148	Beginner's version of fantasy role playing adventure in color with graphics
GAMESCAPE	GA 152	The incredible adventure game designing system!
CAPTAIN COMIC	GA 156	A Nintendo Mario Blast style game with multi-levels of play (EGA req'd)
ED'S CHESS	GA 160	A truly fine chess game with the power to best Chessmaster 2000!
CYRUS EGA CHESS	GA 161	A challenging opponent for chess if you have an EGA
DRACULA IN LONDON	GA 164	A really good graphics and adventure game
EGA GOLF	GA 167	Play 18 holes with scenery in finer detail on your EGA!
PC RAILROAD	GA 168	Control your trains on supplied routes or design your own
NINJA	GA 169	A commercial quality arcade game with karate tactics!
CRIME LAB	GA 170	A super graphic murder mystery game for all the family
MORAFF'S EGA/VGA PINBALL	GA 172	Here's a high class pinball game with multi-levels of play
PATIENCE	GA 174	Super Solitaire! Nine great card games
TUNE TRIVIA	GA 177	"Name That Tune" Includes a library of 200 tunes!
MILLE BORNES	GA 178	Now you can play this great card game against the computer!
SOFT RACING SIMULATOR	GA 180	Simple, subtle, or "slapper" than ever before and fun! (CGA req'd)
DULLES TOWER	GA 181	Ever wonder what it's like to be an Air Traffic Controller?
RISK	GA 183	The classic game of world domination (CGA req'd)
BASS TOUR	GA 186	The latest version of a great fishing simulator! (EGA req'd)
SHARBY'S GIN RUMMY	GA 187	One of the best card games we've seen! (CGA req'd)
SCRIBBLE	GA 189	The program for Scribble buff! (EGA req'd)
VEGAS J'S DRAW POKER	GA 198	One of the best poker games/trainers available
MINIATURE GOLF	GA 202	The challenge of miniature golf on your computer (CGA req'd)
TETRIS	GA 211	The Russian arcade game that's sweeping the country!
PAPER AIRPLANES	GA 212	Build 20 different paper airplanes

GRAPHICS

Design, Draw, Animate, Clip...

PC KEY DRAW	GR 101	(4 disks) Magical drawing/art program
SIMGA	GR 102	Run CGA progs with Hercules type cards
FINGERPAINT	GR 103	Flexible HPC or CGA painting program - includes animation feature!
3-D IMAGERY	GR 104	Color wire frame package - rotate, move, scale, to etc.
ANIMATOR	GR 105	Create animated graphics on your PC for a variety of uses
IDANCA2D	GR 106	(2 disks) The best for 3-D wireframe with all conceivable options
CONVERT	GR 107	Transfer graphic icons from PrintMaster, PrintShop, MacPaint, BLOAD
PRINTSHOP GRAPHICS	GR 108	3 additional libraries over 200 additional pics - needs PrintShop
PRINTMASTER GRAPHICS	GR 109	2 additional libraries for PrintMaster
PRINTSHOP GRAPHICS II	GR 111	Another 500+ images for the PrintShop program
PRINTMASTER GRAPHICS III	GR 112	(2 disks) Another 500+ images for PrintMaster
VENTURA CLIP ART	GR 126	(3 disks) Official business subjects for Ventura Publisher
EGA TROPICAL FISH	GR 115	If you have an EGA, DO get this one - it's a real fun office/home fish tank!
IMAGE - 3D V.6	GR 116	For serious wire-frame 3D - this menu-driven CAD is a must! Rotate, move, scale images - very professional CGA, EGA AND VGA!
WIPM PCC CLIP ART	GR 119	(11 disks) Art for Pagemaker and WordPerfect 5.0 in PCC format
FIRST PUBLISHER GRAPHICS	GR 121	(3 disks) Full of pictures and symbols for First Publisher in PCC format
VGA PAINT	GR 122	At last! A superb graphics and painting program just for VGA owners
PRINTSHOP GRAPHICS III	GR 125	(2 disks) More superb art from Jim Cooper and his wife
PRINTMASTER GRAPHICS III	GR 126	(2 disks) And the same for PrintMaster!
COOPER GRAPHICS	GR 127	(3 disks) Clipart in PCC format
HALLUCINATIONS	GR 128	A series of CGA displays - stunning entertainment!
COOPER GRAPHICS #2	GR 129	(2 disks) Clipart (PrintShop, PrintMaster, First Publisher) Includes American sign language, cartoon characters, 200 images etc!
EGZGRAPH 2.0	GR 130	American sign language, cartoon characters, 200 images etc!
AUTOFLEX MOVIE PROJECTOR	GR 136	Create presentation quality line graphs from your scientific data
COOPER GRAPHICS #3	GR 141	(2 disks) For EGA and hard disk, this demo shows off PC animation
CLIPART SAMPLER	GR 142	(2 disks) Birds, sodas, faces, pets, 200 images!
HEADLINE SAMPLER	GR 143	Headline clipart in PCC format
TURBODRAW	GR 145	From simple charts to engineering drawings, this program is for you
TURBOFLOW	GR 146	User friendly flowcharting!
COLOR CURVE DIGITIZER	GR 147	(2 disks) Full featured CAD program with single key access to interactive help screens (CGA req'd)
MONO CURVE DIGITIZER	GR 148	(2 disks) Similar to GR 147, but this one runs on a monochrome monitor!
PRESENT	GR 149	A computer slide presentation generator (CGA req'd)

GENERAL APPLICATIONS

Astrology, Finance, Travel...

MAIL MASTER	GE 101	Good and dedicated mailing list manager for form letters and labels
LOTTO MASTER	GE 102	Use math and stats to improve your lottery earnings. (Proven principles)
CITY DESK	GE 103	Desktop publishing - simple but effective for smaller applications
GENEALOGY ON DISPLAY	GE 105	(2 disks) A complete package - ideal for beginners
HOME INVENTORY	GE 106	Keep track of what you own - ideal for insurance records, etc.
PERSONAL FINANCE MANAGER	GE 107	Individual budgeting, savings, investments, checking, etc.
REAL ESTATE MANAGEMENT	GE 109	If you own it, you need it!
ASTROLOGY	GE 110	Plan your life by the stars and planets - good luck!
OR DATA LABEL	GE 112	Powerful mailing list program with sort and duplicate removal functions
FASTBOOKS	GE 113	(2 disks) Comprehensive personal finance manager
ACE ASTROLOGY	GE 115	(2 disks) Calculations, physical and orbital data, and MORE!
RECIPES	GE 116	(2 disks) Great database of interesting dishes
CROSSWORD CREATOR	GE 121	Create your own puzzles - very absorbing, and useful for education also
HOME BARTENDER GUIDE	GE 128	(2 disks) If you like a drink, you'll love these computer recipes!
NUTRIFIRST 3.0	GE 129	Nutrition contents of foods - powerful program for serious diet watchers
LANDLORD V2.03	GE 137	Rental management software - keep it simple but effective!
TIMESTAR 2.08	GE 143	Time management system and desktop for Windows 2.0 or greater! Must have the MS Windows to run!
BANKONIT	GE 144	Mortgage and interest calculation program with prepayments handled
VIDEO LIBRARIAN 2.1	GE 148	Another fully featured utility for keeping track of your tapes
LOTTO NUMBER GENERATOR	GE 150	Clear, well-presented utilities for helping your chances on the lottery
LOTTO NUMBER WHEELER	GE 151	Accommodates any state's "pick 6" parameters. Get it with GE 150!
PC LOTTO 2.41	GE 152	Popular and all-encompassing package for use with worldwide lotto games
XACT SERIES CALCULATORS	GE 153	Hewlett Packard calculators - simulations of HP-11C Scientific, HP-12C Financial, and awesome HP-8C Programmers' model
CREATIVITY PACKAGE	GE 154	(3 disks) Unleash the power of your brain with this creative thinking tool
DATA TREE	GE 157	Organize your thoughts with a graphic display of ideas
LOTTO CAL 1.01	GE 158	(2 disks) A powerful and scientifically oriented lotto predictor
BASEBALL CARD COLLECTOR 1.4	GE 163	A dedicated database for baseball card collectors!
COACH COACH	GE 166	Fantasy football drafter from Potlato League Sports
VARI GRADE	GE 170	(2 disks) Record, process and print grade reports
THE TENANT FILE 1.3.2	GE 171	Keeps detailed tenant information, including payment histories
MR LABEL	GE 172	Print mailing labels, disk labels, price tags, rolodex envelopes, etc.
TYPIING TESTER	GE 181	Sophisticated typing test
HOME MANAGEMENT II	GE 189	One of the best personal financial management programs we've seen!
RESUME	GE 190	Your resume can be as professional as you - support to be!
KINFOLKS	GE 198	Create a detailed family history
LOTTO CHALLENGER	GE 204	Another great lotto number generator!
WINE	GE 206	A database for wine lovers

RETAIL LOCATIONS:

Bellevue, WA (206) 746-7671	W. Seattle, WA (206) 938-8770	N. Seattle, WA (206) 524-0701
Federal Way, WA (206) 941-8244	Olympia, WA (206) 493-0988	Portland, OR (503) 246-8146
Coquitlam, B. C. (604) 936-6400		

GeminiTM
Marketing, Incorporated
P.O. Box 640, Duvall, WA 98019-0640

Programmers: Gemini is seeking quality IBM software for our forthcoming commercial range. We would be pleased to review your submissions for inclusion on a royalty or outright purchase basis. Send submissions to the Duvall address on the right.

UTILITIES

Disk & Program Management

DESK COMMANDO	UT 101	Superior to Sidekick. Features menuing, graphic text support, calculators, appointment books, etc. - a must!
EPSON UTILITIES	UT 102	Change modes on Epsons and compatibles, with spool utility
AUTOMENU	UT 103	Make your PC menu-driven with mouse, on-line help, etc. (HD req'd)
MASTERKEY	UT 104	Fast boot time, detailed files, like NOTATIONS utility
LINGUISTIC BANNER	UT 105	Design and print large banners - hundreds of uses at home and work!
DOS TUTORIAL	UT 107	Master DOS with this able mentor
STILL RIVER SHELL	UT 108	Easy DOS mastery from a menu!
BATCH FILE TUTORIAL	UT 109	Learn and utilize batch (.bat) file processing. Time saving, very useful!
DOS TIPS	UT 110	(2 disks) Advanced DOS utility - hundreds of uses at home and work!
OS2 TIPS	UT 113	Get your PC to talk - tutoring program
POWERMENU	UT 115	Superb hard disk menu organizer with windowing
ALT 1.25S	UT 119	Power of Sidekick. Superkey and Norton Utilities all in one package
EZ COPY-LITE	UT 120	GREAT floppy duplicator - SUPERB PROFESSIONAL utility for mass copying - reload disk to menu!
NARC/PKARC 3.5	UT 126	Latest version of a great file compression/extension tool
MENU-MATIC 4.0	UT 129	The LATEST version of this menuing package from BC Enterprises
LAUNCH GASSAGE	UT 135	Monitors laptop battery and lets you know when to recharge
POWER & SPEED	UT 136	A far better hard disk benchmark utility than DOS proceeds!
QUICKCACHE	UT 137	(3 disks) One of the best disk cache programs ever - speeds up your computer by optimizing disk accesses
BAKER'S DOZEN	UT 138	A collection of valuable utilities. Redline, files, add files or FAT includes spreadsheet, sideways printing, utility and pop-up calendar
BEST BATCH UTILITIES	UT 140	Put some punch into your batch files with the aid of these 28 programs
YEAR PLANNER	UT 141	This useful organizer prints wall calendars!
ARCHIVER 1.3	UT 142	Powerful archiving shell makes archiving and unarchiving a breeze
HARD DISK BACKUP	UT 150	Comprehensive utility for backing up your hard disk safely and quickly
MASTER MENU	UT 156	Full featured hard disk menu application
TURBO COPY	UT 157	Format copy/verify diskettes fast!
MAGIC MENU	UT 170	(2 disks) DOS menuing utility with added features: user defined pull-down and pop-up menus, instant disk directory, "window to DOS" etc.

Toll Free 24-Hour Orders Only

1-800-346-0139

Other Inquiries & Foreign Orders: (206) 788-4295 Fax: (206) 788-0717

CANADIAN ORDERS TO — Gemini Software Ltd., 5 Montgomery Cresc., Roxboro, Quebec, H8Y 1H3 — Toll Free: 800-363-0950 or 514-684-3522. Please add 75c per disk if paying in Canadian funds.

Buy	Pay (Ea.)	Refer to price table at left to calculate cost per disk (note some programs comprise multiple disks). Shipping and handling please add \$3.00 per order. COD welcome, additional \$3.50. Foreign orders additional \$4.00 air mail US funds only please, drawn on US bank. WA residents please add 8.1% sales tax. We ship by UPS and US Mail depending on weight. UPS blue available for rush orders at extra charge.
1-4	\$3.00	
5+	2.75	
10+	2.50	
20+	2.25	
30+	2.00	
50+	1.75	
100+	1.50	
300+	1.25	

For 3.5" disks please add \$1 per disk. Allow 10 days for check clearance. All disks warranted read-only. No returns without prior approval number.

Call NOW to be on our free catalogue mailing list!
Our sales hours are Mon-Fri 6:00 am to 7:00 pm, Sat 9:00-5:00 pm, PST. An answering device will be available at all other times — please leave your name and number and we'll call you back.

need to customize the program even more, you can add your own grammar and style rules with the new Rule and Help Editor. Imagine feeding your organization's house style into *Grammatik IV*. It boggles the mind.

On a well-written test document of about 300 words, *Grammatik IV* uncovered three genuine and five false errors. I tried *Grammatik III* about a year ago, and it found an even higher proportion of false errors. With the current version, you'll spend less time dealing with red herrings.

Also new to this version is a feature that lets you interactively correct errors from within six popular word processors: *WordPerfect 5*, *Microsoft Word 5.0*, *WordStar 5.5*, *XyWrite III*, *Professional Write 2.1*, and the latest version of *Q & A*. You can run the program from the command line with 33 other word processors.

In addition to the manual, the package includes an excellent book, *Secrets of Successful Writing*, by De Witt Scott. It's filled with useful tips on how to write directly and clearly.

Grammatik IV is easy to use and does a good job of ferreting out many kinds of grammatical gremlins. If you need help with your writing, check out *Grammatik IV*. It may not be perfect, but it will do until *Grammatik V* comes along.

DAVID ENGLISH

IBM PC and compatibles with 512K and a hard drive or high-density floppy—\$99
Macintosh (doesn't include the Rule and Help Editor)—\$99

REFERENCE SOFTWARE
330 Townsend St.
Suite 123
San Francisco, CA 94107
(800) 872-9933

WINDWALKER

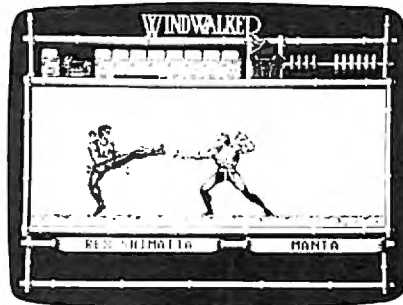
A quick duck and the attacker's sword flies harmlessly over your head. The surprised palace guard staggers for the briefest moment to regain his balance. Amazingly, faster than reflexes should allow, you launch your right leg like a battering ram squarely into your attacker's chest. He falls in a heap.

"You landed a powerful blow," flashes the screen. "As the attacker flees he drops some food." *Finally*, you think to yourself, *a meal*...

Windwalker is full of such encounters, which are part of the path to honor and enlightenment. This fanta-

sy role-playing game is set in ancient China. You begin as a Lowly Fisherman and through good deeds, knowledge, combat, and achievements you can rise in rank to Wolf, Condor, Cobra, and finally Dragon. Your ultimate task is to free the emperor from the rule of the evil warlord and his band of followers who have overtaken the local empire.

This sequel to *Moebius* is much more than the standard role-playing scenario, mixing realtime arcade fighting sequences with a richly detailed, captivating story. *Windwalker* sinks deep in the mystic culture of ancient China, engaging the player in rituals



Windwalker offers interactive adventure, combat, and intellectual stimulation.

and disciplines that lead to wisdom, strength, and other goals.

Dozens of smaller tasks, or missions, can lead to success. You must attain your goals while maintaining perfect honor. Stealing, attacking while unprovoked, and even feeling guilty can taint your honor. If this happens, you will be forbidden by the villagers to sleep in their homes, and numerous other factors will work against you.

Honing your martial arts technique is of high priority. Ninja assassins leap from behind rocks, dagger-wielding thieves chase you by boat, palace guards try to carve you with their long swords.

You'll need to learn the discipline of the monks—and quick. Passing this full-day ritual earns you a sacred robe and, more useful, a staff for fighting. Other disciplines award you with even more interesting abilities. Each of the disciplines you learn has its own special prayers, which can bring aid from above. Depending on the phrase you say, prayers can heal your physical wounds, restore your honor, quicken your pace, and so on.

Interact with villagers, who offer advice and clues (sometimes for a fee) and generally steer you in the right direction. The game presents conversational topics through menus.

A particular topic will only ap-

pear on the menu after you're aware of its existence. For example, a fisherman will offer clues about the lost explorer only after you've discovered the explorer's empty home. As the story progresses you should double-check with the key characters in the game to see if they have anything new to say.

The attention to realism even includes the use of human martial arts experts that were videotaped, digitized, and used as models for the full-screen fighting sequences. As a black belt in karate myself, I can verify the authenticity of the game's fighting sequences. However, the animation is not as fluid as in games that are designed strictly as karate competitions.

The graphics in general are outstanding. In most games of this type, you see a small section of the game's world from an aerial perspective. *Windwalker* instead creates a horizon effect by having objects in the distance—mountains, temples, trees, walls—rise into view as you move closer. At the same time, the sky above shows the position of the sun, moon, or storms.

Windwalker is ideal for players new to computer role-playing. It doesn't have an overwhelmingly large play area nor are the puzzles too demanding. In fact, *Windwalker* has so many clues that you nearly always know what to do next. Game designer Greg Malone is on my list of software authors to watch for in the future.

SCOTT MILLER

Apple II—\$39.95
Commodore 64—\$39.95
IBM PC and compatibles—\$39.95

ORIGIN
110 Wild Basin
Suite 330
Austin, TX 78746
(800) 999-4939

CARRIER COMMAND



Don't you just hate having to save the free world over and over again? This time you've got to stop a renegade aircraft carrier. The evil forces controlling it are holding hostage the islands containing the world's energy supply.

Carrier Command gives you plenty of tools for stopping the evil carrier: your own carrier, armed with a laser cannon and surface-to-surface missiles; four Man-

COMPUTER DISCOUNTS ON ALL YOUR COMPUTER NEEDS

MIBRO CO.

EST. SINCE 1950

64 WEST 36th STREET, NEW YORK CITY, N.Y. 10018

ORDERS ONLY **1-800-451-9780** N.Y. RESIDENTS (212) 695-7133




Commodore

COMMODORE 64
25 PC. DREAM OUTFIT

OUTFIT INCLUDES: Commodore 64 Keyboard • 1541 Disc Drive • Commodore Printer • 12" Monochrome Monitor • 10 Diskettes

\$298



Commodore

COMMODORE 64
25 PC. PROFESSIONAL OUTFIT

OUTFIT INCLUDES: Commodore 64 Keyboard • 1541 Disc Drive • Commodore Printer • 13" Color Monitor • 10 Diskettes

\$348




LEADING EDGE

MODEL D
25 PC. PACKAGE
IBM XT COMPATIBLE*

PACKAGE INCLUDES: Model D CPU & Keyboard • 12" Computer Monitor • 10 Diskettes • Word Processor • Spread Sheet • Data Base

\$498

SAME PACKAGE AVAILABLE WITH:
DUAL DRIVE.....\$548
COLOR SYSTEM.....\$648
20 MEGABYTE HARD DRIVE.....\$748



MODEL D2
25 PC. PACKAGE
IBM AT COMPATIBLE*

PACKAGE INCLUDES: Model D2 CPU & Keyboard • 12" Computer Monitor • 10 Diskettes • Word Processor • Spread Sheet • Data Base

\$898

SAME PACKAGE AVAILABLE WITH:
20 MEGABYTE HARD DRIVE.....\$1098
30 MEGABYTE HARD DRIVE.....\$1148
40 MEGABYTE HARD DRIVE.....\$1198



Commodore

COMMODORE COLT
25 PC. PACKAGE
IBM XT COMPATIBLE*

OUTFIT INCLUDES: Commodore Colt • Dual Drive • Keyboard • 12" Computer Monitor • 10 Diskettes • Software Bundle

\$598

SAME PACKAGE AVAILABLE WITH:
13" COLOR MONITOR.....\$748
20 MEGABYTE HARD DRIVE.....\$798
40 MEGABYTE HARD DRIVE.....\$898



Commodore

COMMODORE PC-40
25 PC. PACKAGE
IBM AT COMPATIBLE*

PACKAGE INCLUDES: Commodore PC-40 • 12" VGA Monochrome Monitor • 40 MB Hard Drive • 5 1/4" Floppy Drive • Keyboard • 10 Diskettes • Software Bundle

\$1299

SAME PACKAGE AVAILABLE WITH:
VGA COLOR MONITOR.....\$1499



EPSON

EQUITY II +
25 PC. PACKAGE
IBM AT COMPATIBLE*

PACKAGE INCLUDES: Equity II + CPU & Keyboard • 12" Computer Monitor • 10 Diskettes • Word Processor • Spread Sheet • Data Base

\$798

SAME PACKAGE AVAILABLE WITH:
20 MEGABYTE HARD DRIVE.....\$998
30 MEGABYTE HARD DRIVE.....\$1048
40 MEGABYTE HARD DRIVE.....\$1098




EPSON

EQUITY 386
25 PC. PACKAGE
IBM AT COMPATIBLE*

PACKAGE INCLUDES: 386 Processor • 20 Megahertz • 1 MB Memory • 5 1/4" Floppy Drive • 12" Computer Monitor • Keyboard • Software Bundle • 10 Diskettes

\$1888

SAME PACKAGE AVAILABLE WITH:
40 MEGABYTE HARD DRIVE.....\$2088
40 MEGABYTE/VGA COLOR SYSTEM.....\$2388



HEADSTART

HEADSTART II
25 PC. PACKAGE
IBM XT COMPATIBLE*

FEATURES INCLUDE: Headstart II • Dual Drive (5 1/4" - 3 1/2") • 640K Ram • 12" Computer Monitor • Original Software Bundle • 10 Diskettes

\$698

SAME PACKAGE AVAILABLE WITH:
13" COLOR MONITOR.....\$898
20 MEGABYTE HARD DRIVE.....\$998




HEADSTART

HEADSTART III
25 PC. PACKAGE
IBM AT COMPATIBLE*

PACKAGE INCLUDES: Headstart III • Dual Drive (5 1/4" - 3 1/2") • 1 MB Memory • 12 Megahertz • 30 MB Hard Drive • 12" VGA Monochrome Monitor • Original Software Bundle • 10 Diskettes

\$1888

SAME PACKAGE AVAILABLE WITH:
VGA COLOR MONITOR.....\$2088




POWERMATE

386-SX
25 PC. PACKAGE
IBM AT COMPATIBLE*

PACKAGE INCLUDES: 386 Processor • 16 Megahertz • 5 1/4" Floppy Drive • 12" Computer Monitor • Software Bundle • 10 Diskettes

\$1398

SAME PACKAGE AVAILABLE WITH:
40 MEGABYTE HARD DRIVE.....\$1598
40 MEGABYTE/VGA COLOR SYSTEM.....\$1898



POWERMATE

386
25 PC. PACKAGE
IBM AT COMPATIBLE*

PACKAGE INCLUDES: 386 Processor • 20 Megahertz • 5 1/4" Floppy Drive • 12" Computer Monitor • Software Bundle • 10 Diskettes • 2MB Ram

\$2288

SAME PACKAGE AVAILABLE WITH:
40 MEGABYTE HARD DRIVE.....\$2488
40 MEGABYTE/VGA COLOR SYSTEM.....\$2788



EPSON

EQUITY I +
25 PC. PACKAGE
IBM XT COMPATIBLE*

PACKAGE INCLUDES: Equity I + CPU & Keyboard • 12" Computer Monitor • 10 Diskettes • Word Processor • Spread Sheet • Data Base

\$498

SAME PACKAGE AVAILABLE WITH:
DUAL DRIVE.....\$548
COLOR SYSTEM.....\$648
20 MEGABYTE HARD DRIVE.....\$748




EPSON

EQUITY 1E
25 PC. PACKAGE
IBM XT COMPATIBLE*

PACKAGE INCLUDES: Equity 1E CPU & Keyboard • 12" Computer Monitor • 10 Diskettes • Word Processor • Spread Sheet • Data Base

\$598

SAME PACKAGE AVAILABLE WITH:
DUAL DRIVE.....\$648
COLOR SYSTEM.....\$748
20 MEGABYTE HARD DRIVE.....\$848




IBM

ORIGINAL IBM
IBM AT
25 PC. PACKAGE

PACKAGE INCLUDES: IBM AT CPU & Keyboard • 12" Computer Monitor • 10 Diskettes • Word Processor • Spread Sheet • Data Base

\$998

SAME PACKAGE AVAILABLE WITH:
20 MEGABYTE HARD DRIVE.....\$1198
40 MEGABYTE HARD DRIVE.....\$1298
60 MEGABYTE HARD DRIVE.....\$1498



IBM

ORIGINAL IBM
IBM XT
25 PC. PACKAGE

PACKAGE INCLUDES: IBM XT CPU & Keyboard • 12" Computer Monitor • 10 Diskettes • Word Processor • Spread Sheet • Data Base

\$698

SAME PACKAGE AVAILABLE WITH:
DUAL DRIVE.....\$748
COLOR SYSTEM.....\$848
20 MEGABYTE HARD DRIVE.....\$998




Panasonic

FX-1650
25 PC. PACKAGE
IBM XT COMPATIBLE*

PACKAGE INCLUDES: Panasonic FX-1650 CPU & Keyboard • 12" Computer Monitor • 10 Diskettes • Word Processor • Spread Sheet • Data Base

\$598

SAME PACKAGE AVAILABLE WITH:
DUAL DRIVE.....\$698
COLOR SYSTEM.....\$798
20 MEGABYTE HARD DRIVE.....\$998



HEADSTART

EXPLORER
25 PC. PACKAGE
IBM XT COMPATIBLE*

PACKAGE INCLUDES: Explorer • Fold-Up Keyboard • 512K Expandable To 768K • 13" Color Monitor • Software Bundle • 10 Megahertz

\$748




TOSHIBA

T-1000
LAPTOP
COMPUTER
20 PC. PACKAGE

INCLUDES: Toshiba T1000 • 512K Ram • AC Adapter • Battery Pack • 10 Diskettes • Word Processor • Spread Sheet • Data Base

\$548

TOSHIBA T-1000SE.....\$998




TOSHIBA

T-1200
LAPTOP
COMPUTER
20 PC. PACKAGE

INCLUDES: Toshiba T1200 • Dual 720K Floppy Drive • AC Adapter • Battery Pack • 10 Diskettes • Word Processor • Spread Sheet • Data Base

\$1188

W/20MB HARD DRIVE \$1588



PANASONIC PRINTERS

• KXP-1180i • KXP-1124
• KXP-1191i • KXP-1524
• KXP-1092i • KXP-1592

FULL LINE OF PANASONIC PRINTERS GREATLY DISCOUNTED



LASER PRINTERS

• HEWLETT PACKARD Laser IIP
• HEWLETT PACKARD-HP Laser Series II
• HEWLETT PACKARD Desk Jet
• PANASONIC KXP-4450 Laser

FULL LINE OF LASER PRINTERS GREATLY DISCOUNTED



EPSON

EQUITY LT
LAPTOP
COMPUTER
20 PC. PACKAGE

INCLUDES: Epson LT • Dual 720K Floppy Drive • AC Adapter • Battery Pack • 10 Diskettes • Word Processor • Spread Sheet • Data Base

\$1088

W/20MB HARD DRIVE. \$1588



ZENITH

184
LAPTOP
COMPUTER
20 PC. PACKAGE

INCLUDES: Zenith 184 • Dual Drive • 720K Floppy Drive • AC Adapter • Battery Pack • 10 Diskettes • Word Processor • Spread Sheet • Data Base

\$1188

W/20MB HARD DRIVE \$1588

CALL TOLL FREE **1-800-451-9780**
NEW YORK STATE RESIDENTS CALL (212) 695-7133
CUSTOMER SERVICE CALL (212) 967-2353 FAX (212) 695-0982
MON. - SAT. 10:00 AM - 7:00 PM SUNDAYS 10:30 AM - 6:00 PM
ALL SYSTEMS AVAILABLE WITH: 20/30/40/60/80 HARD DRIVES
• ALL SYSTEMS SUPPORT MGA/CGA/VGA/MULTISCAN

VISA
Use M/C, Visa, AMEX or send money order, certified checks. All merchandise brand new factory fresh. Shipping charges non-refundable. Minimum shipping and handling \$4.95, maximum \$59.00. Stepping costs reflect in individual packaging. Air shipping additional. For mail orders please call before sending in money order. All prices subject to manufacturers increase/decrease. Refunds within 7 days only with original packaging & unfiled guarantee card. Some products subject to restocking fee. No refunds without prior verbal authorization. Customer service between 12 pm - 8 pm. Pictures are for illustration purposes only. Not responsible for typographical errors. Consumer Affairs License No. 800-253. Prices good for mail orders only.

MasterCard

to attack aircraft; and four Walrus amphibious assault vehicles. Should be a snap, right?

Wrong. The enemy carrier, though similar to yours, has a newer design. You're taking version 1.0 into combat against version 2.0. Also, you need to build a supply-and-defense network on the nearby island chain. Unfortunately, the enemy got a head start and already has a growing network creating supplies, building weapons, and pumping fuel.

Carrier Command has the best blend of arcade and strategy elements I've ever encountered. Combat is fast-paced, rivaling the best flight simulators and tank games. But the strategy is vital—if you don't build a proper defense network, you won't stand a chance in the arcade sequences.

The 3-D graphics are among the smoothest you'll find in a PC game, and you'll appreciate the fast screen updates even on slower machines. The game also boasts very attractive VGA and EGA screens, and the CGA and Hercules graphics are among the best in their class.

So, go save the world again in *Carrier Command*. It's a fun job, but somebody has to do it.

DENNY ATKIN

properly, the icon doesn't show up; you know you've done something wrong.

The mouse pointer almost always has a little tag attached, telling you what kind of action it's ready to take. For example, in the Bulletin Board, the tag says *Do This*, meaning it's time to do something with whatever icon you clicked on. In the bundled word processor, the pointer is even more helpful. When you need to select text, click on the button that says *Select Text* and the pointer tag says *Start Here*. Once you've clicked on the beginning of the text block you wish to



Overcome command line phobia with HeadStart's XT compatible, Explorer.

select, the pointer tag changes to *End Here*. That's what I call a friendly mouse pointer.

When you want to run other software, however, the system isn't as friendly. Insert a game disk in the drive, for example, and the Disk Navigator pops up with a list of files on the disk and a series of buttons for file operations (Copy, Rename, Use This File). Unless your program has been "Explorized," the machine won't recognize the game's executable file. So you must look for the file with the .EXE extension, select it, and then click the Use This File button. New users probably won't recognize an executable file, and their software manuals won't be working on the same wavelength as the Explorer.

You can always hop out of the Bulletin Board and into DOS, of course, but that defeats the purpose of a simple shell. Although the Explorer's bundled software and operating environment seem ideal for neophytes, more experienced users will be left wanting more.

Neophytes will also appreciate the way the hardware works. To add a hard disk, for example, purchase HeadStart's 40-megabyte Automagic Hard Disk. It fits in a specially designed hole on the side of the computer. You never have to look inside

the machine. A HeadStart RAM Pac is the company's answer to simple memory expansion. The whole design smacks of videogame cartridges—proprietary technology that goes against the grain of an open system, which is what standard MS-DOS PC design is all about.

Consider the Explorer's unusual 16-color CGA graphics. The bundled software supports this mode, but no other programs that I tried did. HeadStart is providing software designers with a developer's kit that lets them include drivers for this graphics mode in their programs, but it's just too soon to tell if 16-color CGA will sink or swim.

The Explorer features only one expansion slot (half-size, 8-bit). If you ever want to add more capability to your system, such as a different graphics adapter or a sound card, you'll need an external expansion-slot chassis.

Not many people stay satisfied with their computers once they know what more memory can do, a couple more megahertz of speed can accomplish, or a few hundred more colors can look like. With all of its simplicity and benevolence, with all of its wonderfully designed interfaces and software, the HeadStart Explorer forces you to wonder how long you'll stay a beginner.

If you don't want to move on from your first computing experiences, the Explorer isn't a bad choice. It's designed for beginners, but, unlike its low-end Tandy 1000 competition, it lacks the support network of a corner Radio Shack store and the software support for its orphan graphics standard.

User-friendly technology is simply not enough to justify a computer that uses nonstandard graphics, is difficult to upgrade, and is outgrown quickly. HeadStart has good intentions, and it's not trying to pass this machine off as anything other than a basic beginner's computing tool, but the Explorer is too limited for most people.

HEIDIE H. WICK

HeadStart Explorer without monitor—
\$599.00
HeadStart Explorer with monitor—
\$989.00
40-megabyte Automagic Hard Disk—
\$599.00
256K RAM upgrade—\$129.95

HEADSTART TECHNOLOGIES
40 Cutler Mill Rd.
Suite 438
Great Neck, NY 11021
(516) 482-4255

HEADSTART EXPLORER

Every aspect of the HeadStart Explorer has been designed to make computing simple for the new user. The hardware is modular, and the interface is intuitive. In fact, the interface is more than intuitive: It's instructive. But user-friendly technology may not be enough to overcome this computer's shortcomings. Flexibility and power are also valuable assets in a home computer; you shouldn't trade them away without some serious thought.

HeadStart uses a bulletin-board metaphor for its graphical user interface. Each peripheral has an icon, and many programs have icons, too. If you haven't installed a peripheral

The Best...The Most...For Less!

Top Quality User-Supported PC-Compatible Software

As Low As



BUSINESS/ACCOUNTING/FINANCE

ACS In-Control	100, 101	A system for sales prospecting, lead tracking, and billing (2 Disks)
BillFlow	108, 107	A great client billing package which includes a complete GL (2 Disks)
Business Contacts	112	Helps you keep track of critical information about your contacts
Business Forms	117	100 form letters for all purposes (employment forms, contracts, etc.)
Easy Project	122	A superb project manager software package (Gantt charts, critical path)
Employee System	127	Personality analysis that helps you reduce turnover
Finance Manager II	132	A very powerful and complete GL package for small business accounting
FONE	137	Times and records your time on the phone. Helps you save money!
Form Master	142	An easy-to-use business form generator. Create any form, easily!
Job Cost	147	Excellent job costing program. It's the one you've been waiting for!
MarketCGA	152	Tracks and charts the trends for all your stocks. CGA
Medlin Accounting	157	A complete accounting package with G/L, A/P, A/R, and Payroll
Merchant Accounting	182, 183	Designed for any businesses needing an inventory system (2 Disks)
Palmsae Accounting	188-170	The most complete and easy-to-use accounting system (3 Disks) HD
Payroll USA	176, 178	A complete payroll system that can handle up to 2000 employees (2 Disks)
PC-Lensa	181	This program computes payments using most common loan methods
Safe-It	188	Does all necessary financial calculations (IRR, PV, FV, annuities)
Tickler	191	Rated as the most powerful time-management software available! HD 512K
UPS RateMaster	196	Complete UPS shipping system!
Year Planner	199	A super calendar and organizer program that can print wall calendars!

DATABASE

dFLIPPER	215	Great utility program for editing any dBASE or compatible file
dLITE	219	A dBASE multi-utility that includes pop-up access to 10 databases
dPROG	223	An amazing dBASE III autoprogammer that writes the code for you!
File Express	227, 228	Great database package which combines power and ease of use (2 Disks)
Idea Tree	232	An incredible program that stores and organizes your ideas and thoughts
Meas Appeal	238	Excellent mail list program that prints mailing labels
PC-File+	240-242	A powerful relational database with import/export capabilities (3 Disks)
PC-File:dB	244-246	The most powerful dBASE compatible database package! HD 512K (3 Disks)
Wampum	249	A powerful, menu-driven dBASE compatible program. HD

SPREADSHEET

As-Easy-As	255	Fantastic Lotus 1-2-3 compatible spreadsheet program
Lotus Macro	260	Collection of powerful macros for 1-2-3 or compatible programs
Lotus Templates	260	Lots of useful templates for Lotus compatible programs
PC-Calc+	275-277	The most powerful spreadsheet package for under \$200! (3 Disks)
Pivot	282	Prints Lotus and As-Easy-As spreadsheets sideways
Power Worksheets	296	A set of powerful worksheets for Lotus 1-2-3 or compatible programs
CubeCalc	292	An amazing 3-dimensional spreadsheet program

WORD PROCESSING

Galaxy	310	The most easy-to-use word processing program available
PC-Outline	320	An idea organizer and free-form database
PC-Write 2.03	325-327	Full-featured word processing with spell checking. Rated #1 (3 Disks)
PC-Write Macro	331	Over 100 macros for PC-Write users
Pro Scribe	337	This program will improve the clarity and impact of your writing
Thesaur	345	Very useful when you are looking for the perfect word to make your point
Writer's Heaven	348	A PC-Write enhancement. Makes the BEST even better!

WORDPERFECT 5.0

PC-Draft III	365, 366	Create your own graphic images. Several examples included (2 Disks)
WP 5.0 Art/Graphics	375, 376	A big collection of clip art images for WordPerfect (2 Disks)
WP 5.0 Learning System	380, 381	Learn to use WordPerfect 5.0 quickly and easily (2 Disks)
WP 5.0 Macro	385, 386	Over 100 excellent macros for WordPerfect (2 Disks)
WP 5.0 Menu/Tools	390, 391	A collection of menu systems and mouse drivers (2 Disks)
WP 5.0 Tools	395, 396	Several WordPerfect utilities (2 Disks)

UTILITIES

AutoMenu	405	Put all the programs on your hard drive into a selection menu. HD
Baker's Dozen	409	13 handy utilities that every computer system needs
Best DOS Utilities	413	A print spooker, a RAM disk, and much more!
CDDisk	417	This menu-driven program catalogs and organizes your data
Hard Disk Utilities	420	A wide range of hard disk utilities and enhancements
HD Backup	424	An easy-to-use program that backs up your hard drive on floppy disks. HD
HomeBase	427, 428	Desktop organizer that is better than Stack! (2 Disks)
Light!	432	Keeps an active record of who has used the computer and for how long
MasterKeys	436	Desk multi-utility like Norton Utilities. You'll use this a lot!
PAB Master Menu	440	An easy-to-set-up menu for the programs on your hard drive. HD
PC-Desktop	445	Useful desktop accessories (clock, calendar, calculator, much more)
QuickCache	455	The disk caching utility will speed up your computer, dramatically!
ScreenSaver	458	Saves your monitor (any kind) from burn-in
SimCGA	463	Lets a monochrome system run many CGA programs
Speed Master	466	Lets you fit more data on any floppy or hard disk
Still River Shell	469	Excellent DOS command shell. Makes using DOS easier and quicker!
TreeView	472	A superior DOS command shell with pull-down menus
Virus Killers	474	Several virus detection and elimination programs

GRAPHICS

Charts Unlimited	505	Allows quick and easy creation of virtually any kind of chart or diagram
Draft Choice	509	Excellent menu-driven CAD program with optional mouse support
EGA Fonts	513	Over 50 fonts to give you excellent EGA text displays (req. EGA)
Electron	517	An excellent electronics design and information package. CGA
Finger Paint	521	Use your keyboard (or a mouse) to draw great color pictures. CGA
Grasp	525	A system for creating and running graphical demos and slideshows. CGA
Image 3-D	529	Create, view, move, scale, and edit 3-D objects. CGA 512K
Mind Chart	533, 534	A screen graphics charting and design program (2 Disks)
Optima	536	A graphic multi-utility which can convert between over 25 formats. CGA
PC-Key Draw	542-545	Powerful CAD design program. Works with keyboard or mouse (4 Disks) HD
VGA Paint	548	A super-duper paint program—only for you lucky people with VGA

PRINTING

Address-O-Matic	553	Envelope printing utility
Banner/Sign Makers	558	Print your own banners and signs on your Epson compatible printer
BestFont	559	A super collection of beautiful dot-matrix fonts
Calendar Printer	562	Design and print a calendar for any month or year
City Desk	565	Create and print your own newsletters and flyers
Epson Utilities	568, 570	Utilities and fonts to enhance your print quality (2 Disks)
E-Z Forms	573	A program that makes it easy to create and print office forms
Formgen	578	Quickly create and print any type of form or chart
ImagePrint	579	Turns your 9-pin dot matrix printer into a letter-quality printer
LaserJet Utilities	582, 583	Fonts and utilities for HP LaserJet compatible printers (2 Disks)
Letterheads Plus	587	Print custom letterheads with your Epson or IBM compatible printer
Mr. Label	589	Versatile address printing program
On Side	591	Prints spreadsheets (or anything) sideways
PrintMaster Graphics	593, 594	Large collection of clip-art for PrintMaster users (2 Disks)
PrintShop Graphics	598, 597	Collection of graphics that you can edit/print with PrintShop (2 Disks)

EDUCATION

Amy's First Primer	805	A collection of six fun learning games for kids 4-8. CGA
Calculus DOS Tutor	809	Teases learning to use the computer easy—and fun!
DOB Learning System	813	Great DOS tutorial. Teases the frustration out of using a computer!
Facts 50	817	A graphic geography lesson of the United States. CGA
Funnels and Buckets	821	Wow! They've found a way to make learning math fun for kids. CGA
Geography	825	A quiz on the nations of the world and their capitals
Geogol Math	829	Math learning system with graphics and several levels of difficulty. CGA
PC-FastType	837	A really fun and useful interactive typing teacher. CGA
Physics	841	High school level physics instruction
Play 'n' Learn	845	A collection of six learning games for small children 2-5 years. CGA
Presidents	849, 850	Both a learning tool and quiz on the U.S. presidents (2 Disks)
School Mom	854	Lessons on math, art, music, and spelling for children 2-12 years old
Spanish I & II	858, 859	Makes learning Spanish vocabulary easier and more productive (2 Disks)
Speed Read	865	Teaches you the principles and concepts of speed reading
Teacher's Tools	869	Tracks grades and attendance for classes up to 100 students
Typing Teacher	873	Helps you practice and improve! Tracks and displays your progress
Vocabulary Builder	881-885	7500 practice words for the SAT. Improve your word power! (5 Disks)
World	890	A fascinating electronic globe/database of world geography. CGA

HOME/FAMILY

Computer Chef	706, 707	A recipe database with several excellent dishes for you to try (2 Disks)
Express Check	713	Checkbook program that handles several accounts and does reconciliation
Family Tree	719	Use this excellent genealogy program to trace your family roots
Gardener's Assistant	732	Helps you to plan and cultivate your garden
Home Inventory	738	Keeps a record of all your personal possessions
Home Manager	744	Keeps track of your household budget
Nutritionist	750	A program to help you achieve better health and fitness
Personal Finances	756	Tracks your income and expenses. Helps you stick to a budget
Shopper's Assistant	782	A complete grocery shopping aid and coupon filter
Video Librarian	788	Keeps track of your video collection

MISCELLANEOUS APPLICATIONS

PC-Musician	789	Compose, edit, and play back your musical creations
Tune Trivia	797	Your computer will play popular tunes—can you name them?
Astrology	800	Let this program tell you what lies ahead in your stars
Blackboard	806	Compiles and displays/prints your personal chart for any time period
Handwriting Analyst	824	Does an in-depth personality analysis from any handwriting sample
Lotto!	832	See if your computer can help you win the lottery
Micro World Database	834-838	A database of worldwide information compiled by the CIA (5 Disks)
PC-Bartender	842	Learn to mix cocktails like a professional bartender
Rental Management	848	Complete rental management system for landlords
Resume	850	Helps you write a better, more effective resume
Stress Test	854	Analyze your level of stress and can give you warnings
Wisdom of the Ages	862-864	Over 8000 of the greatest quotes from history's greatest minds (3 Disks)
Zip Code Finder	888	Searches and finds any zip code—FAST!

RELIGION/BIBLE

BIBLE Men	878	A quiz on the people mentioned in the BIBLE
BIBLE-Q	877	A fun BIBLE quiz. Test your Biblical IQ
Church Membership	885	Helps a church keep track of all its members
New Testament	888, 889	The complete King James New Testament on disk (2 Disks)
Old Testament	891-899	The complete King James Old Testament on disk (8 Disks)

GAMES

Adventures 1	901	Five great adventure games that you are sure to enjoy!
Adventures 2	902	Five more adventure games that will keep you intrigued for hours
Arcade Baseball	905	A game of baseball strategy and arcade fun! CGA
Arcade Games 1	907	Two great PAC MAN games and much more! CGA
Arcade Games 2	908	Several fun games featuring Q-BERT, the arcade favorite! CGA
Arcade Games 3	909	A version of the classic arcade hit, CENTIPEDE and more. CGA
Arcade Games 4	910	Collection of space games including SPACE WAR and ASTEROIDS. CGA
Blackjack	913	Two great versions of blackjack to test both skill and luck!
Board Games 1	915	Two fantastic versions of everybody's favorite, MONOPOLY
Board Games 2	918	Includes both BACKGAMMON and CHECKERS. CGA
Board Games 3	917	You'll love this collection, which includes RISK and OTHELLO. CGA
Card Games	923	Great versions of poker and blackjack. Video Poker/Ultimate 21
Crime Lab	926	A fun graphic murder mystery game. CGA
Ed's Chess	935	A great chess game with different levels. Basic ChessMaster 2000!
Ford Simulator	937	Choose your Ford and test your driving skill on the tracks. CGA
Las Vegas Craps	945	Place your bet, roll the dice, play Las Vegas style
Mag Jongo	948	Play the ancient "mag" game on your computer. CGA
Miramar Flight Simulator	950	See if you are "TOP GUN" material as you fly a fully armed F-18! CGA
NHLA	953	You must battle evil NINE warriors to the death! CGA
PAB Trivia	956	Test your trivia IQ or play against your friends
PC-Jigsaw	959	See a nice picture, then it's scrambled. Can you put it together?
PC-Pro Golf	961	You choose the club, angle, and strength of each shot. Real Fun! CGA
Pinball	965	Five SUPER pinball games. Realistic sound and action. CGA
Sane Graphics 1	971	Games that work great on any system (no graphics required)
Scrabble	973	Test your word power with this long-time popular game. CGA
Sharp Shooter	975	Battle it out—tanks vs. tanks. CGA
Star Trek	977	A Star Trek strategy game and a Star Trek trivia game
Striker	978	You must maneuver your attack helicopter behind enemy lines. CGA

EGA GAMES (These games require EGA graphics cards)

Bess Tour	981	An incredible fishing simulator with great graphics. EGA
Captain Comic	984	Thrill to the commercial quality graphics of this FANTASTIC game. EGA
EGA Arcade 1	986	Excellent EGA version of ASTEROIDS. BREAKOUT is also included. EGA
EGA Cunnning Football	990	You call the plays and control the key players. Great fun! EGA
EGA Games 1	992	A collection of favorites including SCRABBLE and SOLTARIE. EGA
EGA Golf	995	A game of skill, strategy and reflex. Great graphics and realism. EGA
EGA Risk	997	Use your strategy and cunning as you set out to rule the world! EGA
EGA Trk	999	This is the ULTIMATE Star Trek adventure. You're the captain! EGA

CGA=Requires Color Computer HD=Requires Hard Drive 512K=Requires 512K RAM

PRICES		Direct Link Software P.O. Box 2302 Muncie, IN 47307 1-800-999-6883 (Call today or use a separate sheet and mail in your order.)
Disks Ordered	Price Per Disk	
1-9	\$1.89	
10-19	1.75	
20-49	1.49	
50-99	1.25	
100+	.99	

If you need 3 1/2" disks add \$1 each. Count each disk in multiple disk sets. Add \$4 shipping per order. (Canada add \$8 - Foreign add \$8)



Call Today 1-800-999-6883 Limited Time Offer





Lycocomputer Marketing & Consultants

Since 1981

Now get all your computer needs with just one phone call!

HARD DRIVES

5.25" Half Heights:

ST 225 20 Meg 65 MSEC MFM	\$193.95
ST 225N 20 meg SCSI	\$261.05
ST 238R 30 meg RLL	\$199.95
ST 251-I 40meg 28 MSEC MFM	\$315.95
ST-277R-1 65 meg 40 msec RLL	\$349.95
ST 277N-1 64 meg SCSI	\$429.95
ST 296N 84 meg SCSI	\$452.95

5.25" Full Heights:

ST-4096 80 meg 28 MSEC MFM	\$539.95
ST-4144R 122 meg 28 MSEC RLL	\$599.95

New on the market are Seagate's revolutionary Paired Solution hard drives. Included is Seagate controller card and disk manager software (already loaded on the drive) for a complete and easy to use hard drive package.



Paired Solutions:

225P 20 meg MFM	\$239.95
ST 225 RP 20 meg RLL	\$219.95
ST 238 RP 30 meg RLL	\$245.95
ST 250 RP 40 meg RLL	\$255.95
ST 138 RP 30 meg RLL	\$268.95
ST 157 RP 49 meg RLL	\$346.95

3.5":

ST 125 20 meg 40 MSEC MFM	\$225.95
ST 125N 20 meg SCSI	\$271.95
ST 138R 30 meg RLL	\$239.95
ST 138N 30 meg SCSI	\$303.95
ST 157R 49 meg RLL	\$299.95
ST 157N 48 meg SCSI	\$329.95

Controllers available from Western Digital to DTC. Call for pricing.

FLOPPY DRIVES

Toshiba disk drives offer you the latest in VLSI technology and low power consumption

5 1/4" 360 KB PC/XT Compatible	
ND-04D	\$65.95
5 1/4" 1.22 MB PC/AT Compatible	
ND-08DEG	\$79.95

TOSHIBA

3 1/2" 720 KB PC/XT Compatible	
ND-352	\$67..95
95*	
3 1/2" 1.44 MB PC/AT Compatible	
ND-356T	\$79.95*

* Universal Installation Kit Included

DON'T LIMIT YOURSELF!

Buy top quality drives to suite your needs

TAPE BACKUPS

INTERNAL

Excel-60 60 MB half Height 5 1/4"	\$699.95
Excel-40 T 40 MB PC/XT/AT	\$539.95
Excel-40 AT 40 MB	\$279.95
Excel 150 150 MB	\$1029.95
Excel II-60 60 MB PS/2	\$819.95



EXTERNAL

Excel-60 60 MB Full Height	
5MB/min	\$829.95
Excel-40 T 40 MB 5MB/min	\$619.95
Excel 150 150 MB	\$1149.95
Excel II 60T 60 MB PS/2	\$799.95

Models Up To 150 MB Available

*Includes controller and data cartridge

TAPE SUPPLIES

3M DC-600A	\$27.95
3M DC-6150	\$29.95
3M DC-2000	\$22.95
Teac CT-600H cassette	\$26.95

PRINTERS

Panasonic

1180	\$169.95
1191	\$216.95
1124	\$279.95
1695	SCALL
1624	\$439.95
4450 Laser	\$1299.95

Kodak

Diconix 150 + \$339.95

Star

NX-1000 II	\$159.95
NX-1000 color	\$209.95
NX-1500	\$309.95
NX-2410	\$275.95
NX-2415	\$389.95
XR-1500	\$419.95
XR-1000	\$329.95
XB-2410	\$419.95
XB-2415	\$549.95
Laser 8 II	SNEW

Brother

M1724L	\$519.95
HR20 Daisy	\$319.95
HR40 Daisy	\$539.95
M1809	\$349.95
M1824L	\$469.95
M1909	\$449.95
M1924L	\$594.95
HL8psi(Post Script) SCALL	
HL8e	\$1799.95

Citizen

120 D	\$129.95
120 D Serial	\$164.95
180 D	\$154.95
GSX-140	\$319.95
GSX-140	
(COLOR)	\$369.95
HSP-500	\$309.95
HSP-550	\$429.95
Premiere 35	\$499.95

Okidata

172	\$195.95
182 Turbo	\$229.95
183	\$219.95
320	\$329.95
321	\$459.95
390	\$459.95
391	\$629.95
393	\$979.95
393C (color)	\$1069.95
Laser 6	\$1299.95

Epson

LX-810	\$184.95
LQ-510	\$319.95
FX-850	\$339.95
FX-1050	\$434.95
LQ-850	\$489.95
LQ-950	\$499.95
LQ-1050	\$679.95
LQ-2550	\$909.95

Panasonic Office Automation

- 24 pin print head
- 192 cps (draft)
- letter quality text at 63 cps
- push/pull tractor, 5 resident print fonts, parallel centronics interface and a standard 6K buffer
- 2-year warranty

KX-P1124



\$279.95

Star NX-1000 Series II

- 180cps draft
- 45 cps NLO
- 4 resident fonts
- 216 X 240 dpi resolution and print pitches from 3 to 20 dpi



\$159.95

Panasonic Laser Printer

- 512K memory comes standard
- 11 pages per minute print speed
- Panasonic's 1-year warranty



KX-P4450
\$1299.95

MONITORS

Magnavox

BM7652 Mon. Comp	\$84.95
BM7622 Mon. Comp	\$84.95
7BM623 TTL	\$84.95
7BM749	\$139.95
CM8702 ColorComp	\$179.95
CM8762 RGB	\$234.95
9CM-043 EGA	SCALL
9CM-053 EGA	\$329.95
9CM-082 VGA	\$399.95

NEC

Multisync GS-2A White VGA	\$229.95
Multisync 3D VGA EGA CGAS649.95	
Multisync 2A VGA	\$524.95

GoldStar

2105 A Composite	\$74.95
1410 CGA 14"	\$209.95
1420 EGA 14"	\$319.95
1430 VGA 14"	\$349.95
1440 Super Scan	SCALL

Everex Video Cards

Evergraphics Mono	\$54.95
MicroEnhancer EGA	\$79.95
MicroEnhancer DI EGA PR Ports	\$84.95
Viewpoint VGA	\$179.95

Cardinal Video Cards

Cardinal VGA 200	\$149.95
Cardinal VGA 256	\$169.95

MODEMS

Everex:

Evercom 12 (INT) 1200 Baud	\$54.95
Evercom 24 (INT) 2400 Baud	\$119.95
Evercom 24 + MNP level 5 2400 Baud	\$149.95
Evercom 24E + MNP level 5 2400 Baud	\$199.95
Evercom II 24 + PS/2 Int	\$189.95

Cardinal:

MB1250 INT 1200 Baud	\$49.95
MB1200 EX EXT 1200 Baud	\$69.95
MB2450 INT 2400 Baud	\$79.95
MB2400EX EXT 2400 Baud	\$99.95
MB2250F MNP level 5	\$119.95
2450 MNP level 5 INT 2400 Baud	\$139.95
2400 MNP level 5 EXT 2400 Baud	\$159.95
Flashlink MNP (software)	\$39.95

Cardinal MB 2250F FAX/MODEM*



\$119.95

*Modem Speed 2400 BPS
*Fax Speed 4800 BPS

Why shop at Lycocomputer? Lycocomputer offers quality name brand computer products at prices 30% to 50% below retail. 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 receives continuous formal training by our manufacturers. 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? Our Customer Service Department is available at (717) 494-1670 to assist you. We back all of our manufacturer's stated warranty terms. Before returning any item that appears to be defective, we ask that you call our Customer Service Department. Will you rush an item to me? We offer next day air, two day air, standard UPS, and postal international shipping services. Temporary shortages are normally filled within 10 days. How do I order? We have always offered C.O.D. orders through UPS. Prepaid cash orders over \$50 are shipped freight-free. Simply send your order to Lycocomputer, P.O. Box 5088, Jersey Shore, PA, 17740. For orders under \$50, please add \$3 for freight. Personal and company checks require a 4 week waiting period. Visa, MasterCard and American Express orders are accepted for your convenience, but we cannot pass along the 4% discount offered for cash. Purchase orders are accepted from Educational Institutions. We charge sales tax on deliveries in Pennsylvania. For APO, FPO, and international orders, add \$5 plus 3% for priority mail. Prices in this ad reflect cash prices. Advertised prices and availability are subject to change. Not responsible for typographical errors.

ATTENTION EDUCATIONAL INSTITUTIONS: If you are not currently using our educational service program, please call our representatives for details

For Fastest Service Call Toll Free

800-233-8760

Our friendly sales staff can help with any questions you have!



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 the oversight.

WHERE QUALITY COMES FIRST.

MICRO CHANNEL ARCHITECTURE!!!

REGULATION *AS* SCANNING

Occupation Safety and Health Administration (OSHA) now available on these systems!



IBM PERSONAL SYSTEM II (P/SII)

P/SII Model 30.....	(30 meg drive)	\$2255
P/SII Model 50 Z.....	(30 meg drive)	\$3250
P/SII Model 50.....	(30 meg drive)	\$3895
P/SII Model 60 386 SX/16	(44 meg drive)	\$5295
P/SII Model 70 386/16.....	(60 meg drive)	\$5495
P/SII Model 70 386/25.....	(120 meg drive)	\$7995
P/SII Model 70 386/25.....	(120 meg drive)	\$8995

CALL FOR CURRENT PRICING!

Software for Business Industry

- Manufactured in France • Now available in U.S.A
- Full MCA Compatible • Full Manufacturer's Warranty
- Technology licensed by IBM • FCC B Approved

NORMEREL

NS-65 16 MHZ 40 meg 386 SX/16	\$2499.95
NS-70 20 MHZ 85 meg 386/20	\$3599.95
NS-70 + 25 MHZ 140 meg 386/25	\$4995.95

Call for more detailed Full Manufacturer's Warranty!

Panasonic FX 1900 386SX/16MHZ

The Panasonic FX-1900 Business Partner personal computer has the power to run today's business software as well as the next generation of 32 bit specific software.

Standard Features Include

- 80386SX CPU running at 16 Mhz
- 1 MB RAM standard
- Expandable to 16 MB RAM
- Built in 3.5, 1.44 MB floppy drive
- live 16 bit expansion slots
- One serial port
- 101 Key enhanced keyboard
- One parallel port
- Includes 80387 math co-processor
- Battery backed up real time clock
- FCC Class B Approved
- 1 year warranty

LASER LX 386 386/25 MHZ

The new Laser LX series is the leading edge of high power computer technology. Whether your choice is a personal performance machine or needs to share power with others, the Laser LX 386 Desktop or Laser LX 386 Tower will have your needs covered!

Standard Features Include

- 80386 Microprocessor 25 MHz (0 wait)
- 2 MB RAM Std (expands to 10MB)
- 32 Bit RAM at 80ns
- 84K Cache Memory
- 80387 Co-Processor Socket
- 128K ROM Bios with 32-Bit Access
- Parallel Port
- 9 pin and 25 pin serial ports
- 102 key enhanced keyboard
- 200 watt power supply
- LED speed, keyboard lock, besel button
- Expansion slots (Desktop, three 16 bit, two 8 bit) (Tower, eight 16 bit, two 8 bit)

Osicom MORE 386/25 MHZ

"When MORE speed, MORE performance and compact size are in order..."

Standard Features Include

- 60386 Microprocessor 25MHz (0 wait) 6MHz switchable
- PHEONIX BIOS
- 1 MB RAM Standard (expandable to 24MB)
- 8 Expansion slots (1 32 bit, 5 16 bit, 2 8 bit)
- AMI BIOS with integrated setup and diagnostics
- 1 2MB 5.25" floppy drive
- 101 key enhanced keyboard
- 1 Parallel and 2 Serial ports
- Clock/calendar W/battery
- 150 Watt power supply
- 80387 Coprocessor compatible
- Five Drive bays (not just 3)

\$1579⁹⁵ Starter System

DRIVE OPTIONS	VIDEO OPTIONS (Including monitor and display card)			
	MONO	VGA mono	EGA	VGA color
48 MB SEAGATE	\$2139	\$2298	\$2429	\$2599
84 MB SEAGATE	\$2259	\$2399	\$2540	\$2749
120 MB SEAGATE	\$2599	\$2679	\$2799	\$2999

\$1299⁹⁵

Priced too low to advertise!!!

SPECIAL INTRODUCTORY PRICE!!

LAPTOPS TO GO!!!

TOSHIBA C88/4.77 MHZ

"Pick up on the T1000 and you'll go far. Give yourself desktop PC power wherever you need it at mere 6.4 pounds!"

Standard Features Include

- 80286 Processor 4.77MHz
- 512K RAM
- 3.5" 720K Disk Drive
- Real time clock/calendar
- Toshiba Super-Twist LCD display (80x25)
- Parallel, serial and external 5.25 drive ports
- AC adapter/battery charger

EXTRA FEATURES FREE

- MS-DOS 2.11 in ROM
- Borland Sidakick software
- AC adapter/battery charger

T1000 \$639⁹⁵

TOSHIBA C86/9.54MHZ

"For the traveling and field professionals whose work requires a truly functional notebook-sized PC..."

Standard Features Include

- 80286 Processor 9.54 MHz
- 1 MB RAM
- 1.44MB floppy disk
- Weighs only 5.9 lbs.
- removable, rechargeable battery pack
- Real time clock/calendar
- Integrated numeric keypad
- 1 parallel and 1 serial port
- NDC/Composite monitor
- 80x25 Super-twist LCD

EXTRA FEATURES FREE

- MS-DOS 3.2
- Universal AC power adapter
- 1 year warranty (no cost)

T1000SE 1169⁹⁵

TOSHIBA 286/6&12 MHZ

"The broadest possible expansion capabilities are available with the NEW Toshiba T1600 and T1600/40..."

Standard Features Include

- 80286 Processor 6/12 MHz
- 1 MB RAM (exp. to 16MB)
- 20 MB hard drive
- 1.44 3.5" floppy drive
- 85 Key keyboard with integrated numeric keypad
- EGA monitor port
- 1 Parallel, 2 serial ports, and external 5.25 drive port

EXTRA FEATURES FREE

- MS-DOS 3.3
- Disk Caching utilities
- 1 Year Warranty at no cost

T1600 \$3199⁹⁵
T1600/40 Same as T1600 + 60MB Hard Drive \$3595.95

MITSUBISHI 286/8&12 MHZ

"At last, a laptop machine that doesn't compromise on readability, speed, power or expandability..."

Standard Features Include

- 80286 Processor 8/12 MHz
- 640K RAM
- 11" Paper white display with backlighting
- CGA/Hercules adapter
- Real time clock/calendar
- 1 Parallel, 2 serial ports
- 4 expansion card slots
- Internal speaker
- 1.44 MB/720K floppy drive

EXTRA FEATURES FREE

- MS-DOS/IOV Basic
- MP 286L Diagnostics routines
- 70 MB hard drive
- Key pad, external drive ports

MP 286L \$2098⁹⁵



Panasonic FX 1650 8086/4&8MHZ

"The FX 1650 represents a very good entry level computer made in the USA for the business person..."

Standard Features Include

- 8086 microprocessor (4/8MHz)
- 640K RAM
- CGA/MDA composite video controller built in
- 720K 3.5" floppy drive
- 3 drive bays (2 3.5", 1 5.25")
- 5 Expansion slots
- 1 Parallel, 1 serial port
- Socket ready for 8027 coprocessor
- 101 Key enhanced keyboard

EXTRA FEATURES FREE

- CGA/MDA composite video controller
- FULL 640K RAM (not just 512K)
- 1 year warranty (parts & labor)

\$439⁹⁵ Starter System
With purchase of MS DOS 4.01/GW Basic \$59.95

DRIVE OPTIONS	MONO	CGA	EGA	VGA
1 FLOPPY 3.5	\$499	\$699	\$839	\$939
DUAL FLOPPY	\$569	\$739	\$899	\$999
1 FLOPPY 30MB	\$759	\$929	\$1099	\$1199
1 FLOPPY 40MB	\$789	\$959	\$1139	\$1230

INCLUDES 3.5" and 3.5" floppy drives

LASER Turbo II 8088/10 MHZ

"Everything you expect from a 8088 CPU plus powerful features..."

Standard Features Include

- 8088-1 Microprocessor (4.77/10)
- Socket for 8087-1 co-processor
- FULL 640K RAM standard
- 150 watt power supply
- 4 drive bays/exposed
- 102 key enhanced keyboard
- 1 360K 5.25" floppy drive
- 8 expansion slots
- Parallel, serial, game ports
- CGA/MDA, Comp. video adaptor
- VLSI gate array technology

EXTRA FEATURES FREE

- CGA/MDA, Composite video adaptor
- PC TOOLS DELUXE (11 rated desk-top organizer)
- Joystick port
- One-Year warranty (parts and labor)

\$489⁹⁵ Starter System
With Purchase of MS DOS 4.01/GW Basic \$59.95

DRIVE OPTIONS	MONO	CGA	EGA	VGA
1 Floppy 3.5	\$589	\$749	\$929	\$1039
DUAL FLOPPY	\$679	\$819	\$999	\$1099
30MB SEAGATE	\$869	\$999	\$1179	\$1299
40MB SEAGATE	\$899	\$1039	\$1199	\$1360

*Second drive Toshiba 3.5" or 5.25" floppy drive

LASER 286/2

"Here's proof that power does not have to be expensive, nor do you have to sacrifice brand name quality for 'generic' prices..."

Standard Features Include

- 80286 Microprocessor (8/16 bit) (6/12 MHz)
- Socket for 80287 co-processor
- 640K RAM (expandable to 1MB)
- 1 2MB 5.25" floppy disk drive
- 3 drive bays (2 exposed)
- 8 Expansion slots (8/16 bit)
- 102 key enhanced keyboard
- 1 Parallel and 2 serial ports
- Front panel LED turbo readout
- Clock/calendar W/battery

EXTRA FEATURES FREE

- Full 640K RAM (not just 512K)
- PC TOOLS DELUXE (11 rated desk-top organizer)
- One-Year warranty (parts and labor)

\$699⁹⁵ Starter System
With Purchase of MS DOS 4.01/GW Basic \$59.95

DRIVE OPTIONS	MONO	EGA	VGA
30 MB SEAGATE	\$1119	\$1419	\$1569
40 MB SEAGATE	\$1199	\$1519	\$1669
84 MB SEAGATE	\$1419	\$1719	\$1869

COLOR RIBBONS & PAPER

RIBBONS: Red, Blue, Grn., Brwn., Purple, Yel.

Ribbons	Price Each	Black	Color	Heat Transfer
Apple Image I/II	3.75	4.50	6.50	
Apple Image II — 4-Color	—	7.50	10.50	
Brother M1109	4.95	5.95	7.00	
C. Itah Prowriter Jr.	7.00	9.00	—	
Citizen 120D/180D	5.00	6.00	7.95	
Commodore MPS 802/1526	6.25	7.25	—	
- MPS 803	4.95	5.95	7.00	
- MPS 1000	3.95	4.95	6.75	
- MPS 1200/1250	5.00	6.00	7.95	
Epson MX80/LX800	3.75	4.25	6.75	
IBM Proprinter	5.75	8.00	12.00	
Okidata 82/92	1.75	2.25	4.50	
Okidata 182/192	6.50	7.50	6.00	
Panasonic K-XP 1080	6.75	7.75	—	
Seikosha SP 800/1000	5.25	6.50	7.95	
Star NX10/NL10	5.00	6.00	7.95	
Star NX1000	4.50	5.50	6.75	
Star NX1000 — 4-Color	—	8.75	—	

T-SHIRT RIBBONS (Heat Transfer) — Red, Blue, Grn., Brwn., Purple, Yel., Blk. Call For Price & Availability.

COLOR PAPER

BRIGHT PACK — 200 Sheets/50 each color: Red, Blue, Green, Yellow. 9 1/2 x 11 — \$11.90/pk.

PASTEL PACK — 200 Sheets/50 each color: Pink, Yellow, Blue, Ivory. 9 1/2 x 11 — \$11.90/pk.

COLOR BANNER BAND PAPER — 45 ft./roll — \$9.95/ea.

For ribbons & paper not listed above, call for price & avail. Price & spec. subject to change w/o notice. Min. order \$25.00. Min. S&H \$3.50 min. Visa, MC, COD.

RAMCO COMPUTER SUPPLIES
P.O. Box 475, Manteno, IL 60950 U.S.A.
(U.S.A.) 800-522-6922
(Canada) 800-621-5444 • 815-468-8081

Circle Reader Service Number 167

Quick & Easy Guide to Using MS-DOS, Second Edition

by Bonnie Derman and Strawberry Software
\$14.95, 224pp

The second edition of this easy-to-use guidebook covers all versions of MS-DOS through version 4. Commands and directions are logically arranged for quick reference. Topics include directories, files, disk commands, screen and printer output, and more. It's the only MS-DOS book that employs a truly task-oriented approach.

Order your copy today.

Send \$18.95 plus \$2.00 shipping and handling (\$5.00 for orders outside the U.S. and Canada) and applicable sales tax* to:

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

Name _____

Street Address _____
(No. P.O. Boxes Please)

City _____ State _____ ZIP _____

*Residents of NC, NY, and PA add appropriate sales tax for your area.

All orders must be paid in U.S. funds drawn on a U.S. bank. Orders will be shipped UPS Ground Service. Please allow 4-6 weeks for delivery.

"She had big brown eyes, the cutest laugh—and leukemia."

"Andrea was in preschool with my son.

"One day they rushed her to the hospital with leukemia. She needed blood urgently, so I went and gave... She's in remission now, but every couple of months I go and give blood.

"Because I know someone else's Andrea may need it."

When was the last time you gave blood?

Blood. Give a little, so someone can live.

National Blood Resource Education Program.
National Heart, Lung, and Blood Institute, National Institutes of Health, Public Health Service
U.S. Department of Health and Human Services

NEW! SPEECH THING®

For all PCs, compatibles, laptops



\$69.95

CLEAR, CLEAN, DIGITIZED SPEECH AND MUSIC, UNLIMITED TEXT-TO-SPEECH!

Attaches outside the computer.

Speech Thing is a full-featured 8 bit D/A sound converter that attaches in-line with the parallel printer port. Does not interfere with normal printer operation. Demo programs give your PC many useful applications. Incorporate the prerecorded digitized words in user written BASIC programs. Editor allows for special effects, new words, and music. BONUS: Unlimited text-to-speech with SmoothTalker (TM) from First Byte. Use for proofreading scripts, electronic mail and message distribution, educational software, product tutorials/demonstrations, more.

Speech Thing is the most advanced, lowest cost, hardware/software speech system you will ever need. Comes complete with audio amplifier speaker with headphone jack, software, and manual. Only \$69.95. 30-day satisfaction guarantee. One year warranty. (Add \$5 shipping and handling for USA, \$8 Canada, \$12 overseas). Visa, MasterCard phone orders accepted.

Call or write today for FREE Catalog on Speech Thing and other speech recording/voice recognition products



COVOX INC. (503) 342-1271
675 Conger St., Eugene, Oregon 97402
FAX (503) 342-1283

Circle Reader Service Number 195

Before you do crack, do this.

ORGAN DONOR AUTHORIZATION

Pursuant to the Uniform Anatomical Gift Act, I hereby give, effective upon my death:

A. _____ Any needed organ or parts

B. _____ Parts or organs listed

Signature of Donor: _____

Date: _____

Hey, it's no big deal. It's a simple legal form, that's all. Take a minute. Fill it out. Sign it. Carry it with you. It's the least you can do. Then no one can say you didn't do anything worthwhile with your life.

Partnership for a Drug-Free America, N.Y., NY 10017

SAVE UP TO 70%

CALL FOR YOUR FREE CATALOG TODAY!

1-800-BUY-WISE Ext. 51

Since 1979

ASK ABOUT EXTRA SAVINGS WITH OUR COMPUTER DIRECT CREDIT CARD!

Seagate

20 MB ST-225 Half Height

Hard Drive Kit.....\$224.95

20 MB storage, supports MS-DOS, cables & controller included. Fits IBM® PC, XT & compatibles. List \$499

40 MB ST-251-1 Super Fast

Drive.....\$317.95

40 MB storage, supports MS-DOS, 28ms access time. List \$499

SCSI ST157N Drive.....\$338.95

20, 30 & 45 formatted MB in 3.5" form & SCSI interface included.

SCSI ST296N Drive.....\$478.95

20, 30, 60 & 80 formatted MB in 5.25" form & SCSI interface included. Fits IBM® PC, XT, AT or 386 class storage needs.

80 MB ST4096 Drive.....\$518.95

80 MB storage, 28ms access time. Requires controller card. List \$799

640K 12 MHz TURBO COMPUTER

XT® COMPATIBLE

\$399⁹⁵

Monitor Optional List \$974.80



THE FASTEST XT EVER!

LOWEST PRICE EVER FOR AN XT!

- Full 640K RAM, Installed & Tested (Expand. to 1 MB) & 32K ROM
- Parallel, Serial & Game Ports Standard
- MGA, CGA, & Composite Card Included
- Clock/Calendar & 150 Watt Power Supply
- 101 Key AT® Style Keyboard
- 360K Floppy Drive & Controller
- FREE DOS Tutor & Word Processor - A \$54.90 Value!

VIP

NO ONE CAN SELL THIS PRINTER FOR LESS!

180 cps PRINTER

WITH NLQ

LIFETIME WARRANTY ON PRINTHEAD



No Jam Tractor-feed

- 2 Year Immediate Replacement
- Dot Addressable Graphics
- Italics, Elite, Pica, Condensed
- Centronics Parallel Port
- 8K Printer Buffer
- NLQ Selectable from Front Panel
- Pressure Sensitive Controls
- Includes One FREE Ribbon

GREAT BUY!

\$149⁹⁵

List \$299.00

720 cps PRINTER

MULTI-HEAD 15" WITH 150 cps NLQ



LOWEST PRICE EVER!

WAS \$609.95

\$499⁹⁵

List \$1995.00

- Print speed of 214 lpm; Draft & 30.0 lpm; NLQ
- 6 print heads achieve high dot resolution in higher speed - excellent print quality at 6 times the speed!
- 136 column wide carriage
- IBM® & Epson® Mode
- Parallel centronics port & BK buffer
- 23" (W) x 5 1/4" (H) x 14" (D)
- Adjustable tractor and friction feed

IBM® Parallel Centronics Cable sold separately for \$9.95

16 MHz 386SX

IBM® AT Compatible

386 PERFORMANCE AT A LOW 286 PRICE!

- Phoenix BIOS 386SX-16 MHz CPU
- 512K Memory, Expandable to 8 MEG
- Full Case/3 Open Drive Bays
- Serial, Parallel & Game Card, MGP Card
- Hard Disk Floppy Controller
- 1.2 Floppy Drive
- Comes Complete with Manuals, Assembled & Tested
- 101 Enhanced Keyboard
- Chips & Technology Chip Set
- 200 Watt Power Supply
- FREE MS-DOS 4.01 (List \$79.95), GW BASIC (List \$19.95) & DOS Tutor (List \$29.95) - A \$129.85 Value!

WITH \$129.85 IN FREE SOFTWARE



FANTASTIC BUY! \$999⁹⁵

List Price \$2124.85

CALL FOR SYSTEM PRICING

IBM AT & XT are registered trademarks of International Business Machines

TEAC® DISK DRIVES

360K 5.25" Internal Floppy Drive.....\$64.95

Features 360K memory, double sided/double density, fits IBM® PC, XT, AT & compatibles. Installation required. List \$199.00

720K 3.5" Internal Disk Drive.....\$79.95

Features 720K memory, PS/2 compatible, double sided/double density, fits IBM® PC, XT, AT & compatibles. Installation required. List \$199.00

1.2 MEG 5.25" Internal Disk Drive.....\$79.95

Features 1.2 megabyte memory, double sided/quad density, fits IBM® AT & compatibles. Installation required. List \$199.00

1.44 MEG 3.5" Internal Drive Last Sold at 89.95.....\$74.95

Features 1.44 MB memory, PS/2 compatible, double sided/high density, fits IBM® AT & compatibles. Installation required. List \$199.00

5.25" DOUBLE SIDED/DOUBLE DENSITY DISKS

As Low As COLOR - As Low As

19¢ ea 39¢ ea

MADE IN THE USA!

Blue, Green, Yellow, Orange & Red

100% Certified • Lifetime Guarantee

5.25" DSHD DISKS

As Low As

45¢ ea

3.5" DSDD DISKS

LOTS OF 10

59¢ ea

MAGNAVOX COLOR MONITORS

13" Color RGB Monitor

1 Year Limited Warranty

\$234⁹⁵

Model No. CM8762 List Price \$399.95

VGA Color Display Monitor

Analog Input - Virtually Unlimited Colors

\$329⁹⁵

Model No. CH9032 List Price \$499.95

100% HAYES COMPATIBLE MODEMS

1200 Baud Internal.....\$43.95
Modem Software Included...a \$29.95 Value! List \$129.95

1200 Baud External.....\$49.95
Fits in the palm of your hand! Modem Software Included...a \$29.95 Value! List \$199.95

2400 Baud Internal.....\$79.95
Made in the USA! Modem Software Included...a \$29.95 Value! List \$129.95

2400 Baud External.....\$96.95
Made in the USA! List \$349.95

4800 Baud External.....\$179.95
The Midget 48 E is made in the USA! List \$449.95

9600 Baud External.....\$599.95
The Turbo 96 E is made in the USA! List \$899.95

Prices do not include shipping charges. Call to get your lowest delivered cost. We insure all shipments at no extra cost to you! All packages are normally shipped UPS Ground. 2nd day and overnight delivery are available at extra cost. We ship to all points in the US, Canada, Puerto Rico, Alaska, Hawaii, Virgin Islands and APO-FPO. Monitors only shipped in Continental US. Illinois residents add 6.5% sales tax. Prices and availability subject to change without notice. Not responsible for typographical errors or omissions. "Computer Direct will match any current (within 30 days) nationally advertised price on exact same items. Shipping and sales tax not included. Verification required.

COMPUTER DIRECT, INC.

22292 N. Pepper Road
Barrington, IL 60010 Exp 4-30-90

"We Love Our Customers"

FAX Ordering 708-382-7545 Outside Service Area, Please Call 708-382-5058

LOOK...OUR LOWEST PRICES EVER ON BRAND NAME SOFTWARE

15-Day Home Trial • 90-Day Immediate Replacement • Technical Support

ENTERTAINMENT & EDUCATION

American Educational Computer

- Reading Comprehension \$28.95
- Spelling \$28.95

- **Accolade**
- The Duel: Test Drive II \$34.95

- **Barrons**
- SAT \$33.95

- **Bethesda**
- Wayne Gretzky Hockey \$39.95

- **Broderbund**
- Where n Time is \$36.95

- Carmen Sandiego?

- **Electronic Arts**
- Indianaopolis 500 \$39.95

- **Microprose**
- Stealth Fighter F/19 \$37.95

- Red Storm Rising \$31.95
- Gunship \$31.95

- **Microsoft**
- Flight Simulator \$38.95

- **Mindscape**
- Balance of Power \$33.95

- **PC Globe**
- PC Globe \$54.95
- PC USA \$54.95

- **Sierra-on-Line**
- King's Quest IV \$41.95

- Manhunter \$32.95
- Police Quest II \$41.95

- Space Quest II \$32.95
- The Colonel's Bequest \$38.95

- **Sharedata**
- Jeopardy \$7.95

- Jeopardy II \$7.95
- Wheel of Fortune \$7.95

- Wheel of Fortune II \$8.95
- Wheel of Fortune III \$8.95

- Sports Jeopardy \$7.95
- Junior Jeopardy \$7.95

- **Sierra-on-Line**

- **5th Generation**
- Fastback Plus \$107.95

- Mace Utilities \$58.95
- Mace Gold \$87.95

- **Ashton-Tate**
- dBase IV \$467.95

- Multi Mate Advanced \$297.95

- **Borland**
- Superkey \$67.95

- Turbo C \$103.95
- Turbo C Prof. Pack \$174.95

- Turbo C Prof. Pack With Debugger

- Turbo Pascal \$103.95
- Turbo Pascal Prof. Pack \$174.95

- Turbo Pascal Prof. Pack With Debugger

- Turbo Assembler With Debugger \$103.95

- Sidekick Plus \$133.95
- Sprint \$133.95

- Paradox \$467.95
- Quattro \$163.95

- **Broderbund**
- The New Print Shop \$36.95

- Graphics Library Sampler \$24.95
- Graphics Library Party Edit. \$24.95

- Graphics Library School & Business \$24.95

- **Central Point**
- PC Tools Deluxe \$76.95

- **Chronos Software**
- Who•What•When \$117.95

- **Cross Talk Comm.**
- Remote \$108.95

- Crosstalk XVI \$108.95
- Crosstalk Mark 4 \$137.95

- **Dac Software**
- Dac Easy Light \$43.95

- Dac Easy Payroll \$57.95
- Dac Easy Accounting \$89.95

- **Expert Software**
- Will Power \$10.95

- Personal Publisher \$10.95

- **Fox Software**
- Foxbase Plus \$207.95

- **Funk**
- Sideways \$41.95

- Worksheet Utilities \$58.95
- Always \$84.95

- **Great American Software**
- One Write Plus \$177.95

- Accounting System
- One Write Plus Payroll \$87.95

- **Hayes**
- Smartcom II \$87.95

- Smartcom III \$147.95

- **Intuit**
- Quicken 3.0 \$38.95

- **Lotus**
- Lotus 1-2-3 \$303.95

- Magellan \$147.95
- HAL \$107.95

- Agenda \$274.95
- Freelance Plus \$343.95

- Symphony \$457.95

- **Maverick**
- Entrepreneur \$21.95

- **Microrim**
- R: Base for DOS \$487.95

- **Microsoft**
- Learning DOS \$34.95

- Windows 286 \$68.95
- Works \$98.95
- Windows 386 \$127.95

- Word \$207.95
- Multiplan \$133.95

- **Languages**
- Quick C \$68.95

- Macro Assembler \$97.95
- Basic Compiler \$197.95

- C Compiler \$297.95

- **Monogram**
- Dollars & Sense \$68.95

- **Multisoft**
- Super PC-Kwik \$47.95

- **North Edge Software**
- Timeslips III \$167.95

- **Peachtree**
- Peachtree Complete III \$145.95

- **Peter Norton**
- Norton Utilities Advanced \$87.95

- Norton Utilities Standard \$60.95
- Norton Commander \$87.95

- **Quarterdeck**
- Expanded Memory \$57.95

- Manager 386

- **Software Publishing**
- PFS: First Publisher \$77.95

- PFS: First Graphics \$87.95
- PFS: First Choice \$103.95

- with Quicken
- Professional Write \$137.95

- Professional File \$187.95
- Harvard Graphics \$297.95

- Harvard Graphics \$297.95
- Accessory Pack

- Harvard Project Manager \$437.95

- **Symantec**
- Q & A \$217.95

- **The XTree Company**
- XTree Pro \$77.95

- **Traveling Software**
- Laplink III \$83.95

- **WordPerfect**
- WordPerfect Library \$73.95

- WordPerfect Executive \$133.95
- WordPerfect \$259.95

- WordPerfect Office \$267.95

- **Wordstar**
- Wordstar \$227.95

- **Wordtech System**
- DBXL \$143.95

- Quicksilver Diamond \$347.95

- **Xerox**
- Ventura Publisher \$497.95

SUPER SAVINGS!

THE LOWEST PRICE!

GREAT BUYS!

WE CARRY THE LATEST VERSIONS!

**WORD PROCESSING • DATA BASE • ENTERTAINMENT
EDUCATION • GRAPHICS • DESKTOP PUBLISHING
EXPERTS IN CUSTOMER SATISFACTION**

Enhance your Tandy !!!

We also carry a full line of upgrades for your Panasonic FX series, IBM and compatibles.

DOS 4.01

The Latest for less, supports larger than 32 meg partitions, and comes with DOS SHELL
5.25" version . . . \$89.00
3.5" version . . . \$99.00

EX / HX Hard Drive Systems

Complete, plug-n-play! 15 month warranty!

21 Megabyte \$389.00
32 Megabyte \$439.00
42 Megabyte \$489.00
68 Megabyte \$589.00

EX/HX Memory Upgrades

Raise your systems memory the cost effective way with DCS memory upgrades. 1 yr warranty

Board 128K, adds 2 slots . . \$149.00
Board w/384k and 2 slots. . \$189.00

Memory Upgrade Chip Sets

Use these chip sets to upgrade your system memory to 640K! At these prices you can't afford not to . . .

CS8150 for 1000SX, EX, HX . . . \$59.00
CS8260 for 1000SL \$59.00
CS8370 for 1000TX, TL \$49.00
CS8480 for 3000NL \$59.00

Floppy Drives

Add a floppy drive to your existing system. All drives are internal and come complete with mounting hardware and cables. SAVE! SAVE!

360K 5.25" \$79.00
1.2 M 5.25" \$149.00
720K 3.5" \$99.00
1.44 M 3.5" \$149.00

VGA Combinations

Go for the gold in graphics with this VGA monitor and card combo! 640 x 480 resolution and 256 colors.
VGA COMBO \$489.00

Smart Mouse

This serial mouse comes complete with Dr. Halo III drawing software and a mouse pad. Incredible deal at
ALL Models \$49.00

EX / HX External Floppies

Add an external floppy drive to your EX or HX and move into the world of multi-disk systems.
360K, 5.25" drive complete . . \$129.00
720K, 3.5" drive complete . . \$129.00

EMS Boards

Upgrade to Expanded Memory on your Tandy or Panasonic FX series computer. MicroMainframe 5150 board. Holds up to 2 megabytes of memory.

Board 0K \$159.00
Board w/256K \$199.00
Board w/512K \$249.00
Board w/1 MEG \$309.00
Board w/2 MEG \$389.00

Prices include 150ns chips, add \$20 for 120ns chips needed on some machines.

HARD CARDS

Plug-n-Play, Tandy / IBM switchable and works on 1000, A, SX, TX, SL, TL, TL/2, SL/2, 3000, 1200. 15 month warranty!

21 Megabyte \$279.00
32 Megabyte \$299.00
42 Megabyte \$389.00
68 Megabyte \$589.00

Modems

All modems are Hayes command set compatible, auto answer, auto dial, and auto baud detect.

2400 B Internal . . \$79.00
1200 B Internal . . \$59.00
2400 B External . \$129.00
1200 B External . \$89.00

IDE Drives for TL/2

New technology at a reasonable price! Does not use a slot, plugs into the existing TL/2 IDE interface connection.

20 MEG \$289.00
40 MEG \$339.00

Speed Up Solutions

These products were designed to speed up your computer creating more raw computing power. Some involve clock speed changes.

V20 for 1000, A, SX, IBM . . \$29.00
V30 for 1000SL, FX, ATT . . \$39.00
PC Sprint \$75.00
PC Sprint IBM XT clones . \$85.00
PC Sprint Compaq \$85.00

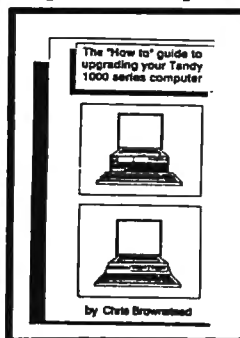
The PC Sprint boards will give a normal XT user currently running at 4.77 MHz a 100% increase in processing power.

Zucker Memory Boards

This board will increase the memory on a original Tandy 1000 or 1000A from 128K to 640K on one board using only one slot. Last Chance! Buy Now!

Tandy 1000, A \$279.00
Tandy 1200, IBM XT \$199.00

The "How to" guide to upgrading your Tandy 1000 series computer.



This comprehensive guide is a must for any Tandy user who wants more from their 1000 series computer. Covers all models of the 1000 from the original to the EX / HX through the TL. Read about upgrades that you can make before you buy. What makes Tandy so different from the normal XT? There are sections for speed, video, memory, sound, and software as well as many more! Buy now and save . . . \$19.95 add \$3 shipping . . .

by Chris Brownstead

Performance Software

FAST disk cache improve access time . . \$75.00
SPINRITE disk low level formatter \$75.00
TURBOEMS EMS simulation software . . \$75.00

DCS Industries, Inc.
141 Columbus Rd.
Athens, Ohio 45701

1-800-537-3539

LOCAL: 1-614-594-4180 FAX: 1-614-592-1527

Tandy is a registered trademark of Tandy Corp.
IBM is a registered trademark of International Business Machines
Prices and availability are subject to change without notice!

TOLL FREE TECHNICAL SUPPORT!
DEALER ORDERS WELCOME!
NO SURCHARGE FOR VISA or MASTERCARD!

MONTGOMERY GRANT

COMPUTE
490

ESTABLISHED 1967

Retail Outlet: Penn Station, Main Concourse
(Beneath Madison Square Garden) NYC, NY 10001
Store Hours: Mon-Thurs 9-7:30/Fri 8:30-4:30/Sat-Closed/Sun 9:30-7
FOR ORDERS & INFORMATION IN USA & CANADA CALL TOLL FREE

OR WRITE TO:
Montgomery Grant Mail Order
Department, P.O. Box 58
Brooklyn, NY 11230

FAX NO. 7186923372
TELEX 422132 MGRANT

OUTSIDE USA & CANADA.....CALL
(718)692-0790

FOR CUSTOMER SERVICE
Call: Mon-Thurs, 9am-5pm
Fri, 9am-4pm (718)692-1148

1-800-759-6565

Order Hours: Monday-Thursday, 9am-7pm / Friday, 9am-4pm / Saturday-Closed / Sunday, 9:30am-6pm(ET)
NO SURCHARGE FOR CREDIT CARD ORDERS/WE INVITE CORPORATE & EDUCATIONAL CUSTOMERS/DISCOUNTS FOR QUANTITY ORDERS/
RUSH SERVICE AVAILABLE / TOLL FREE TECHNICAL SUPPORT

AMIGA
AMIGA 500
\$519
AMIGA 500
w/RGB COLOR MONITOR **\$719**

AMIGA 500 With 1084.....\$789
AMIGA 500 With 1084 & 1010 3.5" Drive.....\$939

AMIGA 2000 \$1269

AMIGA 2000 \$1469
W/ RGB COLOR MONITOR

AMIGA 2000 w/1084 Monitor.....\$1549
AMIGA 2000 w/40MB H.D.....\$1759

AMIGA 2000 H.D.....\$1879
AMIGA 2500.....\$2799
AMIGA 2500/30.....\$3259

AMIGA 1010 Disk Drive.....\$149
A-20880 Bridge Card.....\$499
A-22860 Bridge Board.....\$1079
A-501 Memory Expansion.....\$149

ALL OTHER AMIGA PERIPHERALS &
HARD DRIVES IN STOCK

Seagate
HARD DRIVES

ST 225 (20 MB).....\$219
ST 225 (20 MB) With CONTROLLER.....\$239
ST 238 (30 MB).....\$239
ST 238 (30 MB) With CONTROLLER.....\$269
ST 251-1 (40 MB).....\$319
ST 277R (60 MB).....\$369
ST 4096 (80 MB).....\$549

COMMODORE
PC40 III
IBM AT COMPATIBLE
80286/12MHz, 1MB RAM, 40MB
Hard Drive, 1.2MB Floppy Drive,
Video Graphics Card, MS DOS 3.3
GW Basic, 12" Monitor

\$1269

COMMODORE COLT.....\$589

IBM AT
512K RAM expandable to 8MB
1.2 MB Floppy Drive
Wordprocessing, Database &
Spreadsheet Software, 12" Monitor

\$1069

HEAD START III
8-12 MHz, 1MB RAM, 5.25"
1.2MB Floppy Drive, 3.5" 1.44MB
Floppy Drive, 32MB Hard Drive,
VGA/EGA/CGA MDA Inc. Mouse
Serial/Parallel Ports, MS DOS 12"
VGA Monitor

\$1849

w/VGA Color Monitor.....\$2049

COMMODORE C-64C
INCLUDES:
1 JOYSTICK (A \$19.95 VALUE)
QUANTUM LINK SOFTWARE &
MEMBERSHIP

\$1269⁹⁵

C-128D with
Built-in Disk Drive
Includes 2 FREE
Games (a \$39.95 Value)

\$419

1571 Disk Drive
CALL

1581 Disk Drive
\$199⁹⁵

1541II Disk Drive
Includes FREE Game
(A \$19.95 Value)
\$159⁹⁵

COMMODORE C-64-C
COMPLETE PACKAGE
Commodore C-64/C Computer
Commodore 1541 Disk Drive
Commodore Color Printer
12" Monitor
Quantum Link Software & Membership
Box of 10 Diskettes, 1 Joystick

\$239

COMMODORE C-64-C
COLOR PACKAGE
Commodore C-64/C Computer
Commodore 1541 Disk Drive
Commodore Color Printer
Color Monitor
Quantum Link Software & Membership
Box of 10 Diskettes, 1 Joystick

\$289

WE CAN RECONFIGURE ANY OF OUR COMPUTER SYSTEMS TO YOUR SPECIFICATIONS. ALL SYSTEMS SUPPORT MGA, CGA, VGA,
MULTISCAN. ALL SYSTEMS AVAILABLE WITH 20, 30, 40, 60, 80, 100 MB HARD DRIVES. WE CARRY MODEMS, DRIVES, CARDS,
MONITORS, MEMORY UPGRADES AND ALL OTHER ACCESSORIES FOR YOUR COMPUTER. CALL FOR INFORMATION.

STAR PRINTERS

NX-1000II.....\$164.95
NX-1000C.....\$164.95
NX-1000 Rainbow.....\$207.95
NX-1000C Rainbow.....\$207.95
NX-2400.....\$269.95
NX-2410.....\$284.95
XR-1000.....\$319.95
XR-1500.....\$409.95
XB-2410.....\$409.95
XB-2415.....\$539.95

EPSON PRINTERS

LX-810.....\$179.95
LQ-510.....\$317.95
FX-850.....\$329.95
FX-1050.....\$424.95
LQ-850.....\$499.95
LQ-950.....\$524.95
LQ-1050.....\$704.95
LQ-2550.....\$839.95

IBM AT COMPATIBLE
PACKAGE
80286 Microprocessor, 12MHz,
640K RAM, 1.2MB Disk Drive
Serial/Parallel Ports, MS DOS 3.3
Basic, Word processing, Database
& Spreadsheet Software, 1 Year
Montgomery Grant Parts & Labor
Warranty

\$569

Magnavox 13" Color
Composite Mon.
\$179⁹⁵

Magnavox 13" RGB Color
Monitor
\$225⁹⁵

1750 RAM
Expansion
\$199⁹⁵

1084 Monitor
\$279⁹⁵

1802 Monitor
\$189⁹⁵

C/128-D Complete
w/1084 Monitor **\$689**

COMMODORE 128D
COMPLETE PACKAGE
Commodore C/128-D Computer with
Built-in Disk Drive
Commodore Color Printer
12" Monitor

\$479

COMMODORE 128D
DELUXE PACKAGE
Commodore C/128-D Computer with
Built-in Disk Drive
Magnavox 13" RGB Color Monitor
Commodore Color Printer

\$629

XETEC Lt. Kernal 20MB Drives for:

C-64C.....\$799
C-128 and 128/D.....\$849
XETEC 40MB Hard Drive for:
C-64, C-128 & C-128/D.....\$1199
MPS-1250.....\$219

ALL C-64, C-128, 128D PERIPHERALS & ACCESSORIES IN STOCK!

EPSON
EPSON EQUITY I+
IBM XT COMPATIBLE PKG.
640K RAM, 4.77-10MHz, 2in
360K Drive, Keyboard, Serial
& Parallel Ports, 12" Monitor,
Box of 10 Diskettes, MS DOS
3.3 GW Basic, Wordprocessing,
Database & Spreadsheet Software

\$529

EPSON EQUITY II+
IBM AT COMPATIBLE
Keyboard, 640K RAM, 80286 Microprocessor, 1.2MB
Floppy Drive, 12" Monitor, MS DOS 3.3 & GW Basic
Wordprocessing, Database & Spreadsheet Software

\$879

EPSON EQUITY 1e.....\$549
EPSON EQUITY 1le.....\$1029
EPSON EQUITY 386/20.....\$2229

NEC
80286 Microprocessor, 10MHz, 512K
RAM, Expandable to 16MB, 1.2MB
Floppy Drive, Serial & Parallel Ports
MS DOS 3.3 & GW Basic, Word
Processing, Database and
Spreadsheet Software

\$789

NEC POWERMATE 286 PLUS.....\$1110
NEC POWERMATE 386 SX PLUS.....\$1570
NEC POWERMATE 386/20.....\$2250
NEC POWERMATE 386/20 w/42 MB.....\$2600

HYUNDAI
Model 286e
IBM AT COMPATIBLE
640K RAM, Expandable to 1MB
80286 Microprocessor, 12MHz,
1.2MB Floppy Drive, Serial/
Parallel Ports, MS/DOS 3.3
GW Basic, Wordprocessing,
Database & Spreadsheet Software

\$699

HYUNDAI 386S (386 SX Microprocessor).....\$999
HYUNDAI 386C (386 20 MHz).....\$1599
18 MONTH ON-SITE WARRANTY AVAILABLE
FOR ALL HYUNDAI COMPUTERS

AST
286
IBM AT COMPATIBLE
512K RAM, Expandable to 4MB, 80286
Microprocessor, Serial/Parallel Ports,
1.2 MB Floppy, Wordprocessing, Data-
base, & Spreadsheet Software

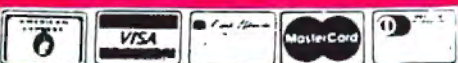
\$769

AST PREMIUM 286 MODEL 70.....\$1160
AST PREMIUM 286 MODEL 80.....\$1300
AST PREMIUM 286 MODEL 140X.....\$1949
AST PREMIUM 386SX MODEL 5.....\$1600
ALL OTHER AST MODELS.....CALL

Panasonic
IBM XT Compatible Pkg.
640K, 720K Floppy Drive,
Parallel/Serial Ports, MS DOS 3.3
GW Basic, Word Processing,
Database & Spreadsheet Software

\$399

PANASONIC FX-1750 w/80286 PROCESSOR.....\$529
PANASONIC FX-1650 (286-12 MHz).....\$799
PANASONIC FX-1900 (386 SX).....\$1299
PANASONIC FX-1950 (386-20MHz).....\$1599



Accepted Check, Bank Check, Money Orders, Mastercard, Visa, Amex, Optima, Diner's Club, Carte Blanche, C.O.D.'s, approved P.O.'s and wire transfers
accepted. Please call before submitting P.O.'s. No additional surcharge for credit card orders. Non-certified checks must wait 4-6 weeks for clearance.
Please add 9% shipping & handling. Orders over \$1000 are discounted to 3% shipping & handling. Canadian orders please call for shipping rates.
Minimum shipping & handling charges \$6.00. APO/FPO addresses add 10% for shipping and handling. All APO/FPO are shipped first class priority air.
N.Y. residents add applicable sales tax. Prices subject to change without notice. Not responsible for typographical errors. Return of defective
merchandise must have prior return authorization number or returns will not be accepted. IBM AT AT are registered trademarks of International Business
Machine Corp. All orders can be shipped Air Express. Call for details. For your protection we check for credit call the D.C.A. #800233

GREAT NEWS FOR IBM, TANDY, & PC COMPATIBLE USERS

More Power. More Excitement. More Fun from your PC.

SAVE
over
\$37



Get powerful and exciting new programs on disk
in every big issue of **COMPUTE!'s PC**.

REPLY COUPON

MAIL TODAY TO: **COMPUTE!'s PC**,
P.O. Box 3247, Harlan, IA 51593-2427

- YES!** Send 6 big issues of COMPUTE!'s PC, each with an all-new program-packed disk for just \$39.95. I save over \$37 off the cover price!
- Payment Enclosed
- Bill Me
- Send 5.25" Disk 3.5" Disk

Mr./Mrs./Ms. (circle one) (please print)

Address Apt No.

City

State Zip

Outside U.S. add \$6 per year for postage. Excluding Canada, all foreign orders must be in U.S. currency. Price subject to change.

JORAS

FOR FASTER SERVICE, CALL TOLL-FREE 1-800-727-6937

Start getting the most from your PC now — by saying "YES" to a discount subscription to COMPUTE!'s PC.

Each exciting new issue comes *complete with disk*—featuring powerful game and utility programs guaranteed to challenge, entertain and delight.

You'll also get our "buyer's guide" features, reviews of the latest hardware and software, valuable ideas, time and trouble-saving tips, and more.

Save over \$37 with this discount subscription offer. Get 6 big issues, each with disk, for just \$39.95. If you're not delighted, cancel at any time for a full refund of all unmailed issues. You simply cannot lose. So start getting more from your PC now. Return the attached reply card or complete and mail the coupon today.

SAVE SOME GREEN CELEBRATION

At SDA you're always "Dublin" your savings because our prices are "Shamrock" bottom and that's no blarney.

We have what you're looking for!



MINDSCAPE INC

4 popular Mindscape Hits in 1 unbelievable package at a super low SDA price.

- Superstar Soccer
- Indoor Sports
- Superstar Ice Hockey
- Winter Challenge



SPORTS COMBO 1 SDA
Value \$115 Discount Price \$25

ACCESS		ARTWORK	
Crime Wave	Call	Bridge 6.0	\$25
Mean Streets (w/sound)	\$39	Centerfold Squares	\$19
WCLB Golf w/sound	\$35	Kaleidokubes	\$19
ACCOLADE		LINKWORD LANGUAGES	
Bar Games (R-Rated)	\$25	Strip Poker 2	\$25
Blue Angels Flight Sim.	\$32	S. P. 2 Females #1	\$14
Cycles	\$25	S. P. 2 Female/Male #2	\$14
Day of the Viper	\$32	BETHESDA	
Don't Go Alone	\$32	Wayne Gretzky Hockey	\$35
4th & Inches Football	\$14	BOX OFFICE	
Grand Prix Circuit	\$24	Elvira's Personal Nightmare	\$32
Gunboat	\$32	BRITANNICA/DESIGNWARE	
Hardball	\$9.88	Archipelagos	\$25
Hardball 2	\$25	Desgnosauris	\$25
Heatwave Boat Racing	\$25	BRODERBUND	
Jack Nicklaus Golf	\$32	Ancient Art of War at Sea	\$29
J.N. Golf Champ Courses	\$14	Banner Maria	\$23
J.N. Golf Int'l Courses	\$14	Carmen S.D. - Europe	\$32
Mental Blocks	\$9.88	Carmen S.D. - Time	\$32
Steel Thunder	\$25	Carmen S.D. - U.S.A.	\$32
Test Drive 2 - The Duel	\$29	Carmen S.D. - World	\$32
T.D. 2 Calif. Scenery	\$14	It'll Move Shoot It	\$19
T.D. 2 Europe Scenery	\$14	Jet Fighter Adventure	\$29
T.D. 2 Muscle Cars	\$14	Licence to Kill	\$32
T.D. 2 Super Cars	\$14	Murder Club	\$25
Third Courier	\$32	Omni-Play Basketball	\$32
ACTIVISION		Omni-Play Horse Racing	\$32
A-10 Tank Killer	\$32	New Printshop	\$39
Apache Strike	\$14	P.S. Sampler Graphics	\$23
Battle Chess	\$32	P.S. Party Graphics	\$23
David Wolf Secret Agent	\$32	P.S. School/Business Gr.	\$29
Death Track	\$29	Playroom	\$29
De-Hard	\$25	Psychic War	\$25
F-14 Tomcat	\$29	Sim City	\$32
Ghost Busters 2	\$29	VCR Companion	\$32
Grave Yardage	\$23	CINEMAWARE	
Last Ninja	\$14	Krysal	\$32
ManHog	\$32	Three Stooges	\$32
Mech Warrior	\$32	TV Sports Football	\$32
Music Studio 3.0	\$65	DATA EAST	
Neuromancer	\$29	Bad Dudes	\$25
Rampage	\$24	Batman	\$25
Tongue of the Fatman	\$25	Heavy Barrel	\$25

ABC Monday Nite Football	\$32	Double Dare	\$9.88
Robocop	\$25	Hollywood Squares	\$9.88
Super Hang-On	\$25	Super Password	\$9.88
DAVIDSON		HI-TECH	
Algeblaster Plus	\$32	Looney Tunes Print Kit	\$9.88
Math Blaster Plus	\$29	Muppet Adventure	\$9.88
Reading & Me	\$24	Muppet Print Kit	\$9.88
Word Attack Plus	\$29	Remote Control	\$8.88
ELECTRONIC ARTS		Ses. St. First Writer	\$9.88
Abrams Battle Tank	\$26	Ses. St. Print Kit	\$9.88
Bard's Tale 2	\$32	Swim Wear Calendar	\$6.88
Battle Hawks 1942	\$32	Win, Lose or Draw 2	\$8.88
Beyond Black Hole	\$32	Win, Lose or Draw Dix.	\$16
Bruce Lee Lives	\$32	INFOCOM	
Budokan Martial Arts	\$32	Battletech	\$32
Cartooners	\$32	Hitchhikers Guide	\$14
Caveman Ugh-Lympics	\$21	Journey	\$32
Crossmaster 2100	\$32	King Arthur	\$25
Cribbage/Gin King	\$39	Leather Goddesses	\$14
C. Yeagers AFT 2.0	\$32	Mines of Titan	\$29
Deluxe Paint 2 Enhanced	\$89	Shogun	\$39
Earl Weaver Baseball	\$26	Zork Zero	\$39
Empire	\$32	LEARNING COMPANY	
F/16 Combat Pilot	\$32	Reader Rabbit	\$32
Ferran Formula One	\$26	Think Quick	\$32
Fools Errand	\$32	Writer Rabbit	\$32
Harpoon	\$39	Super Solvers Mid. Rescue	\$32
Hunt For Red Oct.	\$32	LEISURE/VIRGIN	
Indianapolis 500	\$32	Double Dragon 2	\$26

POLARWARE

Join Dirk in his quest to rescue the lovely Princess Daphne. Incredibly smooth running animated graphics taken directly from the original laser disk game.

DRAGONS LAIR SDA
List \$69.95 Discount Price \$44

Quest For Clues Book 2	\$19	Curse of Azure Bonds	\$32
Space Rogue	\$32	Demon's Winter	\$23
Tangled Tales	\$19	Dragon's of Flame	\$26
Times of Lore	\$25	Heroes of the Lance	\$26
Ultima 4 or 5	\$39 Ea.	Hillstar	\$32
Ultima Trilogy	\$39	Pool of Radiance	\$32
Windwalker	\$25	Red Lightning	\$39
POLARWARE		Stellar Crusade	\$32
All Dogs go to Heaven	\$25	Sword of Aragon	\$26
Dragon's Lair	\$44	SUBLOGIC	
Tracron w/Sound	\$29	Hawaii Scenery	\$19
UFO	\$32	UFO	\$32
SHARE DATA		TATO	
All New Family Feud	\$8.88	Arkanaoid	\$9.88
Avoid the Noid	\$9.88	Arkanaoid 2 Revenge	\$23
Concentration 1 or 2	\$9.88	Bubble Bobble	\$23
Jeopardy 2 Jr.	\$9.88 Ea.	Operation Wolf	\$23
Nightmare on Elm St.	\$23	Rambo 3	\$23
Sports Jeopardy	\$8.88	Rastan	\$23
Wheel of Fortune	\$8.88	Renegade	\$23
Wheel of Fortune 2 or 3	\$9.88	Sky Shark	\$23
SIERRA		ULTRA	
Black Cauldron	\$25	Teen Mutant Ninja Turtle	\$25
Code Name Iceman	Call	ACCESSORIES	
Colonels Bequest	\$39	Analog Joystick	\$25
Conquests of Camelot	Call	Disk Case 5 1/4 or 3 1/2	\$6.88 Ea.
Gold Rush	\$25	Drive Cleaner	
Hero's Quest	\$39	5 1/4 or 3 1/2	\$4.88 Ea.
Hoyle's Book of Games	\$23	500KJ Joystick	\$25
King's Quest 1, 2 or 3	\$32 Ea.	Sony 3 1/2 DDDD	\$13.50 Bk.
King's Quest 4	\$39	Sony 5 1/4 DDDD	\$6.99 Bk.
Leisure Suit Larry	\$25	BUSINESS SOFTWARE	
Leisure Suit Larry 2	\$39	SOFTWARE PUBLISHING	
Leisure Suit Larry 3	\$39	PFS: 1st choice 3.0	\$115
ManHunter S.F. or N.Y.	\$32 Ea.	PFS: 1st Publisher 2.1	\$85
Mother Goose	\$19	Professional File 2.0	\$207
Police Quest 2	\$39	Professional Write 2.1	\$149
Silpheed	\$23	CENTRAL POINT	
Smart Money	\$48	Copy 2	\$25
Sorceran	Call	PC Tools Deluxe 5.5	\$79
Space Quest 1 or 2	\$32 Ea.	MISC. APPLICATIONS	
Space Quest 3	\$39	B.W. One Person Office	\$44
SIR TECH		Dac Easy Accounting 4.0	\$65
Heart of Maelstrom	\$32	Dac Easy Payroll 4.0	\$65
Return of Werdna	\$39	Superbase 2 w/Windows 1.73	\$176
Wizardry Trilogy	\$32	Quicken 3.0	\$36
SOFTBYTE		Timeworks Publish III	\$129
Lotto Program	\$25	Timeworks Word Writer	\$32
SPECTRUM HOLOBYTE		Tobias Mgt.-Money	\$139
Falcon	\$32	Wealth Builder	\$159
Solitaire Royale	\$23	TAX PROGRAMS	
Tank	\$23	Andrew Tobias Tax Cut	\$49
Tetris	\$23	Dac Easy Rapid Tax	\$44
Vette	\$32	JK Ladders 1980 Inc Tax	\$49
Welltris	\$19	Quik Tax Break	\$49
SPOTLIGHT		Swiftax 1989	\$44
Darkside	\$25		
Deathbringer	\$25		
Speedball	\$25		
SSI			
Champions of Krynn	\$32		

Intuit

Automate personal or small business finances. Keep track of credit cards, checks, bills, payroll, cash flow, accts. pay/rec., budgets & tax recording.

QUICKEN 3.0 SDA
List \$59.95 Discount Price \$39

Indy Jones Crusade		Monopoly	\$26
Action Game	\$26	Scrabble	\$26
Indy Jones Crusade	\$32	MELBOURNE HOUSE	
Graphic Adventure	\$32	Hershiser Strike Zone	\$25
Keel the Thief	\$26	John Elway's QB	\$9.88
Lakers vs. Celtics	\$32	Magic Johnson B-Ball	\$25
Madden Football	\$32	War in Middle Earth	\$32
Magic Candle	\$32	World Trophy Soccer	\$25
MICROPROSE		Airborne Ranger	\$26
Maniac Mansion (Hi-Res)	\$29	F-15 Strike Eagle 2	\$35
Might & Magic 1 or 2	\$32 Ea.	F-19 Stealth Fighter	\$44
Pipe Dream	\$26	Gunship	\$32
Populous	\$32	M Tank Platoon	\$44
Sentinel Worlds	\$32	Pirates	\$29
688 Attack Sub	\$32	Red Storm Rising	\$35
Star Fleet 2	\$39	Sword of the Samurai	\$35
Starflight 1 or 2	\$32 Ea.	MINDSCAPE	
Their Finest Hour	\$39	After Burner	\$25
Zak McKracken	\$29	Balance of Power 1990	\$29
EPYX		Friendship Freddy's Bigtop	\$32
Axe of Rage	\$24.88	Gauntlet 2	\$25
Revenge of Defender	\$16.88	Harley Davidson	\$23
Snow Strike	\$16.88	Int'l Team Sports	\$25
Summer Games 2	\$7.88	Out Run	\$23
FREE SPIRIT		Shinobi	\$25
Planet of Lust	\$25	Space Harrier	\$25
Sex Vixens from Space	\$25	Star Trek 5 Final Frontier	\$35
GAMESTAR		Tunder Mk. Action Pac 1	\$14
Face Off Hockey	\$29	ORIGIN	
Take Down Wrestling	\$23	Omega	\$32
GAMETEK			
Chutes & Ladders	\$9.88		

ACCOLADE

Action & adventure in deep space as your Mechanoid retakes a vital defense base. Multi-directional battles w/4 opponents at once.

DAY OF THE VIPER SDA
List \$49.95 Discount Price \$32

Speedy Delivery
Deep Discounts
Astronomical Selections

If you can't find what you're looking for in our ad, call us.

Send check or money orders to:
P.O. Box 111327-Dept. CP
Blawnox, PA 15238

Ask your Salesperson what's on sale this month!

USA/CANADA orders
1-800-225-7638
PA Orders 1-800-223-7784
Customer Service (412) 361-5291
Fax Order Line (412) 361-4545

- Free shipping on orders over \$100 in continental USA.
- No surcharge for VISA/MasterCard.
- Your card is not charged until we ship.
- School purchase orders accepted.

Software Discounters
Of America

Order Line Hours: Mon.-Thurs. 9:00 AM-9:00 PM, Fri. 9:00 AM-7:00 PM, Sat. 10:00 AM-4:00 PM Eastern Time

*Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order. Orders with cashiers check or money order shipped immediately on in-stock items! Personal & Company checks, allow 3 weeks clearance. No C.O.D.'s! Shipping: Continental U.S.A. -Orders under \$100 add \$3. free shipping on orders over \$100. AK, HI, FPO, APO-add \$5 on all orders. Canada & Puerto Rico add \$7.50 on all orders. Sorry, no other international orders accepted! PA residents add 6% sales tax on the total amount of order including shipping charges. CUSTOMER SERVICE HOURS: Mon.-Fri. 9 AM-5:30 PM Eastern Time. REASONS FOR CALLING CUSTOMER SERVICE-412-361-5291 (1) Status of order or back order (2) if any merchandise purchased within 60 days from SD of A is defective, please call for a return authorization number. We will not process a return without a return auth. #! Defective merchandise will be replaced with the same merchandise only. Other returns subject to a 20% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased & return directly to the manufacturer. Customer service will not accept collect calls or calls on SD of A's. #00 # order lines! Prices & availability are subject to change! New titles are arriving daily! Please call for more information.

MODEM OWNERS You can order on-line from our IBM shop via the CompuServe, GENIE and Q-Link electronic malls.

BEGINNERS VIDEO GUIDE TO PC COMPUTERS®

The **EASIEST & QUICKEST** way available to learn to use your PC or compatible. In 60 minutes, the **LaFarge Method** strips away the mystery of computers & takes you from the very beginning to show you how to make your PC perform like you always wanted it to. This will be the best money you'll ever spend for your PC !!

Only **\$19.95 + \$3.50 S & H**, or Call:

COMPUTER VIDEO,

P.O. Box 344, Columbus, MS 39701, 601-329-3135 M/C, Visa, Disc., M.O. accepted. Allow 2 weeks for checks to clear. Allow 1-2 weeks for delivery.

Circle Reader Service Number 130



Looking for a Widget for your Printer and need it now? Call Precision!

Precision Images stocks a complete selection of parts, supplies, and manuals for these printers:

**C. ITOH, GUME, CITIZEN,
OKIDATA, FUJITSU, EPSON
AND OTHERS**

For Visa/MC/Amex Call

1-800-524-8338

Precision Images

P.O. Box 573
Chester, NY 10918

Circle Reader Service Number 123

15 FULL DISKS - FREE SOFTWARE FOR IBM® COMPUTERS

TRY US! Get 15 disks full of our best selling software - **FREE!** Games, Business, Education, Graphics, Programmers' Utilities, Finance, Desktop publishing, more. **PAY ONLY \$5.00 FOR SHIPPING**

SATISFACTION GUARANTEED!

INTERNATIONAL SOFTWARE LIBRARY

511-104 Encinitas Blvd • Encinitas CA. 92024

619 942-9998

since 1985



Circle Reader Service Number 135

Fat Cat Casino

EGA Graphics!

Super casino for IBM and compatibles! Our casino is full featured with EGA graphics, sound, and music! **Craps, Blackjack, Poker, and Keno** are menu driven, fully integrated, and easy to use. Same payouts as Las Vegas! Beautiful Screens! Easy keys! And included **Free**: Two books that teach what bets are best, what bets to avoid - winning secrets of the pros! Get ready for a **REAL** adventure in Las Vegas! *Learn to win \$\$\$Real, not \$\$Fantasy Game!*

Craps • Double odds, Help, Statistics, all bets

Blackjack • Card counting, double down, splitting, insurance, odds, surrender 1 to 6 decks

Keno • Up to 10 spots, Vegas payouts, plus free Keno True Odds Table

Poker • 1 to 5 coins, plays like Vegas machines!

All for **only \$38** (includes s.h.). Order now.
512 K mem. EGA card w/ 256K, hard disk required

**GopherBroke
Publishing**

Gaming Software and Books

8635 W. Sahara, Ste. 505 Las Vegas, NV 89117 (702) 255-1331

Circle Reader Service Number 132



The Best in Shareware and

Public Domain Software

Call for Free Catalog!

We carry software for:

IBM/Compatibles

Macintosh

Amiga

Apple 2/2 GS

Commodore 64K/128K

**Use this coupon and get a
discount of \$1 off per disk.**

Paradise Software • 3111 S. Valley View
Blvd., #B105 • Las Vegas, NV 89102-8317 •
(702) 253-1940 Voice • (702) 253-1677 Fax

Circle Reader Service Number 133

**WE'RE
FIGHTING
FOR YOUR
LIFE**



**American Heart
Association**



DON'T HANDICAP YOURSELF WITH JUST A COUPLE OF COURSES!!

SEE PAGE 71 IN THIS ISSUE FOR COMPUTE!'s MEAN 18 COURSE DISK.

TEE UP ON YOUR HOME COMPUTER—RAIN OR SHINE!!

C O M P U T E R ' S

BEST

P C G A M E S

**9 Top
Ready-
to-
Run
Games!
ONLY \$9.95!**
(plus shipping
& handling)

- Complete, ready-to-run programs on disk PLUS 16-page magazine with complete instructions for each game
- Press a key and play—all programs are menu-driven
- For all MS-DOS computers and any color display
- 9 of our best arcade, strategy, and educational games

Laser Chess

Award-winning, two-player strategy game patterned after chess—with some fascinating new twists. A must for strategy lovers.

Wrimage

Challenging word game for 1-6 players. Four difficulty levels make it suitable for anyone—from children to professors.

Bounty Hunter

Catch the crook and collect the bounty! This game is so much fun, you'll never know you're learning U.S. geography.

Arcade Volleyball

Play against a friend or a computer opponent in this unusual, arcade-style version of America's favorite beach sport.

Power Poker

Addictive strategy game that adds a new dimension to the traditional game of poker. Fun for one player or with friends.

Burger Blaster

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

Block Out

Colorful and delightful strategy game that everyone in the family will want to play. Includes expert and beginner levels.

QikServe

Fling those fries! Sling those shakes! Rounce those burgers! A frenzied arcade-style game for the stout-hearted only.

Wormburner

A game of skill packed with arcade action. A challenge to the advanced arcade gamer, yet easy enough for beginners to enjoy.

ORDER NOW WHILE QUANTITIES LAST!

YES! Send me _____ copies of *COMPUTE!'s Best PC Games*.
I've enclosed \$11.95* for each copy.

Name _____ Amount _____
Address _____ Sales tax* _____
City _____ State _____ ZIP _____ Total _____

Mail personal check or money order to

COMPUTE!'s Best PC Games
P.O. Box 5188
Greensboro, NC 27403

- 3½-inch disk
 5¼-inch disk

*Residents of New York, Pennsylvania, and North Carolina add appropriate sales tax for your state. All orders must be paid in U.S. funds by a check drawn on a U.S. bank. MasterCard or VISA accepted for orders over \$20. Include card number and expiration date. Allow 4-6 weeks for delivery. For delivery outside the U.S. or Canada, add \$1 for surface mail or \$3 for airmail.



**Special
Direct-
to-Publisher
Sale!**

CLASSIFIED

SOFTWARE

FREE PUBLIC DOMAIN SOFTWARE—Request free catalog or send \$2 for sample disk & catalog (refundable). APPLE, C64-128 (specify) CALOKE IND., Box 18477, K.C., MO 64133

FREE CATALOG FOR COMMERCIAL SOFTWARE 30-60% off. Amiga, Apple, Commodore IBM, Macintosh, Atari. DISK-COUNT SOFTWARE, Box 3, Carteret, NJ 07008, (800) 448-6658

FREE PUBLIC DOMAIN & SHAREWARE IBM or C64 (SPECIFY). Send \$2 for complete catalog and Sample disk (refundable). RVH PUBLICATIONS 4291 Holland Rd. Suite 562-A VA Beach, VA 23452, ASP Vendor

IBM - COMMODORE 64 & 128 - AMIGA. 1000's of PD/Shareware programs on 100's of disks. Free listing or \$1 for large descriptive catalog (specify computer). DISKS O'PLENTY INC., 7958 Pines Blvd., Suite 270B, Pembroke Pines, FL 33024

YOUR IBM & COMP SHAREWARE DISTRIBUTOR. Over 800 in library-5 1/4" & 3 1/2". Send 50¢ US stamp for winter catlg. T&Z Software, PO Box 780217-C, Sebastian, FL 32978-0217.

TRY BEFORE YOU BUY: C64, 128, AMIGA. Games utilities, educ'n, classics, new releases, 100's of titles. Free brochure. Specify computer. RENT-A-DISC, Frederick Bldg, #221, Hunt'n, WV 25701 (304) 529-3232

56 Top Quality Software for IBM, Apple, C-64, & Amiga. Free list over 1000. Pls. specify comp. Write: ZNK PO Box 432; 4031 College, Laguna: Philippines

EDUCATIONAL SOFTWARE-DON'T KNOW WHAT TO buy? The author researched and screened 1000's of titles in creating list of 35 **BEST SOFTWARE PROGRAMS.** Description and compatibility given for each title. For list send \$2.00-Educational Consultant Box 1594, Broomfield, CO 80038

Free Catalog on disk. Choose from 900+ IBM Shareware/PD disks. Copy fee of \$1-\$1.50 per disk. MICKIR, Dept.COM, 14210 Cornelia, Cypress, TX 77429

SHAREWARE & PUBLIC DOMAIN SOFTWARE IBM (S1) Apple (S3) catalogs available. Catalog fees credited on 1st disk order. B&M Sales, POB 458, Wabash IN 46992

Professional HANDICAPPING SOFTWARE for Thoroughbred, Greyhound, Harness, Quarter-horse, Pace. Accurate to 82%. \$49.95 each. Demo/Manual \$7.00. IBM, Apple, C64/128. FREE Catalog. ADPA, Box 7990-CP040, Fremont CA 94537

FREE CATALOG—OVER 1000 PUBLIC DOMAIN Programs of IBM PC and Compatibles. Buy or Rent. Low as \$1.00/disk. Write to Softshoppe, POB 709, Ann Arbor, MI 48106

COMPUTE! Classified is a low-cost way to tell over 225,000 microcomputer owners about your product or service.

Rates: \$25 per line, minimum of four lines. Any or all of the first line set in capital letters at no charge. Add \$15 per line for boldface words, or \$50 for the entire ad set in boldface (any number of lines.) Inquire about display rates.

Terms: Prepayment is required. Check, money order, American Express, Visa, or MasterCard is accepted. Make checks payable to COMPUTE! Publications.


Form: Ads are subject to publisher's approval and must be either typed or legibly printed. One line equals 40 letters and spaces between words. Please underline words to be set in boldface.

General Information: Advertisers using post office box numbers in their ads must supply permanent address and telephone numbers. Ad will appear in next available issue after receipt.

Closing: 10th of the third month preceding cover date (e.g., June issue closes March 10th). Send order and remittance to: Kathleen Ingram, Classified Manager, COMPUTE!, P.O. Box 5406, Greensboro, NC 27403. To place an ad by phone, call Kathleen Ingram at (919) 275-9809.

Notice: COMPUTE! Publications cannot be responsible for offers or claims of advertisers, but will attempt to screen out misleading or questionable copy.

Classified Display Rates: Classified display ads measure 2 1/4" wide and are priced according to height. 1" = \$250; 1 1/2" = \$375; 2" = \$500; 3" = \$600; (\$100 for each additional inch, e.g. 4" = \$700, etc.) Preferred supplied material is Velox or PMT.

Break the Law of Probability 

Allow your PC to make money for you. Eliminate chance with the scientific edge. Play to win with the finest lottery winning software available

Enclose \$349⁹⁵ plus \$200 For Handling (Add \$300 for 3.5" Disk)

Send Cash, Check or Money Order to:
AIDA SYSTEMS INC.
P.O. Box 66-C, Parlin, New Jersey 08859

Quality **IBM SOFTWARE** from \$2 per disk. Games/WProc/DBases/Educ/Sprst/Util/More. PD/Shareware-Latest Versions! Free Catalog. SOFSOURCE, Box 828, East Lansing, MI 48826 (517) 349-3560 CALL OR WRITE TODAY!

DISCOUNT COMPUTER PRODUCTS Software, books, diskettes, labels, training cassettes, and much more!! For FREE information, write to: DOYLE SYSTEMS, 12178 Greenspoint Dr. No. 318, Houston, TX 77060

HARDWARE

MARYMAC INDUSTRIES INC.

Our 13th year of DISCOUNTS

COMPUTERS FAX CELLULAR PHONES

Tandy Radio Shack SCO

Fgt. Prepaid. Save Tax
Toll Free 800-231-3680

22511 Katy Fwy. Katy (Houston) TX 77450
1-713-392-0747 FAX. (713)574-4567

SWITCHBOXES! DB25-2-WAY \$28; 4-WAY \$44; PARALLEL-3-WAY \$37; mini din 2-way \$36; modular jack 2-way \$25; de9 2-way \$26; \$6 ea. cable. \$3 shpg. VC, 2 Glenhaven, Glenolden, PA 19036

PC STEREO ADAPTER. Connect your computer to your stereo for full sound from games music etc. Warranty. Send \$14.95 to DPC, 804 Red Oaks Dr, Murray UT 84123

XT COMPUTER FOR SALE 10MHZ 8088 512K AMB monomonitor 101kb 360 floppy \$537 1 yr war us ship included tx ad 8% St. George Electronics, Box 91109, Houston, TX 77291-1208

BUSINESS OPPORTUNITIES

Let the government finance your new or existing small business. Grants/loans to: \$500,000. Free recorded message 707-449-8600 (KS7)

HOW TO MOONLIGHT WITH COMPUTER Free information. Must reading for everyone wanting their own business. AICTC, Box 2615, Pasadena, CA 91102

Be a fulltime Programmer for COMPUTE! Publications. Do you have 1-2 years' experience in software development? Proficiency in C and assembly language (8088 and 68000-based machines)? Any experience with Pascal and Modula-2? Course work in programming languages also a plus. Send us your resumé and salary history. Excellent company benefits. Personnel Department
COMPUTE! Publications, Inc.
324 W. Wendover Ave., Suite 200
Greensboro, NC 27408

HOW TO MAKE THOUSANDS OF \$\$\$ with your own part-time HOME COMPUTER BUSINESS. Will teach & help you setup. Send \$1 for INFO, Box 1442-A1, Orange Park, FL 32067

FREELANCERS

PC PROGRAMMERS • TECH WRITERS Do you have a package worth marketing? Are you ready to start your own freelance career? For more info send \$1. Acer Enterprises, PO Box 751712, Memphis, TN 38175

COMPUTER SERVICES

IN THE MARKET FOR A COMPUTER? LET US find you the best price, guaranteed! We've saved people over \$1200 on a single computer! Let us help you. Send \$25 to: PC Industries, PO Box 385, Waldron, AR 72958

BOOKS

DISCOUNT COMPUTER BOOKS. Thousands of titles available. Please call or write for your free catalog today. **BOOKWARE** 147 Campville Rd, Northfield CT 06778 (203) 283-6973 (800) 288-5662

RIBBON RE-INKING SERVICES

FEEL LIKE A DOPE?
...because you're paying full price for new printer ribbons... **pay half, or less!** Guaranteed! Send us your used or dry ribbons and we will re-ink them and guarantee them to print as good or better than new!

SPRING SPECIAL
Any Epson Fx/Mx/Rx/70/80/82/85 and Lx-800 ribbon cartridges re-inked for only \$1.00 plus 50¢ Shipping & Handling.

CALL FOR OTHER SPECIALS
We can re-ink over 24,000 different cloth and nylon ribbon cartridges. Toner cartridges also remanufactured for all laser printers at half the price of new! Call now for your discount price or send your laserprint and ribbon cartridges to:
CRYSTAL COPIES
4507 Seventh Ave • Kenosha, WI 53140
(414) 656-1666



MEMORY EXPANSION

FREE Memory for IBM?
Best Memory Prices in U.S.A.

FREE 24-HRS - 7 DAYS
1-800-338-1531

FREE FAX
24 HRS - 7 DAYS
1-800-242-5751

SIMMS
DRAM • MATH
CO-PROCESSORS

McDonald and Associates
WHOLESALE DISTRIBUTOR
THE CHOICE OF
INDUSTRY PROFESSIONALS

EDUCATION

B.Sc. & M.S. in COMPUTER SCIENCE

The American Institute for Computer Sciences offers an in-depth correspondence program to earn your Bachelor of Science and Master of Science degrees in Computer Science at home. BSc. subjects covered are: MS, D05 BASIC, PASCAL, C, Data File Processing, Data Structures & Operating systems. MS program includes subjects in Software Engineering and Artificial Intelligence.

AMERICAN INST. for COMPUTER SCIENCES
1704-CP 11th Avenue South
Birmingham, AL 35205
CALL (205) 933-0339

Choose from the BEST!

Quality Software for IBM PC Compatible Computers



Why Choose Software Excitement?

That's easy! Only SE! delivers the best quality Public Domain and Shareware software at prices this low; with same-day shipping; easy to use, menu-driven disks; a money-back guarantee to ensure your satisfaction; a polite, knowledgeable technical support staff; free computer accessories with your quantity orders; 24-hour a day/7-day a week toll-free order lines; your choice of programs on the best brand-name color diskettes; a free catalog with more great programs and the lowest prices on blank disks, printer ribbons, and computer accessories; and SO MUCH MORE!

Good News

To better serve our many Midwest and East Coast customers, we have opened a new shipping office in Indiana. This additional facility has already helped us to cut delivery times in half to the majority of our U.S. customers. For fastest service call 1-800-444-5457 (toll-free) or send your order to our office which is closest to you.

Price Chart

Disks Ordered	Price per Disk
1-4	\$2.99
5-9	2.49
10-14	2.25
15-24	1.95
25-49	1.75
50+	1.49

Remember to count each disk in the multiple disk sets and to add 50¢ per disk if you need the 3 1/2" size.

Name _____
 Address _____
 City _____
 State _____ Zip _____
 Phone (____) _____
 Visa/MC: Exp. Date ____/____/____
 # _____
 Signature _____
 Disks _____ x \$ _____ = \$ _____
 (See Price Chart)
 Need 3 1/2" disks?
 Add 50¢ per each disk . . . \$ _____
 Packing/Handling Charge \$ 3.00
 Foreign Shipping Charge
 (Canada \$2/Other \$4) . . . \$ _____
 COD (U.S. only)
 add \$4 if you require COD\$ _____
 UPS 2-Day Air—add \$3
 (Continental U.S. only) . . . \$ _____
 TOTAL \$ _____
 Check/MO Visa/MC C.O.D.

Software Excitement!

"West of the Rockies"
 6475 Crater Lake Hwy.
 P.O. Box 3072
 Central Point, OR 97502
 "East of the Rockies"
 1106 E. Seymour, Suite 300
 Muncie, IN 47302

BUSINESS

- Form Master** (4177) Create any business form quickly and easily.
- Stock Charting** (4121) A very comprehensive stock charting, analysis, and portfolio management package.
- PC-Calc+** (4130-4132) The most powerful spreadsheet package available for under \$200! (3 Disks) **512K**
- Small Business Accounting** (4141) A must for all small business owners.
- PC Books** (4148) A complete, easy to use bookkeeping system. Comes with on-screen help and a tutorial.
- Mr. Bill** (4171, 4172) Complete billing system. Keeps track of your accounts receivable and payments. Prints invoices and statements. (2 Disks)

HOME MANAGEMENT

- Fast Bucks** (4099,4100) Tracks your family finances. (2 Disks)
- Home Budget Manager** (4103) Helps you to design and stick to a budget.
- Express Check** (4105) A fantastic checkbook program with great displays and reconciliation features.
- Home Inventory** (4180) Keeps a permanent record of all your property.
- Edna's Cookbook** (4217,4218) An electronic cookbook with several recipes—add your own. (2 Disks)

WORD PROCESSING

- PC-Write 3.03** (4610-4612) All the features you need including spell-checking. The BEST word processor under \$200! (3 Disks) **512K**
- Form Letters** (4176) A collection of 100 form letters for all purposes.

DATABASE/MAIL LIST

- Mail List** (4205) Keeps track of your mailing list and prints mailing labels.
- Doctor Data Labels** (4209,4210) Has the features otherwise found in only the most expensive mail list managers. (2 Disks) **512K HD**
- PC-File:dB** (4213-4215) This database package is complete, powerful, and dBASE compatible! (3 Disks) **512K HD**

UTILITIES

- Masterkeys** (4300) Like the popular Norton Disk Utilities, only better!
- SimCGA** (4305) Utilities which allow you to run many programs that require a CGA card on your monochrome system.
- Master Menu** (4386) Puts all the programs on your hard disk onto an auto-booting, one-touch selection menu.
- Hard Disk Backup** (4390) Allows you to quickly, easily and safely backup the data on your hard drive. **HD**
- ALT** (4395) It's like Norton Utilities, the Sidekick desktop accessories, and a menu program all in one!

PRINTING

- Epson Utilities** (4333,4334) A collection of utilities and fonts to enhance your printer's print quality. (2 Disks)
- Draft Choice** (4399) A professional drafting and design package. Create highly detailed schematics, flowcharts, circuits, and much more!
- Banner Maker** (4801) Make banners of various styles and sizes. Requires an Epson or compatible printer.
- On-Side** (4387) Prints your spreadsheets (or anything) sideways!

EDUCATION

- French I & II** (4500,4501) French vocabulary for students. (2 Disks)
- Spanish I & II** (4505,4506) Spanish vocabulary and verb drills for Spanish language students. (2 Disks)
- German I & II** (4512, 4513) German vocabulary instruction. (2 Disks)
- AlgebraX** (4524) Excellent algebra tutor which has different levels for the basic to advanced student. **CGA**
- Facts 50** (4525) A graphic geography lesson of the United States. **CGA**
- Geography** (4526) Make learning fun with this geography trivia game.

FREE Disk Drive Cleaning Kit

With your order of 7 or more disks from this ad, receive this vital maintenance kit, FREE! (a \$9.95 value!). Additional kits may be purchased for a special price of only \$5.95 each. Both 3 1/2" and 5 1/4" sizes available. (Limit one free kit per order.)



- Are You Ready for Calculus?** (4534) This is an excellent pre-calc tutor which reviews algebra and trig.
- World** (4537) A fascinating electronic globe at your fingertips. **CGA**
- Balloon Speller** (4541) An introduction to spelling for pre-schoolers. Games to make learning fun! **CGA**
- The Presidents** (4542,4543) A very comprehensive tutor and quiz of the presidents and their terms. (2 Disks)
- Flags of the World** (4544) See and learn the flags of 115 countries. **CGA**
- Typing Tutor** (4550) Quickly improve your typing skills and speed with this friendly typing teacher. **CGA**

FREE Disk Holder

In addition to your FREE disk drive cleaning kit with your order of 20 or more disks from this ad, receive your choice of a 5 1/4" (holds 75 disks) or a 3 1/2" (holds 40 disks) disk holder, FREE! (a \$12.95 value!). Additional disk holders may be purchased for a special price of only \$9.95 each. (Limit one free holder per order.)



- BIBLE-Q** (4552) Test your Biblical IQ! A very fun BIBLE knowledge quiz.
- Play 'n' Learn** (4555) Six learning games for pre-schoolers. **CGA**
- Computer Tutor** (4562) If you are a new user or computer novice, THIS IS WHAT YOU NEED! Learn in a fun, pressure-free environment.
- Math Castle** (4563) A really fantastic game that makes kids love to learn and practice the basic math skills.
- Spanish Hangman** (4507) Makes learning Spanish vocabulary fun!
- Japanese** (4510) For the business traveler and language student.
- DOS-a-Matic** (4559) Menu-driven program that makes using DOS easy!

MISCELLANEOUS

- Eliza** (4805) Let the famous computer psychiatrist analyze you!
- Lotto!** (4823) Complete system for most states' lotteries. (Req. printer)
- Astrology** (4831) Let the computer tell you what lies ahead in your stars!
- Plano Man** (4902) Record, edit, and then play back your favorite tunes. Also lets you turn your computer's keyboard into a musical instrument!
- SeedMaster** (4837-4849) The complete King James BIBLE on disk! Allows quick access to any word, phrase, topic. (13 Disks) **HD**

GAMES

- Striker** (4400) Arcade helicopter attack game. Bomb and shoot enemy bases and armaments. (CGA—Will not work on EGA/VGA)
- Backgammon** (4404) Play against a strong computer opponent. **CGA**
- Dracula in London** (4406) Only you have the courage and cunning to track and defeat Dracula. **CGA**
- 18-Hole Miniature Golf** (4414) Kids really love this one! **CGA**
- Baseball** (4416) Pick your team and swing for the fences! A game of baseball strategy and arcade play. **CGA**
- D & D** (4418) Immerse yourself in the ultimate adventure, anytime!
- PAC-MAN & More!** (4421) Several always fun to play arcade hits. **CGA**
- Wheel of Misfortune** (4422) A really fun version of the popular TV show.
- Master the Market** (4425) Stock market simulation game. More realistic and all-around better play than the popular "Millionaire" game.
- Kid Games** (4426) A set of educational games for kids 2-7 years. **CGA**
- Ed's Chess** (4427) Challenge a tough computer opponent. Beats the expensive games like ChessMaster 2000!
- SUPER Pinball** (4429) A collection of five great video pinball games. **CGA**
- Video Poker/Ultima21** (4435) The BEST poker and blackjack games available for your computer.
- RISK** (4436) For all of us who love the board game. Settle for nothing less than complete world domination! (CGA—Will not work on EGA/VGA)
- Star Trek** (4439) You are captain as you lead the Enterprise into space battle! Also Trek Trivia
- PC-Pro Golf** (4442) Choose your club and swing away at the Amherst Country Club in this video golf game. **CGA**
- NINJA** (4445) Use your fists, feet, sword, and throwing stars as you battle the evil Ninja warriors. **CGA**
- Sam Spade** (4448) Play detective and solve the case in this adventure.
- Trivia!** (4455) Have hours of fun testing your trivia IQ! For 1-6 players.
- PC-Jigsaw** (4458) A beautiful picture is displayed and then jumbled into several pieces. See if you can put it together again. **FANTASTIC!**
- Checkers** (4459) Think you're good? Can you beat your computer? **CGA**
- Scrabble** (4460) Test your word power with this always fun game. **CGA**
- Games for Everyone!** (4461) A super collection of arcade games that don't require color or graphics cards—they will work great on ANY system.
- Miramar Flight Simulator** (4495) You are in control of all the speed and fire-power an F-18 has to offer! **CGA**

CGA=Requires Color Computer
HD=Requires Hard Drive
512K=Requires 512K RAM



1-800-444-5457



COM4



CONVERSATIONS

K E I T H F E R R E L L

Can software be a viable storytelling medium? Can the PC compete with the printed page?

These questions have been asked since the earliest days of personal computing. The first interactive computer stories—generically known as *adventure games*—were text-based programs with command line parsers that accepted the player's typed input. Graphics added a visual dimension to the storytelling mix, but the stories themselves tended toward rudimentary fantasy-oriented scenarios.

One entertainment software author who has diligently worked to advance the craft of electronic storytelling is Roberta Williams. Co-founder of Sierra, with her husband, Ken Williams, she foresees a day in the not-too-distant future when software stories are as intricate and involved as their paper and celluloid counterparts.

Perhaps best known for her *King's Quest* series of interactive fantasies, Williams has lately extended her range. *Mixed-Up Mother Goose* places children in an interactive interpretation of famous nursery rhymes. Williams' latest project, *The Colonel's Bequest*, is a gothic murder-mystery set in the 1920s.

"One of the things that we're interested in [doing] is to get away from the term *adventure game*," she says. "It's not a game anymore. On the packaging, we still call our products *animated adventure games*. But internally, we're referring more and more to *interactive entertainment*, or *interactive storytelling*. My goal is to have an interactive story that is still a game—but that's more story than game."

Williams says that while technology makes possible many of the techniques that deepen electronic storytelling—more vivid colors, smoother animation, better sound—the future of interactive entertainment

is more dependent on human creativity and artistic realization than on technological innovation.

"To really have true interactive stories," she says, "we need to have more writers become software designers. I've been a designer for ten years—but I wasn't a writer before that."

"I was always a reader. I was a good storyteller, I think, but I wasn't really a writer. I've had to learn how to write. There are still areas—punctuation—that I'm not comfortable with. I'm still learning."

Artists from traditional storytelling media have much to learn. If the opportunities opened by electronic storytellers are new, so are the constraints placed upon them. In a realistic novel, a character's death is irreversible. In a software story, the player can simply reboot when the plot takes an unwanted turn. Does this affect the seriousness with which an audience approaches interactive stories?

Williams thinks so, and she feels

it's not just the audience who must rethink traditional storytelling orientation. "The freedom and interactivity are the hard part—that's the part a 'true' writer is going to have the most trouble with. They have to learn a whole new way of thinking in order to tell interactive stories. You have to be *very* open-minded with your story."

Having worked with writers and having experienced firsthand their difficulties in coming to terms with interactive techniques, Williams suggests that not every writer will easily make the transition to interactive stories. "Some writers just can't make the leap. They cannot translate stories into interactive experiences," she says. "It's hard to relearn something. It takes the right person to do it."

Other writers will see the medium as a liberation. "I think we're headed toward interactive stories that are as complex and deep as a novel," Williams says.

The same virtues that illuminate good stories play a large role in the future of interactive entertainment.

"For interactive storytelling to go forward," Williams says, "and make leaps in terms of the story's importance, you must have a story that's developed, characters who are developed, a real sense of who you are and what's going on around you. You must really be drawn into the story, rather than just be drawn into the game."

The artists who will make those leaps may not be the traditional computer storytellers. "Currently, I think that most people who are designing games are not really writers. They are people who come from programming, or they were designing arcade games or flight simulators. Now they're trying to convert to telling stories."

Such people, Williams implies, are anachronisms. The future will belong to real storytellers who can master the interactive medium. "This is a very important new form of entertainment," Williams says, "one that's going to be a full-fledged member of the mass-entertainment community." □



ROBERTA WILLIAMS

MY GOAL IS A
STORY THAT'S
MORE STORY
THAN GAME

ANNOUNCING A BIGGER, BETTER, BOLDER NEW COMPUTE!

Subscribe today—and save 72%



**NOW WITH
GREATER
EMPHASIS ON
MS-DOS HOME
COMPUTING**

Introducing a new era in home computing!

Now there's the new COMPUTE!—with an all-new look and a fresh new editorial emphasis. Bigger, better, bolder and with an entirely new focus on MS-DOS home computing, the exciting new COMPUTE! is your key to getting the most fun, most productivity, most power from your PC.

Subscribe today and guarantee yourself regular coverage in every area of home computing: unique and valuable word processing ideas and insights, the 10 best-selling software packages each month, programming tips, new and more detailed hardware and software reviews, exciting new ways to involve the whole family in home computing, and much, much more.

Look to the all-new COMPUTE! to bring home a wealth of new programming, entertainment and education news, insights and tips. COMPUTE!'s features include special looks at how to increase home computing productivity...our fun-filled News and Notes section... Letters (your chance to share your problems and solutions with other users)...our Computer Specific department... Hints and Tips . . . and much more.

The all-new COMPUTE! just may be the biggest breakthrough in home computing this year. There's even an optional disk available that includes 3-D spread sheets to DOS utilities. The optional disk comes complete with games, utilities, data bases and more. It's a great way to explore home computing at an inexpensive price.

So don't delay. Subscribe today to the all-new COMPUTE! and get 12 big issues, yours for just \$9.97. You save 72% off the cover price. Complete and mail the card or coupon—and start saving now.

GSH16

REPLY COUPON

MAIL TODAY TO: COMPUTE! P.O. BOX 3244, HARLAN, IA 51593-2424

YES! I want to subscribe to the all-new, all-better COMPUTE! Send me 12 big issues for just \$9.97. I save 72% off the cover price.

Mr./Mrs./Ms. (circle one) (please print)

Address Apt. No.

City

Payment enclosed

Bill me

State Zip
Outside U.S., add \$6 per year for postage. Excluding Canada, all foreign orders must be in U.S. currency. Price subject to change.

FOR FASTER SERVICE, CALL TOLL-FREE 1-800-727-6937
COMPUTE!'s basic subscription price is \$19.94

Sensational PC Software SALE

\$2.39
Per Disk
10 or More

\$2.89
Per Disk
Less than 10

Great Public Domain and Shareware Programs for IBM and Compatibles
Laboratory Certified - Virus Free • Latest Updates • Fast, Fast Delivery

Featuring: MORE...MORE...MORE.....PROGRAMS PER DISK

PRINTING

- AMAZING LABELS (1647) NEW!** Create exciting graphic address labels.
- FORM DESIGNER (112)** Easy, powerful program creates custom forms.
- LETTERHEADS PLUS (132)** Design/print custom letterheads, envelopes, labels to Epson/IBM compatible printers.
- ON-SIDE (121) New!** Print sideways with custom fonts. Menu-driven.
- CITYDESK (123)** Desktop publishing for 2 column newsletters.
- MR. LABEL (124)** Most versatile & powerful label printing program.
- ADDRESS-O-MATIC (127)** Grabs names and addresses from letters and automatically prints envelopes.
- IMAGEPRINT (128)** Remarkable letter quality printing on a 9 pin dot matrix printer.
- BANNER MAKER (130)** Create signs and banners with multiple fonts & styles.

GAMES

- WORDS*WORDS (200) NEW!** Word puzzle game uses 6,000 words. Challenging!
- BATTLE GROUND (286) NEW!** Terrific strategic war game. Great graphics. CGA.
- FORD SIMULATOR II (280, 281) (2 disks) NEW!** Exciting new driving simulator from Ford Motor Co. Lots of options.
- FACING THE EMPIRE (290) NEW!** Great intergalactic adventure game.
- RETURN TO KROZ (291)** Unique arcade-adventure game. Sequel to prize-winning Kingdom of Kroz.
- PINBALL ART (295) NEW!** Fast-paced high-quality pinball games. Requires CGA.
- CRIME LAB (279)** Great, unique graphic murder mystery game. CGA or EGA.
- CAPTAIN COMIC (286)** Commercial quality arcade game. Excellent! EGA or VGA.
- DRACULA IN LONDON (271)** Super graphics adventure game. Great fun. CGA or EGA.
- NINJA (201)** Commercial quality karate arcade game. Neat graphics. CGA, EGA.
- 3-D CHESS (205)** Superb 3-D game. Loaded with options. Use wany graphics card.
- PC-RAILROAD (210)** Trains run on ready-made routes or design your own. You have total control. CGA required.
- CARD GAMES (214)** Draw Poker, Hearts, Canasta and Bridge.
- ARCADE GAMES #5 (220)** Rockets, Snake, Xonix, Nemon, Spacewar. Needs CGA.
- FAVORITE GAMES (221)** Pango, Qbert, Frogger, Pacman, 3-Demon. CGA.
- GAMBLING GAMES (229)** Blackjack, Poker, Roulette, Craps. CGA required.
- BOARD GAMES #1 (230)** Monopoly and Risk. Requires CGA.
- EGA ARCADE GAMES #1 (251)** Aldo, EgaBreakout, Egaroids. Needs EGA.
- EGA ARCADE GAMES #2 (252)** Snarfs and Ega-Star Trek. Requires EGA.
- BOARD GAMES #3 (245)** Scrabble, Concentration, Boris, Seek & Sink. Needs color monitor.
- MAJOR LEAGUE BASEBALL (203)** Super baseball game. Neat graphics. CGA.
- EGA GOLF (250)** 18 holes of the best scenery available. Requires EGA.
- SIMBASE (206, 207) (2 disks)** Great baseball simulation with detailed analysis.
- BASS TOUR (258)** New! Feature-packed fishing game. Select rod, reel, bait, everything. Needs CGA or EGA.
- BOARD GAMES #2 (231)** Checkers, Chess, Dominoes, Backgammon. Needs CGA.
- ADVENTURE GAMES #2 (246)** Empire & McMurphy's Mansion.
- STRATEGIC WAR GAMES (226)** War on the Sea, Tank & African Desert Campaign.
- ARCADE SPORTS GAMES (223)** PC-Pool, PC-Bowl & Archery. CGA or EGA.
- ARCADE GAMES #1 (216)** Spiders, Tank Wars & Disk Crash. Requires CGA.
- EGA FOOTBALL (257) New!** You control all the great action. Plays like a real football game. Needs EGA.

UTILITIES

- VIRUSCAN (403) NEW!** Best, easiest virus protection. Updated to catch new virus.
- NEWSPACE (410) NEW!** Was commercial. Terrific automatic hard disk space saver.
- DBS-KAT (425) NEW!** Great disk cataloging system w/no data entry. 384K, DOS 3.0+.
- SCREEN CAPTURE (445) NEW!** Capture screens in CGA, EGA, VGA & save to disk.
- PC-BROWSE (462) NEW!** Incredible file & text search from makers of PC-Write. Hypertext, Cut/Paste, much more. 640K.
- LIST (417)** Read text files on screen. All-time best!
- BATCH FILE MENUING (419)** Easily add professional menus to batch files.
- BAKER'S DOZEN (406)** Powerful package of 14 utilities from Jim Button. Top rated.
- CGA SIMULATOR (433)** Run most CGA programs on Hercules compatible monochrome cards.
- HARD DISK UTILITIES (437)** Very useful.

MENUS and DESKTOP

- POWER DESK (606) NEW!** Superb desktop manager & complete office system.
- POWER MENU (702)** Excellent, easy menuing program. Needs hard disk.
- TREEVIEW (706) New!** Our favorite DOS command shell with pull down menus.

WORD PROCESSING

- HELPERFECT (801)** for 5.0, (802) for 4.1 & 4.2. NEW! Incredible must-have Word-Perfect utility. Pull-down menus with 70 commands.
- WORDPERFECT 5.0 TOOLS (841)** ASCII to WPS format converter plus other super utilities to improve performance.
- PC-WRITE 3.03 (809-811) (3 disks) New!** Top rated w/spell checker.
- WORDPERFECT CLIPART (843, 844) (2 disks)** Over 180 great graphics.
- PRO-SCRIBE (822)** New! Really improves impact and clarity of your writing.
- WORDPERFECT MACROS (831)** for 5.0, (837) for 4.2. 70 great macros templates.

SPREADSHEET

- AS EASY AS 4.0 (902) NEW!** Great Lotus 123 clone. Latest with 8,192x256 grid. Does almost every Lotus function.
- QUBECALC (903)** Unique, powerful 3-D spreadsheet. View data as never before.
- LOTUS TEMPLATES (907)** Ready to run. Requires Lotus 123.
- LOTUS MACROS (908)** Saves loads of time. Requires Lotus 123.
- 123 POWER WORKSHEETS (911-912) (2 disks)** 13 great worksheets for Lotus.

DATABASE

- dLITE (1031)** Amazing dBASE multi-utility incl. cut & paste, and much more.
- FILE EXPRESS 4.xx (1002-1003) (2 disks)** Easy, powerful database. PC-Magazine said it "performs like a thoroughbred."
- THOUGHT ORGANIZER (1013)** Text based database organizes data and thoughts.
- dPROG (1022)** Fantastic dBASE III auto-programmer writes all codes for you.
- WAMPUM (1006, 1007) (2 disks)** Superb, full-featured dBASE III clone. Requires 512K, hard disk.
- dFLIPPER (1025) New!** Directly edit dBASE & compatible files from DOS.
- PC-FILE + 2.0 (1009-1011) (3 disks)** Jim Button's relational database masterpiece.

CREATIVITY

- CREATIVITY PACKAGE (3000-3002) (3 disks)** Unique, 3-phase pkg. Computer brainstorming unleashes your creativity.
- IDEA TREE (3003)** Unique thinking tool & info manager. Gain control of thoughts with graphic display of ideas. Top honors.

PROGRAMMING

- ADV8AS (1413)** Best Basic programming aid. Advanced function library, windows.
- A86 and D86 (1403-1404) (2 disks)** Finest macro assembler & debugger. Fast!
- EBL & OPAL (1407)** Two fantastic batch language processors. Super-charge your batch files.

GRAPHICS

- ICONVERT (1600) NEW!** Powerful graphics file converter. Converts between 16 formats. Needs graphics, 2 floppies or hard disk.
- PC-KEY DRAW (1607-1609) (3 disks)** Powerful drawing/CAD program with clip art. CGA, EGA, or HERC w/CGA emulation.
- FINGER PAINT (1620)** Like PC-Paint brush. Requires graphics card.
- VGA PAINT (1622) New!** Graphics/drawing in 248 colors. Requires VGA, 450K.
- PRINTMASTER GRAPHICS (1602, 1603) (2 disks)** 1,000 great graphics for Printmaster.
- PRINT SHOP GRAPHICS (1663, 1664) (2 disks)** New! 1,000 graphics for Print Shop.

HOUSEHOLD

- A*RECIPES (1831) NEW!** Computer chef with loads of delicious recipes.
- PC-BARTENDER (1823)** Professionally mix almost any drink.
- GARDENER'S ASSISTANT (1809)** Plan your garden in every detail.
- VIDEO LIBRARIAN (1812)** Catalogs your video tape library. Menu-driven.
- SHOPPERS ASSISTANT (1816)** Easy grocery shopping and coupon filer.

EDUCATION & TUTORIALS

- TOTAL RECALL (327) NEW!** Helps you memorize any subject. Requires 448K.
- AMERICAN STATES (338, 339) (2 disks) NEW!** Great U.S. States education.
- TOUCH TYPE TUTOR (300) NEW!** Superb interactive typing instructor.
- WORDPERFECT LEARNING SYSTEM (353, 354) for 4.2. (355, 356) for 5.0.**
- COMPUTOR TUTOR (302)** Complete interactive DOS and computer tutorial.
- EASY DOS (305)** Two great programs make using DOS very easy.
- SPANISH TUTOR (351)** 3 powerful programs to help you learn Spanish.

COMMUNICATIONS

- PRIVATE ACCESS (1718) NEW!** Connects PC to answering & FAX machines, & pagers.
- PROCOMM (1700, 1701) (2 disks) New!** All features, menu-driven. Top rated.

BUSINESS & FINANCE

- POSTAL CONSULTANT (8934) NEW!** Computerized U.S. Postal rules guide.
- FREIGHT + (8904, 8905) (2 disks) NEW!** Top rated commercial UPS shipping system. Complete, fully functional. Requires DOS 3.0+, 380K, hard disk.
- FINANCE MANAGER II (8917-8922) (6 disks) NEW!** Best business accounting. G/L, A/P, A/R, Payroll. 2 floppies or hard disk.
- ACTIVE LIFE (509, 510) (2 disks) NEW!** Best ever appointment/scheduling program. Unique features in a graphic interface. Needs graphics monitor, 512K, hard disk.
- MASS APPEAL (1963) NEW!** Complete powerful mail list manager. Requires 512K, 2 floppies or hard disk.
- AREA CODE FINDER (1962)** Quickly finds US & foreign area codes.
- RENTALS (1951)** Fast, powerful property management. Menu-driven, easy to use. Requires 420K, 2 floppies or hard disk.
- ZIP CODE FINDER (1900) New!** Computerized zip code book. Ultra fast search.
- FASTBUCKS (1903)** Fast, easy, home finance package. Needs graphics card.
- SOLVE-IT! (1919)** 29 menu-driven financial calculations.
- EXPRESS CHECK (1922) New!** Great check book mgr. Menu-driven, prints checks and reports.
- EASY PROJECT (1932)** Total project manager. Gantt charts, reports.
- ASC IN-CONTROL (1952, 1953) (2 Disks)** Sales prospecting/tracking, billing, scheduling, auto-dial, labels.
- FONE (1954) New!** Price your phone calls while you're on the line & save money.
- BUSINESS FORM LETTERS (1936)** 100 common business letters. Fill in blanks.

MISCELLANEOUS

- TRIP PLANNER (1305) NEW!** Fantastic computerized U.S. roadchart. Finds shortest routes, much more!
- COLLEGE PROBE (304) NEW!** A wealth of info helps you select best college.
- ELECTRONIC ALMANAC (2700) NEW!** Hundreds of traditional features.
- JORJ (331, 332) (2 disks) NEW!** Extraordinary phonetic English dictionary. Powerful, unique features. Needs hard disk.
- MICRO WORLD DATA BANK (2608-2612) (5 disks)** Ultra detailed world mapping. Produced by the CIA. Needs CGA or EGA. Features 2 types of mapping.
- PIANOMAN 4.0 (2202)** Play and compose music. New update is better than ever.
- WORLD (2600)** Stunning! Feature-packed world map wizard. Needs CGA or EGA.
- ASTROLOGY 9.5 (2701)** Complete, accurate chart calculation.
- LOTTO BUSTER (2130)** Lottery program really works on any pick-6/pick-7 lottery.
- WISDOM OF THE AGES (1216-1218) (3 disks) New!** 6500 quotes on 81 subjects from history's greatest minds.

Call Toll Free for 800-359-9998
SAME DAY SHIPPING Orders Only & Free Catalog

CIRCLE DISK NOS. OR SEND ORDER ON SEPARATE SHEET OF PAPER

Name _____
Address _____
City/State/Zip _____
No. of disks \times \$2.89 ea (Pay for ea disk in multiple disk sets) = _____
(\$2.39 each 10 or more disks)

Checks, Money Orders _____ 3 1/2" disks - add \$1 ea = _____
VISA/MC, COD Accepted _____ CA residents add 6.75% sales tax = _____
(Add \$4 for COD) Shipping and handling = \$3.50

Check disk size 5 1/4" _____ 3 1/2" _____ Total = _____

VISA/MC # _____ EXP DATE _____

The Software Labs

3757 Overland Ave. #112 Los Angeles, CA 90034 (213) 559-5456

Immediate pick-up for WALK-IN customers CPU490



NEW PRODUCTS

M I C K E Y M c L E A N

Portable Color

Sharp Electronics has introduced the first portable computer with a 14-inch VGA color liquid crystal display.

Featuring a resolution of 640 × 480, the Sharp Multi-Color 386 uses a 20-MHz 80386 processor and comes with a 40-megabyte hard drive. The unit also features one 3½-inch 1.44-megabyte floppy drive. You can expand its 2 megabytes of standard RAM to 8 megabytes. Other features include analog and digital CRT ports for VGA, EGA, CGA, and MDA output, a mouse port, and an external keyboard port.



Sharp's portable Multi-Color 386 features a color-LCD VGA screen.

The Multi-Color 386 has a retail price of \$9,395. With an 80-megabyte hard drive, the Multi-Color 386 sells for \$9,995.

Sharp Electronics, Sharp Plaza, Mahwah, NJ 07430-2135

Reader Service Number 200.

My World

Tired of the same old beige computers and peripherals? Penor wants to brighten up your surroundings with its line of monitors and keyboards manufactured in popular decorator colors. Penor monitors and keyboards, distributed by Exim International, are available in both blue and



Color-coordinate your office with Penor monitors and keyboards.

mauve. The two colors were selected with the aid of design experts to reflect office-decor preferences.

The 14-inch EGA and CGA color monitors feature a specially etched screen that eliminates glare, a stand that tilts and swivels, an edge-to-edge screen resolution, and uniform horizontal and vertical character sizes.

Penor's IBM-compatible keyboards feature adjustable typing angles and tactile response.

The EGA monitor retails for \$699.95; the CGA monitor is available for \$499.95. The 101-key keyboard is priced at \$129.00.

Exim International, 13760 Gramercy Pl., Gardena, CA 90249

Reader Service Number 201.

Take Off to the Islands

You can explore a tropical paradise with *Hawaiian Odyssey Scenery Adventure*, an enhancement disk for any SubLOGIC flight-simulation program, including *Flight Simulator II*, *Microsoft Flight Simulator*, *Stealth Mission*, *JET*, *UFO*, and the IBM PC and compatibles version of *ThunderChopper*.

The disk includes the entire island chain in detail with attractions such as downtown Honolulu and Pearl Harbor. You can also fly into the crater of Mauna Loa, one of Hawaii's most volatile volcanoes. You can land at approximately 30 airports, many with Visual Approach Slope In-

dicator landing lights. The improved runway graphics feature FAA-spec threshold markings, fixed distance markers, and touchdown-zone markers.

The disk also offers the first SubLOGIC scenery adventure. You must locate the secret jewel of the goddess Pele from the cockpit of your airplane.

Hawaiian Odyssey Scenery Adventure is available for the IBM PC and compatible, Atari ST, Amiga, Macintosh, Apple II, and Commodore 64/128 computers. It carries a price of \$29.95 and requires one of the flight-simulation programs mentioned above.

SubLOGIC, 501 Kenyon Rd., Champaign, IL 61820

Reader Service Number 202.

Laser Line Expanded

Panasonic has introduced the KX-P4420 laser printer that prints eight pages per minute. It produces text and graphics with a resolution of 300 dots per inch and is equipped with 512K of RAM that's expandable to 4.5 megabytes. The printer features 11 resident fonts, with each available in both portrait and landscape orientations. Two slots are available for additional font cards.

With its HP LaserJet Series II emulation, the KX-P4420 is compatible with most software. It's also com-



The Panasonic KX-P4420 Laser Printer prints eight pages per minute.

patible with most hardware using a Centronics parallel interface. An optional serial interface is also available.

The EZ-Set front control features a 16-character liquid crystal display and seven keys to set up printer functions and options.

The retail price of the KX-P4420 is \$1,895.

*Panasonic Communications & Systems,
Two Panasonic Way, Secaucus, NJ 07094*
Reader Service Number 203.

Supergame

You can help Superman fight for truth, justice, and the American way with *Superman: The Man of Steel* from IntraCorp and its Capstone line of entertainment software.

In this interactive comic book, you become Superman, who is racing to save the planet. Two of your most hated enemies, Darkseld and Lex Luthor, have formed an alliance, and terrorists have hijacked a yacht with the Governor and Lois Lane on board. You must use your x-ray vision, great strength, and superb flying ability to foil your nemesis and save the world from destruction.

The retail price for *Superman: The Man of Steel* is \$39.95 for the IBM PC and compatibles, Atari ST, and Amiga versions. The Commodore 64 release sells for \$29.95.

IntraCorp, 14160 SW 139th Ct., Miami, FL 33186

Reader Service Number 204.

John Madden Expands

Electronic Arts has announced the release of the *National Football League Player's Association Player's Disk* to be used in conjunction with *John Madden Football*. The disk contains stats for the actual teams and players of the 1987 and 1988 seasons.

The disk also includes 86 new defensive plays, featuring the popular 3-4 alignment of three down linemen and four linebackers. The new play-book also contains 22 custom offensive plays, many of which are trick plays, including the Sea Shovel, Indy Wham, and LA Gadget.

The *Player's Disk* is available for IBM PCs and compatibles and the Apple II series for \$24.95.

Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404

Reader Service Number 205.

A Better Mousetrap

In an effort to relieve neck and back discomfort and and eyestrain associated with the use of a mouse, Town



Le'Trapp relieves the strain from using a mouse.

Computer Supplies has come up with Le'Trapp.

Le'Trapp is an 11 x 14-inch plastic lap-top work area designed to alleviate common mouse-related muscle ailments. It's available in a choice of four colors—black, blue, red, and wine—and carries a retail price of \$24.95.

Town Computer Supplies, 235 Wescott Dr., P.O. Box 352, Rahway, NJ 07065-0352

Reader Service Number 206.

Commodore Enters 386 Market

The Canadian branch of Commodore Business Machines has entered the 386 marketplace with the introduction of the PC50-II and the PC60-III.

The PC50-II features an 80386SX microprocessor running at 16 MHz; one megabyte of RAM, expandable to 16 megabytes; an integrated VGA interface; a 1.44-megabyte floppy disk drive; a 40- or 100-megabyte hard drive; and six full-length expansion slots. Additional features include a 101-key enhanced keyboard and MS-DOS 4.01.

The PC50-II floppy-based system retails for approximately \$3,900. The 40MB hard drive system sells for about \$4,350, while the 100MB hard drive version goes for approximately \$5,400 (U.S.).

The PC60-III has an 80386DX microprocessor that runs at 25 MHz. It features 2MB of RAM, expandable to 18MB; one 1.2MB 5¼-inch floppy drive; one 1.44MB 3½-inch floppy drive; and an 80MB hard drive. VGA graphics capabilities are built into the main board. It also features nine AT expansion slots, a 101-key enhanced keyboard, and MS-DOS 4.01. A retail price for the system was not available at press time.

Both computers will initially be available only in Canada, but Commodore plans to eventually market the computer in the United States.

Commodore Business Machines, 3470 Pharmacy Ave., Agincourt, Ont., Canada M1W 3G3

Reader Service Number 207.

VGA to Video

Magni Systems' VGA Producer is a single plug-in board for IBM ATs and compatibles that allows your VGA graphics to be converted to a professional-quality video signal.

The card uses a scan conversion process to encode VGA graphics to a stable, professional-quality video signal, either in NTSC (the U.S. broadcast standard) or S-VHS (Super VHS). Using a remote control, the encoded signal can be mixed with another video source. Features include automatic or manual fades, keying on a selected color, and X-Y image positioning.

VGA Producer supports resolutions up to and including 640 x 480 with 256 colors.

The board requires a VGA card with a 28-pin RAM DAC.

The retail price of VGA Producer is \$1,695.

Magni Systems, 9500 SW Gemini Dr., Beaverton, OR 97005

Reader Service Number 208.

Three Scenarios in One

Sir-Tech Software has released the Wizardry Trilogy which includes *Wizardry I: Proving Grounds of the Mad Overlord*, *Wizardry II: Knights of Diamonds*, and *Wizardry III: Legacy of Llylgamyn*.

The IBM PC and compatibles version is available in both 3½- and 5¼-inch disks and has a retail price of \$49.95. The Apple II version also retails for \$49.95, while the Commodore 64 and 128 release sells for \$39.95.

Sir-Tech Software, P.O. Box 245, Charlestown Ogdensburg Mall, Ogdensburg, NY 13669

Reader Service Number 209.

New Multi-Font

Star Micronics has introduced the NX-1500 Multi-Font, a wide-carriage, 9-pin dot-matrix printer. The NX-1500 for IBM PCs and compatibles features four built-in fonts and advanced paper handling, including bottom-feed capability.



The Star Micronics' NX-1500 Multi-Font printer has four resident fonts.

It prints at 180 characters per second (cps) in draft mode and 45 cps in near-letter-quality mode at 12 pitch. The printer offers friction and adjustable push tractor paper feeds.

The control panel allows you to select and set almost all functions, including NLQ fonts or draft mode, italic printing, pitch, typeface, top of form, and buffer clear. The four resident fonts—Courier, Sanserif, Orator I, and Orator II—can be printed in pica, elite, condensed pica, condensed elite, and proportional sizes.

The NX-1500 has a parallel interface and incorporates Epson FX-1050 and IBM Proprinter IIXL emulations. An optional 8K serial interface is available. The printer also features a 16K buffer.

The retail price of the NX-1500 is \$529.

*Star Micronics, 200 Park Ave., Suite 3510,
New York, NY 10166*

Reader Service Number 210.

Keep Your Back to the Wall

Amarillo Slim's Real Poker—5 Card Stud from Villa Crespo Software attempts to recreate the feel and excitement of poker games played in the Wild West. Villa Crespo enlisted the help of world champion poker player Amarillo Slim to make the game as realistic as possible.

An online tutor can be consulted for information on position benefits, hidden and shown strengths, bluff and sandbag opportunities, odds of bettering a hand, a categorical bet, folding, checking, and raising. An instant-replay feature allows you to review a hand with the electronic tutor's insight.

You can choose the number of players, their names, and their seating positions. You also control the speed of the game, the amount of money each player starts with, the minimum and maximum bets, and the betting personalities of your opponents.

Real Poker retails for \$49.95 and requires a color graphics card.

*Villa Crespo Software, 1725 McGovern St.,
Highland Park, IL 60035*

Reader Service Number 211.

Low-Cost Laser

Packard Bell has introduced the PB9500 laser printer that prints six letter-size pages per minute. It can also print on legal-size paper, envelopes, overhead transparencies, and peel-off labels.

With 1.5 megabytes of RAM, the PB9500 provides full-page 300 dots-per-inch resolution for text and graph-



The PB9500 laser printer from Packard Bell features HP LaserJet emulation.

ics and compatibility with standard software and hardware. Memory can be expanded to 2.5 or 4.5 megabytes.

Six built-in fonts plus two optional font slots are included. Different printer emulations such as Epson FX, IBM Proprinter, and Diablo 630 are available with optional cartridges. The PB9500 also features automatic and manual paper-feed capabilities.

The printer carries a retail price of \$2,195.

Packard Bell, 9425 Canoga Ave., Chatsworth, CA 91311

Reader Service Number 212.

Bo Knows Computing

Data East USA has signed an exclusive contract with Kansas City Royals outfielder Bo Jackson, who will endorse *Bo Jackson Baseball*, an extension of Data East's MVP Sports line.

Bo Jackson Baseball is the first sports simulation that uses day-to-day sports statistics. By accessing data via modem from the USA TODAY Sports Center online service, you can place Bo in real game situations using daily statistics from major league baseball games played during the 1990 season.

Bo Jackson Baseball is available for IBM PC and compatible computers for \$49.95. A Commodore 64 version sells for \$39.95.

*Data East USA, 1850 Little Orchard St.,
San Jose CA 95125*

Reader Service Number 213.

Five on the Horizon

Electronic Arts has announced five titles for IBM PCs and compatibles to be released this year.

In *Ski or Die*, the sequel to *Skate or Die*, Rodney and Lester compete in a series of unusual wintertime events including the Acro Aerial Ski Jump, the Innertube Thrash, the Snowball Fight, and the Downhill Blitz. It sells for \$39.95.

You can join the ranks of the touring pros with *PGA Tour Golf*. Create and customize the ideal golfer and outfit him with the best equipment the pro shop can offer. Compete against human or computer-controlled oppo-

nents, or enter a PGA-style tournament and play four rounds of competitive golf. *PGA Tour Golf* has a retail price of \$49.95.

With *Low Blow*, you can jab and punch your way to the heavyweight title, but you must defeat seven different opponents, each with a special trick move. In between fights, you can train at the gym and fine-tune your attack. There's even a way to cheat your way to the championship bout. *Low Blow* retails for \$49.95.

Take control of a modern combat helicopter in *Osprey*. In this game, you must outthink enemy aircraft as you engage in over a dozen missions in three different hot-spots from around the world. Choose from combat veterans such as the Apache or Blackhawk, or try the tilt-rotor Osprey or experimental LHX. The game supports VGA and has a retail price of \$49.95.

The Roman Empire awaits you in *Caesar*, a historical strategy game. You can direct your navies and armies and engage in diplomatic negotiations with bordering countries. Other activities include chariot races and gladiator events in the coliseum, as well as the opportunity to try and win the heart of Cleopatra. The retail price of *Caesar* is \$49.95.

Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404

Reader Service Number 214.

Strike While the Planes Are Hot

Accolade offers the opportunity for you to climb into the cockpit of one of six different aircraft and attempt to become an elite fighter pilot in *Strike Aces: International Bombing Competition*.

Choose from the McDonnell Douglas F-15E, the MD F-4E, the General Dynamics F-111F, the British Panavia Tornado IDS, the Swedish Saab AJ37, and the Russian MiG-27 Flogger-D. These six can be flown



Fly one of six fighters on 16 different combat missions.

against seven other computer-piloted enemy fighters on 16 different combat missions. You can also design your own missions.

Strike Aces retails for \$49.95 for the Amiga and IBM PCs and compatibles. The Commodore 64 version has a retail price of \$39.95.

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

Reader Service Number 215.

Cool Mission

Sierra's newest adventure simulation, *Code Name: Ice Man*, places you in the role of Johnny Westland, a member of an elite U.S. Navy commando team.

You must travel in a state-of-the-art nuclear attack submarine to rescue an American ambassador from a group of fanatical terrorists. Set in the future, the game takes you from the beaches of Tahiti, underneath the polar icecap, to the dusty deserts of North Africa.

Written by *Police Quest* designer Jim Walls, *Code Name: Ice Man* has a retail price of \$59.95.

Sierra, P.O. Box 485, Coarsegold, CA 93614

Reader Service Number 216.

24-Pin for the Budget-Minded

Okidata has released the Okimate 240, a 24-pin home office printer with features usually found on more expensive printers.

The Okimate 240 allows you to switch between letterhead and continuous forms with the touch of a button. It also features a built-in push tractor and a power-assisted paper loader which automatically positions single sheets at the top of the page. Top and rear feeds allow you to use different types of paper stock and envelopes.

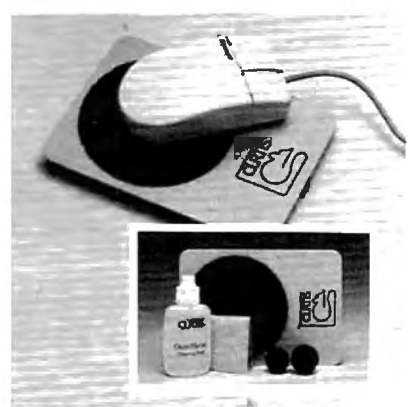
The 240's front control panel has an LED display and allows you to change fonts and character pitch and activate the paper-parking feature with the touch of a button. Courier and Gothic fonts are resident. A utility mode is available for rough drafts or spreadsheets. The fonts can be altered to double height, double width, outline, and shadow options.

Other features on the Epson LQ-compatible printer are a parallel interface and a 200-million-character printhead.

The Okimate 240 has a retail price of \$529.

Okidata, 532 Fellowship Rd., Mt. Laurel, NJ 08054

Reader Service Number 217.



The Clean Mouse kit removes dirt and grime from the interior of your mouse.

racy and roller-ball response.

Clean Mouse uses hook-and-loop technology and a specially designed mouse-cleaning solution to remove the buildup of dirt and grime from inside your mouse. In addition to the mouse-cleaning solution, the kit comes with two different size scrubbing balls that fit most mouse-ball cavities, a compact scrubbing board, and a lint-free chamois cleaning cloth.

The entire kit has a retail price of \$14.95.

Curtis Manufacturing, 30 Fitzgerald Dr., Jaffrey, NH 03452

Reader Service Number 219.

Sunken Treasure

Electronic Zoo has released *Treasure Trap*, a strategy game for the IBM PC and compatibles, Atari ST, and Amiga computers.

You can explore 100 rooms in the sunken shell of the Esmeralda where a priceless cargo of solid gold bars rests undisturbed. To find the gold, you must solve puzzles, locate keys, and search for additional air tanks to stay alive. Your quest is made difficult because the waters around the vessel are patrolled by poisonous jellyfish and electric eels, as well as some creatures you may not have seen before. Make friends with groupers and red snappers, and your exploration becomes easier and safer.

The retail price of *Treasure Trap* is \$39.95. The MS-DOS version, available on 5¼- or 3½-inch disks, supports VGA, MCGA, EGA, Tandy 16-color, and 4-color CGA.

Electronic Zoo, 3431-A Benson Ave., Baltimore, MD 21227

Reader Service Number 218.

Squeaky Clean

Curtis Manufacturing has introduced Clean Mouse, a mouse-cleaning kit that helps extend the life of your mouse as well as improve cursor accu-

Get Hyper

Zaron Software's *Hyper-Word* word processor provides hypertext power without requiring any programming knowledge. You can use the program's free-form ability to interconnect documents and jump from reference to reference with single keystrokes. Multiple files can also be quickly searched with one command.

Hyper-Word's touch-and-link power allows you to create interactive tutorials, computerized reference manuals, and form letters. The program can also be used as a multi-window, professional word processor with a spelling checker, a readability index, and a recent reference list.

Programmers can use its hypertext power to perform program mock-ups and use its editor to display a function or subroutine from any reference.

A context-sensitive hypertext help system features over 600 interrelated help screens.

Available for the IBM PC, AT, PS/2, and compatibles, *Hyper-Word* carries a retail price of \$249.95.

Zaron Software, 13100 Dulaney Valley Rd., Glen Arm, MD 21057

Reader Service Number 220. □

MAIL TO:

COMPUTE! SUBSCRIBER SERVICE

P.O. Box 3245, Hartan, IA 51537

Change of Address: Please advise as early as possible. Attach label with your old address and write in new address below.

New Subscriber: Fill in your name and address below. Use separate sheet for gift orders.

PLACE LABEL HERE

Renewal: Attach label.

_____ One year \$19.94 _____ Two years \$34.95
(Foreign subscribers please add \$6.00 per year for postage)

NAME _____

STREET _____

CITY/STATE/ZIP _____

_____ Please bill me _____ Payment enclosed

For other subscription questions or problems, please write a note and send entire form to the above address. OR CALL TOLL-FREE:

1-(800) 727-6937



OFF LINE

D A N G O O K I N

People often ask me: "How do you do it? Why is it that you know so much about computers? What makes you different?" My answer: I read the manuals. Unfortunately, those four words are much too short to make a column. So I must describe this quest for computer guruhood in all its glory. It all starts with becoming a computer nerd.

Becoming a nerd may not top your list of social improvements for the 1990s. Yet, you're going to have to nerd-it if you ever expect to get anywhere with your computer. In the future, being a nerd won't just be necessary to understanding a computer—it will be a national craze.

Society has a silly habit of eventually idolizing those it currently shuns. In America, we have a whole range of heroes who were once considered untouchables, from the cowboy to the gangster to the rock star. Now, after a decade of being out in the cold, nerds are about to bask in an era of emulation and idolization. It's their turn.

Today, the term *nerd* is just a slight stigma. In fact, I lovingly call anyone who enjoys using a computer a nerd. Some hypersensitive, wimpy, gutless, neocompassionate types may still find it derogatory, but it's much better than *geek*, *dork*, or *tech weenie*. (This could get really nasty. Let's stick with *nerd*.)

Years ago, the term *nerd* was attached to people who were basically asocial. They were pale, tall, and lanky, with greasy hair and stick limbs. The nerds of yesteryear were the antijocks, the guys who knew who Brahms was and what $E=mc^2$ stood for. They wore clothes their mother chose for them (and sometimes needed their mother's help while dressing in the morning). Anyone who wore thick glasses or a tie to school counted. In math class, they were the human computers, the Mentats, the Vulcans.

Today, nerds are people who are into computers, regardless of looks. But the old stereotype is hard to shake. I'm not saying that everyone who uses a computer resembles a tackily clothed Greek god. Let me assure you, computer people may not be elected the sexiest men and women by *People* magazine, but there are some good-looking folks hiding behind those Coke-bottle-bottom glasses. Some of us even bathe regularly. And, given some sort of fashion sense, a diet (any diet), and contact lenses, today's computer nerd can quite seamlessly blend into society. (That's a scary thought.)

Even so, you just don't see nerds on boxes of Wheaties, or on the cover of *GQ* or *M*, or in magazine ads or on billboards touting Dewar's scotch (well . . .). But, like the cowboy (who was urbanized and then accepted), computer nerds will eventually become vogue—a future fad. Nerddom will be something to attain, an aspiration. (Not every antihero in society eventually becomes popular, of course. I doubt there will ever be a time when everyone yearns to dress and act like a lawyer.)

But in about ten years, everyone will be dying to dress like the traditional computer nerd of yore. OK,

maybe not everyone. You can skip over the Valley Gal group. I mean, gag me. But today's housewife—in! Teenager—in! Yuppie—in! (Yuppies are all closet nerds, anyhow, buying computers because it's fashionable: "Muffy! The Peersons are coming over. Better move the Compaq SLT into the den!") And finally, the *Cosmopolitan* girl—in, you bet! She'll dress like a nerd, act like one, even attend nerd functions. Why? Because nerds make massive loot!

In ten years, maybe five, we'll all be walking around in Hawaiian shirts and sandals, staying up all night, and saying things like:

"Control-C Me!" *Translation: Give me a break!*

"You're spinning NOPs." *Translation: You're not saying/doing anything.*

"I don't program, I code." *Translation: You're a dweeb. I'm cool.*

Like any fad, nerddom's rise to popularity will be accompanied by a popular prime-time TV show (and I'm not talking *Al Bundy* here), just as "Miami Vice" started the pastel craze. (I'm still waiting for my Earth-tones to come back in style.) Maybe it will be a spinoff from "Star Trek: The Next Generation" that stars Geordi, Data, and Wesley Crusher as three zany aliens who return to high school in 1979 Vermont.

There will surely be a major motion picture. Forget *Revenge of the Nerds*. I'm talking a superhero movie, something like *Indiana Edwin and the Cray of Doom!*

So, if you want to be a computer nerd, if you're dying to catch the crest of this upcoming fashion wave and lifestyle craze, keep reading this column in the months to come. I'll be addressing such important issues as computer nerd diet, appearance, language, habits, and musical tastes. If you're going to do things properly, if you want to be where it's at before anyone else gets there, this is important stuff. And don't forget that becoming a nerd eventually leads to computer guruhood. □

NERD CITY—
THE
LATEST
IN COOL



HOTWARE

SOFTWARE BESTSELLERS FROM AROUND THE COUNTRY

HOME PRODUCTIVITY

- 1. Quicken**
Manage your finances.
Intuit
IBM, Macintosh
- 2. The Print Shop**
Make signs, cards, banners, and more.
Broderbund
Apple II, Apple IIgs, Commodore 64/128, IBM, Macintosh
- 3. Tax Cut**
Prepare for April 15.
MECA
IBM
- 4. Turbo Tax 1990**
Speed up your tax calculations.
CHIPSOFIT
IBM
- 5. Print Shop Graphics Library**
Add variety to your *Print Shop* creations.
Broderbund
Apple II, Apple IIgs, Commodore 64/128, IBM
- 6. Managing Your Money**
Allocate your income.
MECA
Apple II, IBM, Macintosh
- 7. Calendar Creator Plus**
Create many different calendars.
Power Up
IBM, Macintosh
- 8. Family Tree Maker**
Explore your ancestry.
Banner Blue
IBM
- 9. PC Globe 3.0**
Explore world demographics.
PC Globe
IBM
- 10. PC USA**
Explore the United States.
PC Globe
IBM

HOME ENTERTAINMENT

- 1. Flight Simulator**
Head for the wild blue yonder.
Microsoft
IBM, Macintosh
- 2. SimCity**
Run the world's first simulated city.
Maxis
Amiga, Commodore 64/128, IBM, Macintosh
- 3. Tetris**
Deceptively addicting falling-block game.
Spectrum HoloByte
Amiga, Apple IIgs, Commodore 64/128, Macintosh
- 4. Leisure Suit Larry III**
Larry and Passionate Patti get together.
Sierra
IBM
- 5. The Duel: Test Drive II**
Fast-paced car racing.
Accolade
Amiga, Apple IIgs, Commodore 64/128, IBM, Macintosh
- 6. ChessMaster 2100**
Board strategy that isn't boring.
Electronic Arts
Apple II, Apple IIgs, Commodore 64/128, IBM
- 7. Arcade Megahits**
Five hit arcade games in one box.
Mindscape
Apple II, Commodore 64/128, IBM
- 8. Falcon**
Air combat at its best.
Spectrum HoloByte
Amiga, IBM, Macintosh
- 9. John Madden Football**
Take the field with the pros.
Electronic Arts
Apple II, Commodore 64/128, IBM
- 10. Hero's Quest**
Your chance to be a hero.
Sierra
IBM

HOME LEARNING

- 1. Where in the World Is Carmen Sandiego?**
Chase Carmen around the world.
Broderbund
Amiga, Apple II, Commodore 64/128, IBM, Macintosh
- 2. Where in the USA Is Carmen Sandiego?**
The chase moves to the USA.
Broderbund
Amiga, Apple II, Commodore 64/128, IBM, Macintosh
- 3. Where in Time Is Carmen Sandiego?**
Can you find Carmen in time?
Broderbund
IBM
- 4. Math Blaster Plus!**
Teaches basic math concepts.
Davidson & Associates
Apple II, Apple IIgs, IBM
- 5. Reader Rabbit**
Helps children learn to read.
The Learning Company
Apple II, Commodore 64/128, IBM, Macintosh
- 6. Mavis Beacon Teaches Typing**
Learn to touch-type.
Electronic Arts
Apple II, Apple IIgs, Commodore 64/128, IBM, Macintosh
- 7. The Children's Writing & Publishing Center**
A desktop publisher for kids.
The Learning Company
Apple II, Apple IIgs, IBM
- 8. Think Quick**
Children learn problem solving.
The Learning Company
Apple II, Apple IIgs, IBM
- 9. Learning DOS**
Learn the ins and outs of DOS.
Microsoft
IBM
- 10. Math Rabbit**
Build early math skills.
The Learning Company
Apple II, Commodore 64/128, IBM, Macintosh



COMPUTE!'s Hotware lists were prepared by Egghead Discount Software and are based on retail sales of Apple II, Macintosh, and IBM software from December 10, 1989 through January 6, 1990, at 205 Egghead stores in the United States and Canada.

COMPUTE!

THE LEADING MAGAZINE OF COMPUTING

Subscribe now and save up to 66% OFF
the \$2.95 cover price.

SAVE UP TO
66% OFF

Term	Cover Price	Your Price	You Save
24 MONTHS	\$70.80	\$24.00	\$46.80
12 MONTHS	\$35.40	\$12.97	\$22.43

AS LOW AS
\$1.00
PER ISSUE

Check one: 2 Years (24 issues - \$24.00) 1 Year (12 issues - \$12.97)

Mr./Mrs./Ms. (circle one)

(please print)

Street

Apt. No.

City

State

Zip

Annual Basic Rate: \$19.94. Outside U.S. add \$6 per year for postage. Excluding Canada, all foreign orders must be in US currency. Price subject to change.

FOR FASTER
SERVICE CALL:
1-800-727-6937
TOLL FREE

Check one:

- Payment enclosed
 Please bill me later

JC4S39



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 112 HARLAN, IA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTE!

P.O. BOX 3244
HARLAN, IA 51593-2424



**COMPUTE!'s
FREE Reader Information Service**

Use these cards to request FREE information about the products advertised in this issue. Clearly print or type your full name and address. Only one card should be used per person. Circle the numbers that correspond to the key number appearing in the advertisers index.

Send in the card and the advertisers will receive your inquiry. Although every effort is made to insure that only advertisers wishing to provide product information have reader service numbers, COMPUTE! cannot be responsible if advertisers do not provide literature to readers.

Please use these cards *only* for subscribing or for requesting product information. Editorial and customer service inquiries should be addressed to: COMPUTE!, P.O. Box 5406, Greensboro, NC 27403. Check the expiration date on the card to insure proper handling.

Use these cards and this address only for COMPUTE!'s Reader Information Service. Do not send with payment in any form.

COMPUTE!

Name _____

Address _____

State/Province _____ Zip _____

Country _____ Phone _____

- 1 What kind of computer do you own? IBM PC or compatible Tandy Amiga
 Macintosh Apple II Commodore 64/128
261 262 263 264 265 266
- 2 How long have you owned your computer? _____ years _____ months
267 268
- 3 Do you use your computer mostly for playing games working at home
 school work/learning?
269 270 271
- 4 What part of COMPUTE! do you read first? _____
272
- 5 Do you find COMPUTE!'s new design helpful in finding information you need? Yes No
273 274
- 6 How would you rate the quality of information in this issue of COMPUTE!? Average
 Good Excellent
275 276 277
- 7 What one topic would you like to see covered in COMPUTE! during the coming year?
278
- 8 What other computer magazines do you read? PC Computing COMPUTE!'s Gazette
 PC Resource Home Office Computing COMPUTE!'s PC Magazine
 Personal Computing Other
261 282 283 284 285
- 9 What is your total household income? >\$30,000 >\$40,000 >\$50,000 >\$75,000
286 287 288 289

101	102	103	104	105	106
107	108	109	110	111	112
113	114	115	116	117	118
119	120	121	122	123	124
125	126	127	128	129	130
131	132	133	134	135	136
137	138	139	140	141	142
143	144	145	146	147	148
149	150	151	152	153	154
155	156	157	158	159	160
161	162	163	164	165	166
167	168	169	170	171	172
173	174	175	176	177	178
179	180	181	182	183	184
185	186	187	188	189	190
191	192	193	194	195	196
197	198	199	200	201	202
203	204	205	206	207	208
209	210	211	212	213	214
215	216	217	218	219	220
221	222	223	224	225	226
227	228	229	230	231	232
233	234	235	236	237	238
239	240	241	242	243	244
245	246	247	248	249	250
251	252	253	254	255	256
257	258	259	260		

Expiration Date 5/31/90

Circle 101 for a one-year new subscription to COMPUTE!. You will be billed for \$12.97.

**SUBSCRIBE
TO
COMPUTE!**

For Fastest Service,
Call Our Toll-Free
US Order Line
800-727-6937

- \$12.97 One Year US Subscription
- \$24.00 Two Year US Subscription

Name _____

Address _____

City _____ State _____ Zip _____

- Payment Enclosed Bill me

Your subscription will begin with the next available issue. Please allow 4-6 weeks for delivery of first issue. Subscription price subject to change at any time. Outside U.S.A. please add \$6 for each subscription. Basic Rate \$19.94 Excluding Canada, all foreign orders must be in U.S. currency.

Place
Stamp
Here

COMPUTE! Reader Service
P.O. Box 2141
Radnor, PA 19089

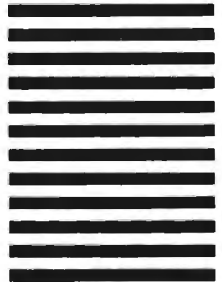


NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 112 HARLAN, IA

POSTAGE WILL BE PAID BY ADDRESSEE



COMPUTE!

P.O. BOX 3244
HARLAN, IA 51593-2424

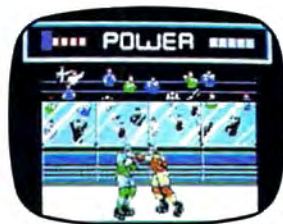




WHICH WOULD YOU RATHER FACE-OFF AGAINST?

Konami® introduces two more ruthless opponents for your home computer.

Whether you want to get crushed against the boards or have your body drained of blood, the choice is yours.



In *Blades of Steel*®, control ice-blistering speed and momentum, as you fire the puck past tenacious defenders, duck punches thrown by high-sticking enforcers or even protect the net from 100 mph penalty shots.

And in *Castlevania*®, journey through the most horrifying maze of evil ever devised, battling unearthly creatures with your mystic whip and masterful senses until you come face-to-fang with the death defying Count Dracula.

So grab your hockey stick and silver cross, then go head-to-head against the kind of competition you've dreamed about. And feared.

 **KONAMI**®

Circle Reader Service Number 171



Blades of Steel is available for Commodore®, IBM® and Amiga®.
Castlevania is available for Commodore and IBM. Available for Amiga Fall 1990.

FINALLY-COMMUNICATION SOFTWARE THAT'S EASY TO LEARN, SIMPLE TO USE AND AS CONVENIENT AS YOUR TELEPHONE!

AS EASY AS PUSHING A BUTTON

That's right — an uncomplicated point and click pushbutton interface, using your mouse or three basic keys on your keyboard, makes SIERRA'S ON-LINE your gateway to the world of electronic communications.

NO COMPLEX COMMANDS TO MEMORIZE

Whether you're calling a big information service or a local bulletin board, with SIERRA'S ON-LINE you can upload and download files at the touch of a key, and perform even complex tasks, like



compressing and decompressing files, with simple pull-down menus and pushbutton commands. Two compression programs included will save you time and money.



✓	SIMPLE TO USE
✓	EASY TO LEARN
✓	\$ 69.95

AN INSTANT SOLUTION TO TELE- COMMUNICATIONS DILEMMAS

SIERRA'S ON-LINE comes with an easy to read manual that explains many useful details about telecommunications in general, and also includes step-by-step instructions for accessing bulletin boards and information services. Since ON-LINE works without modification on most systems, you'll be up and running within minutes of installing the program.

TRY IT NOW FOR 30 DAYS SATISFACTION GUARANTEED!

Order On-Line today and try it out. If you aren't completely satisfied, return it within 30 days along with your sales receipt and a short note telling us why you're returning it. This free trial offer is made by Sierra On-Line, Inc., one of the oldest and largest home software publishers in the world.

ORDER YOURS NOW!

(800) 326-6654

Or write: Sierra On-Line, Inc., P.O.
Box 485, Coarsegold, CA 93614.

Please enclose this ad, or a copy,
when ordering by mail. Visa, MasterCard, American
Express accepted.