Ultimate Upgrades—Pack Your PC with Power! June 1989

COMPUTE!

The Leading Magazine of Home, Educational, and Recreational Com

02193

COMPUTE! Celebrating Our 10TH YEAR

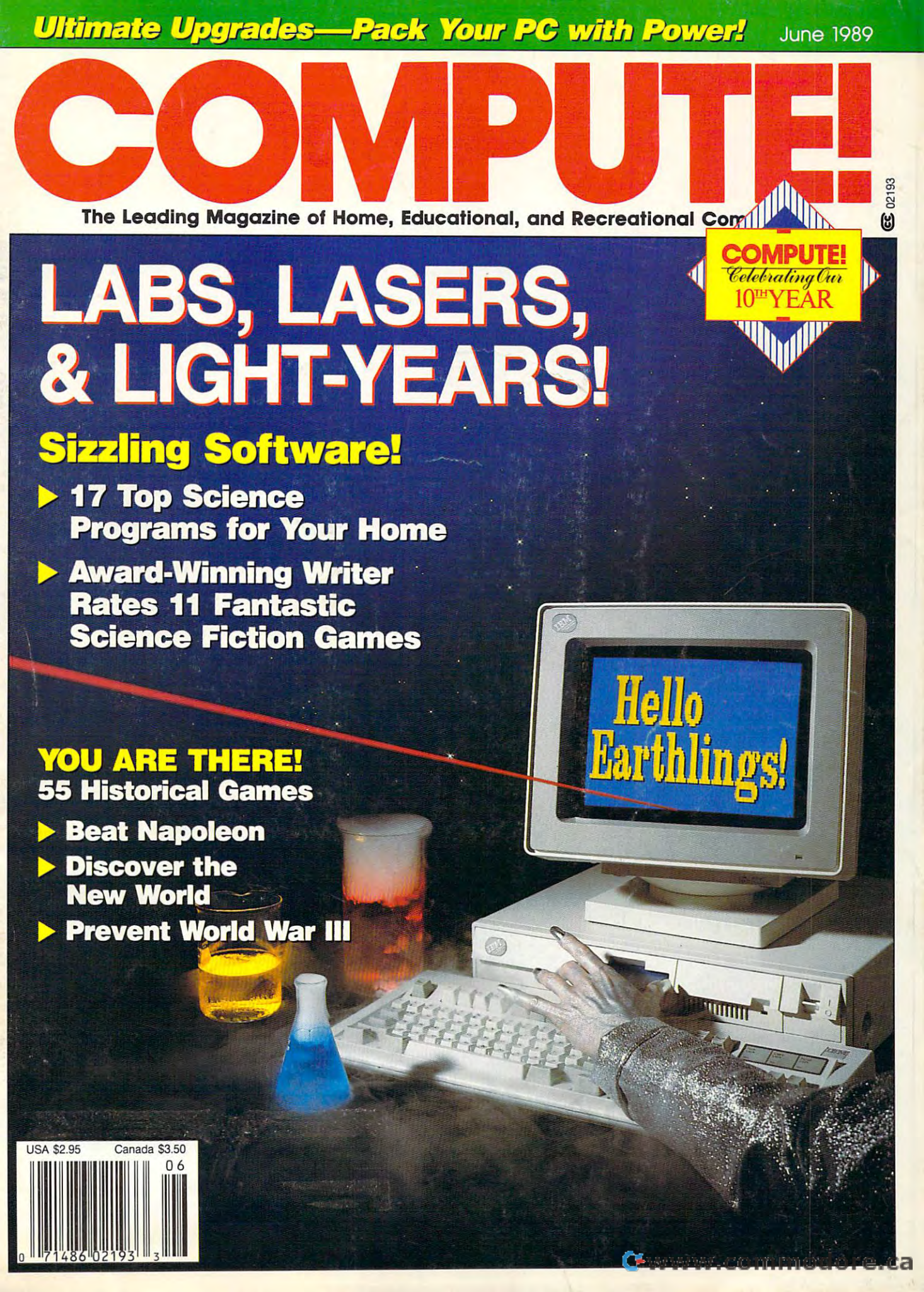
LABS, LASERS, & LIGHT-YEARS!

Sizzling Software!

- 17 Top Science Programs for Your Home
- Award-Winning Writer Rates 11 Fantastic Science Fiction Games

YOU ARE THERE!
55 Historical Games

- Beat Napoleon
- Discover the New World
- Prevent World War III



USA $2.95 Canada $3.50
06
0 71486 02193 3

www.commodore.ca

Magic Johnson's BASKETBALL

Basketball the way the Pros play.

Arcade action brings the realism of the big time game home to you in this direct translation of the popular coin-op arcade game, "Magic Johnson's Fastbreak Basketball."

Featuring

- Arcade-quality animated graphics and characters larger than any before seen in an IBM basketball game
- a full-court scrolling screen
- two-on-two play, WITH OFFICIALS!
- full stats – see if you can achieve Triple Doubles like Magic!
- a unique training sequence not even found in the Arcade game-Magic teaches you to make the shots

Make the "jump shot," the "alley oop," the "pick 'n roll," and of course Magic's famous fast break with a "slam dunk" finish. Dribble 'round your opponent to make the "lay up" that wins the game!

Now you've gained the honor of playing the ultimate One-on-One . . .

You against Magic Johnson.

Available now:	IBM 5-¼"	– $39.99
	IBM 3-½"	– $39.99
Coming soon for:	Amiga (1mg)	– $49.99
	Amiga (512K)	– $39.99
	Commodore 64	– $29.99
	Apple IIGS	– $39.99

GAME INCLUDES Magic Johnson POSTER

IBM EGA / TANDY

COIN-OP ARCADE

AMIGA 1MG

AMIGA 1MG

IBM EGA / TANDY

MELBOURNE HOUSE

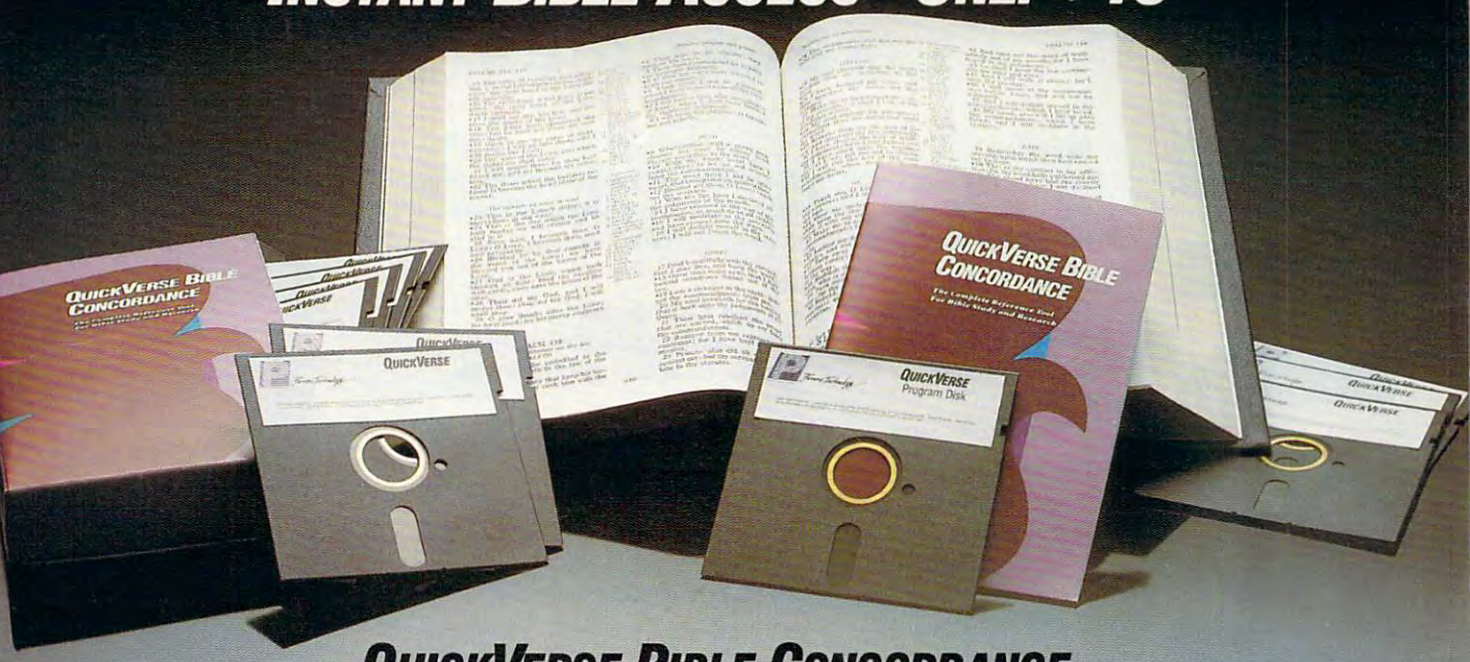
Setting New Standards
IN · COMPUTER · SOFTWARE

MELBOURNE HOUSE
711 West 17th St., Unit G9, Costa Mesa, CA 92627.
Tel. (714) 631-1001.

Melbourne House is a member of the Virgin Mastertronic Group.

www.commodore.ca

INSTANT BIBLE ACCESS - ONLY $49



QUICKVERSE BIBLE CONCORDANCE

QUICKVERSE BIBLE CONCORDANCE is a fast, easy-to-use tool for general Bible study and in-depth Bible research. QUICKVERSE puts the complete text of the King James, New International, or Revised Standard Version of the Bible at your fingertips, allowing you to:

- Instantly locate any word or verse in the entire Old and New Testament in only tenths of a second - as fast as any Bible research program available today - or faster.
- Perform partial phrase or word searches. For example: searching for ***Bapt* With*** would locate any verse containing ***Baptize With, Baptized With*** and ***Baptizing With.***
- View verses in context. You can easily browse back and forth through surrounding verses and chapters.
- Limit your searches to a particular range of books, chapters or verses.
- Print passages with the search phrase in bold type, and with words added by the KJV translators in italics.
- Supports all popular printers.
- Export passage selections to a file for use with your favorite word processor.
- Display or print scripture in several popular formats (e.g. verse reference following or in front of passage, etc.).

Hard to believe the $49 price? Don't worry, Parsons Technology is known for software that outperforms products costing much more. And the QUICKVERSE BIBLE CONCORDANCE is completely guaranteed. ***If you're not 100% satisfied, return the QUICKVERSE BIBLE CONCORDANCE within 30 days for a full refund*** (excluding shipping).

Parsons Technology

375 Collins Road N.E.
Cedar Rapids, Iowa 52402

Available in IBM or Macintosh versions, with printed manual. Not copy protected.

For Same Day Shipping
VISA, MASTERCARD & C.O.D. ORDERS CALL

1-800-223-6925

(In Canada, call 319/395-7300)
Weekdays 8:30 a.m. to 9:00 p.m. CST
Saturdays 9:00 a.m. to 5:00 p.m.
Or send check or money order payable to Parsons Technology.

Parsons Technology

Dept. COM
375 Collins Road NE
Cedar Rapids, Iowa 52402

QUICKVERSE BIBLE CONCORDANCE
$49 + $5 Shipping/Handling

NOT COPY PROTECTED
INCLUDES PRINTED MANUAL

Customer may select:
☐ King James Version
☐ New International Version (Add $10 publisher's royalty)
☐ Revised Standard Version (Add $4 publisher's royalty)

Then select IBM or Macintosh version:
☐ IBM or Tandy version ☐ Macintosh version

NAME _____
ADDRESS _____
CITY _____
STATE/ZIP _____
CHECK ☐ MONEY ORDER ☐ VISA ☐ MASTERCARD ☐
CARD # _____ EXP. DATE _____

Iowa residents please add 4% sales tax. Orders outside North America please add $10 shipping and handling.

IBM version requires IBM, Tandy or compatible computer with 256k or more memory, two floppy disk drives or floppy disk drive and hard disk drive, and DOS Release 2.0 or later. (A hard disk drive is recommended but is not required.)

Macintosh version requires 512k or more memory and works with any disk drive configuration.

www.commodore.ca

COMPUTE!

JUNE 1989

VOLUME 11
NUMBER 6
ISSUE 109

The Leading Magazine of Home, Educational, and Recreational Computing

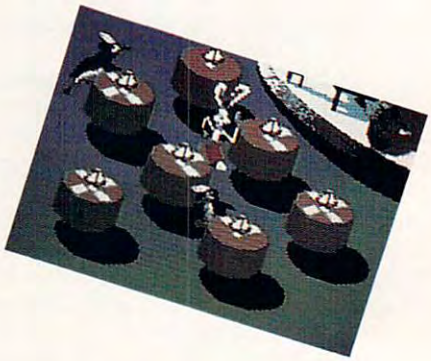
FEATURES

Science!
Watch your computer mutate into a scientific wonder with the right software. Seventeen topnotch packages make science fascinating and fun./*David Stanton* ____ **18**

Light-Years and Lasers
Science Fiction Inside Your Computer
Alien worlds, alien races, alien adventures. An award-winning SF writer turns 11 science-fiction games inside out.
Orson Scott Card ____ **28**

Power Home Computing
Pack power into your PC for hotshot play or high-tech home working. Dozens of products that upgrade your PC, Mac, or Amiga for less than $1,000.
Heidi Aycock, Steven Anzovin, Gregg Keizer, and Peter Scisco ____ **36**

Buyer's Guide
Historical Games
Relive history, then change it, with one of these 51 historical games./*Mickey McLean* ____ **41**



REVIEWS

Fast Looks
Kings of the Beach
Apple II Video Overlay Card
Project Firestart
MenuWorks ____ **62**

PC Tools Deluxe, Version 5.0
J. Blake Lambert ____ **63**

Who Framed Roger Rabbit
Carol S. Holzberg ____ **65**

Leisure Suit Larry II: Looking for Love (In Several Wrong Places)
Bob Guerra ____ **66**

College Explorer
Kristen Sternberg ____ **67**

Abrams Battle Tank
Peter Scisco ____ **68**

TV Sports Football
Steven Anzovin ____ **69**

Geometry
Carol S. Holzberg ____ **70**

Twilight Zone: Crossroads of Imagination
David Stanton ____ **71**

Cartooners
Nancy Rentschler ____ **71**

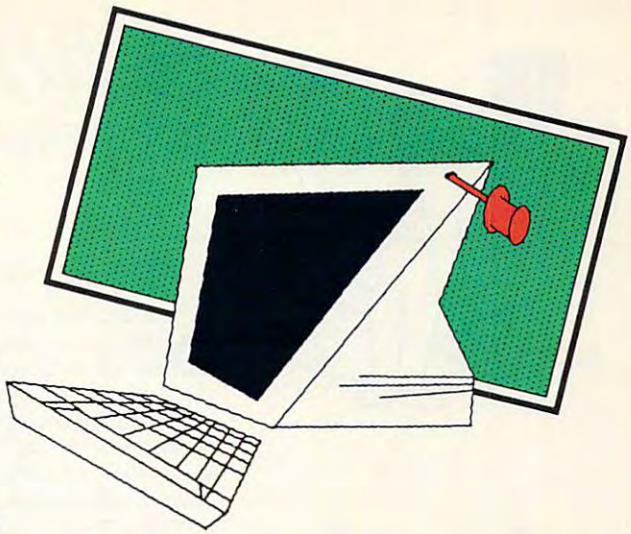
Flodd, the Bad Guy
Carol S. Holzberg ____ **72**

Publish It! Lite!
Daniel Will-Harris ____ **74**

WriteNow 2.0
Heidi E. H. Aycock ____ **76**

Hometown, U.S.A.
Nancy Rentschler ____ **77**

www.commodore.ca



COLUMNS

Editorial License
Science fact, science fiction—love 'em both, leave 'em both. It just depends on whether there's a computer around./*Gregg Keizer* ____ **4**

News & Notes
Sports on the wire, college on a disk, Apple on Beatles' bad list, and more news on our home computer beat./*Editors* ____ **6**

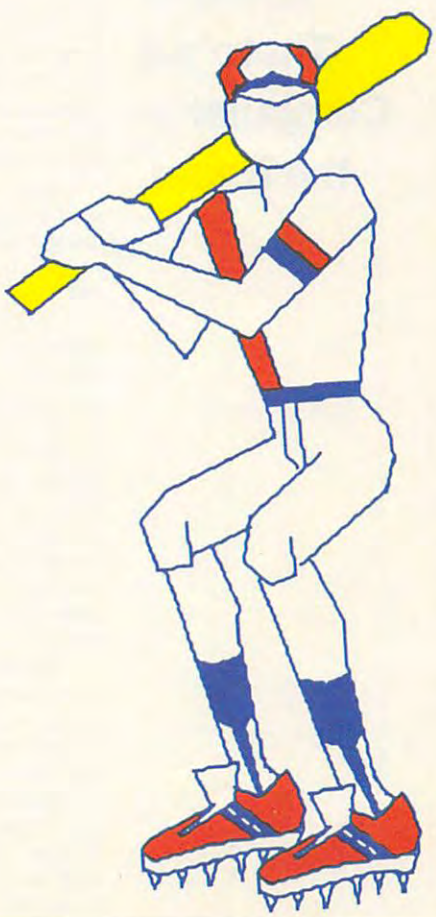
Gameplay
If you think of computer games as art, then game designers are artists. *Orson Scott Card* ____ **12**

Impact
Understand the miracles and wonders of science with your personal computer./*David D. Thornburg* ____ **88**

Discoveries
Computing isn't tough—not any more. So what's your excuse? *David Stanton* ____ **16**

Letters
Piracy and the ST: The *Falcon* debacle./*Editors* ____ **14**

New Products!
Laptop with weight, finance update, chopper that's great, and more new products of late./*Mickey McLean* ____ **79**



COMPUTE! SPECIFIC

MS-DOS
Clifton Karnes ____ **52**

64 & 128
Neil Randall ____ **53**

Apple II
Gregg Keizer ____ **54**

Amiga
Steven Anzovin ____ **56**

Macintosh
Heidi E. H. Aycock ____ **58**

Atari ST
David Plotkin ____ **60**

Cover photo © 1989 by Mark Wagoner.

COMPUTE! The Leading Magazine of Home, Educational, and Recreational Computing (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, $20. **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 © 1989 by COMPUTE! Publications, Inc. All rights reserved, ISSN 0194-357X.

www.commodore.ca

editorial license

GREGG KEIZER

Science Fact, Science Fiction. I Love Both, I Hate Both. It Just Depends on Whether There's a Computer in the Room.

Science fact, science fiction. That's what this issue is about. One I love deeply, the other I could do without.

I was the kid in science class who turned on the Bunsen burner and pointed the flame *across* the lab table. Charred notebook pages and some singed hair were the usual results. I refused to take biology in high school—not because of some open-mouthed respect for the rights of frogs, but because I thought lectures about the lymphatic system would be boring. Instead, I took chemistry my last year; a handful of seniors lorded it over a class composed of juniors who were science geeks from the get-go. Sometime in there we stuck an unfortunate junior under the emergency fire-dousing shower and pulled the chain: 30 gallons of water spilled over him and the classroom floor.

In college I made the mistake of taking an Honors class in something called *Practical Biology.* I should have read the course description a bit more carefully. I ended up in a class full of pre-med majors, people who were born with knives in their hands. And the class! We operated on dogs at an animal-research facility—simple operations at first, then more involved procedures. Everyone had to take turns playing head surgeon, or assistant surgeon, or nurse. There I was with a scalpel poised above a slowly breathing mongrel when I should have been in front of a typewriter in the journalism department. I was cured of science for good.

Science fiction, on the other hand, was something I took to like dark to the night. I went through every SF novel in my hometown library, then convinced my mother to let me use her card so that I could check out books from the adult section upstairs. Andre Norton, Robert Heinlein, Robert Silverberg, Isaac Asimov, Arthur C. Clarke, and hundreds of other writers filled my head with tales of strange worlds, strange ships, and even stranger beings. It was everything science wasn't—fresh, inviting, imaginative, creative, and most of all, lots and lots of fun.

So when I decided I wanted to write fiction, I knew it had to be science fiction. I wrote bad stuff, not-so-bad stuff, and, finally, good stuff that someone wanted to publish. Now I write strange stories about people who can't die, prisoners in an alien war, Hitler coming back from the dead. Stuff my mother takes a rain check on. (You must be doing something right when your mom can't fathom your stories.)

But there's no science in my science fiction. A dash here, a splash there—just enough to get me by. Not the nuts-and-bolts kind of science fiction that writers like Gregory Benford or Larry Niven put out.

Yet when I look at the computer software for science and science fiction, I get the strangest feeling. I may have made a mistake somewhere. Science on a computer is cool. Cooler by far than science fiction.

As David Stanton points out in this issue's "Science!," science software lets you manipulate the universe. Pretend to experiment with chemicals too dangerous for any teenager to handle. Track a grizzly bear through the wilds. Peer into the body of a human or a frog. All these windows on the world are only possible because of the personal computer. The future of science-oriented simulations alone is staggering. Imagine splitting the atom, splicing genes, delving into the guts of a tornado—all from the safe side of a computer screen. Science software makes science come alive in ways I never dreamed of when I was mixing strange concoctions in an empty drawer during Chem class. If there had been personal computers and science software when I was growing up, I might be sitting in a lab now instead of pounding keys like this.

Science-fiction computer games, on the other hand, can't match the real thing. Orson Scott Card, in "Light-Years and Lasers," takes a look at 11 topnotch games and draws the same conclusion: SF games are often not good science fiction. There's no contest between a well-written, contemporary SF novel (*Great Sky River,* for instance, by Greg Benford) and a science-fiction computer game when it comes to plot, characterization, even originality. Rather, SF computer games work because, as Card says, they "do an excellent job of what only computer games can do." That means letting you participate in the science fiction, letting you in on the adventure to new worlds, new times. Yet for all its charm, science-fiction computer entertainment dulls me; the anticipation of the game is almost always better than the game itself. It's like the feeling I get watching reruns of "Mister Ed"—the show isn't nearly as funny as I remembered it from my eight-years-old days. If there had been personal computers and science-fiction software when I was a kid, I might be writing stories that my mother, heaven forbid, would actually read.

Science fiction. Science fact. I love both, I hate both. It just depends on whether there's a computer in the room. ⊡

www.commodore.ca

Now Hear This!

Fabulous Ad Lib synthesized sound is now available with your favorite entertainment software!

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

The same Ad Lib Music Synthesizer Card that set the home computer music world on its ear just a year ago is now stepping out with some of the hottest entertainment software on PCs anywhere. So you get to experience a whole new dimension of thrills and excitement.

All it takes is the Ad Lib Music Synthesizer Card and any one of the growing number of IBM PC packages that include an Ad Lib enhanced sound track. You'll find it in new games from Activision, Electronic Arts, Lucas Films, Origin, Paragon, Sierra, and Taito. And in more titles, from more publishers, all the time.

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

So don't just sit there looking at your computer. Get the Ad Lib card for the kind of sensational sound that makes the PC worth listening to, as well.

Ad Lib Music Synthesizer Card — $195.00
You can also use the Ad Lib card with these exciting Ad Lib packages:

Juke Box — FREE with the Ad Lib card. The original music playback program.

Visual Composer — $89.95 Powerful spreadsheet-like music editor. Includes entry level composition guide.

Visual Composer/MIDI Supplement — $39.95 MIDI sequencing option for Visual Composer.

Instrument Maker — $49.95 Create thousands of new instrument sounds.

Music Championship #1, Basic Concepts — $39.95 Challenging music training competition.

Electronic Arts' 688 Attack Sub (top) and Space Quest III from Sierra (bottom).

Pop-Tunes — $39.95 Memory resident music playback program.

Programmer's Manual — $39.95 Complete technical guide with examples and file formats.

Ad Lib Personal Computer Music System — $245.00 Includes the Ad Lib card, Visual Composer, and Juke Box at a great low price.

System Requirements: IBM® PC, XT, AT or compatible, 256K RAM (384K for MIDI Supplement), DOS 2.0 or higher, CGA, EGA or MGA.

For the name of your nearest dealer, for a phone demonstration, or to place your order, call us toll-free from the US or Canada today. (International: 1-418-529-9676)

Ad Lib Inc.
50 Staniford Street, Suite 800
Boston, MA 02114

AdLib™

1-800-463-2686

© 1989 Ad Lib Inc. Ad Lib, Juke Box, VisualComposer, Visual Composer, MIDI Supplement, Music Championship, and Pop-Tunes are trademarks of Ad Lib Inc. IBM is a registered trademark of International Business Machines Corp.

www.vicemmodore.cz

news & notes

Hello, Sports Fans!

Play ball! will be the call of Monday-morning quarterbacks and armchair baseball managers when they hook their personal computers into an electronic sports network sponsored by Washington-based Gannett, the publisher of *USA Today,* and Linc Networks of Greensboro, North Carolina.

Susan Bokern, director of sales and marketing at Gannett News Media, said the USA Today Sports Center service grew out of the sports department at *USA Today,* which wanted its own database both for research and for supplying Gannett's 88 other newspapers with sports information. "We saw that this was something we could offer to the public," she said.

Besides scores, stats, schedules, and spreads, sports fans can field Fantasy/Rotisserie-league teams for baseball, basketball, football, and hockey. A chat line and electronic mail keep players in touch with one another, and a special service that crunches your fantasy team's stats is also available ($40.00 per season per member, $60.00 per season per nonmember).

Although the Sports Center started up in mid-February, Gannett and Linc anticipated that the Fantasy/Rotisserie leagues wouldn't be running until April 1. Other services, like shopping, have been scheduled for a late May rollout. Bokern said agreements with vendors had been completed, but that the first priority was signing up new customers.

If team games aren't your style, you can also play chess, backgammon, checkers, even blackjack. High scores for the week are posted, and you can play online against another opponent. For baseball-card aficionados, live online auctions and a trading post for collectibles have been planned to debut in late May. Public forums and communications with the *USA Today* sports department add to the network's offerings.

Cost for an individual membership is $14.95, which brings with it $15.00 worth of online time. There are no annual or monthly dues. Other people within one household can join for an additional $4.95 each (no free time); club and team rates are also available. Optional *SportsWare* software, which presents a graphics face to the service, costs $24.95 and is available for the IBM PC and compatibles, Commodore 64/128, Apple II, and Macintosh computer lines. Phone and network charges vary depending on how you access the service; costs range from $17.95 per hour (for dialing direct through an 800 number between 6 a.m. and 7 p.m. weekdays) to $2.95 per hour (if you're lucky enough to live in the calling area for Greensboro, North Carolina). Customers can also access the Sports Center through Tymnet, Telenet, Telenet 2400, and ConnNet.

— Peter Scisco

Computerized College Come-On

College recruiting may never be the same. The Illinois Institute of Technology, a high-tech university in Chicago, really wants the attention of high-school seniors. To get it, IIT has taken note of its own curriculum and put together a computerized come-on aimed at kids with PCs.

Instead of a flashy four-color brochure, IIT has been sending prospective students a single 5¼-inch disk. When they pop the disk into an MS-DOS machine, high-schoolers are treated to an animated presentation that hypes the school, its strengths in high technology, and its location. A menu system navigated with single-character keypresses lets the college-bound explore such areas as financial aid, student/faculty ratios, key majors, on-campus sports, and job placement.

Running on any PC with CGA graphics or better, the *Why Should You Consider IIT* disk was created by The Learning Curve, a Chicago-based company that specializes in adding animation and graphics to training packages. The graphics, though lacking the polish (and in CGA, the color) of much commercial software, are enough to keep people pressing keys.

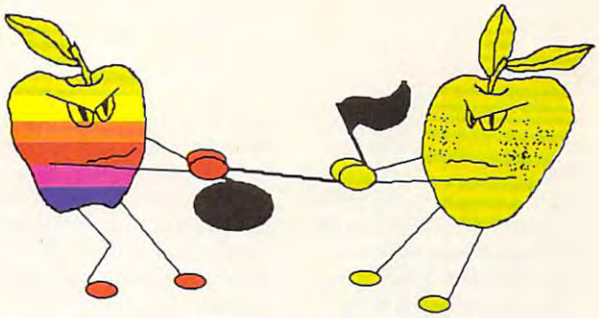
Has the unique recruitment tool been a success? According to Bill Black, IIT's director of admissions, "A high percentage of the inquiries are from top students—just the sort of prospect that is suited to our programs."

For more information about IIT and its disk, contact the Institute's public relations office at (312) 567-3104.

— Gregg Keizer

www.commodore.ca

Mean Mister Mustard vs. Macintosh



The next time you buy an Apple product, it may be a Peach. In February, Apple Corps filed suit in Great Britain's High Court against Apple Computer. Apple Corps is owned by the three surviving members of the Beatles and the estate of John Lennon.

Apple Corps claims that Apple Computer broke a 1981 agreement in which the computer company promised not to use the Apple logo on any products designed to produce music. These products include the MIDI interface, the Macintosh line of computers, the Apple IIGS, and the Apple IIe.

"We believe the case has no merit," said Carleen LeVasseur, spokesperson for Apple Computer. "And we do not believe that we are in violation of any agreement with Apple Corps."

The Beatles' company has asked the court to force Apple Computer to change its name, to sell the music products under a different name, or to change the computers by removing the sound chips. Apple Corps lawyer Paul V. LiCalsi said a remedy might also require Apple Computer to pay a licensing fee for the products that have already used the logo.

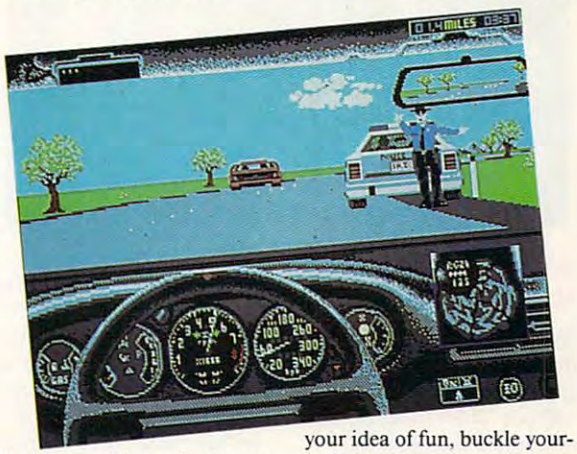
"The whole realm of the music business was preserved for the Beatles' company by this contract," LiCalsi said. "Technology being what it is, these lines get blurred, and that's what we were protecting ourselves against."

In 1986, Apple Computer and Apple Corps negotiated another agreement to expand the use of the Apple logo to a wider range of products. During those ill-fated negotiations, LiCalsi said, Apple Corps realized that Apple Computer had already broken the 1981 contract.

Apple Computer will file a response with the British court. Until then, the company won't affirm or deny any of Apple Corps' claims.

— Heidi E. H. Aycock

On the Road Again

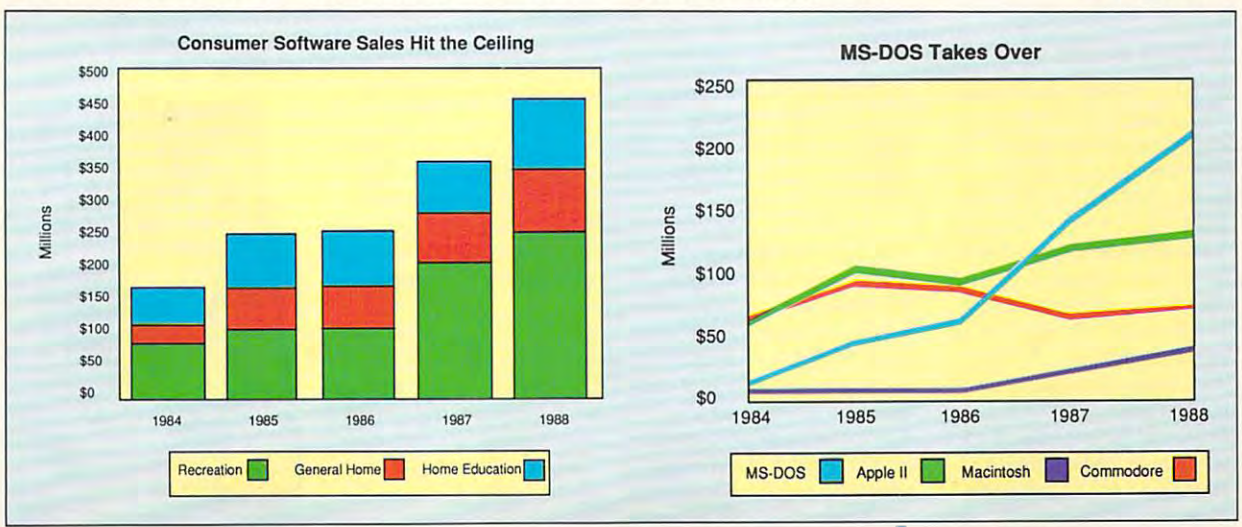


It's back and it's hot. The gang that brought *Test Drive* screeching onto your computer screen is on the road again with *The Duel: Test Drive II*. New cars, new road, computer competition, and enhancement disks are sure to give white-line fever to more computer users than ever.

Taking its lead from flight simulator programs, Accolade is also offering *Test Drive* addicts scenery and car disks. So far, one scenery disk *(California Challenge)* and one car disk *(The Supercars)* are available. Although Accolade hasn't set a release date for future enhancement disks, a company spokeswoman said there would probably be another disk available by the end of the year. She said the release of scenery and car disks was in response to letters received from *Test Drive* players.

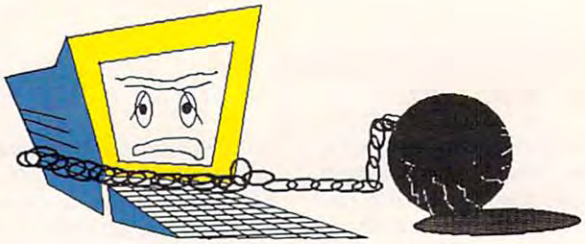
Additional disks will probably be designed by Distinctive Software, the same team that developed *The Duel* and the original *Test Drive*. Car game enthusiasts may one day be able to race from the Big Apple to Big Sur in the car of their dreams. So if shifting gears and burning rubber is your idea of fun, buckle yourself in to *Test Drive II* and run with the best.

— Peter Scisco ▷



www.commodore.ca

That Old Ball and Chain



It used to be that a person could get in real trouble slipping a file into a jail cell. But if you're a member of the Prisoner's User Group (PUG) in the Washington State Reformatory of Monroe, Washington, you're encouraged to bring files into the Big House—computer files, that is.

Sponsored by Edmonds Community College, also of Monroe, the group consists of about 20 Commodore 64/128 users. The group corresponds by way of its PUG newsletter subtitled "The Computing Behind Bars Publication." In addition to prison news and hints on computer use, the newsletter carries such items as "From the Soapbox," a general forum for discussing a variety of problems particular to using computers in prison.

In the latest issue, for instance, the editor blasts the Midnight Gamester, the computer user who disturbs other prisoners with the sounds of game playing deep into the night. "This is the same lack of consideration for others that landed the Midnight Gamester in prison in the first place," writes editor and group president Ed Mead. He also criticizes computer users who run their printers after 10:00 p.m. in defiance of prison rules.

Besides playing games and producing newsletters, the users at the prison can take part in community college classes, including Introduction to DOS, math (up to calculus), computer programming, and computer literacy.

Anyone interested in communicating with the PUG can write to Mead at P.O. Box 777, Monroe, Washington 98272.

— Peter Scisco

What the Future Has in Store

New York City has long been the center of finance and fashion for the United States. But software? If Software, Etc. gets its way, the Big Apple will soon be toasting another cultural focal point—the software store of the future.

Opened March 13 on famous Fifth Avenue, the 4323-square-foot store features an electronic chair connected to a 16-screen *Media Wall* for multimedia demonstrations of software programs. Called the *Power Desk* and adapted from the bucket seat of a Premiere car, the chair is equipped with two personal computers and is wired for sound. From the chair, salespeople and developers can demonstrate software packages on the Media Wall, which dominates the back of the store. "This incredibly futuristic New York store reflects our predictions for where software is heading and how it will be merchandised in the years to come," said Jordan Levy, vice president and director of marketing.

The huge outlet will support the major personal computer platforms: IBM PC and compatibles, Apple II, Macintosh, Commodore, and Amiga. In addition to software, visitors will find more than 1000 different books and magazines as well as supplies and accessories.

The store also boasts a special desktop publishing area, complete with a Macintosh II computer, laser printers, and scanners. Elsewhere in the outlet are eight personal computers, stationed on a carousel, that can be used for demonstrations. Theatrical lighting and vaulted ceilings complete the store's look.

Opening ceremonies were attended by The Amazing Kreskin (who attempted to read a computer's "mind"), film designer Syd Mead *(Blade Runner),* financial guru Andrew Tobias, and major league baseball manager Earl Weaver.

— Peter Scisco

Cheat Right

Slogging through complicated simulations and adventure games may be fun for folks with lots of time on their hands, but for those of us with lives to lead, every minute lost looking for the Magic Scroll is another minute lost to family, friends, and other hobbies.

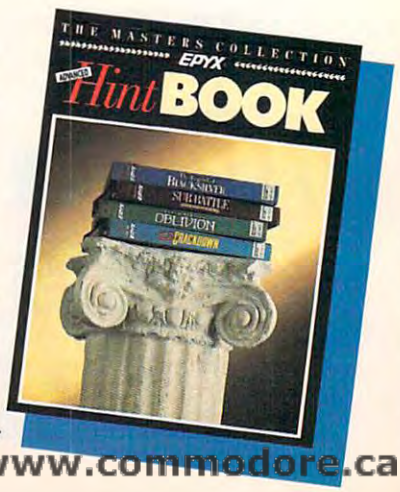
Enter the hint book, an invaluable aid to players who want to play detailed games but just don't have the time. Epyx, a noted publisher of entertainment software, has just released an attractively packaged booklet that includes tips and hints on four of its popular games: *The Legend of Blacksilver, Space Station Oblivion, L.A. Crackdown,* and *Sub Battle Simulator.*

The Master Collection Hint Book contains general suggestions as well as hints to help you move past a particularly troublesome spot in the game. A variety of detailed maps aid in game navigation; the maps for *The Legend of Blacksilver* are particularly helpful. Tips for the one non-adventure game in the quartet, *Sub Battle Simulator,* are more tactical in nature but still valuable.

Other tip books may use clever techniques to keep you from discovering *too* much, but Epyx's booklet can get quite specific. That may disturb some who want just a *bit* of aid, but for those of us pressed for time, it's more a benefit than anything else.

For a copy of *The Master Collection Hint Book,* contact Epyx at 600 Galveston Drive, Redwood City, California 94063; (415) 366-0606; $9.95.

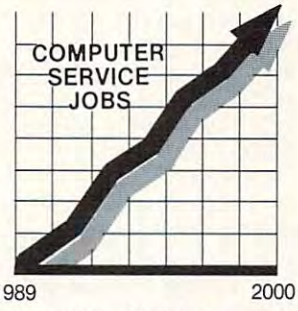
— Gregg Keizer



www.commodore.ca

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 75 years—gives you practical knowledge, hands-on skill, and real-world experience with a powerful XT-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.

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 Packard Bell VX88 computer as the centerpiece of your hands-on training.

As you build this fully IBM PC XT-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 "intelligent" keyboard, install the power supply and 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 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.

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.

IBM is a registered trademark of International Business Machines Corp.

NRI School of Electronics

For career courses approved under GI Bill ☐ check for details.

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

☑ **CHECK ONE CATALOG ONLY**

- ☐ **Computers and Microprocessors**
- ☐ Robotics
- ☐ TV/Video/Audio Servicing
- ☐ Data Communications
- ☐ Security Electronics
- ☐ Electronic Music Technology
- ☐ Digital Electronics Servicing
- ☐ Computer Programming
- ☐ Basic Electronics

Name _____

Address _____

City _____ State _____ Zip _____

Accredited by the National Home Study Council 198-069

www.commodore.ca

Collected Works

For years, computers have promised to make things simple, to keep track of the detritus of our lifes. Organization is supposed to be their forte; tireless cataloging, their domain.

But have you ever tried to create a database? One that holds just the right information for your record collection, your photograph file, your baseball-card boxes? With a database program, the chore isn't tough. But it may be more than you bargained for (especially if you don't already own a database and so have to go out and buy one) or take more time than you can devote.

Call up Steve Hudgik, owner of HomeCraft Computer Products. Hudgik has developed a whole series of customized databases for IBM PC and compatible computers—databases specifically set up to track records, books, videos, baseball cards, jazz albums, comic books, and classical recordings.

Each *Organize Your Collection* database is complete and ready to run and has a variety of fields already set. For instance, the *For Record Collectors* database has three levels, each of which provides progressively greater detail of information that can be stored for a song. The simplest level offers only six fields: Catalog Number, Song Title, Artist, Year Released, Note, and Value. The most advanced level includes another 15 categories, ranging from Writer to Date Last Played.

Hudgik's databases are simple to use: All you have to do is enter the information. Data can easily be edited, and, of course, searched for and printed. It's a quick task to search for all the songs in your collection that were recorded by Neil Young, for example—a printout takes just a moment longer.

Even more interesting for some, however, is Hudgik's offer to create a custom database for any collection. If HomeCraft doesn't already offer a database for whatever you collect and Hudgik believes he can sell at least 6–10 copies, he'll do the programming and come up with a specialized database just right for you. The price is the standard $59.95 that HomeCraft charges for all its specialty databases.

For more information on HomeCraft's products, contact the company at P.O. Box 974, Tualatin, Oregon 97062; (503) 692-3732.

—Gregg Keizer

CD-ROM Surge

More than 2,000 people gathered in Anaheim for Microsoft's Fourth Annual CD-ROM (Compact Disc–Read Only Memory) Conference. The March conference addressed both the current state of CD-ROM and its potential for continued growth.

CD-ROM is thriving in both areas. Software revenues last year approached half a billion dollars, and 1989 promises to be even larger. Because CD-ROM offer enormous amounts of storage, the technology is seen by many as crucial to the elevation of the PC from data-crunching workhorse to true multimedia appliance. Several conference announcements showed that such an appliance may be in our future.

Philips, Microsoft, and Sony jointly announced CD-ROM XA (eXtended Architecture), a standard that adds compressed audio capabilities to CD-ROM discs. IBM and Intel announced advances in DVI (Digital Video Interactive), which further extends CD technology by the addition of full-motion video. Other product announcements included CD-based telephone directories, Bibles, entertainment and education packages, authoring systems, and mastering processes that allow CDs to run on both MS-DOS and Macintosh machines.

Perhaps the heaviest traffic in the exhibit hall flowed toward two products unavailable here—Fujitsu's fmTOWNS, a 386-based PC with a CD-ROM drive; and NEC's phenomenally successful PC Engine, a dedicated game platform that's sold more than a million units in Japan. In December, the company introduced a CD-ROM drive for the Engine and proceeded to sell 100,000 drives in three months—despite limited software.

Neither NEC nor Fujitsu announced plans to release their products in the West.

— Keith Ferrell

The Gospel According to Bubeck

If you've been looking for an electronic bulletin board that caters to an unusual interest, lay your hands on the *1989 BBS Bible,* released by Bubeck Publishing. First of its kind, the *1989 BBS Bible* lists nearly 5000 public computer bulletin board systems in the United States.

The *BBS Bible* was compiled by Thomas W. Bubeck, a freelance writer who has edited magazines and annual directories, because he found a scarcity of useful, up-to-date information about BBSs.

Using your computer and a modem, you can connect to a BBS for fun and conversation. Some BBSs offer electronic mail or live chat sessions; others offer games, special-interest groups, or computer-specific information.

The *1989 BBS Bible* lists BBSs by area code and by more than 130 special interests, including machine-specific categories. Noncomputer interests include genealogy, religion, science, and music.

Besides the directory, Bubeck has compiled several articles helpful to people using BBSs. For example, you can read about low-cost long-distance services and about beating viruses before they attack.

Bubeck plans for the *BBS Bible* to be an annual affair with the 1990 edition due out in the fourth quarter of 1989. The current edition costs $24.99. For more information, contact Bubeck Publishing at P.O. Box 104, Collegeville, Pennsylvania 19426; (215) 287-6356.

—Heidi E. H. Aycock ⊡

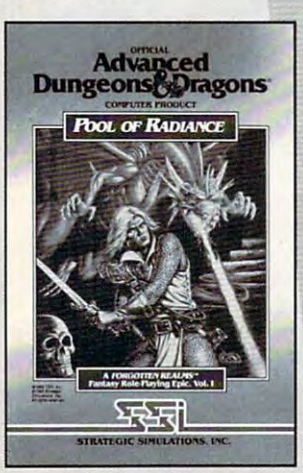
www.commodore.ca

THIS SUMMER, IT WON'T BE THE WEATHER THAT MAKES YOU HOT.

It may reach the 100's this summer, but that's mild compared to this scorcher from SSI:

CURSE OF THE AZURE BONDS.

It's the sizzling sequel to *POOL OF RADIANCE*, the best-selling AD&D® role-playing game from SSI.



Look for CURSE OF THE AZURE BONDS this summer at a store near you.

Available for most home computers.

OFFICIAL
Advanced Dungeons & Dragons®
COMPUTER PRODUCT

CURSE OF THE AZURE BONDS

A FORGOTTEN REALMS™ Fantasy Role-Playing Epic, Vol. II

TSR™ TSR, Inc.

©1989 TSR, Inc.
©1989 Strategic Simulations, Inc.
All rights reserved

SSI™ STRATEGIC SIMULATIONS, INC.®

FORGOTTEN REALMS

ADVANCED DUNGEONS & DRAGONS, AD&D, FORGOTTEN REALMS and the TSR logo are trademarks owned by and used under license from TSR, Inc. ©1989 TSR, Inc. ©1989 Strategic Simulations, Inc. All rights reserved.

www.commodore.ca

gameplay

ORSON SCOTT CARD

Judge Computer Games as Art, Respect Game Designers as Artists

The other day I was reading a book of literary biographies—you know, the kind of book where some star-struck academic tells us common people how it was that genius writers got to be so wonderful in spite of the fact that they were horrible, selfish people who ruined the lives of everybody around them and wrote stuff that nobody would ever read if they weren't required to by English teachers.

You know—the kind of book I want somebody to write about *me* someday.

At one point the author of this book, referring to a very popular writer of the early twentieth century, wrote, "His work showed some talent, but it was hardly literature."

That sort of snobbery makes my skin crawl. You hear it all the time, from the sort of people who enjoy despising others' tastes. "I suppose it's all right if you like that sort of thing, but it's hardly art, is it?"

Often that attitude is used to react against anything new. That's how theatrical people referred to the movies—as commercial trash, not art. Now, after 80 years, film is definitely accepted as an art—whose practitioners sneer at television just as theater people sneered at *them.*

Painters did it to photographers when photography was new. Elizabethan poets did it to playwrights.

Computer games are new and subject to this same snobbery. But when I review games, I start from the assumption that gamewrights should be judged, criticized, and respected as *artists,* and that they—and we—should take their work seriously as art.

I don't mean *art* and *artist* the way we might speak of *the art of ditch-digging* or *a pickup artist.* I mean that a gamewright can be an artist the way Shakespeare, Rembrandt, Bach, Chaucer, and Capra are artists. Maybe gamewrights aren't as good yet—but they should aspire to the same sort of ageless greatness in their work.

That's my view, but am I right? After all, computer games are *games,* not art.

Take football. Few would call a football game *art,* even though it has an audience, it's performed by professionals, it's loved for its own sake, and it has traditions, styles, schools of thought, and even critics declaring who is good or bad. There are even aesthetic moments—a beautiful catch, a gorgeous bit of footwork, a perfect punt.

Still, it's a contest, not an art. Most of the events in the game are random. The rules and the playing field are standardized, but during the game itself, as the opposing coaches constantly try to surprise each other, as players test each other's strength and wit in a series of individual contests, specific outcomes are always unpredictable.

A football game is also not repeatable. You can see a play or movie or painting, read a book, hear a symphony over and over again, and each time can be as powerful and important as the first. However, if you videotape a game and watch it again, the outcome is known. The contest is over. It isn't *real* the second time around.

Most importantly, no single intelligence guides the story that unfolds on the field. The course of the game is not *created;* it merely *happens.*

But videogames aren't like football games. They're more like golf. Here, the real contest is between the player and the designer of the course. The designer's work is defensive; the player's job is to attack. The only contest between the players is to compare their scores—just like a vanity board at the end of a videogame.

In golf, a single intelligence *does* guide the experience of playing. Aesthetics are profoundly involved; beauty and drama are much of the reason for playing at one course rather than another. And the course is repeatable: You can play it again and again, discovering new things about it each time.

Of course, some golf courses aren't very artlike. You play on them because they're cheap and close and you want to practice. I've played videogames like that, too. But just because some are bad doesn't mean the good ones aren't art.

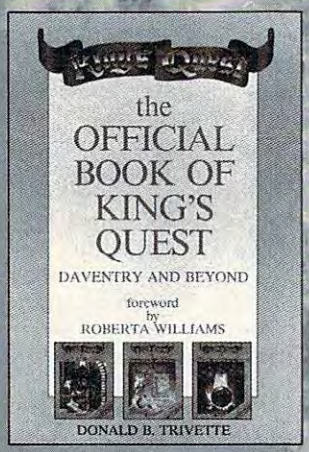
But I'm still comparing computer games to a game, not to an art. So how about architecture? There are a lot of ugly, uninspired buildings in this world—even uglier than the average municipal golf course. But that doesn't change the fact that some architects create buildings that are undeniably great art, inside and out.

Furthermore, you don't just experience the architect's art from the outside. You can go inside and walk around. You can explore, discover, even *live* inside that art. Just the way you don't simply *look* at a golf course—you play through it.

Computer games are works of art—a new art, one that has yet to earn respect. But it is an art nonetheless, and we the players are the audience, as we control our own passage through the world of the game. We are collaborators with the gamewrights in an open-ended art, created for our pleasure, completed by our choices. ⊡

www.commodore.ca

COMPUTE'S HOT NEW SELECTIONS!

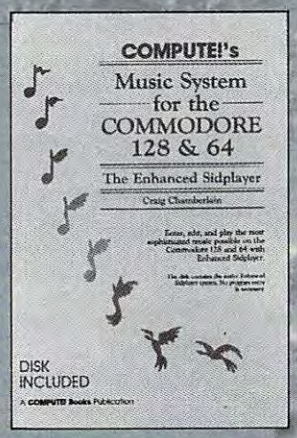


The Official Book of *King's Quest:* Daventry and Beyond
by Donald B. Trivette
ISBN 0-87455-155-2
Retail: $10.95, pb, 144 pp

This is the official guide to America's most popular series of 3-D animated adventure games—the bestselling *King's Quest* from Sierra On-Line. The book provides clues to solving the four *King's Quest* games, maps to help navigate the world of Daventry and beyond, and answers to questions like "What is the gnome's name?" It describes the elaborate programming, artwork, and musical composition that goes into the making of a *King's Quest.* Includes eight pages of color photos showing the stunning graphics that have made *King's Quest* the king of 3-D adventure games.

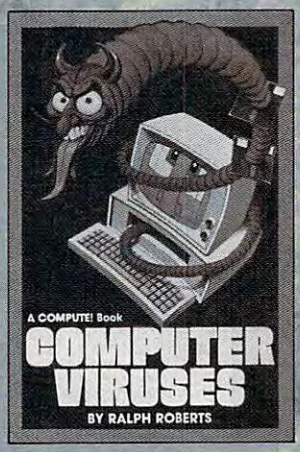
Machine Language Routines for the Commodore 64 and 128
by Todd D. Heimarck and Patrick G. Parrish
ISBN 0-87455-085-8
Retail: $18.95, pb, 585 pp

A must for every Commodore 128 and 64 machine language programmer. Scores of routines that can simply be inserted into your own programs. Included is the assembly language code with easy-to-understand documentation and instructions. *A companion disk that includes all the programs in the book is available for $12.95 (E0858 BDSK).*



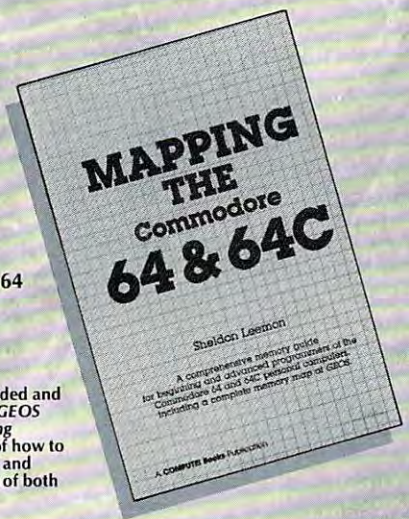
COMPUTE!'s Music System for the Commodore 128 and 64
by Craig Chamberlain
ISBN 0-87455-074-2
Retail: $24.95, pb, 274 pp

Sidplayer, the powerful and popular music player and editor program, is now more versatile and more impressive than before. *Enhanced Sidplayer* for the Commodore 128 and 64 includes two new versions—one for the Commodore 128 running in 128 mode and another strictly for the Commodore 64. The accompanying disk contains the Editor and Player programs (including a singalong program), utilities, and sample music that you can enjoy immediately or change. ***Book/Disk Only***



COMPUTE!'s Computer Viruses
by Ralph Roberts
ISBN 0-87455-178-1
Retail: $14.95, pb, 180 pp

The authoritative guide to computer viruses, worms, and Trojan horse programs. Includes important information every computer user needs to protect against possible disaster—the loss or altering of valuable data. Written in a light yet information style, *COMPUTE!'s Computer Viruses* explains how viruses infect computers, how to protect against them, and what to do if a virus attacks. This book also includes informative reviews of the most popular virus-protection software available. Must reading for every computer user.



Mapping the Commodore 64 and 64C
by Sheldon Leemon
ISBN 0-87455-082-3
Retail: $18.95, pb, 324 pp

This sourcebook has been expanded and now covers the new icon-based *GEOS (Graphics Environment Operating System)* with clear descriptions of how to make it work for you. For BASIC and machine language programmers of both the Commodore 64 and 64C.

ORDER COUPON

		Qty.	Total
Computer Viruses (178-1)	$14.95	_____	$_____
King's Quest (155-2)	$10.95	_____	$_____
Machine Language Routines for the Commodore 128 and 64 (085-8)	$18.95	_____	$_____
Companion Disk (E0858)	$12.95	_____	$_____
Mapping the Commodore 64 & 64C (082-3)	$18.95	_____	$_____
Music System for the Commodore 128 & 64 (074-2)	$24.95	_____	$_____

Please send check or money order to:

Sub Total: $_____
Postage & Handling: $_____
($3.50 plus 50¢ for each additional title)
Sales Tax where applicable: $_____
Amount Enclosed: $_____

CHILTON BOOK COMPANY
Chilton Way
Radnor, PA 19089
(215) 964-4700
(800) 345-1214

J-C689

www.commodore.ca

COMPUTE!!
The Leading Magazine Of Home, Educational, And Recreational Computing

Editor **Gregg Keizer**
Senior Art Director **Janice R. Fary**
Features Editor **Keith Ferrell**
Assistant Editors **Heidi E. H. Aycock**
Peter Scisco
Buyer's Guide Coordinator **Caroline D. Hanlon**
Editorial Assistant **Mickey McLean**
Copy Editors **Karen Siepak**
Tammie Taylor
Karen Uhlendorf
Staff Contributors **David English**
Clifton Karnes
Contributing Editors **Arlan Levitan**
David Thornburg

ART DEPARTMENT
Assistant Art Director **Robin L. Strelow**
Junior Designer **Meg McArn**
Mechanical Art Supervisor **Robin Case**
Mechanical Artist **Scotty Billings**

PRODUCTION DEPARTMENT
Production Director **Mark E. Hillyer**
Assistant Production Manager **De Potter**
Production Assistant **Kim Potts**
Typesetting **Terry Cash**
Carole Dunton
Advertising Production Assistant **Anita Armfield**

COMPUTE! PUBLICATIONS
Group Vice President, Publisher/Editorial Director **William Tynan**
Managing Editor **Kathleen Martinek**
Senior Editor **Lance Elko**
Editorial Operations Director **Tony Roberts**
Executive Assistant **Sybil Agee**
Senior Administrative Assistant **Julia Fleming**
Administrative Assistant **Iris Brooks**

ABC CONSUMER MAGAZINES, INC.
Senior Vice President **Richard D. Bay**
Vice President, Advertising **Peter T. Johnsmeyer**
Vice President, Circulation **Robert I. Gursha**
Vice President, Production **Ilene Berson-Weiner**
Director, Financial Analysis **Andrew D. Landis**
Senior Art Director **John Ciofalo**

CIRCULATION DEPARTMENT
Subscriptions **Ora Blackmon-DeBrown**
Harold Buckley
Maureen Buckley
Beth Healy
Thomas D. Slater
Raymond Ward
Newsstand **Mitch Frank**
Jana Friedman
Customer Serivce **S. Adekemi-Adaralegbe**

ABC Consumer Magazines, Inc.
CHILTON Company, One of the ABC Publishing Companies, a part of Capital Cities/ABC, Inc.

President Robert G. Burton
825 Seventh Avenue
New York, NY 10019

ADVERTISING OFFICES
New York: ABC Consumer Magazines, Inc., 825 Seventh Ave., New York, NY 10019. Tel. (212) 265-8360. Bernard J. Theobald, Jr., Group Advertising Director.
Greensboro: COMPUTE! Publications, Suite 200, 324 West Wendover Ave., Greensboro, NC 27408. Tel. (919) 275-9809. Kathleen Ingram.
New England & Mid-Atlantic: Bernard J. Theobald, Jr. (212) 315-1665; Kathleen Ingram (919) 275-9809.
Midwest & Southwest: Jerry Thompson, Lucille Dennis, Jennifer Delfs (312) 726-6047 [Chicago]; (713) 731-2605 [Texas]; (303) 595-9299 [Colorado]; (415) 348-8222 [California].
West, Northwest, & British Columbia: Jerry Thompson, Lucille Dennis, Jennifer Delfs (415) 348-8222.
Southeast & International: Bernard J. Theobald, Jr. (212) 315-1665; Kathleen Ingram (919) 275-9809.

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

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

PRINTED IN THE U.S.A.

letters

Simpler, Cheaper, Better

I couldn't agree more with the February 1989 "Editorial License"—computers cost way too much. The problem is that manufacturers are trying to give everyone the cutting edge in technology when it really isn't necessary. Look at the successful Nintendo system. Does anyone know what microprocessor or graphics chip it uses? Does anyone care?

How about a nice, solid home computer, one that's simple to operate but doesn't include such consumer-useless features as being able to fine-tune time slicing in a CONFIG file? Yes, outdated technology, but who cares? Forget computers that appeal to everyone from the Department of Defense to fifth graders—leave the high-tech stuff to computer scientists and engineers.

James Hague
Richardson, TX

Stop Stealing

Talking to Atari users, we learned many wanted to see our best-selling air combat simulator, *Falcon,* converted to the Atari ST.

Many of our competitors warned us that releasing an ST product would be a money-loser. We were told that within weeks the product would be up on the bulletin boards and sales would fall to 0. We chose to disregard these comments and felt that the piracy problem only existed with a small handful of users.

However, within 30 days of our releasing *Falcon ST,* pirates had put the product up on the bulletin boards—complete with diagrams for the code-wheel protection, keyboard layout, and mission maps of the product.

The real cost of such software piracy is not the lost $49.95 sale, but rather the lost industry support for the Atari ST.

Many ST owners argue that the ST has no more pirates than the IBM or Mac. Many of us at Spectrum HoloByte believe this to be true. The problem is that the number of installed STs is considerably smaller than that of the IBM or Macintosh, thus increasing the impact of piracy on sales. In addition, ST pirates seem better organized and piracy seems more accepted (or, should I say, tolerated) by ST users.

The cost of developing and publishing a product is quite high, especially on a complex machine like the ST. The Amiga version's sales volume is already double that of the ST, even though Amiga *Falcon* has been on the market for less time. When Macintosh and IBM versions were released, they sold four times the volume of product over the same period of time. Based on the current sales trend, the ST developer will be lucky to break even.

There is no clear-cut solution to the problem of piracy. All we can ask is that if you like a program, buy it. Think of it as an investment. The more invested, the more and better titles you'll see for the ST. It's a shame that a few users can hurt a market as badly as the ST pirates can and deprive thousands of good ST users of the product support that other machines receive.

Gilman G. Louie
CEO/Chairman
SPHERE, Spectrum HoloByte

What's the Difference?

Do you produce *COMPUTE!'s PC Magazine?* If so, what is the main difference between it and *COMPUTE!?* I get *COMPUTE!* and don't want to go to the expense of subscribing to a parallel format.

Maurine E. Phinisee
Washington, DC

COMPUTE! Publications publishes four magazines: COMPUTE!, COMPUTE!'s PC Magazine, COMPUTE!'s Gazette, *and* COMPUTE!'s Amiga Resource. COMPUTE!'s PC Magazine *differs from* COMPUTE! *in its focus (MS-DOS only), its content (features, reviews, and between five and eight ready-to-run programs on the accompanying disk), and price ($12.95 per issue). From our perspective, if you own an IBM PC or compatible computer, you'll find* both COMPUTE! *and* COMPUTE!'s PC Magazine *invaluable resources. The former gives you a broad view about home computing in general, while the latter provides a focused perspective and useful software.*

www.commodore.ca

Apple vs. Amiga

Recently, while looking through some old issues, I came across the item "Apple Loves the Plus" in the November 1988 "News and Notes" section. It's a wonder to me that anybody pays that kind of money for that kind of system when computers like the Amiga are available for less.

Let's do a quick comparison of the Apple IIc Plus and the Amiga 500 (which is what I own). The Apple IIc Plus comes with 128K of RAM; the Amiga 500 comes with 512K of RAM. The Apple has a very low screen resolution. Correct me if I'm wrong, but I think it has 320 × 200, the same as the C64. The Amiga has a maximum resolution of 640 × 400. The Apple IIc Plus has bleeps and tones for sound. The Amiga has four-channel stereo sound. The Apple has 16 colors; the Amiga has 4096 colors. The Apple runs at a maximum speed of 4 MHz; the Amiga runs at a speed of 7.2 MHz. The Apple has a 6502 microprocessor; the Amiga has a Motorola 68000 microprocessor. And the list goes on.

The final thing I would like to point out is that an Amiga 500, equipped with an RGB analog monitor, costs around $900. The Apple IIc Plus, equipped with a composite monitor, costs $1,099. As you can see from the above list and the prices, there really is no comparison. How can Apple justify this? It should price this computer down nearer to the price of a comparable Commodore 64 system. Why anyone would pay so much money for so little computer is beyond me.

Layne Adams
Rockwall, TX

XTs for Less

I just read your column on the cost of computers ("Editorial License," February 1989). You said it was possible to buy a color TV, CD player, and so on, for under $300, but "good luck" trying to find a computer system for that amount. I agree that there probably aren't any serious computer systems around for $300, but it *is* possible to put together an IBM PC XT–compatible system (less printer) for about $365, including monochrome monitor, disk drive, and 128K of RAM.

I don't think you will see an EGA-capable system for $400–$500 (with printer) in the near future. The lowest priced EGA monitor I could find costs $320 all by itself. A more realistic figure is $900–$1,000. I do not believe the $400–$500 figure will result even from high volume, direct sales, or mass merchandisers, as the figures I found are the lowest direct-sales prices I could find.

I, too, would like to see lower system prices, but I think we have hit near bottom on PC compatibles based on the 8088 and 80286 microprocessors.

Phil Imber
Glendale, AZ

Mr. Imber included a price list for XT-compatible components that he found in Computer Shopper*—a 4.77-/10-MHz motherboard for $69, a computer case for $24, a power supply for $30, and so on. If you're willing to tinker and search for good prices, you can probably build a cheaper system than you can buy.*

Diet Search

I'd like to ask for your assistance in locating a program. Several years ago, I purchased a program called the *Scarsdale Medical Diet* for my Apple IIe. I've since sold the Apple and replaced it with an MS-DOS system. I would now like to locate the MS-DOS version of the program, having sold the Apple version with that computer.

Garry G. Stiegman
New York, NY

Bantam Books has discontinued The Complete Scarsdale Diet, *but there are other options. Try, for example,* Your Personal Weight Loss and Nutrition Center *($49.95) from Instructional Systems, 14 East Fourth Street, Suite 602, New York, New York 10012; (212) 477-8800.*

Neat Niche

I think *COMPUTE!* magazine has definitely created a niche for itself. Several of your columnists are unique in their personal approach; I especially like Orson Scott Card.

Furthermore, few magazines would have the ambition and courage to cover both very inexpensive and very expensive software in the same article as Caroline Hanlon did with word processors in May. Her list may not have been complete, but its diversity is a credit to your multidimensional approach to home computing.

Arleigh Hartkope
East Brunswick, NJ ⊡

ADVERTISEMENT

Flight notes # 8A

"Hawaiian Odyssey" Scenery Adventure - Locating the secret jewel of the goddess Pele from the cockpit of your single-engine aircraft (or high-performance jet) isn't just as simple as spotting an object from a distance and then flying toward it. No, you must find and follow an intricate set of clues scattered about the Hawaiian Islands that, with luck, will guide you to your goal.

As with other mythical quests, only the proper approach can put you on the right track to finding the hidden jewel. Even if you can determine it's location, the jewel is only visible under a strictly-defined set of conditions. Make a mistake during your final approach and you may get lost so completely that you'll never be able to find your way back!

"Hawaiian Odyssey" Scenery Adventure disk can be used with any SubLOGIC flight simulation program, including Flight Simulator II, Stealth Mission and Jet. The disk covers the entire island chain in such incredible detail you can almost feel the heat from the volcanic crater at Mauna Loa! "Hawaiian Odyssey" Scenery Adventure from SubLOGIC; you've never seen anything like it!

Top Selling Commodore 64/128 Products This Month:

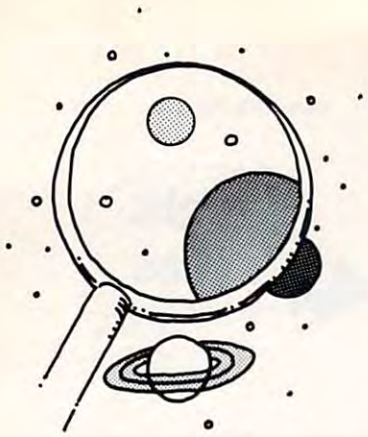
1. Flight Simulator II ($49.95)
2. Stealth Mission ($49.95)
3. "Western European Tour" Scenery Disk ($29.95)
4. Scenery Disk # 7 - U.S. Eastern Seaboard ($29.95)
5. Jet ($39.95)
6. San Francisco Scenery Disk ($29.95)
7. Scenery Disk # 3 - U.S. South Pacific ($24.95)
8. Scenery Disk # 4 - U.S. Northwest ($24.95)

See your dealer to purchase SubLOGIC products, or call us direct to order by charge card at (800) 637-4983. Illinois residents call (217) 359-8482.

SubLOGIC Corporation
501 Kenyon Road
Champaign, IL 61820

Please address any feedback/correspondence regarding SubLOGIC products, operations, or this "Flight Notes" column to ATTN: Chairman's Office.

www.commodore.ca



discoveries

DAVID STANTON

Computing Gets Easier Every Day

"I'll never understand all those buttons," a colleague recently admitted, speaking of her VCR. "Playing back a tape is simple enough, but when I want to record something, I just ask my son to set up the machine."

My nemesis is the telephone system at work: Three outside lines coming into the building serve who knows how many phones. Only those who understand all the lights and buttons can capture a dial tone, and that's only half the battle. The town of Friendship is just ten miles away—*long distance* in telephone talk. Travel 25 miles in the opposite direction and you'll reach Olean—"local calling area . . . no charge . . . no need to dial 1," explains the operator. What about Niagara Falls, three counties and 80 miles away? Same area code. Alfred? Same county as ours but different area code—more numbers to dial.

All this is not to suggest any basic failing of Ma Bell. It simply serves to highlight some of the common complexities we all cope with as part of the cost of modern technology.

Like my friend the VCR-phobe, some of us resent all this unnecessary confusion. Others revel in it. Some have even figured a way to turn it into cash. But for many of us, *high-tech* and *confusion* have become synonymous.

Until recently, microcomputers only served to exacerbate the growing division between techies and technophobes. Limited memory, a lack of programming standards, and hardware incompatibilities conspired to make it so. In the early 1980s, you never knew *computers;* instead, you knew the TI-99/4A or the Atari 400 or the Commodore PET. You didn't know *word processing;* instead, you knew *PaperMate* or *PaperClip* or *TI Writer*. Computer literacy came slow and hard.

Now, as then, RAM, ROM, CAD, CAI, CMI, WYSIWYG, 80386, 65C816, 6510, CPU, and similar cryptic jargon add to the popular view that computing is a complex skill best left to the few. Knowledge is power, and those who learned the hard way too often oppose moves to simplify computing.

What else could explain the resistance so many experienced computists have toward simpler-to-learn operating systems? Can it really be true that some hard-core types actually prefer MS-DOS's command structure to the growing number of DOS shells that make things so much easier? What rational user could seriously object to the desktop metaphor made popular by the Macintosh and now available for virtually all popular microcomputers? Do some really believe that learning to use each new computer brand or program should require hours of tedious study?

No matter. Resist though some will, things are changing, and today's truth will out: Computing in 1989 need not be complicated! Today's best computers are not hard to understand. Today's most powerful software packages need not take hours to learn.

Apple Computer probably deserves a large part of the credit. When the company introduced that first 128K Macintosh, many laughed. "Real computists don't use mice!" doubters scoffed.

Considered in retrospect, that view was a bit shortsighted. Since then, point-and-click devices have proliferated faster than rabbits. Today it's almost impossible to find a computer system that doesn't come with a mouse as standard equipment or, at least, as a strongly recommended option. Similarly, graphics-based operating systems and DOS shells have spread everywhere. Consider GEOS for Commodore 64s and 128s, or GS/OS for the Apple IIGS, or GEM Desktop. Even IBM is making moves in the right direction with its DOS 4.0 operating system.

Although these environments differ in some respects, they look and feel similar enough to ease the pain of moving from one machine to another and from one application to another. Increasingly, software is bridging the gap of hardware incompatibility. As this trend accelerates, hardware will become almost incidental. What does it matter which machine you're using if it boots to a familiar desktop?

This trend toward uniformity of human interfaces holds great promise for both current and potential computer users. The less time we all spend learning *about* computers, the more time we can spend learning *with* them.

Increasingly, computing is becoming as easy as it should have been all along. If you've avoided buying a computer out of some vague insecurity, now is the time to reconsider. If hardware and software require hours to master, place the blame where it belongs—with the manufacturer or publisher. And if you can't program your VCR or dial your telephone without help, don't worry. Computing really isn't tough! ⊡

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

www.commodore.ca

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.

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.

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

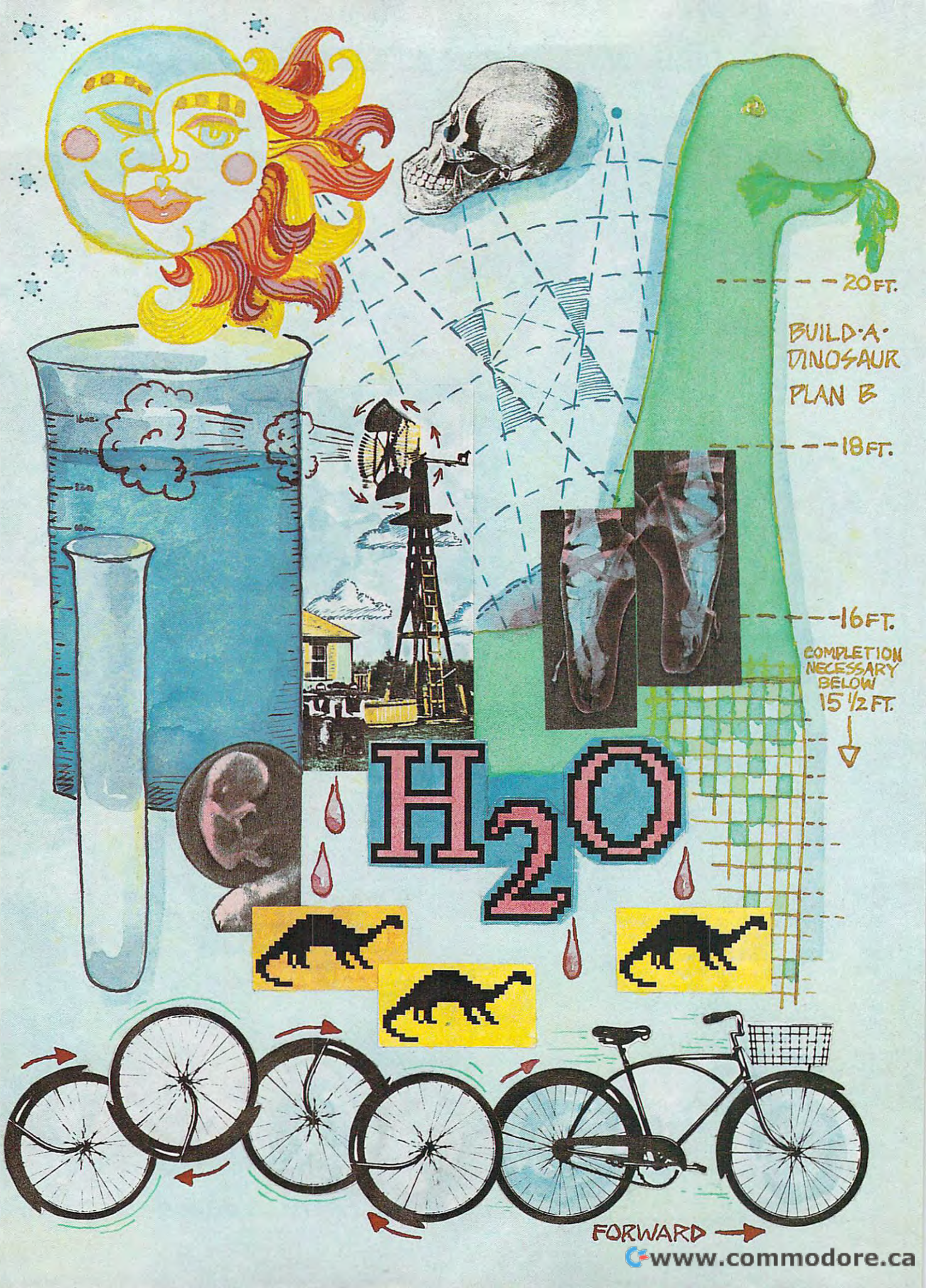
State Zip

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

JORA5

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

www.commodore.ca



www.commodore.ca

SCIENCE!

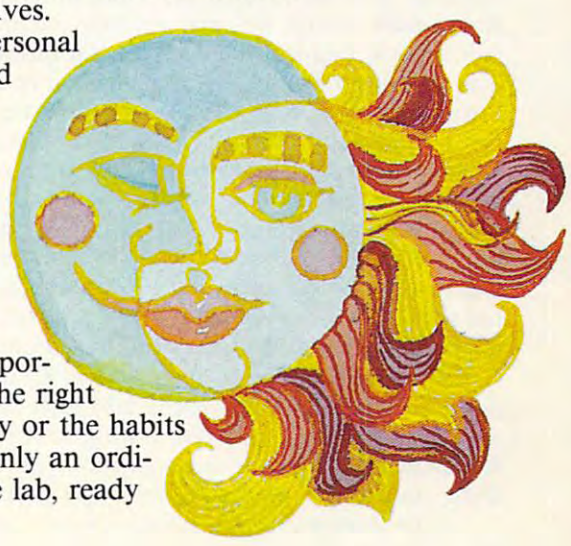
David Stanton

We're born scientists.

We are, after all, a curious species—always wondering, forever exploring, constantly striving to understand our world. From the moment we search for our own infant fingers and feet, we're hooked. Each new conquest inspires another search. Each question answered evokes unlimited new inquiries.

Where does the sun go at night? How many feet does a snake have? What does electricity look like?

The quickly approaching summer days provide the perfect environment for scientists of all ages. Woods and wildlife, beaches and lakes, blue skies and shooting stars vie for attention and offer unlimited opportunities to expand our knowledge of the universe and ourselves.



But some subjects lie beyond the reach of personal experience. The stars, the seas, history itself guard their secrets with barriers of space and time. The risk of injury limits our ability to directly explore subjects like nuclear energy and human physiology. The abstract nature of electricity, temperature, and the law of acceleration makes them difficult to understand without help.

The solution? A personal computer and good software. Science simulations, lab kits, and tutorials eliminate danger and provide untold opportunities for experimentation and analysis. With the right software, anyone can study astronomy or rocketry or the habits of grizzly bears. Connect a few probes and suddenly an ordinary home computer becomes the perfect science lab, ready to analyze real-life data.

Unravel the mysteries of the universe with the kind of science software that puts the expertise of an Einstein, a Galileo, an Audubon inside your computer.

www.commodore.ca

Hundreds of science programs are currently available, and their subjects cover the full range of scientific discovery. We've selected a few of the most popular science packages to illustrate your opportunities. Some are classics. Others are new. But all invite you to expand your knowledge of the world around and within.

Back to the Past

Dinosaur mania has infected a large part of the population. No longer are the prehistoric creatures content to keep to museums. Now dinosaurs turn up almost anywhere: in libraries, in malls, on television, even inside computers. Whatever their promotional secrets, they have achieved top billing and have developed a strong following.

Among the most popular software packages for aspiring paleontologists is DesignWare's *Designasaurus.* Three separate segments of the program provide something for everyone. With Build-a-Dinosaur, budding scientists can study several species, including the tyrannosaur, the brontosaur, and the stegosaur. By mixing and matching fossils, kids can build a realistic onscreen dinosaur or create an entirely new species. Walk-a-Dinosaur lets children assist their pet as it struggles to survive in a hostile world. Print-a-Dinosaur, though, will probably get the most use because it's so much fun. With it, you can print a dinosaur reference book, complete with pictures and explanatory text. Those who prefer wall decorations can print black-and-white posters for coloring and hanging. Best of all, children can produce their own dinosaur T-shirts by using the sheet of heat-transfer paper included with the program.

DesignWare publishes *Designasaurus* for most popular personal computers. Each version fully exploits the unique sound-and-graphics capabilities of its host. When it's time to explore the world as it was millions of years ago, *Designasaurus* is one program that's sure to please.

Dyno-Quest approaches the same subject in a different manner. Designed for children ages 6–14, *Dyno-Quest* uses an adventure-game format in which players must help Donnie and his dog, Doobie, do research on one of 18 dinosaur species.

Secondhand knowledge from stodgy libraries and dusty books will not suffice. Instead, Donnie and Doobie must fly their Kaboom (a spaceship) through time and space in search of their special dinosaurs. During their travels they encounter uninhabited terrain, typical hazards of the era, dinosaurs, and other creatures.

When did dinosaurs live? Which species lived where? What did the earth's continents look like so long ago? What did dinosaurs eat? And what did they do in their spare time, without radios and televisions? These are a few of the questions children answer as they complete the quest.

Donnie, Doobie, and the traveling Kaboom also encourage players to think clearly and make sound decisions. Those who waste gas or fuel may be stranded in the past. Success comes only from careful planning and solid judgment.

Griz!

Recently, Advanced Ideas released *Audubon Wildlife Adventures: Grizzly Bears.* This program is just one in a series being developed by the National Audubon Society. As you might expect, the program encourages a better understanding and appreciation of grizzlies by providing factual information in an entertaining manner.

Seven grizzly-related activities can be selected from the main menu. A database lets users search for information about bears and other animals that populate the forests. On the Spot with Dr. Pots is a simulation in which players assist Dr. Pots in studying the bears of Bear Country. When a bear attacks a farmer's herd in Bear Encounters, the user must play a park ranger's role and decide what to do. Must the bear be killed, or can it be relocated?

From an educational standpoint, *Grizzly Bears* has much to offer. Each activity requires users to read and analyze information and make judgments based upon their new knowledge. The program's design is perfect for independent study and exploration, and a management system maintains a record of each user's success. What better way to spur interest in a summer trip to one of our beautiful national forests!

It's Alive!

How could you forget the day you dissected your first frog? Ah, the smell of formaldehyde, the nervous movements with the scalpel. Some of us were openly squeamish. Others concealed uneasiness behind childish snickers. All of us sensed that we were learning something profound.

Now there's an alternative that will better suit many students and virtually all frogs. It's Scholastic's classic *Operation: Frog,* a science simulation that guides beginning biologists through the dissection and reconstruction of a frog. During the process, you learn to use probes, dissecting scissors, forceps, and a magnifying lens. You can remove organs, magnify portions of them for closer inspection, and even replace them. Animated sequences demonstrate how each organ functions, and appropriate diagrams illustrate the placement of each organ within its own body system.

Although *Operation: Frog* does not show everything quite as it is in the real thing, it does display all major organs and their physical relationship to each other. The body

www.commodore.ca

cavity is organized into three layers. Removing an organ from the top layer reveals additional organs beneath. In this way, the program forces students to progress in an orderly fashion much as they might in an actual dissection.

One advantage over actual dissections is that you can stop at any point and save your progress to disk. In addition, the software provides onscreen help at the touch of a key and maintains a running score to help you judge your progress. More importantly, the kitchen table stays much cleaner when dissections are confined to computer screens.

With *Body Transparent,* another DesignWare package, would-be doctors can study the human skeleton and learn about the placement and function of important organs in the human body. It's the perfect solution for anyone who thinks a patella is for flipping pancakes and a clavicle is a musical instrument. The program consists of three main sections: a tutorial, a quiz-based game, and an editor.

Body Assembly, the tutorial, teaches the names and locations of bones and body organs. You use the keyboard, joystick, or mouse to move each part to its proper place. The computer explains incorrect responses and rewards correct ones. In Easy mode, the bone or organ and its name are presented. In Hard mode, only the picture of the bone or organ is given.

Once young physiologists have mastered tarsals, tibias, lungs, and livers, they can try Body Facts and Functions, the game part of the program. Actually, it's essentially a quiz in which you point out body parts described in a series of questions. Additional quiz sets include questions about common diseases, complete body systems (respiratory and circulatory), and the functions of various organs. The faster you respond with correct answers, the higher your score.

One of the program's nicest features is its fact editor. With this, parents, teachers, or students can create their own specialized fact lists for the game. Overall, *Body Transparent* is carefully designed, easy to use, and somewhat addictive. One thing is certain: A few hours spent with this program will definitely improve your sense of humerus.

Chemical Reaction

Many of us grew up with chemistry sets. Their experiments were as much a rite of passage as they were a way to discover how things worked. At the same time, those experiments made our parents prematurely gray as they worried about the explosive results of our unbounded curiousity. Fortunately for modern moms and dads, home computers and chemistry software make potluck potions safe for everyone.

Simon & Schuster's *Chem Lab* illustrates the potential of such software. The program simulates a chemistry lab complete with flasks, Bunsen burners, other paraphernalia, and hundreds of chemicals. Budding chemists dispense ingredients from three special dispensers—one for gases, another for liquids, and a third for solids. Two keyboard-controlled robot arms move and manipulate equipment.

The manual contains 50 experiments of various difficulty. Each experiment provides just enough information to get things rolling. Students must produce the correct target chemical by proper mixing of specified ingredients. A chart of chemicals and their formulas, a glossary of chemistry terms, and the periodic table give students most of the information they'll need. Do things right and everything will work out fine. Do things wrong and . . . KABOOM!

As students attempt to make a synthetic diamond, some laughing gas, or a silicon chip, they'll also be learning about how chemical formulas are named and how chemicals are combined to make new products. Best of all, no one will ever be in danger. Simulated explosions, toxic substances, and caustic chemicals remain safely stored within your home computer—no fuss, no mess, and no gray hairs!

Another chemistry lab simulation is *The Incredible Laboratory,* by Sunburst. You won't find any real chemicals here, though. Instead of teaching chemistry, this program teaches young scientists how to gather and record data, form hypotheses, test those hypotheses, and develop conclusions based upon their research.

In this program, you must manipulate imaginary chemicals to determine what effects they have on the monsters they create. In Novice level, for example, there are five chemicals that affect five body parts. Which chemical causes the head to turn yellow? Which causes amphibian-like feet? Which deforms arms? By careful observation, note taking, and logical thinking, you can match each chemical with its specific effect.

In Challenge mode, two players compete against each other. One mixes chemicals to create a monster. Then both players attempt to select their new monster from a group of three candidates on the screen. The learning comes from losing: "If I'm wrong and she's right," a player might ask, "then what does she know that I don't?"

Players who master the Novice level can move up to Apprentice and eventually to Scientist. Apprentices must cope with a wider variety of chemicals. On the Scientist level, the effects of chemicals change each time the program is used; consequently, students must study the chemicals before each new competition.

Admittedly, a science program involving chemically created monsters may sound a bit bizarre. It is important

www.commodore.ca

to remember, however, that *The Incredible Laboratory* is not intended as a chemistry tutorial. Instead it hopes to involve children in the process of thinking logically. It is excellent at doing just that.

Probing Questions

Science simulations and tutorials help children learn about the real world while protecting them from its dangerous realities. Keyboard, joystick, or mouse input may control graphics and text, but the programs themselves run inside a world of their own, separated from real life by plastic and glass. Some of the most exciting science software crashes through that artificial barrier between microchips and reality and lures the world inside the machine.

One of the most popular packages of this type is Brøderbund's *Science Toolkit: Master Module.* Along with software and a User's Manual and Experiment Guide, the kit includes a temperature probe, a light probe, and an interface box for connecting these and other devices to a computer's joystick port. Any scientist over age 10 can hook everything up in less than five minutes, and the experiments in the manual are simple enough for any youngster and exciting enough for almost any adult.

What do radiators and elephant ears have in common? One experiment begins with exactly that question. Its answer explores the dissipation of heat. (Don't worry—this experiment *doesn't* require an elephant!) Experimenters take a series of temperature readings on containers filled with warm water. Does the water cool faster when stored in a pie plate or a coffee cup? Why?

Why does it get darker and darker as you move farther and farther away from a light source? What happens when plaster of Paris hardens? How does color affect the reflection and absorption of light? Experiments outlined in the manual help children discover answers to these and many other questions.

Once you've mastered these experiments, you can expand your scientific horizons by purchasing one of the three add-on kits Brøderbund offers (all kits require the *Master Module*).

Speed and Motion adds a second photocell and a balloon-powered car to your growing lab. Two new measuring instruments—a speedometer and a tachometer—help kids of all ages study jet propulsion, pendulum motion, acceleration, and similar phenomena. *Earthquake Lab,* the weakest of the kits, includes three experiments, an onscreen seismograph, and an assemble-it-yourself seismoscope; the latter is primitive at best. This one is best left for the classroom, where it can be used by many different students or for demonstrations from year to year. The most recent entry is *Body Lab.* In addition to the usual manual and disk, this kit comes with a build-it-yourself spirometer (used to measure and display lung capacity). The spirometer, an onscreen heart-rate timer, and an onscreen response timer encourage experiments about the human body. With the kit's heart-rate timer, for instance, children can study the effects of exercise and caffeine on heart rate. Although the spirometer works only with difficulty, young scientists will still learn much about themselves and their own bodies.

Science Software of the Future

The abundance of science software offers something for everyone, but a vague discontent keeps us constantly searching for more. True computer buffs demand the best and will be satisfied with no less.

Imagine, for example, the perfect tutorial on human physiology. It boots to the expected graphic of a human physique. Maybe parts are labeled and maybe they're not. Either way, the screen image rivals the best color photography imaginable. But having impressive graphics is only the start.

The real power of this perfect tutorial is its ability to deliver unlimited information on any aspect of its subject. Point and click, and a fully labeled eye appears. Click on the retina to enlarge and analyze its structure. Click on any label for explanatory text. Use the menu bar to select information about retinal diseases or current research or treatment procedures. Press the Escape key to continue with a study of the lungs or the human skeletal structure or the brain. Wander as you might from topic to topic—the knowledge you seek is instantly available.

Maybe you'd like to check your heart rate. Just click on the heart, install a simple test device according to onscreen instructions, and select Test from the menu bar. Suddenly, the onscreen heart leaps to life, pounding beat for beat at your own heart's rate. A series of charts display related data.

What does a diseased heart look like? A short mouse walk and a click activate a videodisc sequence complete with doctors, nurses, patients, and operating rooms. Watch and learn. Advance, freeze frame, backtrack at will. No matter what you want, you're always in control of this software.

How about a fully functional weather station? A few realtime probes combined with the right software could be just the thing for turning a home computer into a personal weather forecaster. Or imagine the perfect software-based chemistry lab. Start with a huge database of chemicals, mix a bit of artificial intelligence with just the right algorithms, and scientists could perform serious chemical research without the need for test tubes, Bunsen burners, and the rest.

Does all this sound farfetched? It shouldn't. Today's Macintosh II and IBM VGA graphics look sharp and clear. Current-generation 80386 and 68030 microprocessors have improved operating speeds significantly; next-generation chip research is already in the works. By the time you read this, the NeXT computer should be shipping, complete with its 256-megabyte optical drive as standard equipment. And at least one manufacturer is already working on an optical disk device capable of holding one gigabyte (1 billion bytes) of read/write storage space. Couple all that with the trend toward ever more RAM and higher-capacity memory chips; factor in expected advances in input/output technology; and the potential is mind-boggling.

Any way you look at it, the next few years should be an exciting time for scientific computer watchers.

www.commodore.ca

Another inexpensive package that can turn a computer into a science lab is Sunburst's *Playing with Science: Temperature.* The package includes a disk, three thermistors (temperature probes) that connect to an Apple II's joystick port, and an extensive manual complete with lesson plans and activity sheets. Connecting the hardware takes less than five minutes even if you insist on reading the directions.

Each of the experiments begins with a question. Can water be hot and cold at the same time? How far from a fire can you sit and still feel warm? What makes rocks hot? What kind of cup keeps water hot the longest? Each experiment includes detailed directions for answering its question by gathering data and analyzing it.

Students use three thermistors to gather their data. As temperature readings change, the results are displayed on the computer's screen. Depending upon the parameters chosen in the software's setup menu, data can be represented on bar graphs, line charts, thermometers, or digital readouts. You can also configure the software for maximum and minimum temperatures, maximum time of the experiment (1 minute to 23 hours, 59 minutes), and number of active thermistors. Activity sheets guide you through the process of recording appropriate notes and analyzing results.

Playing with Science: Temperature is easy and fun to use. The best part, though, is that all but the youngest children can use it with a minimum of supervision.

The Space/Time Continuum

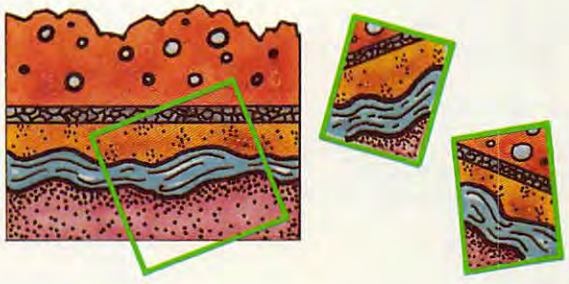
Not all science software is designed for free-flowing experimentation and discovery. Brøderbund's *Physics,* for example, is a hard-driving tutorial that's suitable either as a classroom supplement or as a tool for independent study. The two-disk program for the Macintosh covers a full year's material and includes plenty of physics problems.

At first, *Physics* looks a bit like a computer-based textbook. Twelve chapters cover such topics as vectors, thermodynamics, and the properties of light. Each chapter consists of pages of text that can be turned at the click of a mouse. Like most printed physics texts, each chapter ends with a series of problems to test comprehension. If that were the extent of *Physics,* there would be little to recommend the program.

However, *Physics* offers much more than any printed text. When you need a new term clarified, just click on it and you'll get an in-depth explanation. Diagrams that would sit lifeless on a printed page come alive and move in this software. What better way to describe motion or acceleration than to demonstrate it graphically on a computer screen? And when the time comes to solve a few problems, *Physics* provides instantly available hints—or even solutions, if necessary. Students willing to study on their own and those who want a little extra assistance with a high school course will find this package an invaluable aid. (Incidentally, under its Sensei label, Brøderbund also publishes two math tutorials—*Calculus* and *Geometry;* the latter is available for the Apple IIGS as well as for the Mac.)

You Don't Need to Be a Weatherman to Know Which Way the Wind Blows

What's the average temperature in Dallas in January? What percentage of daylight hours are sunny in San Diego? How



Teachers' Pets

What do educators look for when evaluating software for their own courses? Which packages do they especially like, and why? We asked a few computer-using teachers.

Before becoming a teacher in Bolivar, New York, Jim Goodwin was a well-site geologist involved in oil and gas exploration. He spent most of his time analyzing core samples and deciding where to drill. Jim likes teaching, but he loves rocks.

Ask him what software he prefers for his Earth Science classes, and the answer comes back quick and sure—*Geologists at Work,* by Sunburst. "It's a perfect simulation of what geologists really do," he insists. Students select a site from which to drill and extract a core sample. Then they analyze the sample to determine its composition at various depths. Based on this information, students can deduce the history of a particular land mass as far back as 10 million years. By taking selected core samples in an area and comparing them, students can identify evidence of such geological processes as folding, faulting, tilting, intrusion, and erosion.

The program includes simple problems for beginners and more difficult ones for experts. Aspiring scientists especially enjoy the simulation in which they become field geologists in search of oil and gas. Jim strongly recommends *Geologists at Work* for both school and home use.

Bill Bauza teaches at Amsdell Heights Junior High School (Hamburg, New York), where he also serves as chairman of the science department. He uses many different programs with his seventh-grade students, but a special favorite is Brøderbund's Science Toolkit series. He finds it especially effective for classroom demonstrations, but feels it would be quite suitable for home use as well.

His district has the entire set: the *Master Module* and the three add-on kits. The complete system contains light sensors, temperature probes, a balloon-powered car, a seismograph, and a spirometer. That should be enough equipment to keep any teenager busy experimenting for a long time.

Lance Eggleston, a physics teacher at Hamburg Senior High School (Hamburg, New York), combines *Precision Timer,* from Vernier Software, with photoelectric instruments from PASCO Scientific to demonstrate important principles of physics. He and his students enjoy designing their own experiments and using their equipment to verify the physical laws explained in their textbooks.

Eggleston feels that this combination offers greater flexibility and power than some of the more popular programs. He especially appreciates the fact that *Precision Timer* is written in BASIC and can be easily modified to suit any particular purpose.

www.commodore.ca

many inches of snow fall during an average December in Albany, New York? Mindscape's *Forecast!* can answer all these questions and many more.

Forecast! helps aspiring meteorologists learn about weather and the factors that affect it. The program consists of several useful and enlightening segments. Weather Forecaster, for example, produces a realistic weather prediction based upon current data—temperature, wind velocity, barometric pressure, and the like. Anyone considering a move to a more habitable climate will enjoy Weather Traveler because it quickly provides accurate data on such things as average rainfall, temperature variations throughout the year, and how often the sun shines. Weather Calculator performs weather-related conversions—Celsius to Fahrenheit, knots to miles per hour, and such.

If someone in your family is intrigued by weather, *Forecast!* could be just the gift you've been looking for. It's educational, entertaining, and, for those of us who accept subzero winter temperatures as a necessary evil, very enlightening.

Blinded by Science

As you can see, science software covers a lot of territory. There really *is* something for everyone. Before you rush out and buy software that may not fit your needs, though, remember that not all educational packages work equally well at school and at home.

Home users will be most satisfied with programs that require only a minimum amount of adult supervision. The best educational software for the home appeals to widely divergent age groups and offers enough activities to assure hours of enjoyable use. The wisest approach to selecting the right program is to find something that might appeal to members of your family and then to try it out at a local software dealership.

All this takes time, of course, but the payoff may be worth far more than the investment. The child you inspire today just might be tomorrow's Nobel prize winner! ⊡

David Stanton, *COMPUTE!*'s "Discoveries" columnist, is the computer coordinator for the Bolivar school district in New York.

Summer Science Software

Audubon Wildlife Adventures: Grizzly Bears
Ages 9 and up
Apple II—$49.95
Apple IIgs—$59.95
IBM PCs and compatibles with CGA or better—$49.95
Advanced Ideas
2902 San Pablo Ave.
Berkeley, CA 94702
(415) 526-9100

Body Transparent
Ages 10–17
Apple II—$39.95
Commodore 64/128—$29.95
IBM PCs and compatibles—$39.95

Designasaurus
Ages 7 and up
Amiga—$49.95
Apple II—$39.95
Apple IIgs with 768K—$49.95
Commodore 64/128 (requires joystick)—$29.95
IBM PCs and compatibles—$39.95
DesignWare by Britannica Software
345 Fourth St.
San Francisco, CA 94107
(415) 546-1866

Chem Lab
Ages 9–14
Apple II—$19.95
Commodore 64/128—$19.95
IBM PCs and compatibles—$19.95
Simon & Schuster
One Gulf + Western Plaza
New York, NY 10023
(800) 624-0023
(800) 624-0024 (in New Jersey)

Dyno-Quest
Ages 8 and up
Apple II—$49.99
IBM PCs and compatibles—$49.99
MindPlay
3130 N. Dodge Blvd.
Tucson, AZ 85716
(800) 221-7911

Forecast!
Ages 13–18
Apple II—$59.95
IBM PCs and compatibles (64K)—$59.95
Mindscape
3444 Dundee Rd.
Northbrook, IL 60062
(800) 221-9884

Geologists at Work
Ages 14 and up
Apple II—$65.00

The Incredible Laboratory
Ages 8 and up
Apple II—$65.00
Commodore 64/128—$65.00
IBM PCs and compatibles (CGA or better)—$65.00
IBM PS/2 Model 25—$65.00
TRS-80 Color Computer—$65.00

Playing with Science: Temperature
Ages 5–13
Apple II—$99.00
Sunburst Communications
39 Washington Ave.
Pleasantville, NY 10570-2898
(800) 431-1934
(800) 247-6756 in Canada
(914) 769-5030

Operation: Frog
Ages 9–16
Apple II—$59.95
Commodore 64—$59.95
Scholastic
P.O. Box 7502
2931 E. McCarty St.
Jefferson City, MO 65102
(800) 541-5513
(800) 392-2179 (in Missouri)

Photogates (used with Precision Timer)
PASCO Scientific
1876 Sabre St.
Hayward, CA 94545
(800) 772-8700

Physics, Geometry, Calculus
Ages 15–18
Macintosh—$99.95 each (Home Edition); $109.95 each (School Edition)
Apple IIgs (*Geometry* only)—$79.95 (Home Edition); $89.95 (School Edition)

Science Toolkit: Master Module
Ages 9–18
Apple II—$79.95 (Home Edition); $99.95 (School Edition)
IBM PCs and compatibles (machines without a built-in joystick port require a special game-control adapter card)—$79.95 (Home Edition); $89.95 (School Edition)

Science Toolkit Module 1: Speed and Motion
Ages 9–18
Apple II—$39.95 (Home Edition); $49.95 (School Edition)
IBM PCs and compatibles—$39.95 (Home Edition); $49.95 (School Edition)

Science Toolkit Module 2: Earthquake Lab
Ages 13–18
Apple II—$39.95 (Home Edition); $49.95 (School Edition)

Science Toolkit Module 3: Body Lab
Ages 9–18
Apple II—$39.95 (Home Edition); $49.95 (School Edition)
Brøderbund
17 Paul Dr.
San Rafael, CA 94903-2101
(800) 521-6263

Precision Timer
Ages 15 and up
Apple II—$39.95
PCs and compatibles (game card required)—$39.95
Vernier Software
2920 SW 89th St.
Portland, OR 97225
(503) 297-5317

www.commodore.ca

NEW FROM THE EDITORS OF COMPUTE! & GAZETTE

Charter Subscription Savings Exclusively for Amiga Users

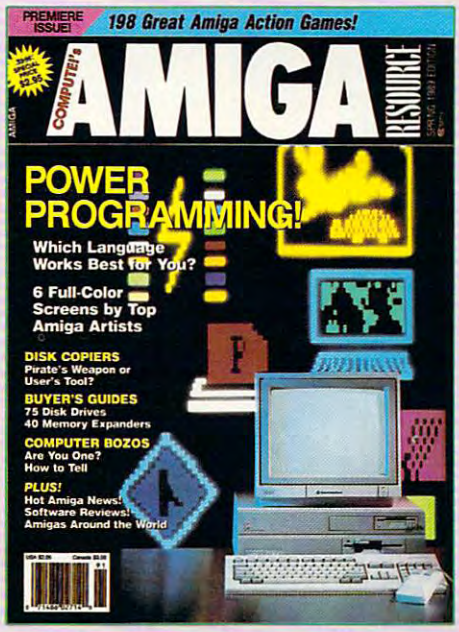
Here's great news for Amiga users! Now you can save a full 44% off the cover price—by saying "YES" today to a Charter Subscription to COMPUTE!'s AMIGA RESOURCE, the definitive guide to Amiga computing.

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...when WYSIWYG is



best...and much, much more.

Save 44% with a Charter Subscription now.

Discover just *how much more* you can get from your Amiga computer by saying "YES" today to this Charter Subscription invitation. You'll get 6 big issues for just $9.97—a savings 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 nearly 50% 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 51593-2433

YES! I know a great deal when I see one. Sign me up as a Charter 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 nearly 50% 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. JADD5

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

www.commodore.ca

FROM PRICE TO PERFORMANCE, THERE'S NO COMPARISON . . .

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

*Unlimited based on RAM memory and disk space available.

†Trademarks of their respective manufacturers.

www.commodore.ca

THE $29 MONEY MANAGEMENT SOLUTION.

GUARANTEED.

If you're looking for a complete money management/accounting program that offers outstanding value, we invite you to examine the evidence on 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 5.0. . . .

- Manages your cash, checking, savings, & credit cards
- Prepares your budget
- Balances your checkbook
- Prints 5 types of financial statements (including net worth)
- Prints 6 types of inquiry reports
- Prints any type of pin-feed check & updates your records automatically
- Prints general ledger & accountant's trial balance
- Handles up to 999 accounts & 100,000 transactions a year with its fast financial data base
- Estimates your personal income tax
- Analyzes financing options & savings programs — computes interest rates & loan payments — prints amortization and accumulation schedules
- Manages mail lists — zip and alpha sorts — prints labels and index cards
- Displays and prints three-dimensional graphics — works with monochrome or color monitors
- Provides password protection, fiscal year support, pop-up notepad, and much more!

Parsons Technology
375 Collins Road N.E.
Cedar Rapids, Iowa 52402

Hard to believe the low price? Don't worry! There's no catch. MONEYCOUNTS has a proven track record, has been on the market over four years, and is continuously receiving rave reviews. ***If you're not 100% satisfied, return MONEYCOUNTS within 30 days for a full refund*** (excluding shipping). Over 50,000 users have decided in favor of MONEYCOUNTS! Order today and judge for yourself!

For Same Day Shipping
VISA, MASTERCARD & C.O.D. ORDERS CALL

1-800-223-6925

(In Canada, call 319/395-7300)
Weekdays 8:30 a.m. to 9:00 p.m. CST
Saturdays 9:00 a.m. to 5:00 p.m.
Or send check or money order payable to Parsons Technology.

Parsons Technology
Dept. COM
375 Collins Road NE
Cedar Rapids, Iowa 52402

MONEYCOUNTS®
Version 5.0
$29 + $5 shipping
NOT COPY PROTECTED
INCLUDES PRINTED MANUAL

NAME _____

ADDRESS _____

CITY _____

STATE/ZIP _____ PHONE _____

CHECK ☐ MONEY ORDER ☐ VISA ☐ MASTERCARD ☐

CARD # _____ EXP. DATE _____

MONEYCOUNTS 5.0 requires an IBM or compatible computer, 256K or more RAM, DOS 2.0 or higher, 2 disk drives (or a hard disk). Add $5 shipping/handling — $10 outside North America. Iowa residents, please add 4% sales tax.

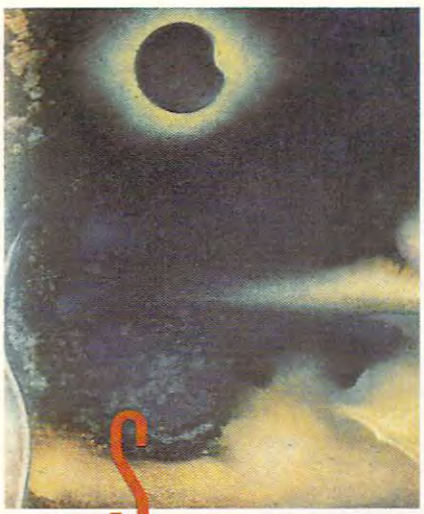
www.commodore.ca

www.commodore.ca

LIGHT-YEARS AND LASERS

SCIENCE FICTION INSIDE YOUR COMPUTER

Orson Scott Card



Science fiction games are fun, but are they really science fiction? Award-winning author Orson Scott Card puts 11 games to the SF test.

What computer game first seduced you? Was it *Asteroids,* as you mastered the technique of flying through space, turning and thrusting?

Was it *Space Invaders? Galaxians? Star Raiders* on the Atari 800? *Zork? Hitchhiker's Guide to the Galaxy?*

What drew you into the games? Was it the strange adventures they let you have? The exotic places they let you visit?

Computers have been tied to science fiction from the start. Back when computers were house-sized behemoths—with fragile vacuum tubes providing a whopping 8K of memory and programs stored on perforated cards—science fiction writers busily invented possibilities for the new technology.

There were stories about computers choosing the president, computers becoming intelligent beings, computers running an intelligent house, computers going crazy, computers that even turned out to be God. Science fiction *loved* computers.

And computer people loved science fiction. Even though few science fiction writers foresaw the miniaturization that would make *personal* computers possible, the early programmers who first discovered the possibilities of computers had science fiction in their blood.

That's why when some young programmers were playing around with a prototype video display terminal—imagine, a TV screen hooked up to a computer!—one of the first things they invented was a game, and the game was a prototype of *Asteroids.* Science fiction was in their blood.

A lot of these young programming geniuses had cut their teeth on science fiction. Some of them may have heard about computers for the first time in a science fiction story. Science fiction set them to dreaming, and when they got old enough, they set about making the dreams come true.

Ever since, science fiction has been a strong theme running through the arcades and, later, home computer games. ▷

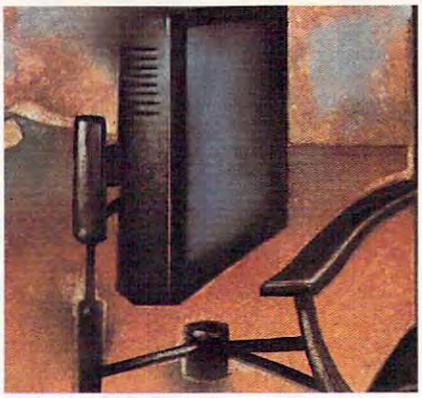
Illustration by Cary Henrie

www.commodore.ca

Games Aren't Books

But are these games *good* science fiction? Yes and no.

I remember 1977, when a friend at work told me about an incredible new movie called *Star Wars.* We all took a long lunch hour (nice boss!) and went to see it. It was wonderful. All the ray guns and blasters and aliens and space battles we had read about in science fiction were up there on the screen. I could finally see it with my own eyes.



None of the hokey cardboard sets and sound-stage planets of "Star Trek," none of the witless writing and talentless actors that had been part of science fiction film and television almost from the start. With *Star Wars,* somebody had finally made a space movie that *felt* real as you were watching it.

We loved it. We raved about it for days afterward.

My friends knew I had sold a few science fiction stories, though none had yet been published. It was almost inevitable that one would say, "Hey, Card, don't you wish you could have written something like *Star Wars?*"

It felt like he'd spit in my face. Write something like *Star Wars?* What a humiliating idea. *Star Wars* was a wonderful *movie,* but it was straight out of 1930s pulp science fiction. *Written* science fiction had outgrown that space-opera stuff decades ago.

That's the way it often is with science fiction games. We love them because they finally give us a chance to act out some of those old science fiction stories. *Asteroids* actually lets us feel how tricky it would be to pilot a ship that moves by rocketry—it can't slow down without turning around. *Star Flight* captures the feeling of exploring where no one has ever gone before.

But compared to good science fiction, they aren't even in the same league. If I can't invent a better alien than those in *Star Flight,* I'm out of business as a storyteller.

The point is, you don't measure games the same way you measure books. They do different things.

A game isn't going to be very good at characterization. But then, it doesn't have to be, since the hero of the game is the player. The player supplies the character's motivation—game heroes do what they do for the players' reasons.

Nor can you have an intricate, logical plot—not in a *good* game. That's because a game has to give the player options, give the player the power to make choices and carry them out. Games that force you to follow a plot step by step aren't all that much fun the first time, and once you've acted out the story the game designer has forced on you, there's no reason to go back and play again. So a *good* game has a whole bunch of incidents and adventures, but players discover them in fairly random order. Again, the player supplies the plot.

World Creation

There is an area, though, in which a game can be good science fiction—sometimes better than anything in books *or* movies. Science fiction writers call it *world creation.*

This doesn't mean simply inventing planets with neat aliens. Look at the movie *Blade Runner.* It takes place in Los Angeles. No aliens at all. But it isn't the L.A. we know. It's set in the near future, and things have changed. Lots of things, moving through the background of the film, give us a powerful sense of being in a strange new place, a place we've never seen before. And yet it feels absolutely real. We believe that the future might be this way, and so we believe in and care about the characters, even though their problems could not even exist in our own time.

Science fiction is the literature of the strange. If the story doesn't differ from the known world in some important way, it isn't science fiction.

The same thing applies to science fiction computer games. They are the opposite of sports games and flight simulators. Instead of letting us act out a real-world activity like playing basketball with Michael Jordan or landing a jet fighter, science fiction games let us do things that can only happen on the computer screen.

Point of View vs. Mapping

Game designers use two strategies to take you through their game worlds. One is *mapping:* You are looking down on the action, watching your player-figure (vehicle or character) move through a flat map of the world. You can see all around your player-figure, to the edges of the screen.

The other strategy is *point of view:* You are seeing the world from ground level in a 3-D display. Far-off things are small; you can't see what's behind a wall until you go around the corner or through a door; and to see what's behind you, you have to turn around.

One strength of mapping is clarity; you know where you are. Also, mapping is very frugal with memory. Maps can be graphically gorgeous (like the planet surfaces in *Sentinel Worlds* or the terrain in *Firezone*), but they do it by repeating certain images over and over again. One symbol always means mountains, while another always means trees.

Point of view, however, attempts to give you movielike immediacy. You're actually seeing things, moving through the world yourself instead of maneuvering a player-figure around on a map. The trouble is that 3-D graphics are slow and they eat up memory in unbelievably large gulps. Each new angle of view requires a new picture, so you not only have to have a picture of each place, but you also have to have a new picture for every conceivable angle!

The solution is usually to use vector graphics to draw the 3-D display. At a primitive level, this means straight lines to represent the bare walls of rooms, with one view for each of the four cardinal directions. When you turn, you lurch a full 90 degrees at a time.

Space Station Oblivion and *The Colony* both attempt far more ambitious 3-D displays. Instead of having four views of a room, you scroll smoothly through dozens of different angles. The result is very satisfyingly realistic movement. Unfortunately, the cost of this is that you can never get the lush pictorials of mapping, and even on my speed-demon 386 machine, it can be a bit slow.

As long as computers place limits on speed and memory, these tradeoffs are going to be unavoidable. But both strategies have been proven to work well, and some games now move easily back and forth between them—most notably *Sentinel Worlds,* which at one level uses mapping and point of view on top of each other.

www.commodore.ca

And in this area, computer games can be even better than movies and books.

In books, the author can explain to you how this strange new world works, so you understand it; you grasp how and why it's different from present reality. Filmmakers can *show* you strange things—make them seem real because you see and hear them, even if you don't understand. But computer games let you actually *do* things—take part in the strange adventures that take place on the computer screen. That's something that books and movies can never do—and that's why computer games have a valid role within the science fiction tradition. They *can* be good science fiction, not by imitating science fiction books or movies, but by doing an excellent job of what only computer games can do.

What Makes a Game Good Science Fiction?

Strangeness. The game must take us to a place we've never been to before, let us do things we cannot do anywhere else. Not only must the game differ from the real world, but it must also differ from all previous science fiction games. If a game is just a rehash of another, with nothing new to offer, it has no reason to exist.

Experience. There must be lots of detail, lots of things to see and do. The game must transform the act of punching a keyboard or wiggling a joystick or moving a mouse while staring at a screen into a fresh, meaningful, memorable experience.

Depth. The game must give players the sense that the game world goes on forever and that wonderful or terrible things are going on all the time, even in places they never visit.

Rationality. Both people and nature should act in believable ways. Science fiction differs from fantasy in the requirement that natural laws must prevail, that things must make sense. Bizarre things can and should happen, but there should always be some hint that things are happening for a reason.

Options. There should be many possibilities—lots of different things can and will happen. It is important in *all* computer games to give players the feeling that they have choices—that *they* are in control. But it's vital to science fiction games that players never feel that they're being forced into narrow channels without meaningful choices. People love science fiction because it opens up possibilities; it never walls you in.

Playability. A game can't be good science fiction unless it's also a good game, just as print and film science fiction can't be good unless they tell a good story. If it isn't exhilarating to play—or terrifying, or astonishing, or just plain fun—then why should we bother leaving the present world to get there?

When all these things come together in a game, when the game designer allows you to truly be a stranger in a strange land, then the game deserves to take its place as one of the classics of science fiction, along with movies like *Blade Runner* and *Star Wars* and *The Day the Earth Stood Still,* along with books like *The Left Hand of Darkness* and *Dune* and *A Door into Summer.* And just as these books and films are so different from each other that you can hardly recognize them as being from the same genre, so also the best science fiction games will surprise us, will reinvent science fiction even as they fulfill it.

Let's take a look at some of the most recent science fiction games and see how they measure up. To be fair, however, I not only looked at these games myself, but also had my ten-year-old son, Geoffrey, play them all. He isn't loaded down with all this critical philosophy. He doesn't care whether a game measures up to some set of principles. He just wants it to be fun. That makes him sometimes a better critic than I am. So I'll tell you which are his favorites as well as which are mine.

Star Flight

Your crew must discover and explore new worlds to judge their suitability for colonization while you try to solve the mystery of why stars are destabilizing and blowing up—before your home world's star is destroyed.

More than a year old, *Star Flight* deserves its status as the *Star Wars* of science fiction games. Brilliantly designed and programmed, this is the first game to really give you the sense of exploring space. You have tremendous freedom: You don't have to do things in any particular order and you can develop your own style of play.

The depth of creation has always been astonishing. The alien species are different and interesting. Sometimes you have to fight and sometimes you have to run, but usually you can talk your way through encounters. The planets you explore can be dangerous, and no two are alike. It's thrilling to discover the ruins of an ancient civilization, and when you finally find out who the surviving ancients are, I promise it will blow you away—exactly the sort of discovery that can make a science fiction novel unforgettable.

Star Flight remains the standard against which all other space-exploration games must be measured. With superb full-screen graphics and intuitive game controls, it will make you impatient with games that clutter the screen with needless distractions or force you to waste time on tedious repetition. Still, this is not a fast-action game; you have to think, and it takes a long time. It's a mid-list game for Geoffrey—enjoyable, but sometimes discouraging.

Sentinel Worlds I: Future Magic

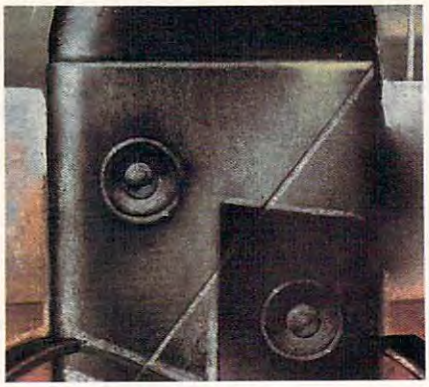
Sentinel Worlds owes a lot to *Star Flight*—or perhaps Karl Buiter, the game designer, solved similar problems in similar ways. There are fewer worlds to explore, but once you're on a planet, you get to do far more than is possible in *Star Flight.* As you tool around in your all-terrain vehicle (ATV), you run across buildings—so you get out of the ATV and go inside, where an astonishing combination of overhead map and 3-D display lets you explore and meet, converse with, and sometimes fight with other characters.

I have seen no other game, science fiction or otherwise, that matches *Sentinel Worlds* for sheer depth. Buiter has found an almost perfect balance, giving you plenty of choices without bogging you down with complex command structures and tedious repetition. The graphics are colorful and clear at every level; there isn't a moment when the game isn't a pleasure to look at and a pleasure to play. The music is interesting, a genuine movie score—but eventually, *anything* played on the computer's internal tweeter is going to drive me crazy.

Buiter's solutions to programming problems are surprising but exactly right. Game designers are often torn

www.commodore.ca

between the desire to put a lot of information into the game—especially when you're conversing with game characters—and the problem of putting huge amounts of text into memory and onto the tiny screen. Buiter has put the text into a book of "paragraphs." When you encounter the right character in the game, you are referred to the book to find out what he says.



The paragraphs are believable dialogue, *very* well written (a rarity in games; compare it with the embarrassingly bad writing in the Ultima series, for instance). To keep you from cheating and reading the paragraphs ahead, there are false clues; if you're peeking, you'll end up on wild goose chases that accomplish nothing.

Your sensors immediately peg strangers as hostile or friendly. You can talk to the friendlies and can only fight with or flee from the hostiles. Not too subtle (don't you wish you had a machine like that?), but it's better than just killing anything that moves.

Some of the world creation is medium-dumb: a planet where there are only two seasons—at every latitude? And Buiter has a rather lackluster sense of naming; he puts lots of unpronounceable letters together to fake alienness instead of developing the sense of a linguistic tradition.

But the game world is big enough to accommodate different experiences, and it doesn't force you into set patterns. You can explore randomly, having the adventures you want to have. I call it the best of the space adventure games, and it placed high on Geoffrey's list as well.

Firezone

This simple futuristic war game has beautiful graphics and simple, intuitive controls. If you've ever played a war game before, you can literally start to play *Firezone* the moment it comes onto the screen. This was obviously one of the game designer's goals: The directions include Quickstart instructions for those who don't want to bother with thick rule books.

Yet despite its simplicity, *Firezone* is fascinating, with infinite choices in both strategy and tactics. If you play alone, the computer is a tough but fair opponent. If you play head to head with someone else, you can play the same scenario again with vastly different results. And the game includes a construction set, so you can devise more scenarios—though you won't soon tire of the ones that come with the game.

This could have been a World War II simulation; setting it in the future adds little, except that the designer avoids the standard villains. There's none of this us-against-the-Nazis or us-against-the-commies stuff.

As science fiction, the game isn't much, but it's still a fine war game. It is Geoffrey's absolute favorite.

Star Command

This game wants to be *Star Flight* or *Sentinel Worlds,* but it isn't. The setup phase is tedious and too detailed, though there are touches of wit in training crew members.

It isn't just the primitive graphics; the look of the game is certainly adequate, and the screen communicates well. And there's some decent invention in the scenario. The problem is that there's no sense of *experiencing* anything. Mostly you're told about what's going on, and after a short time it seemed to me that it was a text game which consisted of getting assignments from mission control and mechanically going out, doing them, and coming back. I wasn't having fun. Geoffrey did find it playable, though it isn't high on his list.

Wasteland

This game owes a lot to the Ultima series of fantasy games. You move through a map of post-nuclear-holocaust America, entering surface villages and underground dungeons. The world creation is interesting and fun—not just jokes

Creating Characters

Most games that let you assemble a group of characters to take part in your adventures follow the role-playing pattern set years ago by the paper game Dungeons & Dragons. Your characters are different from each other because they have a range of abilities. Some have a great deal of strength but aren't too bright. Some have considerable dexterity and quickness, but they're quite frail and can't withstand much injury.

Strengths in one area mean weaknesses in another—no one character has it all. Thus all the characters in your party are necessary to overcome obstacles and accomplish your goals.

Most of these games follow that basic pattern, but with variations. *Sentinel Worlds,* for instance, lets you choose faces for your characters from a group of pictures. *Star Flight* and *Star Command* require you to put your characters through training before they become reliable in using their skills. *Star Command* amusingly takes you through the ups and downs of your characters' education until they finally get good enough to bring along on your adventure.

Most games use the standard ability groups: strength, dexterity, intelligence, and endurance. *Star Command* adds Esper ability, which serves the role that magical ability serves in fantasy games. *Star Flight* uses categories that apply to specific jobs on your starship: Characters train in areas like medicine, languages, navigation, engineering, and science.

The benefit of this is that you get the sense that you're playing with well-drawn individual characters. You begin to feel that you know them personally; you're responsible for keeping them from getting killed. The drawback is that spending too much time creating the characters and manipulating them through the game becomes extremely tedious.

This is particularly true in the area of weapons and armor. Maybe some players really enjoy dressing up their characters like dolls. *Star Command* has more weapons options than I ever wanted. But if you're someone who cares about the difference between an LTV Ranger Seeker Missile and an SS-29 Bulldog Missile, go for it.

I prefer the approach of *Firezone*: The game's choices are few, but those choices differ significantly. This is no more limiting than, say, chess, with only a few kinds of pieces that nevertheless allow almost infinite possibilities.

And *Wasteland,* with its full cast of interesting characters, lets you skip character generation altogether. You can use the existing characters and get right into the game, or, if you prefer, you can start from scratch and create your own. I like having that choice.

www.commodore.ca

like mutant bunnies and prairie dogs, but intriguing villages and settlements where you can actually volunteer to help fellow survivors with their work.

It's that real-life element that I liked best. What bothered me was the way you're constantly having to fight the same annoying creatures and pick up treasures in an obvious rehash of generic fantasy adventures. Mutant bunnies can get boring, too, especially when the battles are reported by text instead of happening visually on the screen.

In fact, the science fiction elements are the only virtues of this game: The world is visually and conceptually interesting and I enjoyed exploring it. But the game designer brought nothing new to the actual game itself. This is still a kill-the-monsters-and-get-the-treasure game, without the overarching story that makes each Ultima installment meaningful. Geoffrey and I both enjoyed it at first; both of us got quite bored after a very short time. Devoted fantasy gamers, on the other hand, will probably love this.

Space Station Oblivion

The lame science fiction story here—you have to dig into a lot of places to release "natural gas" to keep a moon from blowing up—is a thinly veiled excuse for what's really a programmer's exercise in 3-D graphics. But once you stop expecting the story to make sense, this *is* a fun game, as you explore a strange world of geometric shapes. The movement is smooth and believable, and the visual experience of this unnatural world is compelling. There are fascinating puzzles to solve, dangerous enemies, and plenty of wonders to behold, so the game succeeds in some of the goals of science fiction.

It's also full of fast action, which makes it one of Geoffrey's favorites. And it still sticks in my mind as a fascinating experience.

The Colony

David Smith's *The Colony* tries to do the same sort of thing with 3-D graphics that *Space Station Oblivion* attempts, and while the line drawings betray the game's origin on the Macintosh, the graphics are marvelous and I salute the programming achievement.

Too bad it's wasted on a very limited puzzle game that became so annoying and confining for me and Geoffrey that we both gave up in disgust. Your crippled spaceship lands on a planet after a collision with a black hole (scientific nonsense, of course—if you collided with a black hole, you'd never come out). Your job is to figure out how to escape from the ship and get into an underground colony.

You have no options. You must solve puzzles in a certain order—and, to make matters worse, the game designer plays stupid tricks on you. For instance, if you pick up a cigarette from an ashtray, you're told, "Cigarettes are bad for your health," and you die immediately. The lesson? The game will randomly punish you for exploring—yet you have to explore in order to accomplish anything.

There are other annoyances. Anytime you pick up the book to move it somewhere else, when you set it down you have to read the text again. You can move things around on the desk, but if you leave and come back later, everything is back the way it was before. In other words, *you don't make any difference in this world.* You exist in order to do the designer's bidding.

How did this game ever become a "game of the year"? Only because it originally appeared on the game-poor Mac.

Tower Toppler

In this arcade-style action game, you're a froglike alien, trying to destroy towers by climbing them. There are doors that lead to other doors; you go from level to level using elevators, dodging various opponents. When you reach the top of a tower, it sinks down into the sea. Then you go fishing during a bonus round until you reach a new tower and start over.

The science fiction element is irrelevant, but the game is fun and the graphics are terrific. The smooth animation as you move around the cylindrical tower is delightful, and there's a lot of good animation.

As science fiction, it's fun but shallow. As an action game, it's just plain fun. This was Geoffrey's second favorite.

Captain Blood

Never mind the dumb copy protection (a key disk *and* a once-only hard disk installation). Never mind the incoherent instruction book that keeps referring you from one section to another without ever making sense. *Captain Blood* should have been a triumphant game.

The EGA graphics are gorgeous—though they owe a great debt to H. R. Giger by way of the movie *Alien.* The control panel is fascinating and original. The planet's 3-D surface is craggy and beautiful. Movement is smooth. In other words, the graphics programming is terrific.

And as science fiction, it's pretty good. The story is inventive and intelligent. I especially liked the little fishlike alien that you send down to explore the world for you.

Unfortunately, as a game, this one sucks pond scum. It was almost impossible even to tell what was going on, what we were supposed to do, and how we were supposed to do it. We couldn't tell what the onscreen signals meant as we tried to land on the planet's surface. We were never told why we crashed. Was it an enemy shooting us down? Did we bump into a rock? And when we did reach our goal, we had no idea what we had done *right.*

Maybe we would have liked later phases of the game. But Geoffrey and I found it so frustrating that we didn't stick around to find out. In fact, Geoffrey blew up the planet—and I removed the game from the hard disk without the uninstall option. We haven't regretted either decision.

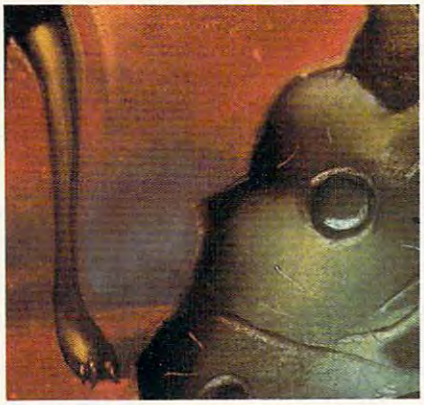
Star Saga: One—Beyond the Boundary

This is a game that tries to transcend the limitations of the computer by having much of the action take place on a game board, with the machine serving primarily as game master, doing the housekeeping for a group of human players. The story of the game is wonderfully inventive, and I got far enough into the game to know that it shows great promise. Unfortunately, the game plays best when you have several people playing—and I wasn't able to assemble such a group in time for this article. But *Star Saga* looks like first-rate science fiction and a darn good game. (Later, when I've had a chance to play it with a group, as it's meant to be played, I'll review it at length in my column, "Gameplay.") ▷

www.commodore.ca

Balance of Power: 1990 Edition

This may be the best-designed game ever. It's simple and beautiful, and it uses the Windows environment better than any application I've seen. It is also the most detailed, carefully extrapolated future world I've worked with.



I should love this game. I'm the guy who, in the 1978 short story "Breaking the Game," described a *Risk*-like game in which hundreds of players take part in a deep and perfect computer simulation of recent history. Game designer Chris Crawford has come closer than anyone to making that sort of game a reality.

But when I first played it, it infuriated me. When you push too hard in the wrong situation, nuclear war erupts, and Crawford slaps you with an insulting message about how he isn't going to show you a big mushroom cloud because he doesn't "reward failure." It makes you feel like you're in a college class with a professor who thinks he's God. The fact is, *nobody* knows what will cause a nuclear war because we've never had one, and for Crawford to taunt you because you didn't guess the same way he did is offensive.

Nevertheless, one of the people I respect most picked the game as one of the 20 best games in this magazine [June 1988—Ed.]. I was baffled. So, as I reviewed science fiction games for this article, I resolved to look again.

The game is still brilliant in the way it collects and uses data about the real world—you can practically use it as an almanac. Unfortunately, in simplifying geopolitics, Crawford made some choices that result in absurdities. For instance, if you're playing the part of the President of the United States, you're supposed to sit back and let the Soviets introduce troops into Syria *without protest*. The historical fact is that when the Soviets proposed to do exactly that back in 1973, President Richard Nixon put the U.S. military on alert, and the Russians backed down. In Crawford's world, Syria is vital to the Soviet Union and unimportant to the U.S. In the real world, almost the reverse is true.

Likewise, in the real world, no U.S. President could stay in office if he allowed the introduction of Soviet advisers in Mexico without taking massive countermeasures—and it's hard to imagine a Mexican government insane enough to try it. But in Crawford's world, resisting such Soviet adventurism often results in nuclear war. Hasn't he heard about the Cuban missile crisis?

When I first reviewed *Balance of Power,* I assumed these absurdities reflected Crawford's political views. Since then, I've come to realize that they probably reflect the limitations of the game program. There are only so many variables that the computer can handle.

So here's my advice. Pretend that *Balance of Power* takes place on an alien planet that through sheer coincidence is divided into nations and continents astonishingly similar to those of Earth, with the same names. So, you must act solely on the basis of what the game tells you about the world. If you do that, you'll find this a deep and powerful game. If you don't, the game will drive you crazy. ⊡

Orson Scott Card is an award-winning science fiction writer, with two Nebula and two Hugo awards to his credit. His novels include *Ender's Game, Speaker for the Dead,* and *Prentice Alvin.* His most recent work is a novelization of the movie *Abyss.* His column on computer entertainment, "Gameplay," appears monthly in *COMPUTE!* magazine.

Software of the Future

Balance of Power: 1990 Edition
Amiga—$49.95
Apple IIgs—$49.95
Atari ST—$49.95
IBM PC and compatibles—$49.95
Macintosh—$49.95

Captain Blood
Amiga—$49.95
Apple IIgs—$44.95
Atari ST—$49.95
Commodore 64/128—$34.95
IBM PC and compatibles—$39.95
Macintosh—$49.95

The Colony
IBM PC and compatibles—$49.95
Macintosh—$49.95

Mindscape
3444 Dundee Rd.
Northbrook, IL 60062
(312) 480-7667

Firezone
Amiga—$34.95
Atari ST—$34.95
Commodore 64/128—$24.95
IBM PC and compatibles—$24.95
(available on 5¼-inch and 3½-inch disks)

Software Toolworks and Datasoft
Distributed by Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
(415) 571-7171

Sentinel Worlds I: Future Magic
IBM PC and compatibles—$49.95

Star Flight
IBM PC and compatibles—$49.95

Wasteland: Adventure in Post-Nuclear America
Apple II—$49.95
Commodore 64/128—$39.95
IBM PC and compatibles—$49.95; $54.95 for combo pack (both 3½- and 5¼-inch disks)

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

Space Station Oblivion
Amiga—$19.95
Atari ST—$19.95
Commodore 64/128—$19.95
IBM PC and compatibles—$19.95

Epyx
600 Galveston Dr.
Redwood City, CA 94063
(415) 368-3200

Star Command
IBM PC and compatibles—$49.95

SSI
1046 Rengstorff Ave.
Mountain View, CA 94043
(415) 964-1353

Star Saga: One—Beyond the Boundary
Apple II—$79.95
Apple IIgs—$79.95
IBM PC and compatibles—$79.95
(available on 5¼-inch and 3½-inch disks)

Masterplay
8417 Sun State St.
Tampa, FL 33614
(813) 888-7773

Tower Toppler
Amiga—$49.95
Apple II—$39.95
Atari ST—$49.95
Commodore 64/128—$39.95
IBM PC and compatibles—$39.95

U.S. Gold
Distributed by Epyx
600 Galveston Dr.
Redwood City, CA 94063
(415) 368-3200

www.commodore.ca

NO MEMBERSHIP FEES

$1.95 Per Disk Ten or More

So Much for So Little...

FROM

Software Excitement!

NO MEMBERSHIP FEES

$2.50 Per Disk Less than Ten

So easy to Use

- No Computer Experience Necessary
- Instructions for each Order
- FREE Phone Support
- *The BEST User Supported Software*

So Easy to Order

- No Membership Fees
- FREE 800-# for Orders
- FREE Same-day Shipping with orders of 5+
- UPS 2nd Day Air Service when you need it Now!
- FREE Catalog
- Your Satisfaction Guaranteed

BUSINESS/ACCOUNTING/FINANCE

- ☐ **Home Budget Manager (3103)** -Helps you design and stick to a budget.
- ☐ **E-Z Forms Executive (3160)** -Makes it easy to generate any type of busiess form.
- ☐ **Express Check (3105)** - A fantastic checkbook program with reconciliation features.
- 3 **PC-Calc+ (3130-3132)** - One of the most powerful and complete spreadsheet packages available. The features include the ability to import 1-2-3 files. (3 disks)
- ☐ **Small Business Accounting System (3141)** -All small business owners need this one.
- ☐ **Home Inventory (3180)** - Keeps track of all your personal items.
- ☐ **PC-Stock (3124)**- Tracks your stocks and charts the trends. (CGA)
- 3 **PC-Write (3610-3612)** - This word processing system is one of the most popular because of its many features and ease of use. (3 disks)

DATABASE

- ☐ **MailMaster (3207)** - Complete, full-featured mail list manager and label printer.
- 3 **PC-File+ (3213-3215)** - A powerful DBase III+ compatible Database. (3 disks)

EDUCATION

- ☐ **Facts (3525)** - Teaches kids the states, presidents, capitals, etc. (CGA)
- ☐ **Typing Tutor (3550)** - Improve your typing skills with this friendly teacher! (CGA)
- ☐ **Computer Tutor (3562)** - If you are a new user or computer novice, THIS IS WHAT YOU NEED! Learn in a fun, pressure free environment.
- ☐ **Geography (3526)** - Make learning fun with this geography trivia game.
- ☐ **BibleQ (3552)** - Test your Biblical IQ. It's fun, too!

TOP 40 DISK COLLECTION

- ☐ **Spanish I (3505)** - Excellent instruction for the beginning student or world traveler.
- ☐ **Spanish II (3506)** - For those who wish to continue where Spanish I leaves off.
- ☐ **Math Tutor (3529)** - Takes a fun approach in helping kids improve their math skills.
- ☐ **World (3537)** - This menu-driven program makes it easy to obtain information about geography (capitals, countries, and more).

UTILITIES/APPLICATIONS

- ☐ **MasterKeys (3300)** - Like the popular Norton disk file utilities, only better!
- ☐ **Desk Mates (3375)** - A disk full of Sidekick-like desk accessories.
- ☐ **HDMenu III (3379)** - Puts all the programs on your hard disk on an auto booting, one-touch menu! Has security features, unlimited menus, and phone dialer.
- ☐ **Banner Maker (3801)** - Make banners of various sizes and styles with this disk.
- ☐ **PianoMan (3902)** - Record, edit, and then play back your favorite tunes. Also turns the keyboard into a musical instrument ?!

GAMES

- ☐ **Striker (3400)** - Arcade helicopter attack game. Bomb and shoot enemy targets. (CGA)
- ☐ **Baseball (3415)** - A strategy oriented approach to the great game.
- ☐ **Q-Bert (3403)** - Play the famous arcade hit on your computer. (CGA)
- ☐ **Backgammon (3404)** - Play against the computer. Centipede is also included. (CGA)
- ☐ **Monopoly (3405)** - Great color and sound. (CGA)
- ☐ **JetSet (3407)** - A great jet flight-simulator.
- ☐ **Infiltration to IBM (3417)** - In this text-adventure game, you are a secret agent.
- ☐ **RISK (3436)** - For all of us who love the great board game. Conquer the world! (CGA)
- ☐ **PacMan & More! (3421)** - Several arcade hits including two PAC-MAN games. (CGA)
- ☐ **Wheel of Misfortune (3422)** - A really fun version of the classic TV gameshow.
- ☐ **Master the Market (3425)** - A stock market simulation game. More options and better all around play than the popular "Millionaire" game.
- ☐ **Kid Games (3426)** - A set of educational games designed to teach kids in a fun way.
- ☐ **Super Pinball (3429)** - A collection of five great video pinball games. (CGA)
- ☐ **Global Thermonuclear War (3430)** - Inspired by the movie "Wargames".
- ☐ **Video Poker/Ultima 21 (3435)** - The BEST poker and blackjack games available.
- ☐ **Star Trek (3438)** - You are the captain as you lead the Enterprise into space battle.

THE BEST of the REST

BUSINESS/ACCOUNTING/FINANCE

- 2 **Fast Bucks (3099, 3100)** - Tracks all your personal finances. Very complete, yet easy to use. (2 disks)
- ☐ **PC-General Ledger (3140)** - Written by a financial exec with over 25 years experience.
- ☐ **Finance 1.0 (3143)** - Determines present and compound values. Useful for bond, loan, and mortage analysis.
- ☐ **Finance Manger II (3145)** - A powerful personal or small business bookkeeping system.
- 2 **Mr. Bill (3171, 3172)** - Complete billing system! Keeps track of accounts receivable and prints invoices and statememts. (2 disks)

WORD PROCESSING/DATABASE

- ☐ **PBase (3200)** - A powerful relational DBase with query language.
- ☐ **Doctor Data Label (3209)** - Has features found only in the best mail list managers.
- 2 **New York Word (3607, 3608)** - Has everything you need such as mail-merge, split screens, macros, spell checking, and more. (2 disks)
- ☐ **Galaxy (3610)** - An easy-to-use menu-driven word processing system. Lots of features.

TELECOMMUNICATIONS

- 4 **Q-Modem (3700-3703)** - A professional modem communications package which is very versatile and easy-to-use. (4 disks)

EDUCATION

- ☐ **French I (3500)** - French for beginners.
- ☐ **French II (3501)** - Continues where French I left off.
- ☐ **Japanese (3510)** - Designed for the business traveler but also useful for the student.
- ☐ **German I (3512)** - An introduction to German.
- ☐ **Are You Ready For Calculus? (3534)** - This is an excellent pre-calculus tutor that review algebra and trigonometry.

UTILITIES/APPLICATIONS

- ☐ **Best Utilities (3301)** - Includes a spooler, RAM disk, selective delete utility, and more!
- ☐ **SimCGA & HGIBM (3305)** - Allows you to run many programs which require a color graphics adaptor on a monochrome system.
- ☐ **Soft-Touch (3377)** - Powerful keyboard macro package. A great timesaver!
- ☐ **Auto Menu (3383)** - A personal menu system that lets you run all your programs or any DOS command from an autobooting menu. (Excellent program for advanced users)
- ☐ **SideWriter (3384)** - Prints spreadsheets and text files sideways! Requires IBM Proprinter, HP Thinkjet, or Epson compatible printer, (great utility for advanced users)
- ☐ **Fast Food (3802)** - Know the nutritional value of many of the fast food items you eat.
- ☐ **ELISA (3805)** - The famous computer psychiatrist. Disk also has a great prank program.
- ☐ **Movie Database (3808)** - Store and retrieve info about your favorites. Comes with pre-programmed info. on hundreds of movies.
- ☐ **Church DataBase (3812)** - Automates record keeping relating to congregation members.
- ☐ **Lotto! (3823)** - Complete system for the lotteries of most states.
- ☐ **Crossword Creator (3824)** - Create your own custom crossword puzzles easily.
- ☐ **The Diet Disk (3826)** - Provides you with many tools for a successful weight-loss
- ☐ **Astrology (3831)** - Let your computer tell you what lies ahead in the stars!
- 2 **The Home Bartending Guide (3833, 3834)** -Mix most drinks like a pro. Includes 149 recipes.
- 2 **The Family History System (3852, 3853)** - Creates files of personal information including family relationships and produces standard genealogical reports. (2 disks)
- ☐ **PC-Musician (3900)** - Develop and play-back songs on your PC.
- ☐ **PC-Art (3952)** - Graphics drawing package for creating color pictures and designs. (CGA)
- ☐ **EDraw (3954)** - Draw designs, flowcharts, schematics, printed circuits, or just about anything you can think of.

GAMES

- ☐ **Trucker! (3411)** - Drive an 18-wheeler from LA to NY. Watch out for Smokie!
- ☐ **AdventureWare (3420)** - Five new text adventures sure to keep you intrigued.
- 2 **Trivia Towers (3423, 3424)** - A challenging trivia game for 2-6 players or teams.
- ☐ **3-D Chess (3427)** - Challenge a tough computer opponent in the classic game of chess.
- ☐ **Solitaire (3428)** - The computer deals the cards and makes sure you don't cheat!
- ☐ **Dominoes (3437)** - Play a nice game of dominoes against the computer, anytime. (CGA)

Order Today - 1-800-444-5457

Name _____

Address _____

City _____ State___ Zip___

Phone (___) _____

Visa/MC_____-_____-_____-_____

Exp. Date _____

Sig. _____

☐ Send Catalog

Note: (CGA)=Requires Color Graphics Adapter

Disks Ordered

___×___ $___

(Add $1.00 per 3½" disk)

☐ SHIPPING $2 U.S. (FREE if you Order 5+) $4 Foreign $___

☐ COD (add $4 if you require COD) $___

☐ U.P.S. 2nd Day or Priority Air (Add $3) $___

TOTAL $___

☐ Check/MO

☐ Visa/MC ☐ COD

VISA

Software Excitement!

P.O. Box 3072 • Central Point, OR 97502

"Only the BEST Software for IBM PCs and Compatibles"

MasterCard

www.commodore.ca

POWER

HOME COMPUTING

Heidi Aycock, Steven Anzovin, Gregg Keizer, and Peter Scisco

What's it take to be a power user these days? How much can you really pack into your home computer system before the power lines melt? Just when is too much still not enough? Here's how to turn your wimpy home machine into the Bulgarian weightlifter of computers.

Power. It's the most seductive word in the computing lexicon. Hardware and software makers know this and use the word to tantalize. Apple puts the tag *The power to be your best* at the bottom of each ad; Paperback Software reminds everyone that *Knowledge is Power.*

Home computer users aren't immune to the power plague, either. Just as much as anyone in a corporate tower, we thirst for a machine that sings through spreadsheets, that whips through word processing. We hunger for the most complete, the best-equipped computer system we can afford.

Ah, there's the rub, isn't it? Money. Because we don't have a capital-outlay budget—because it's *our* money, not someone else's—we have to be careful about how our computer currency is spent. Hard choices are in store for anyone who wants to make a home computer more powerful.

That's what this article is about—hard choices. Deciding that you want a more powerful machine is easy; the tough part is choosing *how* to make that machine a power beast.

We've eliminated some of the guesswork by taking $1,000 and putting power into three typical home computer systems—an 8088-based MS-DOS computer, a Macintosh Plus (or SE), and a Commodore Amiga 500. And because not everyone uses a home computer for the same tasks, we've shown you more than one route to power computing. More interested in writing than in graphics? Planning on creating the ultimate game system instead of the ultimate database?

Read on. And may the power be with you.

MS-DOS

Five years ago, when you bought your IBM PC or compatible, a *power user* was a gas-station grease monkey with an air wrench. Today, you're still clicking along with 512K of RAM, a monochrome monitor, and two floppy disk drives. But something's wrong. Every computer magazine you open bristles with the hottest hardware this side of a crooked pawn shop. Face it: You're an 8088 chip in a 386 world, and it's time for a makeover.

Game Master

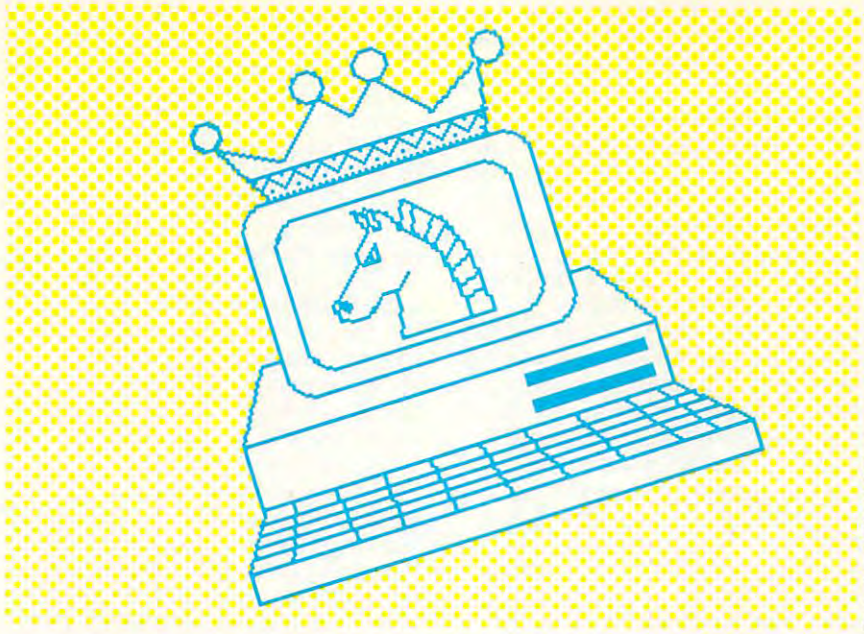
If you're a gamester looking to bring your PC compatible up to the level of today's competition, you'll want EGA color, the minimum standard for top-flight gameplay. You'll also want to increase your computer's RAM to 640K and add a game card and a joystick.

The Boca Research **EGA by Boca** board will give you the colors you need for $249. The board supports not only EGA, but MDA, CGA, and Hercules standards as well. A scan of mail-order houses reveals no-name EGA cards priced as low as $145.

Of course your new board is useless without a color monitor. The choices are mind-boggling. Mail-order prices for EGA monitors can be as low as $325. **Mitsubishi's XC1410C** monitor lists for $659, but can be had through the mail for $375. **Samsung's CM4531** display retails for $349.

That's about $550 so far. The next step is to boost your PC's memory. For about $55, you can add two banks of 64K RAM chips (a total of 18) to your computer's motherboard,

www.commodore.ca



Illustrations by Scotty Billings

minimum for today's entertaining memory-munchers. Be sure to buy chips that match the speed of the chips already in your PC. Check the number on your installed chips and use the digits to the right of the dash to determine speed (for example, 4164-15 signifies a 150-nanosecond chip; 41256-08 means it's an 80-nanosecond chip).

To round out your game system, you'll want to pick up a game card with two ports and a decent pair of joysticks (for head-to-head competition). All told, these will set you back about 70 bucks: $20 for the card and $50 for the joysticks. With the $225 you have left, you can buy several of the new games you've been lusting after; or, better yet, you can look for a deal on the **Ad Lib Music Synthesizer Card** (list price, $195) to replace the wretched warble of your PC.

Your revamped PC will make you the envy of every gamester on your block. Play on.

Pumped-Up Productivity

Time is money, and to make your PC work faster, you need to boost it to AT status with a 286 accelerator board. Either AST's **Hot Shot/286** (list price, $545; street price, $355) or Orchid's **TinyTurbo** (discount price, $279) will replace your computer's 8088 processor with an 80286. Both accelerator boards are fairly simple to install—much, much easier than replacing your PC's motherboard.

To create an even more impressive productivity machine, expand your computer's memory to 640K and then start looking at storage options. You'll want at least a 20-megabyte hard disk (a **Seagate drive and controller** will set you back about $270 if you buy mail order), but for only a little more money you can have 50-percent more storage (street prices of 30-megabyte drives are around $290).

If you have an older PC, it may not have the power to handle the extra storage capacity. Replacing your power supply isn't too difficult, and 150-watt units are available for about $150 from mail-order dealers. You may also have to upgrade your computer's BIOS chip, but this, too, is a fairly simple affair; expect to pay around $50.

Assuming that your power supply and BIOS chip are adequate, you have about $300 left. For about $215, you can add two banks of 256K chips to your accelerator board to bring your computer up to one megabyte of RAM. Another $80 gets you ***Deskview,*** software to help you manage the extra memory (DOS can deal with only 640K).

But if you've spent the extra $200 for a power supply and BIOS upgrade, you might consider spending your last $100 on a modem. You can buy a Hayes-compatible 1200-bps internal modem from a mail-order dealer and still have money left—enough to take your spouse to lunch so you can explain how you just spent $1,000 on your old computer. Another option is a new keyboard, like the **OmniKey/102,** from Northgate Computer Systems (retail price, $99), or the **ZEOS/RS** space-saving model, from ZEOS International ($89.95, retail).

The Artist Inside

Whether composing a symphony, painting the new wave, or launching the next Random House, creative types can benefit from technology that was once the property of hackers and number crunchers. You have several

PC Purchases

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

Amdek
1901 Zanker Rd.
San Jose, CA 95112
(800) 722-6335

AST Research
2121 Alton Ave.
Irvine, CA 92714-4992
(714) 863-1333

Boca Research
6401 Congress Ave.
Boca Raton, FL 33487
(407) 997-6227

Electronics America
991 Knox St.
Torrance, CA 90502
(213) 515-3993

Key Electronics Enterprises
9112 Hwy. 80 W
Suite 221-K
Forth Worth, TX 76116
(817) 560-1912

Microsoft
16011 NE 36th Way
Box 97017
Redmond, WA 98073-9717
(206) 882-8080

NEC Home Electronics
1255 Michael Dr.
Wood Dale, IL 60191
(312) 860-9500

Northgate Computer Systems
13895 Industrial Park Blvd.
Suite 110
Plymouth, MN 55441
(612) 553-0111

Orchid Technology
45365 Northport Loop W
Fremont, CA 94538
(415) 683-0348

Samsung Electronics America
301 Mayhill St.
Saddle Brook, NJ 07662
(201) 587-9600

Sierra
P.O. Box 485
Coarsegold, CA 93614
(209) 683-6858

Video Seven
46335 Landing Pkwy.
Fremont, CA 94538
(415) 656-7800

Voyetra
333 5th Ave.
Dept. MPA
Pelham, NY 10803
(914) 738-4500

ZEOS International
530 5th Ave. NW
St. Paul, MN 55112
(612) 633-4591

www.commodore.ca

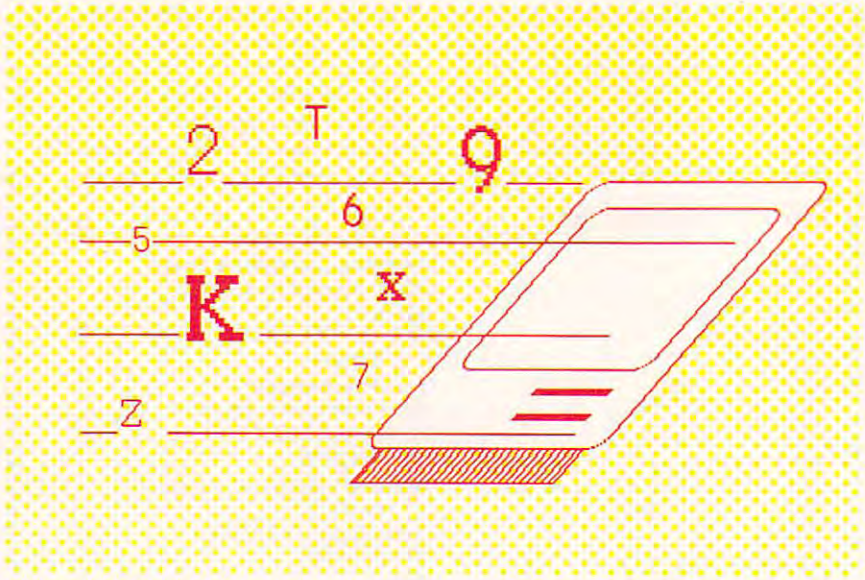
upgrade options, depending on your artistic bent. Your first step: Boost your system's memory to 640K.

If it's music you're after, you'll want to add a sound board like the Ad Lib or, even better, the **Roland MT-32 Multi-Timbre Sound Module,** from Sierra. The Roland will set you back $550 if you buy it at full retail price. That leaves you about $400 for a MIDI interface like **Midiator,** from Key Electronics (interface, sequencer, and software for about $130), or **PC/Musicpak,** from Voyetra (retail price, $249). The rest of the money you can sock away for a sampling keyboard.

If computer art is your passion, then you'll need the cream of display-adapter technology: VGA. The **Video Seven Vega** ($499, retail; $259, mail order) or another VGA card will get you started. Back your choice with the **Amdek Monitor/632** ($595, retail) or the **NEC MultiSynch II** ($949, retail; $570, mail order). Keep in mind when matching cards with monitors that the display quality is tied to the highest resolution common to both products. For example, a board that supports a color resolution of 640 × 350 pixels won't drive an 800 × 600 pixel monitor to its full potential. You can save money by matching a lower-resolution board to a comparable monitor. Use your last $100 for a **Microsoft Mouse** ($99 from some mail-order houses, including a copy of *PC Paintbrush*).

To make your PC a publishing system worthy of any potential Alfred Knopf, you'll want to add a 20-megabyte hard disk to hold a desktop publishing program and a collection of fonts and art. A mouse will help you design the next Pulitzer winner. You won't be able to afford a full-page display with the $575 you have left, but you can upgrade your monitor to VGA status if you stick with a crisp, paper-white phosphor display like **Samsung's ML4571** (14-inch screen; $249, retail). After you've paid for a VGA card, you'll still have enough cash left over for a multifunction card that will equip your PC with a serial port (just in case you can spring for a laser printer next year).

— *Peter Scisco*



Macintosh

You probably thought your Macintosh was powerful enough to last a lifetime. Although it's a highly sophisticated computer—one that includes a state-of-the-art interface and sports more RAM than most MS-DOS machines—it's not, as the saying goes, everything it wants to be. You'll have to make some tradeoffs as you plan your system expansion (don't expect to turn your Mac Plus into a Mac IIx), but with around $1,000, you can dramatically transform your machine.

Writer's Wonder

Your Macintosh may be a premier writer's tool and a robust word processor, but it can be even more help to anyone who puts words on the screen if you punch up its power.

Speed, print quality, and more storage are three of the most important things writers demand from a computer. Speed, because time is really money. Print quality, because editors have a nasty habit of not reading illegible print. And more storage, because a good writer is a prolific writer.

The easiest way to boost the speed of your word processor is to put as much of your document as possible into RAM, where it's instantly accessible. Your first step to power writing, then, is to add memory to your Mac. Bumping up your Mac to 2.5 megabytes (the most efficient path) will run $899 from your local Apple dealer, but you can do better by going to a third-party source. **Levco's One-Plus-One,** which turns a Mac Plus into a 2-megabyte machine, costs just under $400. Taking an SE to 2.5 megabytes costs around $470 when you use third-party RAM; one source among many is the **Hardware House,** of Philadelphia.

You can also use some of the added RAM to run print spoolers and ram caches. Print spoolers let you keep working with your computer while you print by writing the file to disk or to memory. As you work, the printer retrieves the file, bit by bit, during the tiny increments of time when your computer isn't busy. Some recommended spoolers are **Mainstay's *MacSpool*** ($79.95) and **SuperMac's *SuperSpool*** ($99.95). Both work with the ImageWriter, but *SuperSpool* also works with LaserWriter printers. Disk caches store frequently used parts of a program in RAM, which the computer can access more quickly than it can access a disk drive. A disk cache is available via your Mac's Control Panel; if you have more memory, you can simply set aside more RAM for the cache.

Once your Macintosh's memory needs are satiated, you can head for higher-quality printing. You won't find a laser printer for your $1,000, and the difference between your ImageWriter and a 24-pin printer is probably not enough to justify the expense. But you have other options. One printer to consider is the **Hewlett-Packard DeskJet,** an ink-jet printer that retails for $999 ($680, mail order). Add a **Grappler LQ** interface ($149, retail; $98, mail order), from Orange Micro, and the DeskJet prints pages that rival a LaserWriter in quality if not in speed. Another ink-jet printer is the made-for-the-Mac **WriteMove** printer, from GCC Technologies. A small-sized printer, WriteMove retails for $699 but requires special paper—something the DeskJet can do without.

If topnotch printing isn't a priority, you'll want to spend the rest of your $1,000 for a hard disk drive. Not only does a hard disk drive hold more than an 800K floppy disk can, but it also can load and save files far, far faster. Just as important is the fact that today's high-octane word processors take up three or more floppy disks, leaving you with some disk swapping to do unless you have a hard disk. Moving up to a hard disk is one of the smartest things you can do to power up your system.

Hard disks come in different capacities; the 20-megabyte size is the most common. A 20-megabyte hard disk holds the equivalent of about 25

www.commodore.ca

floppies and costs around $550. Companies like **Crate** and **Jasmine** sell hard drives at competitive prices.

Spend $1,000 on RAM and a printer or on memory and a hard disk and you'll ensure your place in the halls of powerful writers.

Superior Spreadsheets, Dynamic Databases

Spreadsheets and databases run best from a hard disk, so that should be the first system enhancement to consider if you're into numbers and lists for your home business. Spreadsheets and databases eat up even more storage space than do text documents, though, so you should consider a larger-capacity drive. A 42-megabyte **LaCie Cirrus** hard drive, for instance, will cost you $650 direct from the company.

If you want to see more of your spreadsheet or database form at one time, you'll find that a large-sized screen can be of immeasurable help. It's tough to find a name-brand large-screen monitor for your $1,000, but it's not impossible. The best advice is to scout the mail-order ads and hope for the best. One source is **Icon Review,** which recently advertised a **Cornerstone SinglePage Display** for $899.

A recently announced alternative to a Macintosh-specific full-sized screen is the **Mobius card** ($479), from Mobius Technologies. Installed in your Mac SE, the Mobius card lets you connect hi-res IBM-compatible monochrome monitors to your computer. The benefit, of course, is the drastically reduced cost of such monitors. A 14-inch **NEC Multisync GS** monitor, for instance, runs only $279 at full retail; $190, mail order. For less than $700, then, a Mobius card/Multisync GS combination can display about 75 percent more than the standard Macintosh can. That means 75 percent more of your speadsheet or database is on the screen.

If you're a serious number cruncher and you already have a hard disk, you may be the perfect candidate for an accelerator board with a math coprocessor. Such boards either have a 68000 microprocessor running at a faster speed than the original, or a next-generation 68020 microprocessor, an even faster chip. A 68881 math coprocessor chip speeds up numerical manipulations, making things like spreadsheet recalculations really swift. As with the large-screen monitor upgrade, though, you can afford only this one improvement on your $1,000 budget. Even then, you'll have to look hard. One possible buy is the **SiClone Turbo SE** accelerator, a board based on a 16-MHz 68000 microprocessor. The accelerator itself costs $398, while the 68881 math coprocessor chip runs $298.

Cheaper tactics, such as ramdisks and disk caches, can help. Follow the guidelines in the previous section if you want to up your Mac's RAM. Even trashing the Finder and switching interfaces can be a boon. Take a look at CE Software's ***DiskTop*** ($50, retail; $27, mail order) or Fifth Generation's ***Power Station*** ($60, retail; $32, mail order); they can free up memory for your applications.

Picture Perfect

Macintosh artists need as much computer speed as anyone does, but they also need high-quality printing, top-notch displays, and a lot of storage space. Trying to decide between increasing the quality of your printing or bumping up your storage capacity is tough. If you work with digitized pictures, you're saddled with enormous files. And most high-powered graphics packages, such as *PageMaker* and *Freehand,* require a hard drive. Consider a 40-megabyte (or larger) hard disk if you're active in desktop publishing or computer graphics.

But if you must produce camera-ready artwork, you'll have to find a way to get clear, sharp printouts. Again, $1,000 is not enough to put a laser printer next to your Mac. Some photocopy shops and typesetting firms can print your Macintosh files on a LaserWriter or even on a Linotronic typesetter for top-quality output. If you have access to such a service, your best option is to buy a hard drive and more memory. Spending the entire $1,000 will be easy ($650–$700 for a 40-megabyte hard disk and $400 or so for additional RAM), but you'll have a more powerful graphics station at your beck and call.

For clear, sharp printing *without* going to an outside printer, you can turn to the **Grappler/DeskJet** combination or even the **WriteMove** option. The output rivals that of laser printing, and the cost is much lower.

— Gregg Keizer and Heidi E. H. Aycock ▷

Macintosh Merchandise

Apple Computer
20525 Mariani Ave.
Cupertino, CA 95014
(408) 252-2775

CE Software
1854 Fuller Rd.
P.O. Box 65580
West Des Moines, IA 50265
(515) 224-1995

Crate Technology
6850 Vineland Ave.
Building M
North Hollywood, CA 91605
(818) 766-4001

Fifth Generation Systems
11200 Industriplex Blvd.
Baton Rouge, LA 70809
(504) 291-7221

GCC Technologies
580 Winter St.
Waltham, MA 02154
(617) 890-0880

Hardware House
3440 Market St.
Philadelphia, PA 19104
(800) 356-2892
(215) 386-2208

Hewlett-Packard
18110 SE 34th St.
Camas, WA 98607
(206) 254-8110

Icon Review
101 Reighard Ave.
Williamsport, PA 17701
(800) 228-8910

Jasmine
1740 Army St.
San Francisco, CA 94124
(800) 347-3228
(415) 282-1111

LaCie
16285 SW 85th
No. 306
Tigard, OR 97224
(800) 999-0143
(503) 684-0143

Levco
6181 Cornerstone Court E
Suite 101
San Diego, CA 92121
(619) 457-2011

Mainstay
5311-B Derry Ave.
Agoura Hills, CA 91301
(818) 991-6540

Mobius Technologies
6020 Adeline St.
Oakland, CA 94608
(415) 654-0556

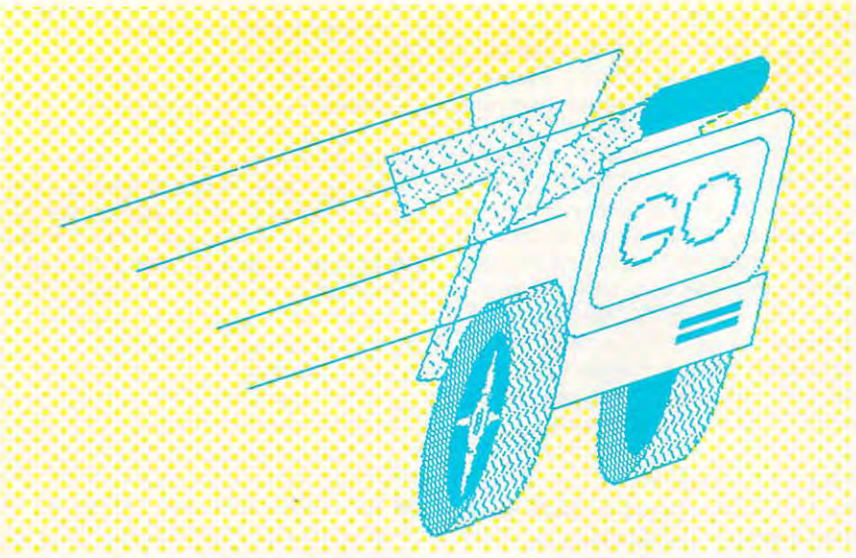
NEC Home Electronics
1255 Michael Dr.
Wood Dale, IL 60191
(312) 860-9500

Orange Micro
1400 N. Lakeview Ave.
Anaheim, CA 92807
(714) 779-2772

SiClone
1169 Borregas Ave.
Sunnyvale, CA 94089
(408) 734-9151

SuperMac Technologies
485 Potrero Ave.
Sunnyvale, CA 94086
(408) 245-2202

www.commodore.ca



Amiga

The recent explosive growth in the Amiga hardware market has made taking a basic Amiga 500 system—512K computer, single 3½-inch disk drive, and Amiga RGB monitor—to the hardware max a lot easier. For a mere $1,000, you can build a graphics computer Max Headroom would be proud of. Or put together a home-productivity machine that will give you far-reaching number-crunching and database-sorting capabilities. Of course, there are other possible $1,000 Amiga additions to cover such uses as music creation, computer-aided design, and even gaming.

Animated Workstation

There are almost *too* many exciting hardware tools for Amiga graphics: Deciding on the add-ons best suited for you can be daunting. Just keep in mind the capabilities you need for *your* art, though, and assembling a system should be simplified.

Before you add any exotic graphics hardware, you'll want to turbocharge your Amiga 500 with additional memory by buying the **A501 512K RAM expansion,** from Commodore ($199). You'll also want to add more disk storage with an external floppy disk drive; a good example is the **Master 3A disk drive,** from Oceanic America, widely available for $160. The extra memory and storage space will make it possible to create super-sized graphics and compile animations without a lot of irritating disk swapping.

Two simple devices can really expand your Amiga's usefulness as a graphics workstation. The **Digi-View Gold video digitizer,** from NewTek ($200), complete with the **Panasonic WV-1410 monochrome CCTV camera** ($280; also available from NewTek), lets you capture any external image for later manipulation with a paint or an animation program. Digi-View produces accurate, full-color reproductions of anything you can focus a video camera on. The system is simple and easy to use, and gives far better results than you'd get from any other digitizer on the market. For desktop video applications, nothing beats a genlock, a device for mixing live video and Amiga graphics for taping on a VCR. The basic Amiga genlock of choice is the **Amigen,** from Mimetics ($179). This small unit is the only low-cost genlock on the market that works with any Amiga. With it, you can easily put titles and animations on your videos for professional-looking effects.

The total cost of your newfound graphics power is $1,018. Watch out, Walt Disney!

Amortized Amiga

You may not think of the Amiga 500 as a business dynamo, but it can pack the same productivity wallop you'd get from an AT clone or a Macintosh SE. What the basic Amiga 500 lacks, though, are the hard drives and faster processor speeds that give those machines the clout to eat through big spreadsheets and massive databases.

At the moment, the most efficient way to add mass storage to your Amiga 500 is with the **Impact 20HD/RAM hard drive,** from Great Valley Products ($795). This external SCSI drive allows up to six more SCSI peripherals to be connected to the computer. With the optional **Autoboot EPROM** (an additional $100; also from Great Valley), you can start your Amiga 500 directly from the hard disk under version 1.3 of the Amiga operating system. The Impact drive also has room to accept two megabytes of RAM, which you can purchase when and if the price of memory chips descends from its current stratospheric level. (Commodore has promised, and even shown, a combination 20-megabyte hard disk/RAM-expansion unit. Called the A590, it may appear sometime in 1989; its price is undetermined.)

If the 7.16-MHz 68000 microprocessor in your Amiga 500 seems a little pokey when you compare it to the 10- and 12-MHz 80286 chips in current ATs, or even to the not-exactly-maxed-out 8-MHz 68000 in a Macintosh SE, how about giving your Amiga a caffeine jolt with a faster processor? Creative Microsystems offers a **68000 microprocessor** ($200) that runs at 14.32 MHz, double the standard speed. Simply pop out your current 68000 and pop in the faster version for speed increases of up to a theoretical 200 percent. (Opening the Amiga 500 case voids your warranty, but the speed increase is worth it.)

Pumping up your 500 to give it productivity prowess doesn't come cheap, but it shouldn't exceed $1,100—well worth the numbers when you're crunching numbers.

— *Steven Anzovin* ⊡

Amiga Add-Ons

Commodore Business Machines
1200 Wilson Dr.
West Chester, PA 19380
(215) 431-9100

Creative Microsystems
10110 SW Nimbus
Suite B1
Portland, OR 97223
(503) 620-3821

Great Valley Products
Plank Ave.
Paoli, PA 19301
(215) 889-9411

Mimetics
P.O. Box 1560
Cupertino, CA 95015
(408) 741-0117

NewTek
115 W. Crane St.
Topeka, KS 66603
(800) 843-8934

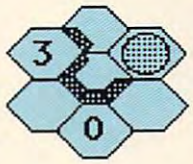
Oceanic America
P.O. Box 70587
Eugene, OR
(503) 741-1222

Heidi E. H. Aycock and Peter Scisco are the assistant editors, and Gregg Keizer is the editor, of *COMPUTE!*. Steven Anzovin writes the Amiga column for the "COMPUTE! Specific" department. All of them want more than $1,000 to spend on their computers.

www.commodore.ca

buyer's guide

Historical Games



Wish you could be a legendary leader? Want to change the course of history? Can you think of a better way to run the world or win the war? Whether it's hobnobbing with Genghis Khan, rubbing shoulders with Napoleon, or shooting the breeze with MacArthur, there's a historical game in this buyer's guide that's as good as any time machine.

Mickey McLean

The Ancient Art of War

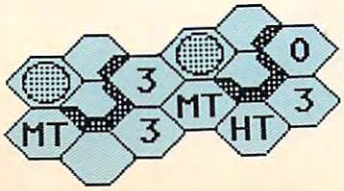
Brøderbund
IBM PC and compatibles, Macintosh
Color graphics card required for IBM
$44.95

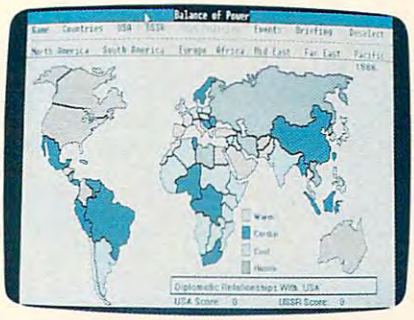
Players challenge eight of the greatest military leaders in history—Genghis Khan, Alexander the Great, Sun Tzu, and others. Players choose armies, weapons, battle formations, and strategies. The game features 11 historical and fictitious battles, and new battles can be created. Joystick is optional.

The Ancient Art of War at Sea

Brøderbund
Apple II, IBM PC and compatibles, Macintosh
Graphics adapter card required for IBM
$44.95

In this war-strategy game, enemies include Blackbeard, John Paul Jones, and Admiral Lord Nelson. Players can choose from 11 sea battles or create their own. Battles are fought in realtime. Three levels of zoom bring players right down to the ship decks, and an illustrated guide explains the enemy's strategies and tactics.





In the race against nuclear war, players use diplomatic savvy and military finesse to preserve the safest *Balance of Power*.

Ancient Battles

Scorpion Software
IBM PC and compatibles
CGA required
$44.95

Ancient Battles is a strategy war game, with several battle scenarios, to be played by two players or one player against the computer. There is also a construction set for creating new scenarios.

The Annals of Rome

Datasoft
Distributed by Electronic Arts
Amiga, Atari ST, Commodore 64, IBM PC and compatibles
$24.95 (Commodore)
$34.95 (Amiga, Atari ST, IBM)

As leader of the Senate's ruling party in Rome in 273 B.C., the player controls Roman armies at home and on foreign soil. The player must reckon with 13 foreign powers and command 21 Roman officers who vary in their abilities and degree of loyalty.

Balance of Power

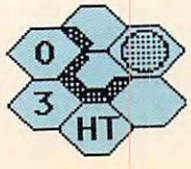
Mindscape
Amiga, Apple II, Atari ST, IBM PC and compatibles, Macintosh
$39.95 (Amiga, Atari ST, Macintosh)
$44.95 (Apple)
$49.95 (IBM)

As U.S. President or General Secretary of the Soviet Union, the player has eight years to manage overt and covert actions, insurrections, political deceptions, divisions of troops, and diplomatic relations. During the game, each nation's prestige will rise or fall.

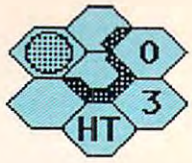
Balance of Power: The 1990 Edition

Mindscape
Amiga, Apple IIgs, Atari ST, IBM PC and compatibles, Macintosh
640K required for IBM
$49.95

This updated version of *Balance of Power* includes more countries, a multipolar orientation, and an updated database. As U.S. President or Soviet General Secretary, the player tries to complete eight years in office. The goal is to avoid nuclear war and to earn prestige. ▷



www.commodore.ca



Battlefront
Strategic Studies Group
Distributed by Electronic Arts
Apple II, Commodore 64
$39.95

Scenarios for Saipan, Bastogne, Crete, and Stalingrad recreate major land battles of World War II in this game. The player can command either the Allied or the Axis forces. Each side has as many as 60 battalions divided into three divisions. Units include infantry, armor, and antitank units. New games can be created with the game-design kit.

Battlegroup
Strategic Simulations
Apple II, Commodore 64
$59.95

In this World War II game, the U.S. and British forces meet Hitler's army on the Western Front. The game features most of the weapons from 1943 to 1945, including mortars, tanks, troop carriers, antitank guns, flamethrowers, and bazookas. The computer calculates the hit probabilities for each soldier and weapon.

Battle of Antietam
Strategic Simulations
Apple II, Atari, Commodore 64, IBM PC and compatibles
Color graphics card required for IBM
$49.95

Robert E. Lee's army meets General George McClellan's forces at Antietam Creek in this Civil War simulation. The basic game has simple rules and options, and it moves quickly. The advanced and intermediate versions require more strategy and use factors such as hidden units and chain of command. Each turn represents 30 minutes of actual battle time.

Battles in Normandy
Strategic Studies Group
Distributed by Electronic Arts
Apple II, Commodore 64
$39.95

This sequel to *Battlefront* features eight scenarios from the World War II Allied invasion of Normandy and the two months afterward. A map of the Normandy Peninsula and a historical article for each scenario—Omaha, Utah, Sword, Cherbourg, Carentan, Villers Bocage, Goodwood, Epsom—are included. Each scenario may be edited, and new games can be created.

Battles of Napoleon
Strategic Simulations
Distributed by Electronic Arts
Apple II, Commodore 64
$49.95

Players can simulate almost any Napoleonic engagement on a detailed tactical level. The construction set recreates battles, and player-generated maps and armies can also be used. Scenarios include Waterloo, Quatre Bras, Auerstaedt, and Borodino.

Black Monday
Keypunch Software
IBM PC and compatibles
Color graphics card required
$9.99

Players can relive the stock market crash of Monday, October 19, 1987. As many as six people can borrow and invest up to $5 million in 20 different stocks. Investors can compile personal daily reports, speculate on market trends, and identify market patterns.

Blitzkrieg at the Ardennes, 1MB version
Command Simulations
Amiga
1 megabyte required
$59.95

This enhanced version of *Blitzkrieg at the Ardennes* depicts the World War II Battle of the Bulge. New features include hidden unit movement, a more flexible attack rule, and aerial reconnaissance. New sound and graphics have been added. An upgrade from the 512K version is available for $10.00. The 512K version sells for $52.95.

Blue Powder Grey Smoke
Gardé
Apple II, Commodore 64, IBM PC and compatibles, Macintosh
$49.95

Players fight in the Civil War battles of Gettysburg, Antietam, and Chickamauga. Players must reckon with 11 types of terrain and seasonal changes. Players can choose to view any part of the battlefield in either a close-up or a broad overview.

Carriers at War 1941–1945
Strategic Studies Group
Distributed by Electronic Arts
Apple II, Commodore 64
$49.95

As task commander, the player locates and sinks enemy vessels in this simulation of World War II Pacific Ocean warfare. There are 31 carriers, 215 other ships in 63 classes, and more than 4000 aircraft in 126 squadrons. Six scenarios are included—Pearl Harbor, Coral Sea, Midway, Eastern Solomons, Santa Cruz, and Philippine Sea. Using a game-design kit, the player can create new battles.

Conflict in Vietnam
MicroProse
Apple II, Commodore 64, IBM PC and compatibles
CGA or EGA card required for IBM
$19.95

Full-color graphics recreate five battle scenarios of the Vietnam War. The player controls the troop movements, counterattacks, and artillery bombardments. The battles can be replayed as they really happened, or different strategies can be used to try to alter the outcome.

Crusade in Europe
MicroProse
Apple II, Commodore 64, IBM PC and compatibles
CGA or EGA card required for IBM
$19.95

This war game recreates some of the major land battles of World War II, beginning with the Normandy invasion on D-Day. Players monitor troop movements across maps of France and Germany and wage battles against opposing generals. Battles can be played as they actually occurred, or new strategies can be attempted.

Decision on the Desert
MicroProse
Apple II, Commodore 64, IBM PC and compatibles
CGA or EGA card required for IBM
$19.95

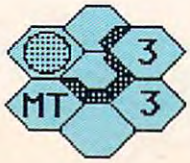
The player can command either the Allied or the Axis forces in the desert warfare of World War II. As commander, the player controls air strikes, armored battalions, and infantry movement in North Africa from 1940 to 1942. The game features accelerated realtime, graphics, and variable skill levels.

Decisive Battles of the American Civil War, Volumes I, II, and III
Strategic Studies Group
Distributed by Electronic Arts
Apple II, Commodore 64
$39.95 each

Volume I, *Bull Run to Chancellorsville,* covers six major battles of the American Civil War—First Bull Run, Shiloh, Second Bull Run, Antietam, Fredericksburg, and Chancellorsville. Volume 2 of this historical-war-game series covers five Civil War battles—Gaines Mill, Stones River, Gettysburg, Chickamauga, and Chattanooga. The third game in the American Civil War trilogy features Spotsylvania, The Wilderness, Franklin, Nashville, Atlanta, and Cold Harbor. A graphics editor and war-game construction kit are included in all three packages.

Desert Rats
Scorpion Software
IBM PC and compatibles
CGA required
$39.95

Desert Rats, a collection of six battle simulations, is set in the North African campaign from 1941 to 1942. The fight begins with Rommel's invasion of Tripoli and ends with the Battle of El Alamein. Maps and historical notes are included with this one- or two-player game. ▷



www.commodore.ca

Lyco Computer

Marketing & Consultants

Since 1981

Air Orders Processed Within 24 Hours

MONITORS

Magnavox

BM7652	$89.95
BM7622	$89.95
7BM-623	$79.95
CM8702	$184.95
CM8762	$239.95
8CM-515	$259.95
9CM-053	$345.95
9CM-082	$419.95

GoldStar

2105 G Composite	$79.95
2105 A Composite	$79.95
1410 CGA 14"	$219.95
1420 EGA 14"	$319.95
1430 VGA 14"	$379.95
1440 Superscan	$459.95

NEC

Multisync GS	$189.95
Multisync II	$589.95
Multisync +	$899.95
Multisync XL	$2099.95

MODEMS

Avatex

1200i PC Card	$69.95
1200e	$65.95
1200p	$89.95
1200hc	$89.95
2400i II PC Card	$129.95
2400	$129.95

Hayes

Smartmodem 300	$139.95
Smartmodem 1200B	$279.95
Smartmodem 1200	$279.95
Smartmodem 2400B	$399.95
Smartmodem 2400	$399.95

PRINTERS

Seikosha

SP Series Ribbon	$7.95
SP 1600Ai	$179.95
SP 1200AS	
RS232	$189.95
SL 80Ai	$309.95
SK3000 Ai	$359.95
SK3005 Ai	$445.95
SL 130Ai	$589.95
MP5420FA	$999.95
SPB 10	$2995.95

Brother

HR20	$339.95
M1709	$439.95
M1724L	$569.95
HR40	$599.95
HR60	$699.95
Twinwriter 6 Dot & Daisy	$899.95

Star Micronics

NX-1000	$164.95*
NX-1000C (64C)	$169.95*
NX-1000 Color	$217.95
NX-1000C Color (64C)	$225.95*
NX-15	$299.95
NX-2400	$299.95
NR-10	$319.95
NR-15	$419.95
NB24-10 24 Pin	$419.95
NB24-15 24 Pin	$545.95
NB-15 24 Pin	$669.95
Laser 8	$1699.95

** limited quantities*

Atari, C-64, & IBM Interfaces Available

Citizen

120 D	$137.95*
180 D	$159.95
MSP-40	$279.95
MSP-50	$299.95
MSP-15E	$315.95
Tribute 124	$369.95
MSP-45	$379.95
MSP-55	$439.95
Premiere 35	$489.95
Tribute 224	$549.95

* with interface cable

Epson

LX800	$164.95
LQ500	$294.95
FX850	$329.95
EX800	$349.95
FX1050	$429.95
LQ850	$515.95
LQ 950	$569.95
LQ1050	$719.95
LQ 2550	$899.95

PRINTERS

Panasonic

1180	$175.95
1191	$245.95
3131	$289.95
1092i	$289.95
1124	$319.95
1592	$359.95
1595	$429.95
1524 24 Pin	$545.95
Fax Partner	$579.95
Optical Scanner	$859.95
KXP 4450 Laser	$1369.95

Cables & Connections For All Applications

Printer Ribbons Available

Okidata

Okimate 20	$129.95
Okimate 20 w/cart	$189.95
182	$209.95
180	$219.95
182+	$228.95
183	$249.95
320	$337.95
321	$475.95
390	$469.95
391	$639.95
393	$989.95
Laser 6	$CALL

Toshiba

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

NX-2400

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

$299.95

Panasonic Office Automation

KX-P 1180

The 1180 by Panasonic offers you more than what you might expect in a low cost printer. With multiple paper paths, versatile paper handling, and front panel programmability through the EZ Set Operator panel, the 1180 is an excellent value. The 1180 also features 2 excellent print qualities: Near Letter Quality and Draft, with speeds up to 192 cps in Draft and 38 cps in Near Letter Quality plus crisp, clear graphics.

$175.95

CITIZEN

Citizen 120 D

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

$137.95

1-800-233-8760

PAGE 1 OF 4

Turn page for more specials.

www.commodore.ca

Lyco Computer
Marketing & Consultants

MAGNAVOX
$235.95

CM8762

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

Attention Educational Institutions:

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

Avatex™
2400 Modem

When communciation becomes an integral part of your computing, stay with the Avatex 2400 baud modem. The Avatex features 300/1200/2400 switchable baud rates, auto-dail and auto-answer plus internal speaker. Stay Hayes compatible with the Avatex 2400.

$129.95

Lowest Price!

LASER 128

- Built-in 128K RAM
- Built-in 5¼" Drive
- Built-in Parallel Port
- Built-in Mouse/Joystick Port
- High Res. Graphics

Apple Compatible

GoldStar
The Brightest Star in Electronics

$589.95

Quantities Limited

Cables Optional

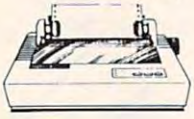
2405 A

- 12" Composite Monochrome Monitor
- Compatible with IBM, Commodore, Apple computers
- 80 Character (8 x 8 Matrix) per line with 25 lines 640 x 200 pixel

CITIZEN

180 D

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



PC's & Accessories

Laser Compact XTE 640K	$539.95
Laser Turbo XT Model II	$629.95
BCC CG ColorCard	$94.95
ATI VIP	$299.95
Mitsubishi MP 286L Laptop	$2495.95
Metra 286-12 PC/AT	$999.95

Seagate

HARD DRIVES

5.25" Half Heights	
ST225 20 meg 65msec MFM	$209.95
ST225N 20 meg SCSI	$289.95
ST238R 30 meg RLL	$219.95
ST251 40 meg 40 msec MFM	$339.95
ST251-1 40 meg 28 msec MFM	$399.95
ST277R 65 meg 40 msec RLL	$389.95
3.5"	
ST125 20 meg 40 msec MFM	$235.95
ST125N 20 meg SCSI	$329.95
ST138R 30 meg RLL	$249.95
ST138N 30 meg SCSI	$334.95
ST157R 49 meg RLL	$399.95
ST157N 48 meg SCSI	$445.95
Seagate Internal Cards	
ST125 20 meg Internal Card	$299.95
ST157R 49 meg Internal Card	$485.95

TOSHIBA

DRIVES

5¼" 360 KB PC/XT Compatible ND-04D	$69.95
3½" 720 KB PC/XT Compatible ND-354A	$84.95
3½" 1.44 MB PC/AT Compatible ND-356T	$99.95
5¼" 1.22 MB PC/AT Compatible ND-08DEG	$89.95

COMMODORE

HARDWARE

64C Computer	$149.95
C128D Computer/Drive	$418.95
1541 II Disk Drive	$179.95
1581 Disk Drive	$187.95
Excel FSD-2+ C64 Drive	$149.95*
1802C Monitor	$189.95
1084 Monitor	$279.95
C1351 Mouse	$38.95
1764 RAM C64	$117.95
Colt PC	$669.95

Call for system pricing.
*** Limited Quantities**

LASER 128

Compatible with Apple Software.

Laser 128 EX	$419.95
Laser External 5¼" Drive	$119.95
Laser External 3½" 800K Drive	$199.95
Two Slot Expansion Box	$44.95
Laser 128/EX Mouse	$55.95

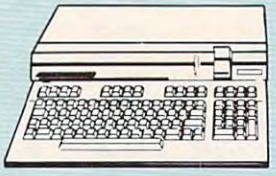
We carry a full line of laser accessories.

COMMODORE

128 D

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

$418.95



LASER 128

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

Apple IIc-IIe Compatible

$379.95

$10 off any Item Purchased With Laser 128!

Seagate

ST138R 30 Meg Internally Mounted Card

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

$329.95

20-30-49 meg drives available!

TOSHIBA

3.5 Floppy Drive

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

$84.95

See complete listings under Toshiba Drives.

Panasonic
Office Automation

KXP4450 Laser Partner

$1369.95

Special Purchase

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

star micronics

NX-1000

$164.95

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

1-800-233-8760

www.commodore.ca

LASER

Turbo XT Model II

Outperform the conventional PC/XT competition with Laser's Turbo XT-II. The Laser provides everything you expect from an XT plus such standard features as 4.77/10 MHz speed, 102 key enhanced keyboard, security lock and a clock/calendar with battery backup. Laser's compatability is guaranteed through a 150W power supply, four accessible drive slots, (1 360K 5.25 standard) 8 I/O expansion slots, parallel centronics and RS 232 interfaces, 640K RAM standard, (expandable to 1.6 MB) along with a CGA video card already installed. Introduce yourself to the new generation XT through Laser's Turbo XT-II.

$629.95

Monitor Optional

FCC Class B Approved

LASER XTE

If you are about to pick a personal computer for your home or office and you need to be one step ahead of the competition, choose the Laser Compact XTE. The Compact XTE features the same standard equipment as the Compact XT, however, 640K RAM and a monochrome/CGA/EGA video card is supplied. You won't beat its performance or extraordinary low price.

$599.95

FCC Class B Approved

MITSUBISHI

MP 286L Laptop

- 80286 Processor Running at 12 MHz or 8 MHz
- 640 KB RAM
- 11" Diagonal B&W Display
- Color Graphics Adapter
- 1.44 MB Capacity 3.5" Disk Drive
- Centronics Parallel Port
- 2 RS-232C Serial Ports
- 4 Expansion Card Slots
- MS-DOS 3.30
- GW BASIC 3.20
- Internal Speaker
- 1-Year Manufacturer's Limited Warranty

$2495.95

AMSTRAD

Laptop PPC 640-2

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

$749.95

TOSHIBA

T-1000 Laptop

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

$799.95

COMMODORE COLT

PC/XT

Monitor Optional

FCC Class B Approved

$669.95

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

VENDEX®

VTI-33-XT

$729.95

Monitor Optional

- IBM XT Compatible with Award Bios
- Small Footprint
- 8088-1 Turbo Processor with 4.77 or 9.54 MHz Software Switchable
- 640K
- 2-360K Floppy Disk Drives
- Parallel Printer Port
- RS232 Serial Port
- Clock Calendar with Battery Backup on Board
- AT Style 84 Key Keyboard
- CGA/MGA and Hercules Graphics Adaptor
- MS-DOS Version 3.3
- GW-Basic

CITIZEN

Mate/12 AT

World class competition in an 80286 PC/AT from Citizen. One MB RAM is standard, along with 2 serial and 1 parallel port, EGA video card and keyboard switchable 6.25/12.5 MHz for full PC/AT compatability. Citizen also includes added features such as, switchable 150 watt power supply, 1.2 MB 5.25" floppy drive, MS-DOS-GW Basic software to provide for your immediate computing needs. Leave the competition behind with the Citizen Mate 12 Plus.

$1349.95

Monitor Optional

FCC Class B Approved

VENDEX®

VTI-55-AT

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

$1,199.95

Monitor Optional

- MS-DOS Version 3.3
- GW-Basic
- Easy Working Writer (Word Processor by Spinnaker)

Turn page for more specials.

www.commodore.ca

Lyco Computer
Marketing & Consultants

• Price Guarantee •

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

MasterCard VISA

Sales: 1-800-233-8760 or 717-494-1030
Hours: Monday through Friday, 9:00 a.m. to 8:00 p.m.
Saturday, 10:00 a.m. to 6:00 p.m.
Customer Service: 717-494-1670
Hours: Monday through Friday, 9:00 a.m. to 5:00 p.m.
Fax: 717-494-1441

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

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

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

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

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

IBM

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

IBM

Gauntlet $22.95
Balance of Power II $27.95
Ultima IV $34.95
Ultima V $34.95
Heroes of the Lance $25.95
Jet Simulator $30.95
Western Europe Scenery Disk $14.95
Timeworks:
Wordwriter PC $27.95
PC Quintet $49.95
Partner PC $22.95
Publish It $99.95

ATARI

Access:
Triple Pack $11.95
Leader Bd. Double Pk. ... $9.95
Broderbund:
Print Shop $26.95
Graphic Lib. I, II, III ea .. $14.95
Lode Runner $9.95
Microprose:
Silent Service $19.95
F-15 Strike Eagle $19.95
Mindscape:
Gauntlet $20.95
Infiltrator $17.95
Origin:
Autoduel $24.95
Ultima IV $34.94
CALL FOR ATARI ST. LISTINGS

Call for Apple Listings

COMMODORE

Echelon $25.95
Mach 128 ..... $28.95
Wld. Cl. Leader Brd. $22.95
Last Ninja $19.95
Might & Magic $22.95
Maniac Mansion $19.95
Paperclip III $31.95
Berkeley Softworks:
Geofile 64 ..... $29.95
Geos 64 ..... $35.95
Geos 128 ..... $39.95
Geowrite 128 ..... $39.95
Berkeley TriPak $29.95
Broderbund:
Print Shop $26.95
Graphic Lib. I, II, III ea . $14.95
Electronic Arts:
Jordan vs. Bird $19.95

COMMODORE

Epyx:
Fastload $22.95
California Games $22.95
4x4 Off Road Racing $11.95
Mindroll $22.95
Microprose:
Airborne Ranger $22.95
F-15 Strike Eagle $19.95
Pirates $22.95
Stealth Fighter $22.95
Red Storm Rising $23.95
Origin:
Ultima V $34.95
Springboard:
Newsroom $19.95
Certificate Maker $14.95
Strategic Simulations:
Pool of Radiance $25.95
Timeworks:
Swiftcalc 128 ..... $27.95
Wordwriter 3 ..... $22.95

Diskettes

5-1/4
Disk Notcher $5.95
Maxell:
SSDD $7.95
DSDD $8.95
Bonus:
SSDD $5.95
DSDD $6.95
SKC:
DSDD $6.95
DSHD $13.95

Xidex:
DSDD $4.95

3.5
Maxell:
SSDD $11.50
DSDD $17.95
Bonus:
SSDD $10.95
DSDD $13.95

Verbatim:
SSDD $12.95
DSDD $18.95
Xidex:
DSDD $12.95
SKC:
SSDD $9.95
DSDD $13.99

Joysticks

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

Winner 909 ..... $24.95
Wico IBM/AP $29.95
Lipstic Plus $14.95
Kraft KC III AP/PC $16.95
Kraft PC Joystick Card $24.95
Kraft Maze Master $8.95
I Controller $13.95
Epyx 500 XJ (Atari,64C) $13.95
Epyx 500 XJ (PC) $23.95

1-800-233-8760

www.commodore.ca

Europe Ablaze
Strategic Studies Group
Distributed by Electronic Arts
Apple II, Commodore 64
$49.95

The player can be either a British commander during the Battle of Britain or a member of the U.S. Eighth Air Force during the bombing of Germany, planning bombing missions and air defense. A weather system provides variables such as wind strength and cloud cover. There are 37 types of aircraft and 255 squadrons operating from 127 airbases. Three scenarios are included.

Genghis Khan
Koei
IBM PC and compatibles
EGA or VGA required
$59.95

One to four players build empires in this military, economic, and diplomatic simulation. Features include characters with distinct personalities and two scenarios with five levels of difficulty. Players assume the role of Genghis Khan, Richard the Lion-Hearted, Emperor Alexius III, or Shogun Minamoto of Japan. Once the empire has been built, players must keep the population happy, the treasury full, subordinates loyal, and the enemies down.

Gettysburg: The Turning Point
Strategic Simulations
Distributed by Electronic Arts
Amiga, Apple II, Atari, Commodore 64, IBM PC and compatibles
$59.95

This war game reenacts the three days of fighting at Gettysburg in 1863. The game features a command-control system to show the effects of the commanders, ammunition points, fatigue rules, and variable reinforcement. Three versions—basic to advanced—are available. The computer can play either side. One or two people can play.

Gold Rush!
Sierra On-Line
IBM PC and compatibles
$39.95

Players encounter problems as they travel from New York to California, searching for a fortune in gold. Players can choose to sail around the tip of South America, cut through Central American jungles, or ride across the North American landscape. A book detailing the story of the California Gold Rush is included with the package.

Guardians of Infinity
Paragon Software
Distributed by Medalist International
IBM PC and compatibles
512K; EGA or CGA required
$44.95

In this role-playing text game, scientist Adam Cooper travels back in time to November 1963 and interviews 125 historical characters to prevent President Kennedy's assassination. The game is compatible with Aicom's Accent speech board.

Halls of Montezuma
Strategic Studies Group
Distributed by Electronic Arts
Apple II, Commodore 64, IBM PC and compatibles
$39.95 (Apple, Commodore)
$44.95 (IBM)

Letting players join the Marines, this game simulates such battles as Belleau Wood, Iwo Jima, Okinawa, and Inchon. The program features night-capable units, brittle units, reports, AI routines, historical articles, players' notes, and two programs for designing original games.

In *Gold Rush,* treacherous landscape and rough waters mark all routes west in the feverish search for precious gold.

Kampfgruppe
Strategic Simulations
Distributed by Electronic Arts
Amiga, Apple II, Commodore 64, IBM PC and compatibles
Color graphics card required for IBM
$59.95

In this World War II, Eastern Front simulation, players command German or Russian forces and their respective arsenals of tanks, tank destroyers, self-propelled artillery, assault guns, mortars, and flamethrowers. There are four historical scenarios, and new scenarios can be created. One or two people can play.

Lords of the Rising Sun
Cinemaware
Apple IIgs, Atari ST, Commodore 64, IBM PC and compatibles
EGA required for IBM
$34.95 (Commodore)
$49.95 (Apple IIgs, Atari ST, IBM)

A civil war has begun in twelfth-century Japan. The Taira clan has killed your character's father and subverted the emperor. Players command armies of samurai warriors, defend against ninja assassins, negotiate alliances with other clans, and confront enemies in personal combat. The ultimate object of the game is to become shogun.

MacArthur's War
Strategic Studies Group
Distributed by Electronic Arts
Apple II, Commodore 64
$39.95

Set during the Korean War, *MacArthur's War* recreates the top battles of the conflict. Players command United Nations or Communist forces against human or computer opponents. Program features include historical articles covering the entire campaign, with battle notes for each scenario; a war-game construction kit; and an icon editor for game customization.

Nam
Thunder Mountain
Distributed by Mindscape
Apple II, Commodore 64
Joystick required
$14.95

In this tactical war game of U.S. and Allied forces in Vietnam, introductory- and intermediate-level players test their command abilities in six historical scenarios, including the Tet Offensive. Units are rated for strength and effectiveness and are armed with rifles, machine guns, mortars, and rocket launchers. Play lasts from one to four hours for one player.

Napoleon in Russia—Borodino 1812
Datasoft
Distributed by Electronic Arts
Atari, Commodore 64, IBM PC and compatibles
$24.95 (Atari, Commodore)
$34.95 (IBM)

Napoleon in Russia recreates the battle of 1812 that changed the course of Napoleon's advance across Russia and eventually led to his overthrow. Players can let the Russians escape, as Napoleon did, or defeat the Russians and see how the war might have changed. Action takes place on scrolling maps recreated from Russian military cartography.

Nobunaga's Ambition
Koei
IBM PC and compatibles
EGA or CGA required
$59.95

Set in sixteenth-century Japan, *Nobunaga's Ambition* combines aspects of a war game with a role-playing adventure. Players assume the role of Nobunaga Oda, who tried but failed to take over the nation. Nobunaga must successfully rule during war and peace. From one to eight players may play either of two scenarios at five different levels of difficulty. ▷

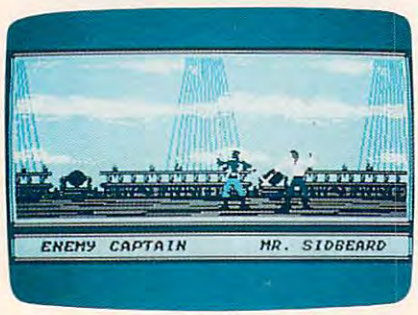
www.commodore.ca

The Oregon Trail
MECC
Apple II, IBM PC and compatibles
CGA required for IBM
$39.95

The Oregon Trail reenacts the journey of settlers traveling from Independence, Missouri, to Oregon in the nineteenth century. Players cross rivers, fend off grizzly bears, ration supplies, and repair covered wagons. The program is designed to help players practice and sharpen problem-solving skills.

Overlord
Scorpion Software
Atari ST
Color monitor required
$39.95

Overlord is based on the Max Hastings book of the same name. Players can control six different countries in this recreation of the invasion of Normandy on June 6, 1944.



In *Pirates!*, players learn the essentials of a successful seafaring life—fencing, sailing, cannon firing, and courtship.

Patton vs. Rommel
Electronic Arts
Commodore 64, IBM PC and compatibles, Macintosh
$14.95 (Commodore, IBM)
$19.95 (Macintosh)

Players assume the role of either General George Patton or Field Marshal Erwin Rommel as these two World War II military leaders meet in battle on D-Day in Normandy. There are 20 kinds of tactical orders, and each division can handle up to 32 different orders at a time. After orders have been issued, players watch the battle progress. The generals may even appear on the screen to evaluate the players' strategies.

Pirates!
MicroProse
Apple II, Apple IIgs, Commodore 64, IBM PC and compatibles, Macintosh
$44.95 (Apple, Apple IIgs, Commodore, IBM)
$59.95 (Macintosh)

In the role of captain of a seventeenth-century pirate ship, players search the Caribbean for treasures, Spanish ships, and cities to plunder. They develop skills in sailing, sword fighting, battle tactics, trading, and navigation. More than 70 graphics scenes and pictures include a map of the Caribbean. Difficulty levels vary.

President Elect—1988 Edition
Strategic Simulations
Apple II, Atari ST, Commodore 64, IBM PC and compatibles
Color graphics card required for IBM
$14.95

Three players simulate any presidential election from 1960 to 1988, using a roster of 71 candidates and statistics. Candidates are rated on social, economic, and foreign policy as well as public image. Players alter the election's outcome by varying economic and political factors. Fictional candidates may also be created. For grade 5 through college level.

Ram
Avalon Hill
IBM PC and compatibles
Color graphics board
$30.00

One player can recreate the naval battles in the Mediterranean Sea during the Peloponnesian War. The player commands the ancient Athenian navy against the Corinthians and Spartans. Five scenarios can be played in realtime.

Rebel Charge at Chickamauga
Strategic Simulations
Distributed by Electronic Arts
Amiga, Apple II, Commodore 64, IBM PC and compatibles
Color graphics card required for IBM
$49.95 (Apple, Commodore, IBM)
$59.95 (Amiga)

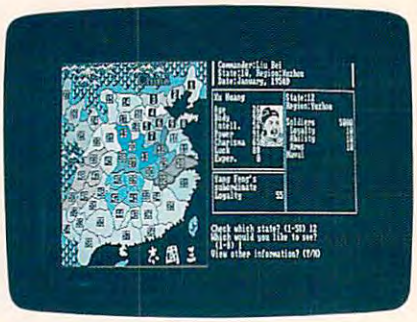
Players can test their strategies by recreating the battle at Chickamauga Creek. The battle takes place on a 64 × 54 square-grid map, and players can switch between strategic and tactical displays. The conflict is played in 13 turns, with each turn representing two hours of realtime. Introductory, intermediate, and advanced game levels are included.

Road to Moscow
Game Designers' Workshop
Commodore 64
$40.00

Players relive World War II in Russia through five strategy games, including the invasion of and fight for Poland. The object is to take and hold key Russian cities before the computer or an opponent can accumulate reinforcements. Ten levels of difficulty and random events ensure that no two games play alike.

Romance of the Three Kingdoms
Koei
IBM PC and compatibles
CGA or EGA required
$69.95

Romance of the Three Kingdoms is a military, economic, and diplomatic simulation set in second-century China. The program merges a war game with a role-playing adventure. This game for one to eight players features 255 distinct characters and five scenarios detailing the struggle for control of China.



As many as eight players can join in the struggle for control of second-century China in *Romance of the Three Kingdoms*.

Rommel Battles for North Africa
Strategic Studies Group
Distributed by Electronic Arts
Apple II, Commodore 64
$39.95

This war and strategy game allows players to recreate eight of the major World War II battles between General Erwin Rommel and the Allied forces in North Africa, including Syria, Cauldron, and Tebourga Gap. A construction kit can be used to create new scenarios. This game is the fourth sequel in the Battlefront series.

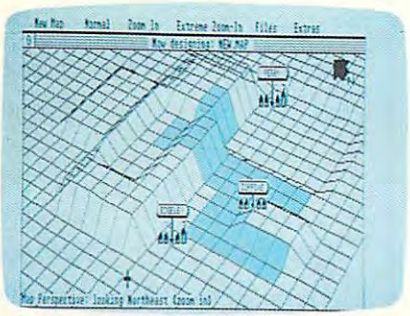
Russia: The Great War in the East, 1941–1945
Strategic Studies Group
Distributed by Electronic Arts
Apple II, Commodore 64
$39.95

Players command the Russian Red Army or the German Wehrmacht in this simulation of the World War II conflicts on the Eastern Front. Each army has up to seven divisions and three theaters. An economic system provides replacements, reinforcements, rail repair, and Western Front forces. Three shorter scenarios—Leningrad, Stalingrad, and Kursk—are also included.

www.commodore.ca

The Seven Cities of Gold
Electronic Arts
Apple II, Atari, Commodore 64, IBM PC and compatibles, Macintosh
$14.95 (Apple, Atari, Commodore, IBM)
$19.95 (Macintosh)

Players assume the role of a Spanish explorer from 1492 through 1540, seeking out the Aztec and Inca cities. Over 2800 screens represent the different worlds to explore. Players can generate computer-drawn maps as they explore sixteenth-century North, South, and Central America.



Players can fight in five historic battles and design new 3-D battle grids when they play *The Universal Military Simulator*.

Shiloh: Grant's Trial in the West
Strategic Simulations
Distributed by Electronic Arts
Apple II, Commodore 64, IBM PC and compatibles
$39.95

In 15 turns, this game recreates the Confederate Army's surprise attack on General Grant's Union forces. The terrain of Shiloh is displayed on a 30 × 30 square-grid battlefield, and all the brigades and artillery are included. Play can be switched between strategic and tactical display. The program has three levels of play.

Sons of Liberty
Strategic Simulations
Distributed by Electronic Arts
Apple II, Commodore 64, IBM PC and compatibles
Color monitor required
$34.95 (Commodore)
$39.95 (Apple, IBM)

Three major battles of the Revolutionary War are recreated in this simulation: the Battle of Bunker Hill (the easiest of the three), the Battle of Saratoga (a turning point in the war), and the Battle of Monmouth (the battle that proved George Washington's abilities). In Solitaire mode, the computer can direct one side or both sides. Each game has three levels of difficulty.

Tsushima
Avalon Hill
Apple II, Commodore 64
$30.00

Set in the Russo-Japanese War of 1905, *Tsushima* recreates ship battles on both strategic and tactical levels. The strategy game involves sightings and battles, with ship-to-ship maneuvers and combat. In the tactical game, each side selects a fleet drawn from the 29 ships available. One or two people can play.

Under Fire
Avalon Hill
Apple II, Commodore 64, IBM PC and compatibles
Hercules or color graphics card required for IBM
$59.95 (Apple II)
$34.95 (Commodore, IBM)

This World War II simulation contains three maps of Europe, nine scenarios, and a map-maker disk. The computer can control the U.S., German, or Russian armies, and it allows simultaneous movement. The armies are divided into ten-person squads, which are rated by weapons and quality of training.

The Universal Military Simulator
Rainbird
Amiga, Apple IIgs, Atari ST, IBM PC and compatibles, Macintosh
$49.95

This game reenacts five historical battles—Gettysburg, Arbela, Hastings, Marston Moor, and Waterloo. Players can use the built-in editor to design new maps, the order of battles, objectives, and what-if scenarios. Battles take place on a 3-D grid system so the player can view the field from any angle or zoom in on an area. Digitized sound accompanies the play. Two additional scenario disks, *The American Civil War: Scenario Disk One* and *Vietnam: Scenario Disk Two,* are also available for $19.95 each.

Vulcan
Scorpion Software
IBM PC and compatibles
CGA required
$39.95

Vulcan is a simulation of the Tunisian campaign from 1942 through 1943. Features include five different scenarios and a special hidden-movement option. Players control five different armies—three Allied and two Axis.

Wooden Ships & Iron Men
Avalon Hill
Commodore 64
$35.00

Wooden Ships & Iron Men recreates the tactical actions of the era of the Napoleonic Wars and the American Revolution. The battles include the *Bonhomme Richard* versus the *Serapis* and *The Constitution* versus the *Guerrière.* Players can also recreate 20-ship skirmishes such as the Nile, Chesapeake, and Trafalgar battles. One or two people can play.

⊡

Publishers of Historical Games

For more information about the historical games listed in this buyer's guide, contact the publishers listed below.

Avalon Hill
4517 Harford Rd.
Baltimore, MD 21214

Brøderbund
17 Paul Dr.
San Rafael, CA 94903

Cinemaware
4165 Thousand Oaks Blvd.
Westlake Village, CA 91362

Command Simulations
297 N St.
Bldg. #3
Hyannis, MA 02601

Datasoft
Distributed by Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404

Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404

Game Designers' Workshop
P.O. Box 1646
Bloomington, IL 61702-1646

Gardé
8 Bishop Ln.
Madison, CT 06443

Keypunch Software
1221 Pioneer Bldg.
St. Paul, MN 55101

Koei
20000 Mariner Ave.
Suite 100
Torrance, CA 90503

MECC
3490 Lexington Ave. N
St. Paul, MN 55126-8097

MicroProse
180 Lakefront Dr.
Hunt Valley, MD 21030

Mindscape
3444 Dundee Rd.
Northbrook, IL 60062

Paragon Software
Distributed by Medalist International
A division of MicroProse
180 Lakefront Dr.
Hunt Valley, MD 21030

Rainbird
3885 Bohannon Dr.
Menlo Park, CA 94025

Scorpion Software
19 Harbor Dr.
Lake Hopatcong, NJ 07849

Sierra On-Line
P.O. Box 485
Coarsegold, CA 93614

Strategic Simulations
1046 N. Rengstorff Ave.
Mountain View, CA 94043

Strategic Studies Group
Distributed by Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404

Thunder Mountain
Distributed by Mindscape
3444 Dundee Rd.
Northbrook, IL 60062

www.commodore.ca

COMPUTER DIRECT

Since 1979

WE WON'T BE UNDERSOLD!* Expires 6/31/89

640K Laser Turbo Computer
IBM® XT® Compatible

Up To $470 In Free Software

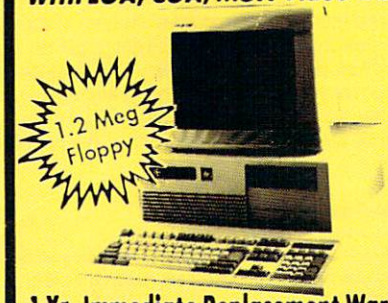
Your choice of Migent's Ability or Enrich Software
Migent's Enrich - ***List $395***
Migent's Ability - ***List $99***

- 640K Professional Turbo XT® Computer
- 360K Floppy Disk Drive & Controller
- Monochrome Card
- Parallel Serial Ports
- **Complete DOS & System Tutor Included Free a $99 Value**

$649.95

Monitor Shown available for $89.95

The 16 MHz 286 Computer
With EGA, CGA, MGA Video Outputs



1 Yr. Immediate Replacement Warranty

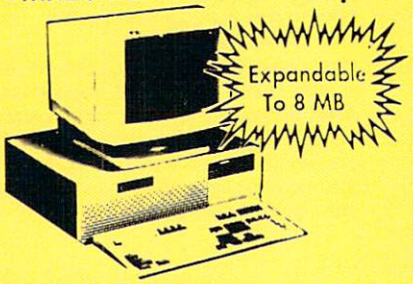
- 80286/12.5 Intel Microprocessor
- 512K Standard, Expandable to 4MB
- **EGA, CGA, MGA**, Hercules & Plantronics Compatible
- Phoenix BIOS
- Dual Floppy/Hard Drive Controllers
- PS/2 Compatible Mouse Port
- 2 Serial & 1 Parallel Port
- 101 Key AT® Style Keyboard
- 1.2 MEG Disk Drive
- DOS Included
- 32K Buffer Hard Disk Cache
- Small Footprint Case
- Western Digital Motherboard

Everyday Low Price

$959.95

14" Paper White Monitor Shown Above Available For - $99.95

"1 Mega Byte"
25MHz 0 Wait 386 AT® Computer



- 1:1 interleave
- 1 MEG RAM on Board
- I/O Board - Parallel - Serial - Game Ports
- Award BIOS
- Dual Floppy/Hard Controller
- 101 Keyboard Keytronics
- Case with Keylock and eight integral peripheral slots
- 200 Watt power supply
- 1.2 MEG Floppy Drive

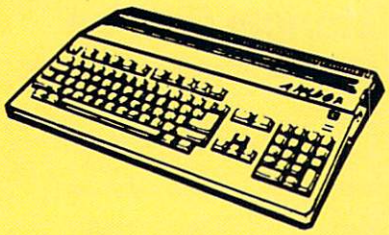
Low Sale Price

$1999.95

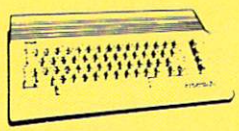
List $2995

Iratec Multisync Monitor shown $399.95

Call about our full line of *AMIGA* Hardware & Software in stock
Computers • Drives • Monitors



Commodore 64c Computer



$129.95

List $229

FREE CATALOG!

Call For Your Free Catalog With Everything You Need For IBM®

The Popular Laser Complete Apple IIe & IIc Compatible System

- 128K Memory
- Genuine IBM® printer included while supplies last
- Laser 128 Apple compatible computer
- 12" Monochrome monitor (Magnavox)
- Quality Word Processor, Spreadsheet, and Database - a $209 value
- Video/RGB Port

Our Low Sale Price

$539.95

List $1409

IMMEDIATE ANSWER

800 - BUY - WISE ext. 51

800 - 289- 9473 ext. 51

Outside Service Area call 312 -382-5058

Mail

We Love Our Customers!
COMPUTER DIRECT
22292 N. Pepper Rd.
Barrington, IL 60010

www.commodore.ca

BEST SERVICE IN THE USA

PRICE IS NOT ENOUGH!

- 90 Day Immediate Replacement
- Experts in Customer Satisfaction
- Free Technical Assistance
- Bulletin Board Service
- Fast, Low Cost Delivery
- No Credit Card Fees
- 15 Day Home Trial
- Free Catalogs

Ultra Hi-Speed Printer

300 CPS Draft • 50 CPS NLQ
With Color Printing Capabilities

- 300 CPS Draft - 50 CPS NLQ
- Download character setting
- Variety of characters & graphics
- Parallel & Serial interface port • IBM & Epson mode
- Auto paper load & ejection
- Bottom feed & 10K buffer
- **Optional 7-color print kit .. $99.95**

Our Low Sale Price

$299.95

List $499

5¼" Floppy Disks

100% Certified • Lifetime Guarantee

19¢ each

Double Sided Double Density

Lots of 25

Made in the USA

3½" Micro Disks

100% Certified • Lifetime Guarantee

60% clip rate makes this the best deal in the country!

Double Sided Double Density

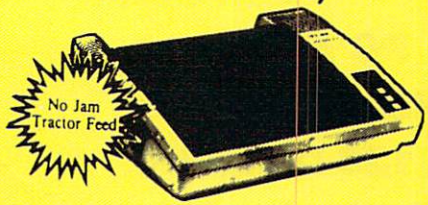
Lots of 250 - 79¢
Lots of 50 - 99¢

79¢ ea.

No One Can Sell This Printer For Less

180 CPS Printer

Lifetime Warranty on Printhead
Our Best Printer Buy



- ***2yr. Immediate Replacement***
- Dot Addressable Graphics
- High Speed Dot Matrix
- Italics, Elite, Condensed, Pica
- Centronics Parallel Port
- 8K Print Buffer
- Near Letter Quality from front panel
- Low Cost Adapters available
- Pressure Sensitive Controls

Our Low Sale Price

$149.95

List $499

1200 Baud Migent Pocket Modem

100% Hayes Compatible

Over $185 in Free Software Included

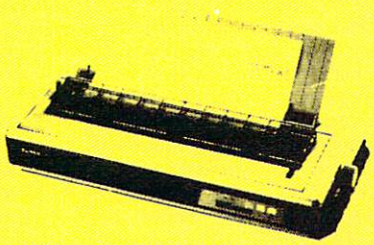
- Runs on AC or Battery
- Turns on/off automatically
- Plugs directly into your serial port on many computers
- On-screen status lights show call progress
- RS232 Compatible
- *Free Source With $15 Of On-line Time
- *Free Official Airline Guide Electronic Edition
- *Free Compuserve With $15 Of On-line Time
- *Free Terminal Modem Software

Our Low Sale Price

$79.95

List $423

15" 24-Pin Letter Quality Printer



- 180 c.p.s. in draft pica mode
- 60 c.p.s. in letter quality mode
- 96 user definable characters
- 32K RAM Memory
- Tractor/Friction Feed
- Uni-directional/Bi-directional
- 15"Impact Dot Matrix
- 12K Buffer
- Parallel Centronics Port

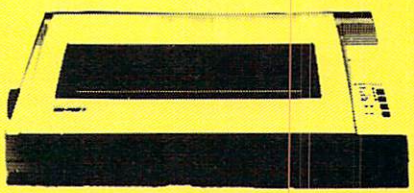
Our Low Sale Price

$479.95

List $699

720 CPS 15" Printer

Multi-Head Wide Carriage Printer
With High Dot Resolution



- 720 CPS - 150 CPS NLQ
- 8K Print Buffer
- Print Speed of **214 LPM** In Draft
- 6 Print Heads Achieve High Dot Resolution In Higher Speed
- NLQ Speed Of 47.4 LPM
- 136 Column Wide Carriage
- IBM and Epson Mode
- Parallel Centronics Port

Our Low Sale Price

$699.95

List $1995

VISA
MASTER CARD

*IBM, AT, XT are registered trademarks of International Business Machines

* 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 or Overnight delivery available. Minimum shipping charge per order is $3.75, Illinois residents add 6½% sales tax. We ship to all points in the U.S; Canada, Puerto Rico, Alaska, Hawaii, Virgin Islands and APO-FPO. (Monitors only shipped in Continental USA) Prices and availability subject to change without notice. Computer Direct will match any valid nationally advertised delivered price on the exact same product & payment method (excluding sales taxes)

www.commodore.ca

COMPUTE! specific

PC's Newest Norton; Latest 128 Delights; Junior League Apple-zines; Amigas Take Wall Street; MacProduce; ST Juggles

MS-DOS

Choosing a PC mouse used to be simple: You bought Microsoft's mouse or Logitech's. But the increasing popularity of the mouse with PC users has created a hotbed of competition. After Microsoft introduced its new, streamlined mouse last year, everyone seemed to be releasing new mice, many emulating Microsoft's Dove bar look.

Logitech, which made the three-button mouse popular, has just introduced a three-button, high-resolution mouse with a sleek new look (Logitech, 6505 Kaiser Drive, Fremont, California 94555; 800-231-7717; $139). Besides its new look, the Logitech mouse shares two important features with Microsoft's newest offering: It has a short button travel and its trackball has been moved from under the palm to near the front.

The curvaceous shape of the new Logitech mouse may take some getting used to, especially if you're familiar with the traditional, wedge-shaped Logitech mouse. The new mouse doesn't support your hand with ridges on the buttons and grooves on the side the way Logitech's previous C7 did. And the new Logitech isn't happy with just any mouse pad—in fact, the only pad it works well with is a hard-surfaced pad such as the MouseTrak L/F (930 Dow Dell Lane, Saint Helena, California 94574; 707-963-8179; $11.95). But on the right surface, this mouse is fast and surefooted.

Perhaps the biggest threat to the dominance of Microsoft and Logitech in the mouse market is Key Tronic. Famous for its high-quality keyboards, Key Tronic recently introduced a new 200-dpi, high-quality two-button mouse (P.O. Box 14687, Spokane, Washington 99214; 509-928-8000; $119). The Key Tronic mouse is shaped something like Microsoft's, but it's larger and will probably fit a large hand better. Key Tronic shows a conservative bent when it comes to trackball location: It places the trackball directly under the palm. Another interesting feature is the raised nubs on the left mouse button. The left button gets the most use, and these nubs make a good nonslip surface for your index finger.

The Key Tronic mouse has a solid feel, with just the right weight and resistance. And it glides effortlessly across almost any surface. The button travel is a little longer than Logitech's (which many people may prefer), and it has just the right amount of resistance.

If you're interested in buying a mouse, it's best to try a variety of the devices and decide which is best for you. But if you don't have an opportunity to go comparison-shopping and you want a two-button mouse, you can't go far wrong with Key Tronic.

SideTalk

Background telecommunications can certainly take the sting out of uploading and downloading. While your computer burns up the phone lines transferring files in the background, you can work undisturbed in another application in the foreground.

Invisible Link (see this column in the February 1989 issue) is a good, basic package that uses less than 30K, but it does have some limitations. It has no script language, it supports only XMODEM Checksum and CRC error-checking protocols, and it doesn't get along very well with other memory-resident programs.

At the other end of the spectrum from *Invisible Link* are high-powered, industrial-strength programs such as *Relay Gold, Mirror III,* and *BackComm.* Unfortunately, the power of these heavyweights comes at a price: Each uses about 200K of RAM when operating in its memory-resident, background mode.

Between *Invisible Link* and the big guns is *SideTalk* (Lattice, P.O. Box 3072, Glen Ellyn, Illinois 60138; 800-533-3577; $119.95). In its default configuration, *SideTalk* uses about 75K, supports an array of communications parameters, offers speeds ranging from 300 to 9600 bps, and sports a powerful BASIC-like script language that can handle complex communications. *SideTalk* supports not only XMODEM Checksum and XMODEM CRC protocols, but also the staples of the BBS world, YMODEM and YMODEM BATCH. And the program has ANSI emulation (though unfortunately, it doesn't support ANSI color).

In its background mode (the program can also be used as a one-time command), *SideTalk* performs flawlessly: It doesn't crash your system, it works well with other memory-resident programs, and it completes transfers without muss or fuss. I tested *SideTalk* with a variety of foreground and memory-resident programs, including Borland's *SideKick,* and experienced no problems. In fact, I even loaded and unloaded *SideKick* from memory while *SideTalk* was downloading in the background—*Side-*

www.commodore.ca

Talk didn't miss a byte.

Background communications is only half the *SideTalk* story. *SideTalk*'s powerful script language is an excellent partner for the program's background ability. The language is so complete that you can even write games in it. More to the point is the fact that you can write your own simple, single-user BBS in less than 20 lines of code. An example that's easy to customize is included with the package.

There's very little to complain about with *SideTalk*. The manual contains a lot of useful information, but it also contains some errors, and, though the number for the Lattice BBS (which offers technical support and files for downloading) is included in the autodial directory, the number is incorrect. These minor reservations aside, *SideTalk* is a winner. If you're interested in communicating in the background, don't overlook it. It may be as close as we're going to get to an ideal background telecommunications program.

Still the King

Peter Norton built his reputation on *The Norton Utilities,* but he has never been content to rest on his laurels. Each new release of *The Norton Utilities* has introduced new programs and new features. If you trace the changes in the *Utilities,* you can see the evolution of the average PC user.

When *The Norton Utilities* was introduced, the rank-and-file PC user was technically oriented and probably had some programming skill. The first edition of *The Norton Utilities* was intended for a techie group. As the PC market matured, more and more non-technical people started using the machines. There was a need for software that would perform critical disk chores but be easy to use. Each new version of *The Norton Utilities* has addressed more of these users.

The Norton Utilities, version 4.5 (Peter Norton Computing, 100 Wilshire Boulevard, 9th Floor, Santa Monica, California 90401-1104; 213-319-2000; Standard Edition—$100, upgrade—$25; Advanced Edition—$150, upgrade—$39), is the easiest of the *Utilities* to use yet. Almost every program in the package has had at least a minor facelift, and several new programs have been added.

The Norton Utilities Advanced Edition's new offerings include File Date and Time, Norton Control Center, Safe Format, Norton Disk Doctor, and a book, Norton Trouble Shooter. And all the utilities now work with DOS 4.0 and DOS 3.3's extended partitions.

In the flurry of new features, it's easy to miss 4.5's big news, which is NDD—the Norton Disk Doctor. This is an automated disk-test-and-repair program that performs more than 100 tests on your disk's logical and physical structure.

Norton Disk Doctor can be operated in two modes: quick and complete. In quick mode, NDD is like a super-version of CHKDSK. It analyzes your disk's logical structures: the boot record, the FAT (File Allocation Table), and the directories. This series of tests is quick enough to run every day.

If you specify the complete switch, in addition to performing the logical tests, NDD tests every sector on your disk for data integrity. If bad sectors are found, the program moves the data to a safe location and marks the sectors as bad. This test is similar to but more thorough than Disk Test (familiar from previous editions of *The Norton Utilities*). NDD takes quite a while to run a complete test.

You can run NDD either interactively or as a command line option. Peter Norton's technical support suggests that you run NDD with the quick switch every day to catch logical problems before they become critical and that you run either NDD with the complete switch or Disk Test every week to insure the physical integrity of your disk. If you're thinking of upgrading to *The Norton Utilities* 4.5, NDD alone is worth the price.

— Clifton Karnes

64 & 128

A few columns ago I took SSG's Ian Trout to task for an announcement he made in *Run 5* (SSG's house magazine). He said that the 64 was in a state of demise and that SSG would probably stop supporting it.

Well, Trout leads off the latest *Run 5* editorial with an apology for what he wrote, reassuring his readers that all of SSG's new games, including the Napoleonic system and the new World War II command-level system, will indeed be released for the 64. This is excellent news, because SSG's games grow stronger all the time. If you haven't tried an SSG war game, start off with one of the Decisive Battles of the American Civil War volumes ($39.95), with the superb *Reach for the Stars,* third edition ($39.95), or with *Halls of Montezuma* ($39.95).

Contact SSG at 1820 Gateway Drive, San Mateo, California 94404; (415) 571-7171.

Fun Fare

New games have been released on several fronts.

From Mindscape (3444 Dundee Road, Northbrook, Illinois 60062; 312-480-7667) comes *Willow* ($29.95), the game based on the unsuccessful movie. Excellent graphics and good gameplay (as well as support for fast-load cartridges) can't hide the fact that the movie was flawed, but as a game it's pretty good. Mindscape has also released the long-awaited *Uninvited* ($34.95). This program uses the same game mechanics found in *Deja Vu,* and its plot is every bit as absorbing. With *Deja Vu 2* around the corner, you'll probably want to get through *Uninvited* as quickly as possible. But take your time; it's worth it.

Sega (of videogame fame) is now releasing games in Commodore 64/128 format. *Alien Syndrome* ($29.95), available now, is an arcade shoot-'em-up with well-executed graphics and good game speed. Sega games for home computers are distributed by Mindscape.

Mastertronic a division of Virgin Mastertronic International (711 West 17th Street, Unit G9, Costa Mesa, California 92627; 714-631-1001) has released a computer rendition of *Shogun* ($9.99), the epic novel by James Clavell. Your goal is to become the military ruler of Japan. Although Mastertronic calls the package an interactive novel, it's mostly just good, fast arcade action. *Trilogy* ($14.99), another Mastertronic release, offers a trio of graphics-and-text adventures—Venom, Kobayashi Naru, and Shard of Inovar. In an interesting twist, the games come on flippy disks—one side for the 64 and the other for MS-DOS.

Melbourne House a division of Virgin Mastertronic International (711 West 17th Street, Unit G9, Costa Mesa, California 92627; 714-631-1001) has converted *Barbarian* ($29.99) to the 64/128 format. A graphics masterpiece in the Amiga and Atari ST formats, this Psygnosis release takes full advantage of the 64's capabilities. As a barbarian warrior seeking to destroy the evil Necron, you move through the underground world of Durgan. You'll find this game addictive. The monsters are interesting and the interface works well.

In contrast to the worlds of fantasy and the worlds of the past, consider the world of hockey. Electronic Arts (1820 Gateway Drive, San Mateo, California 94404; 415-571-7171) has released *Powerplay Hockey* ($24.95), which pits the United States against the Soviet Union. A fast-moving

www.commodore.ca

arcade game, *Powerplay* combines solid graphics with reasonably accurate gameplay to produce a contest that's especially fun between two players. The problem is that hockey is one of the most difficult team sports to simulate properly, but EA has managed to capture a good part of the feeling of a game always on the verge of chaos.

128 Only

Here's some good news for Commodore 128 owners. If you bought your 128 under the impression that 128-specific software would be plentiful and quick to arrive, you've probably been quite disappointed. One of the 128's major selling points is its total compatibility with the 64, a point that's worked more against the 128 than for it: Because the 128 is also a 64, there is very little reason for publishers to develop software tailored specifically for the 128.

Berkeley Softworks (2150 Shattuck Avenue, Berkeley, California 94704; 415-644-0883) is one of the publishers that has made its packages available for the 128. GEOS128, *geoCalc128*, *geoFile128*—all have been released for the machine, with considerable appreciation by 128 users. Each program costs $69.95. Timeworks (444 Lake Cook Road, Deerfield, Illinois 60015; 312-948-9200) is another publisher with a strong line of 128-specific products, offering *Word Writer 128* ($49.95), *Sylvia Porter's 128 Personal Financial Planner* ($49.95), and several other packages available in different versions for the 64 and 128. For many companies, though, the 128 is given only lip—or, in this case, boot—service. A few games autoboot on the 128, but otherwise they are no different from the 64 versions.

Some new packages add to the 128-specific category, though. Free Spirit Software (58 Noble Street, Kutztown, Pennsylvania 19530; 215-683-5699) has recently released three titles, all exclusively designed for the 128. In fact, these packages go so far as to require not just a Commodore 128, but a 128 with a mouse, the 64K video RAM chips, and an RGB monitor. In other words, you need a top-of-the-line 128 or, better still, a 128D. The 128D already has the video chips in place, and many of these computers are sold with the 1084 monitor. All three programs support the 1750 RAM expansion unit and the 1581 3½-inch disk drive.

Spectrum 128 ($39.95) is a paint program complete with an interlace option for those who own multisync monitors or high-persistence monitors. The package lets you draw and color several classes of shapes—boxes, circles, polygons of various kinds, spheres, donuts, cylinders, and spools. You can adjust shading and lighting, and you can work with individual pixels. You can access 16 colors in high resolution and 128 colors in low resolution.

Sketchpad 128 ($29.95) is a drawing program that uses the 128's video capabilities to let you draw smoothly curved objects. Rays, boxes, circles, arcs, and lines are available, and you can load *Print Shop* graphics directly. The Lock command is a strong feature that saves your picture to memory while you experiment with it and then lets you bring it back intact if you wish.

News Maker 128 ($29.95) is an easy-to-use desktop publishing package designed for newsletters, signs, posters, and the like. The package includes almost 50 fonts and five preset page formats with different column layouts. Using pictures from *Basic* 8.0 or *The Print Shop*, along with text created on a notepad, you can pour words into columns and wrap them around graphics.

Because the company supports the 128's superior capabilities and because its programs aren't copy-protected, Free Spirit deserves commendation.

But Berkeley Softworks isn't left out of this 128-specific discussion. Following close on the heels of version 2.0 of GEOS for the 64 comes version 2.0 of GEOS 128. The same improvements found in the Commodore 64 upgrade have made their way to the 128 version. *geoWrite* 2.1 and *geoPaint* are more powerful packages, with more impressive features. GEOS now includes geoSpell for accuracy, geoMerge for mail-merging, geoLaser for printing on an Apple LaserWriter, and Paint Drivers for converting non-graphics files into *geoPaint* format.

In other words, Berkeley has answered the criticisms made by the host of GEOS users. Given the 128's 80-column mode and its larger memory, GEOS becomes a superior product. The program's added support of the 1750 RAM expansion unit and the 1581 disk drive make GEOS 128 a serious productivity program. Even the problem of system lockup, which some users have complained about with the original GEOS, seems to have largely disappeared.

— Neil Randall

APPLE II

School kids know this criminal. She's been followed by more children than the Pied Piper. Carmen Sandiego, infamous star of *Where in the World Is Carmen Sandiego?* (as well as two sequels, *Where in the U.S.A. . . .* and *Where in Europe . . .*), has been eluding students for years, all the while teaching them about geography, history, and cultures. But now Brøderbund's popular educational series puts on a finer set of clothes for the Apple IIGS. A IIGS-specific *Where in the World Is Carmen Sandiego?* works like the original but looks so much better that it's a crime if you have to play the old version.

The plot remains the same: Track down one of Carmen's minions (or Carmen herself) by using clues scattered around the globe. You search for evidence, decide where to investigate next, and jet from city to city in your pursuit of these pilferers of national treasures.

Carmen's success has always depended on tricking children into thinking that they're having fun when actually they're learning about geography, culture, flags, and more as they practice using a reference book (*Where in the World . . .* puts the 1989 *World Almanac* in the box). The IIGS version of *Where in the World Is Carmen Sandiego?* retains this trait and adds terrific graphics, mouse support, and pull-down menus to make learning even more fun.

Although the graphics are a peripheral part of gameplay (they simply illustrate your present location), their quality ups the ante in Apple educational software. More important to the pursuit of Carmen and her gang, however, are the dossiers on disk and the program's mouse support. The mouse makes menu selection simpler, and with the gang's files on disk, kids hardly need to crack open the documentation to pinpoint the guilty party.

Where in the World Is Carmen Sandiego? retails for $44.95. For more information, contact Brøderbund at 17 Paul Drive, San Rafael, California 94903; (415) 492-3200.

Dinosaurs in Town

Kids and dinosaurs are nearly inseparable. Take a quick peek into most kids' rooms and you'll find at least one dinosaur. Classrooms aren't immune, either; posters and stickers of the terrible lizards are everywhere. Computer software publishers haven't let this fascination of the little for the large go untapped. From *Designasaurus* to *Dinosaurs Are Forever*, educational software packages have made

www.commodore.ca

California FREEWARE

ONLY $2.99 per Disk!

Public Domain Software and Shareware* for IBM™ and Compatibles, DOS™ 2.1 or higher.
Programs and Utilities to meet all your computing needs.

ONLY $2.99 per Disk!

BUSINESS

☐ **TICKLEX V4.2** (552) - Tickler/calendar/ office scheduler. Hard drive required..
☐ **EZ-FORMS Rev. D15** (66) - Menu-driven forms generator, misc. skeleton forms. 512 K.
☐ **FAST BUCKS V4.07** (864 & 865) - Menu-driven home finance package. 2 drives.
☐ **EXPRESSGRAPH V1.04** (457) - Business graphing program. CGA required.
☐ **IN CONTROL V2.702** (174 &175)- (2 disk set) The ultimate prospect / client customer & activity tracking system Hard drive req.
☐ **CATALIST V3.21** (163 & 164) - (2 disk set) The ultimate mailing list manager. Also handles Canadian, U.K., & European addresses. ***New.*** Hard drive required.
☐ **BUSINESS LETTERS** (303 & 304) - (2 disk set) 650 business letters to fit all your needs. Edit with any word processor.
☐ **EASY PROJECT V3.1** (440) - A Complete project management system, 1000 tasks, 100 sub-tasks, & much more. 380K. ***New.***
☐ **RENTALS V2.04** (585) - Menu-driven, does credits, debits, reports, handles up to 9604 rental units. 2 drives req.
☐ **PCLOAN4 V4.07** (799) - Does loan calculations & amortization schedules; almost any type of loan. Super!
☐ **MANAGING PEOPLE** (643) - Management course for supervisors.
☐ **PAINLESS ACCOUNTING VC2.50** (774-776) - (3 disk set) An integrated G/L, A/R, A/P menu-driven accounting package. 512K, hard drive required.
☐ **G/L,A/R,A/P, P/R** (76) - Stand alone modules from Jerry Medlin. Excellent!
☐ **PFROI V2.4c** (87) - Complete portifolio manager.
☐ **BILLPOWER PLUS V4.1** (794 & 795) - (2 disk set) State of the art time/billing/ bookkeeping program. 340K, hard drive required.

COMMUNITIONS

☐ **QMODEM V3.1A** (293 & 294) - (2 disk set) Full featured modem program. ***New.***
☐ **RBBS BULLETIN BOARD V17.1A** (613 - 616) - (4 disk set) Turn your computer into a RBBS. Industry standard. Hard drive req.
☐ **PROCOMM V2.42** (53 & 54) - (2 disk set) Menu-driven modem program; still one of the best.

DATABASE

☐ **INSTANT RECALL V1.64F** (515) - Memory resident free-form database.
☐ **FILE EXPRESS V4.28** (33 & 34) - (2 disk set) Menu-driven database; report generator, many features. One of the best database programs on the market! 2 drives ***New.***
☐ **WAMPUM V3.3S`** (37) - Menu-driven dBase III clone. Knowledge of dBase suggested. Hard drive required. ***New.***

EDUCATION

☐ **PC - FASTYPE V3.01** (120) - Improve your touch typing skills. CGA required.
☐ **PIANOMAN V4.00** (4 & 5) - (2 disk set) Turn your PC into a piano, create & edit music. (PC- DOS.)
☐ **THE WORLD V2.9 & WEADATA V2.0** (127) - Display maps of the world. CGA, EGA.
☐ **DOS TUTORIAL V4.4** (256) - Menu-driven tutorial that teaches DOS commands, etc
☐ **FUNNELS & BUCKETS V2.0** (130) - Learning game; add, subtract, etc. Ages 5 -10.
☐ **PLAY 'N LEARN V2.01** (624) - Contains 7 games designed for kids up to 6 years old. CGA required.
☐ **SPANISH TEACHER V1.2** (121) - Menu driven language tutorial. Basic required.
☐ **ALGEBRA TUTOR** (577) - Teaches various operations of algebra. CGA , DOS Ver. 3.xx.
☐ **BALLOON SPELLER** (809) - 3 different types of spelling games

GAMES

☐ **DIGITAL BASEBALL V1.1** (344) - Pick your team and players. Nice graphics .CGA req.
☐ **BLACKJACK GAMES V1.1** (95) - 3 advanced blackjack games, multiple players/ setup.
☐ **GAMES OF SKILL** (100) - Contains pool, bowling, & backgammon. CGA required.
☐ **MONOPOLY V6.7** (106) - Just like the board game, 2 to 4 players. CGA req.
☐ **SAILING IN THE BERMUDA TRIANGLE** (757) - Try and rescue the survivors and make it to port. CGA required.
☐ **SUPER PINBALL** (212) - 5 different games. CGA required.
☐ **SLUETH** (89) - A who - dun - it - mystery game similar to "Clue".
☐ **3-D CHESS V1.01** (215) - Excellent chess game. Switch between 2-D & 3-D.
☐ **EGA-TREK V1.0** (677) - Star-Trek with super graphics. EGA required.
☐ **CAPTAIN COMIC V3.0** (755) - Arcade style adventure game with super graphics. EGA required.
☐ **PC-PRO-GOLF V4.0** (667) - 18 hole golf course with nice graphics. CGA required.

GRAPHICS

☐ **VGA PAINT V1.1** (808) - A graphics drawing program, 248 colors at once! VGA & mouse required.
☐ **PC DRAFT II V3.20** (629)-A painting/ drafting program useful for producing clip-art for desktop publishing. CGA required.
☐ **PRINTMASTER GRAPHICS** (319, 549 & 550) - (3 disk set) Over 440 misc. graphics for Printmaster/Plus. Requires Printmaster or Plus. **For Printshop Graphics- Order disks # 320, 589, 590 respectively.**
☐ **PC-KEY-DRAW V3.53** (748-751) - (4 disk set) Combines features of a CAD & paint program for power/flexibility. Includes a full graphic database HYPERDRAW. CGA , hard drive required. ***New***
☐ **IMAGE 3-D V2.6** (676)-3-D wire frame modeling CAD. 512K, CGA, 2 drives req.
☐ **CHARTS UNLIMITED** (812) - Integrates graphics & text into one system; flowcharts, organizational charts, floorplans, electrical diagrams, Gaant charts, etc. 256k, CGA.

NOVELTY

☐ **MEAL MASTER V5.22S**(120) - Manage your recipes.
☐ **HUMOROUS DOS TRICKS** (236) - Various tricks to play on your friends. A must for any joker.. CGA required.
☐ **CROSSWORD CREATOR V3.30** (422) - Design, solve & print professional looking puzzles. 256k required.
☐ **PC LOTTO V2.2** (651) - Play almost any lotto in the world.
☐ **THE DIET DISK** (586) - How to lose those unwanted lbs.
☐ **FAMILY TIES V1.17** (154) - Complete geneology system.
☐ **HOME INSURANCE V3.01** (628) - Home inventory & record keeping system.
☐ **THE ONLINE BIBLE** (847 - 855) - (9 disk set) -The complete King James Bible with search & look-up capability. Hard drive req.
☐ **FOR FILMS & VIDEO TAPES V1.10** (621) - Catalog all your films & video tapes. 256K. 2 drives required.
☐ **THE NUTRITIONIST V3.0** (670) Food evaluation for nutritional content.

PRINTER UTILITIES

☐ **ON-SIDE V1.01** (560) - A sideways printing program with multiple fonts, up to 175.
☐ **LQ V2.32** (509) - Produces high quality text on dot matrix printers. Multiple fonts, print spooler.
☐ **LASERJET FONTS/1** (765 & 766)- (2 disk set) Fonts include: Century Schoolbook, Garamond, Optima, & Roman-Times. HP LJ+ or II.
☐ **LASERJET UTILS/3** (759) - Various utilities including one that allows true Epson emulation on your Laserjet! HP LJ+ or II.

SPREADSHEET

☐ **LOTUS LEARNING SYSTEM V2.4** (769 & 770) - (2 disk set) Explanations, illustrations, & practice sessions. Tutor Does NOT require Lotus. 512K, 2 drives required.
☐ **QUBECALC V3.02** (591) - A 3-D spreadsheet program, import Lotus files,.
☐ **AS EASY AS V3.01F** (302) - Lotus clone. 52 column sheet, graphing, supports functions of 123.

UTILITIES

☐ **ALT V1.16s** (581 & 582) - (2 disk set) Combines functions of Sidekick, Superkey, Norton, & Software Carousel.
☐ **GAME UTILITIES** (220) - Great for most programs that need color (CGA) to run.
☐ **DOS HELP** (255) - Help screens for DOS commands.
☐ **PC-DESKTEAM V2.01** (278) - Sidekick like utility plus more features.
☐ **AUTOMENU V4.50** (280)- Excellent menu program for your hard drive. Password protection & more.
☐ **FLU-SHOT PLUS V1.4** (541) - Various programs to protect against "trojan horses" & the "virus". A MUST FOR ALL !!!
☐ **LIST V6.2A** (274) - Best utility for viewing documentation. A MUST for all.
☐ **WINDOW BOSS V8.15.88** (782 & 783)- (2 disk set) Powerful programming techniques Hard drive required.
☐ **CATDISK V3.71** (237) - Inventory system for floppy disks.

WORD PROCESSING

☐ **GALAXY V2.42** (11) - Easy to use word processor; menus & quick commands.
☐ **PC-WRITE V3.02** (784-786) - (3 disk set) Full featured word processor; all the features of the expensive ones. ***New.***
☐ **IDEA TREE** (947) - Personal information manager/thought processor; see thoughts & ideas in a tree structure. 256K, 2 drives.
☐ **NEW YORK EDIT V2.10** (860) - A powerful programmer's text editor.
☐ **WORDPERFECT MACROS FOR V5.0** (189) Contains over 80 macros,

NEW PROGRAMS

☐ **WORDPERFECT LEARNING SYSTEM** (866 & 867) - (2 disk set) A tutorial for learning how to use Wordperfect Ver.5.0. **Order disk #868 & 869 for Wordperfect Ver.4.2. 512K.**
☐ **MR. MILWAUKEE V2.04** (932)- Over 800 drink recipes, adjust serving sizes, etc. Hard drive required.
☐ **PC-DRAFT-CAD V1.01** (938) - Complete CAD program with lots of features. 384K, 2 drives required.
☐ **PC-JIGSAW V1.00** (939) - Displays a picture, scrambles it like a jigsaw puzzle, you put it back together. 3 levels of play. Nice.
☐ **BASS TOUR V1.0** (952) - A graphic bass fishing tournament game. Select your rod, reel, lure, etc. 6 different lakes, 3 levels of play . Super! 512K, EGA required.
☐ **MAXI-READ V2.8** (878) - Improve your speaking & writing Skills.
☐ **TASK MASTER V2.0** (950) - All purpose project tracking system.
☐ **GRAB PLUS V5.2** (951) - A memory - resident program that will grab names/ addresses from your word processor & send them to your printer; for envelope printing.
☐ **BUSINESS CONTACTS MANAGER V1.10** (960 & 961) - (2 disk set) Business contacts manager that tracks everything. Hard drive .
☐ **SCHOOL MOM V2.2** (137) - Educational tool for ages 4-14. Math, Art, Music & Spelling. 4 levels of difficulty for each portion. Super! Joystick for portions CGA req.

ORDER TOLL FREE!
1 (800) 359-2189

Please print disk numbers ☐☐☐☐☐☐☐☐☐☐☐☐☐☐

# of 5.25" disks_____ @ $2.99 Each.=_____ # of 3.5" media @ $3.99 Each. =_____ Calif. Res. Sales Tax (6.5%)=_____ Shipping & Handling = $ 3.00 TOTAL =_____

Canada Add $2.00 more for S/H. International Orders Add $7.00 more for S/H. Call for Disclaimer information. Prices subject to change. This ad supercedes all prior .

We Accept M C / Visa (Please circle credit card used.) Card #_____ Exp. Date_____ Signature_____

Payment in U.S. funds ONLY !!

Mail order form with check or money order to:
CALIFORNIA FREEWARE
1466 Springline Dr. Dept. X
Palmdale, CA 93550

VISA MasterCard DISCOVER COMPUTE! 6/89

* Shareware programs require seperate payments to authors if found useful.

Order Desk: 7 am - 7 pm PST
Customer Service: 11 am - 4 pm PST
Monday - Friday
(805) 273 - 0300
Call for FREE catalog !
Over 900 disks of quality software.

Name_____
Address_____
_____
City_____ St___ Zip_____
Phone (___) _____

www.commodore.ca

stegosaurs, brontosaurs, and tyrannosaur rexes major monitor stars.

A new entry in the electronic dinosaur category is an entertaining and educational program called *Return of the Dinosaurs* (American Educational Computer, 7506 North Broadway Extension, Suite 505, Oklahoma City, Oklahoma 73116; 800-222-2811; $39.95).

Your friend, Professor T. Rex, has invented a time transporter, but the machine has malfunctioned. To save your hometown, you must identify and collect the dinosaur that's slipped through a crack in time. In a process that's reminiscent of the Carmen Sandiego series, you track down clues by going from place to place and by talking with the townspeople who have seen the beast. You move through four separate screens, combing Main Street, the Museum Park, the Museum itself, and the nearby countryside as you hunt for your next informant. With $60 in your pocket, you head out to converse with Sergeant Prime Evil in the police station; talk to Dinah, the rural mail carrier; and even gab with Auntie Sedent. The clock is ticking, though, and you've got to find the dinosaur and zip it back in time by the end of the week. You can walk from place to place or, to save time, spend money and take a taxi or bus.

Press Control-N to call up your notebook; then enter the clues you've uncovered. How large is the dinosaur? What does it eat? Does it walk on four legs or two? When you've gathered a few clues, you can use the Dinofile, a database of 70 dinosaurs, to determine the dinosaur's exact name, the period in which it belongs (so you can return it), and where it lived. The Dinofile is the heart of the package, for it's there that children learn how to access a computerized database and extract information from it.

Return of the Dinosaurs offers passable graphics and meager sound so that it can run on the lowest-common-denominator Apple II system—a 128K IIe or IIc (and an Apple IIGS in IIe mode). Sound and graphics are good enough to hold a kid's interest, though. One plus is that the package contains both 5¼-inch and 3½-inch disks.

Using dinosaurs as its bait, *Return of the Dinosaurs* makes kids think through a problem; by showing children how to use a database, the program helps them find the facts to solve that problem. *Return of the Dinosaurs* doesn't have a computer publishing juggernaut's advertising budget behind it, but it deserves a look by teachers and parents.

Up and Down

Although Apple II sales during the 1988 Christmas season—typically the time of year when Apple pushes computers hardest at consumers—were off nearly 50 percent from 1987, software sales last winter were up significantly.

Figures released by the Software Publishers Association, a collection of 440 leading software publishers, show that Apple II software sales were up nearly 20 percent during the last three months of 1988 when compared to the same period in 1987. Leading the increase were sales in the desktop publishing category, up almost 130 percent. *Print It!,* from Timeworks; *Springboard Publisher,* from Springboard Publishing; and *geoPublish,* from Berkeley Softworks, are the front runners in the category.

Not far behind was the integrated software category, which increased by 102 percent. The release of Claris's *AppleWorks GS* during the quarter undoubtedly played a major role in the sales jump, since the category only grew by 5 percent for all of 1988. *AppleWorks GS*'s release may also have affected word processor sales, which dropped by 9 percent—*AppleWorks GS*'s word processing module is arguably its strongest feature.

Educational software went up 17 percent, while game programs crept up only 4 percent. The big losers were graphics packages; that category dove 25 percent.

For all of 1988, however, Apple II software sales were flat, crawling up only 4 percent (in fact, when inflation is taken into account, Apple II software sales probably declined slightly). Yet Apple II owners can take comfort in the fact that things are worse for someone else: Commodore 64 software sales grew by only 0.8 percent during the year.

Micro Fun

Home computer users are always on the lookout for good software at bargain prices. When you're spending your own money on Apple II software, you want the most for your dollar.

One source of inexpensive but still worthwhile educational software is Scholastic Software, the publisher of a unique series of disks called *Microzine* and *Microzine Jr.* Long a staple in many classrooms, *Microzine* and *Microzine Jr.* make the transition to the home with ease. If you have kids and an Apple II computer in your house, check these out.

Microzine is aimed at kids ages 9 and up, while the newer *Microzine Jr.*'s audience is children ages 6 to 9. Each issue of *Microzine* and *Microzine Jr.* includes four programs, either on two 5¼-inch disks or on one 3½-inch disk. A booklet offers instructions and tips as well as program-related activities teachers and parents can do with their kids.

One recent issue of *Microzine,* for instance, included a certificate creator, a delightful (and fast-paced) math game based on percentages, a visual-discrimination program much like those what's-wrong-with-this-picture pages in children's magazines, and a graphics adventure story in the Twistaplot series. A sample *Microzine Jr.* issue offered a mask maker, a Twistaplot adventure where kids take on the identity of various African animals, a robot simulation that mimics the game twenty questions, and a graphics screen where children locate inappropriate objects.

Both *Microzine* and *Microzine Jr.* use a menu system to select programs and the issue's other features, which range from Letters to the Editor to disk-formatting selections. The menu, while helpful, isn't the slickest around. For instance, you have to use the arrow keys to move the pointer, even if you have a mouse.

The proof is in the programs, though, and, on that count, *Microzine* and *Microzine Jr.* are definitely a parent's good buy.

Home versions of *Microzine* and *Microzine Jr.* run $32.95 an issue (five issues are produced in a school year). To find out the current price of a year's subscription, contact Scholastic at 2931 East McCarty, P.O. Box 7502, Jefferson City, Missouri 65102; (800) 541-5513.

— *Gregg Keizer*

AMIGA

Who would have thought that Commodore Business Machines would ever become the darling of Wall Street? Well, that's what's happening, as analysts scramble to explain the company's recent financial success. Earnings for 1988 were up 74 percent over 1987, sending the price of Commodore stock to a four-year high that even beat Apple's current stock price. Sales of Amigas and Amiga peripherals accounted for about 40 percent of the profits, and Commodore's PC-compatible line brought in about 20 percent of the bacon. The rest was mainly from the Commodore 64 and 128, which, despite their aging technology, show no sign of imminent demise because of

www.commodore.ca

MONTGOMERY GRANT

COMPUT
6 89

ESTABLISHED 1968

OUTSIDE USA....CALL
(718)692-0071

FOR CUSTOMER SERVICE
Call: Monday-Friday :9:30am-4:30pm (718)692-1148

Retail Outlet: Penn Station, Main Concourse
(Beneath Madison Square Garden) NYC, NY 10001
Store Hours: Mon-Thurs 8:30-8/Fri 8:30-6/Sat-Closed/Sun 9:30-7

FOR ORDERS & INFORMATION CALL TOLL FREE

1-800-759-6565

OR WRITE TO:
Montgomery Grant Mail Order Department. P.O. Box 58
Brooklyn, NY 11230

FAX NO. 7186923372
TELEX 422132 MGRANT

Order Hours: Monday-Friday, 9:00am-7:00pm / Saturday-Closed / Sunday 9:30am-6pm.

NO SURCHARGE FOR CREDIT CARD ORDERS/WE INVITE CORPORATE & EDUCATIONAL CUSTOMERS/CORPORATE LEASING AVAILABLE/DISCOUNTS FOR QUANTITY ORDER

AMIGA

AMIGA 500

Amiga 500 w/512K Built-in 3.5" Disk Drive **$529**

AMIGA 500 RGB COLOR PACKAGE

Amiga 500 w/512K • Built-in 3.5" Disk Drive • Mouse • RGB Color Monitor • Free Software

$729

AMIGA 500 With 1084S.....$799

AMIGA 500 w/1084S & 1010 3.5" Drive.....$979

AMIGA 2500.....$3199

AMIGA 1010 DISK DRIVE...$189.95

A-1680 MODEM.....$99.95

ALL OTHER AMIGA PERIPHERALS IN STOCK

AMIGA 2000

- A-2000 Computer w/Keyboard
- 1MB Expandable to 9MB
- Built-in 3.5" Disk Drive

$1359

AMIGA 2000 RGB COLOR PACKAGE

• A-2000 Computer w/Keyboard • 3.5" Disk Drive • Mouse • RGB Color Monitor • Free Mouse & Software **$1559**

AMIGA 2000 w/1084S MONITOR $1629
AMIGA 2000 H.D. $1999

LAPTOPS

AMSTRAD PPC-640 w/2 DRIVES + MODEM...$769
SPARK EL.....$999
NEC MULTISPEED HD.....$1999
NEC ULTRALITE 1MB.....$1899
NEC ULTRALITE 2MB.....$2299
ZENITH 184 SUPERSPORT w/2 Floppies.....$1460
ZENITH 184 SUPERSPORTS 20MB.....$2199
ZENITH 286 w/20MB..$3099 TOSHIBA 1600....$3269
TOSHIBA 1000.....$749 TOSHIBA 1200H..$2199
TOSHIBA 1200HB.....$2399 TOSHIBA 3200.....$3549

MODEMS, ACCESSORIES & EXTERNAL DRIVES AVAILABLE FOR ALL LAPTOPS

APPLE IIC+

w/ Floppy Drive & 12" Monitor **$599**

APPLE IIGS COMPUTER 512K Upgrade • Apple 3.5" Disk Drive • RGB Color Monitor **$1499**

IMAGEWRITER II PRINTER **$449**

VENDEX HEADSTART III

8-12 MHz. • 1MB RAM • 5.25" 1.2MB Floppy • 3.5" 1.44MB Floppy • 30MB Hard Drive • VGA/EGA/CGA/MDA Included • Serial/Parallel Ports • Mouse • MS DOS • 12" VGA Monitor

$2595

RUSH SERVICE AVAILABLE..CALL FOR DETAILS

commodore

C64C

COMPUTER PACKAGES

COMPLETE PACKAGE

- COMMODORE C-64/C COMPUTER
- COMMODORE 1541-C DISK DRIVE
- COMMODORE COLOR PRINTER
- 12" MONITOR
- GEOS SOFTWARE PROGRAM

$349

COLOR PACKAGE

- COMMODORE C-64/C COMPUTER
- COMMODORE 1541/C DISK DRIVE
- COMMODORE COLOR PRINTER
- COLOR MONITOR
- GEOS SOFTWARE PROGRAM

$459

C64C With Geos Software **$119.95**

NEW C-128D with Built-In Disk Drive **$399**

#1764 EXPANSION MODULE	$114.95
XETEC S. GRAPHIX JR. INTERFACE	$29.95
XETEC S. GRAPHIX SR. INTERFACE	$49.95
XETEC SUPERGRAPHIX GOLD	$79.95
C-64/C -64C POWER SUPPLY	$29.95
C-1660 MODEM	$19.95
C-1670 MODEM	$56.95
COMMODORE 1350 MOUSE	$26.95
COMMODORE 1351 MOUSE	$34.95
XETEC LT. KERNEL 20MB HARD DRIVES FOR:	
C-64/C	$749
C-128	$799
XETEC 40MB HARD DRIVE FOR:	
C64/128 & 128D	$1149

C128D

COMPUTER PACKAGES

SPECIAL!!

C/128-D DELUXE PKG.

- C/128-D COMPUTER w/BUILT-IN
- DISK DRIVE
- COMMODORE 1902 RGB COLOR
- MONITOR
- COMMODORE COLOR PRINTER

$629

C/128-D COMPLETE PKG.

- C/128-D COMPUTER w/BUILT-IN
- DISK DRIVE
- COMMODORE COLOR PRINTER
- 12" MONITOR

$469

C/128-D WITH 1084S MONITOR **$659**

DISK DRIVES

C1571 $219.95
C1581 $179.95
C1541II $159.95

MONITORS

COMMODORE 1084S...$279.95
COMMODORE 1802.....$189.95

COMMODORE PRINTERS

MPS-1250 $219
MPS-1000 PRINTER $169

COMMODORE PC10-1

IBM XT COMPATIBLE PKG

512K RAM•360K Floppy Drive•12" Monitor • Serial & Parallel Ports Keyboard •Box of 10 Diskettes•MS DOS & GW Basic **$499**

commodore COMMODORE COLT Computer

640K • 4.77-7.16MHz • 2 Floppy Disk Drives • 12" High Resolution Mono Monitor • All Hook-up Cables & Adapters MS DOS & GW Basic

$669 MONITOR INCLUDED

COMMODORE COLT w/1084S MONITOR **$899**

SEAGATE

20, 30, 40, 60, 80 MB HARD DRIVES IN STOCK

PRINTERS

OKIDATA 180	$239.95	STAR NX-1000	$169.95	PANASONIC 1080-II	$159.95
OKIMATE 20	$139.95	STAR NX-1000C	$169.95	PANASONIC 1092	$299.95
EPSON FX-850	$339.95	STAR NX-1000 RAINBOW	$219.95	PAN. KXP-1124	$314.95
EPSON FX-1050	$489.95	STAR NX-1000C RAINBOW	$224.95	PANASONIC 1180	$184.95
EPSON LQ-500	$315.95	STAR NX-2400	$299.95	PAN. KXP-1524	$499.95
EPSON LQ-850	$529.95	NEC P2200	$349.95	PANASONIC KXP-4450 Laser	$1399.95
EPSON LQ-1050	$729.95	NEC P5200	$499.95	KXP-1595	$469.95
EPSON LQ-2550	$919.95	NEC P5300	$669.95	HP DESKJET	$569.95
EPSON EX-800	$419.95			HP LASERJET IID	$2895
EPSON LX-800	$189.95				

HEWLETT PACKARD LASERJET SERIES II $1629

DICONIX 150.....$299.95

MONITORS

MAGNAVOX EGA Monitor	$339.95
MAGNAVOX EGA Monitor & EGA Card	$459.95
MAGNAVOX VGA Monitor	$369.95
MAGNAVOX VGA Monitor & VGA Card	$569.95

EPSON

EPSON EQUITY I+

IBM PC/XT COMPATIBLE PACKAGE

640K RAM w/Clock Calendar 4.77-10MHz • One 360K Drive Keyboard • Serial & Parallel Ports 12" High Res. Monitor • Box of 10 Diskettes • MS DOS • GW Basic

$629

Same Package with:
20MB Hard Drive.....$879 30MB Hard Drive.....$929 2 360K Drives.....$699

EPSON EQUITY II+

IBM AT COMPAT. HARD DRIVE PKG.

Keyboard • 640K RAM • 80286 Microprocessor • 1.2MB Floppy Drive • 20MB Hard Drive • Mono Monitor • MS DOs GW Basic **$1329**

Same Package with:
30MB Hard Drive...$1379 40MB Hard Drive...$1479

IBM XT

Hard Drive Package

IBM XT Computer • IBM Keyboard 256K RAM expandable to 640K 360K Disk Drive • 20MB Hard Drive • Package of 10 Diskettes

$1129

IBM XT w/2 Floppy Drives.....$999

IBM PS-II

Model 30 286-021.....$1999
Model 50Z w/30MB.....$2749
Model 70-E61.....$3950
Model 80-071.....$4799

ALL OTHER PS-II MODELS AND ACCESSORIES IN STOCK!!

IBM AT

Hard Drive Package

- 1.2MB Floppy Drive
- 20MB Hard Drive
- Serial Parallel Ports
- Keyboard (Monitor Optional)

$1599

IBM AT Package w/30MB.....$1649
IBM AT Package w/40MB.....$1749

WE CAN RECONFIGURE ANY OF OUR COMPUTER PACKAGES TO YOUR SPECIFICATIONS. Call for info. We carry modems, color monitors, drives, cards & all other accessories for your computer.

AMSTRAD PC1640

Keyboard • 640K RAM • Turbo Speed Two 360K Drives • Mono Monitor FREE Mouse & Software • MS DOS GW Basic

$729

w/1 Floppy & 20MB.....$1029

EGA & CGA MODELS NOW IN STOCK!!

SHARP PC-7100A *PORTABLE*

IBM XT COMPAT. COMPUTER PKG.

Detachable Keyboard • Backlit Screen • 8MHz Turbospeed • 5.5" Floppy Drive • 20MB Hard Drive Serial/Parallel Ports

$1188

SHARP PC7000 W/TWO FLOPPIES **$729**

SANYO PR-3000 A

Daisy Wheel Letter Quality Printer

SPECIAL PURCHASE **$59**

Certified Check, Bank Check, Money Orders, Mastercard, Visa, Amex, Diner's Club, Carte Blanche, C.O.D.'s and approved P.O.'s accepted. No additional surcharge for credit card orders. Non-certified checks must wait 4-6 weeks for clearance. Please add 5% shipping & handling. Minimum shipping & handling charge is $6.00. APO FPO addresses add 10% for shipping and handling. All APO FPO are shipped first class priority mail. N.Y. residents add applicable sales tax. Prices subject to change without notice. Not responsible for typographical errors. Items are subject to availability. A return authorization number is required for returns. Defective returns will not be accepted. IBM PC XT AT are registered trademarks of International Business Machines Corp. All items can be shipped Air Express. Call for details. For your protection we check for credit card theft. D.C.A. #800233

their immense software base. The company has broadened its dealer base to 1500, about twice as many dealers as last year. And a new president, Mehdi Ali, has taken the reins, although Irving Gould remains chairman and undoubtedly still wields the real power.

While a number of market analysts have been recommending Commodore stock as underpriced, many others are still struggling to catch up with the new Commodore image. Three years ago Commodore was nearly in receivership, with its creditors operating the company by proxy. Some ill-informed Wall Streeters apparently have Commodore pegged as a toy manufacturer, probably confusing it with Coleco. As a reader of this column, you have a definite advantage over these market pros, since you know Commodore for what it really is. If you like to play the stock market, now might be a good time to give Commodore a hard look.

So what is Commodore going to do with its newfound wealth? Among the things I'd like to see is a complete overhaul of AmigaDOS, Intuition, and the Workbench look and feel. It's not enough to have the only multitasking operating system—the Amiga operating system should be internally consistent, carefully detailed, easy to access and program, attractive to look at, and above all, bulletproof. Operating-system redesign, more than new hardware or new marketing efforts, will convince corporate buyers that the Amiga is a serious computer. Better quality control on Commodore products and a responsive customer-service operation would go far in that direction also.

Register your own opinion by contacting Commodore Business Machines, 1200 Wilson Drive, West Chester, Pennsylvania 19380; (215) 431-9100.

Dateline: AmiEXPO

The New York AmiEXPO show (March 3–5) looked like the biggest Amiga-only show ever held in the United States. Attendance was larger than expected, the hubbub was deafening, and the place was so crowded that it was hard to squeeze from one aisle to the next.

And this was without any visible support from Commodore or many of the other major players in the Amiga market—Commodore didn't even have a booth. Gale Wellington, Commodore's General Manager for Worldwide Software and Product Support, said in her keynote address that this was because there were too many conflicting shows before and after AmiEXPO. But the rumor is that Commodore has an unspecified grudge against the AmiEXPO organizers.

Video professionals were hobnobbing with artificial-intelligence mavens, performance artists with regional sales reps, while roving gangs of teens—hapless dads in tow—were blitzing every game on display, especially *Space Harrier.* Excitement over the Amiga's creative capabilities was palpable everywhere. Crowds gathered around the latest killer demos, such as Chris Williamson's Walker Demo II, NewTek's science-fiction demo reel, and Glen Graham's glistening *Sculpt-Animate 4D* dragon.

Amiga hard drives, scarcely to be seen at last year's New York AmiEXPO, were in evidence all over the floor. Great Valley Products (225 Plank Road, Paoli, Pennsylvania 19301; 215-889-9411) showed a complete line of external and internal drives, including a 44-megabyte SCSI removable media drive ($1,299 for drive, and $139 for the storage media), a first for the Amiga. Interactive Video Systems (15201 Santa Gertrude Avenue, Y102, La Mirada, California 90638; 714-994-4443) also displayed a range of fast, autobooting controllers and hardcards for the A2000/A2500. The IVS cards looked especially sturdy and cleanly designed.

New genlocks were popular, too. The trend is toward pro-quality genlocks that integrate into superformat systems. Communications Specialties (89A Cabot Court, Hauppauge, New York 11788; 516-273-0404) showed its Gen/One ($895), a professional genlock/keyer/encoder that's both NTSC and Super-VHS compatible. The Scanlock Model VSL-1 (VidTech International, 2822 NW 79th Avenue, Miami, Florida 33122; 305-477-2228; $995) is similarly capable, with the addition of front sliders for fade control. It also comes in a PAL version ($1,095), compatible with European video standards.

There was plenty of new software to be seen and tested. Haitex Resources (208 Carrollton Park, Suite 1207, Carrollton, Texas 75006; 214-241-8030) showed *Adrum* ($79.95), a nice drum machine capable of loading up to 26 sound samples. Another music program, *M* (Intelligent Music, 116 North Lake Avenue, Albany, New York 12206; 518-434-4110; $200), is a full-featured, realtime MIDI sequencer with an unusually powerful pattern editor. *M* looks to be one of the hottest Amiga music programs of 1989.

If you looked around, you could also find new business software. *Project Master,* from Brown-Wagh (16795 Lark Avenue, Suite 210, Los Gatos, California 95030; 408-395-3838; $195), is a well-thought-out and easy-to-use graphical project-planning tool. You define the various tasks and goals of your project, name your resources, and estimate how much money and time each task will take. Then *Project Master* graphs the best way to organize the project and provides complete time, resource, and cost breakdowns at each stage. A program like this can be usefully applied to any complicated job, like writing a large software program, producing a film, or managing a production run on the shop floor.

A Lot of Elan

The best new graphics program at AmiEXPO was *Elan Performer,* from Elan Design (P.O. Box 31725, San Francisco, California 94131; 415-621-8673; $59). *Elan Performer* is a utility program that displays all kinds of Amiga graphics, including IFF, HAM, RGB, ANIMs, and RIFF animation files. A program like this really comes in handy when you have many different kinds of images to show, but you don't want to carry around the application programs used to create the graphics. Assign picture or animation files to keys on the keyboard by clicking a simple keyboard diagram; to play the slide show, press the chosen keys. The show also can be automated. ANIMs can be played forward and backward at various speeds by moving the mouse. *Elan Performer* always keeps your memory as full of graphics as possible, so disk access during a show is held to a minimum.

Elan Performer offers basic animation capabilities as well. You can sequence images and use the program to compile them into an ANIM or RIFF animation. *Elan Performer* even tells you which animation file format produces the smallest file, and then it lets you choose the best format. Use the control screen to synchronize your show with music or other events. The screen gives you precise control over timing, duration, and looping of each image. *Elan Performer* is one program that every Amiga artist should own.

— Steven Anzovin

MAC

Next time you're in the grocery store, check the produce section—you may find Macintosh and Apple II computers

www.commodore.ca

nestled among the fruits and vegetables. Apple has joined with grocery chains around the country to offer computers in exchange for cash-register receipts.

By January, the program had attracted 504 grocery stores and about 7000 schools. Students collect as many receipts as possible in a 26-week period and trade them for Apple components. To get an ImageWriter, for instance, schools need $65,000 worth of receipts. To get a Macintosh Plus, they need $185,000 worth. Participating supermarket chains are located all over the country, from Michigan to Florida, from Nevada to Virginia.

The giveaway is John Connelly's idea. His company, J. Edward Connelly Associates, develops incentive marketing campaigns. Connelly buys the computers from Apple at a discount and then sells them to the supermarkets. The supermarkets expect boosted business as a result of their participation. Some have reported sales increases of as much as 10 percent.

If you're interested in starting an Apples-for-the-Student movement in your community, join forces with a supermarket chain that serves your area and contact Peter Jarvis or George Pittel at Service Marketing Group, 300 Garden City Plaza, Garden City, New York 11530; (516) 747-7111.

Magic Lessons

Programming may not be the most popular activity among Macintosh owners, but its magic is strangely compelling to thousands. Creating just the right spells and incantations can be difficult, though, so Symantec has released a package for the programmer's apprentice in all of us.

Just Enough Pascal ($75) is a Pascal programming tutorial that works with *THINK's Lightspeed Pascal,* from Symantec. By showing you how to build a program step by step, *JEP* teaches you about programming logic, Pascal commands, Macintosh-specific routines, and *Lightspeed*-specific debugging. You may open *JEP* as a novice, but you'll close it knowing enough to write your own applications.

The tutorials are stored in a desk accessory. Choose JEP Instructions from the Apple menu and you'll find a hypermedia system with buttons for program assembly instructions. Other buttons take you to explanations of concepts and tinkering sessions for experimenting with the code.

Just Enough Pascal is a terrific teacher. If you have a little programming background, you'll be surprised at how well the lessons explain tough concepts. Each variable type, each function, each program unit is explained carefully with detailed, practical examples. If you have no programming experience, you'll never know how hard it can be to grasp some of the necessary information, because Symantec's program makes it fairly easy.

Although *Just Enough Pascal* is specific to *THINK's Lightspeed Pascal,* that's not a real drawback. *Lightspeed* is a particularly good Pascal compiler with excellent debugging tools.

Nothing makes programming a snap except a perfectly logical mind. For most of us, only practice and experiments will improve our skills. So don't be surprised if the information in *Just Enough Pascal* isn't instantly transparent—that's simply not the nature of programming. If you want to learn the magic of the Mac, though, you can get a good start with Symantec's package.

Contact Symantec at 135 South Road, Bedford, Massachusetts 01730; (617) 274-4800.

Holy Writ

If you don't have *The Macintosh Bible,* get it. The book gathers together a wealth of information about the Mac: tips, ideas, hints, and mini-reviews that help you choose new products and make better use of old ones.

Not a book to be read straight through, *The Macintosh Bible,* Second Edition is best used as a reference when you think there must be a better way to do something. It's organized by topic—Fonts, Page Layout, Utility Programs, and so on. If you're wondering whether there's a way to close all open windows at once, for example, look in the "Tips about Windows" section in the "Basic System Software" chapter. Sure enough, it's there: Just hold down the Option key as you click in the close box of an active window to close all other windows, too.

If you're an old hand at the Macintosh, you may find the book too elementary at first glance. It is, however, one of the few places you can find all this information under one cover. You'd have to search bulletin boards, join user groups, peruse CompuServe, and subscribe to most of the Macintosh magazines to reproduce the work that Arthur Naiman and his crew have done in *The Macintosh Bible.*

The Macintosh Bible ($28) is published by Goldstein and Blair, Box 7635, Berkeley, California 94707; (415) 524-4000. The price includes two free upgrades to keep you up-to-date with important changes in the Mac world.

Or Not to Upgrade

When is an upgrade not an upgrade? When you don't need it.

Apple has described the latest upgrade to *HyperCard* (version 1.2.2) as a maintenance release, and many of its new features won't apply to home users. Version 1.2.2 offers improved display and printing of Japanese, Arabic, and other characters, for instance, and provides CD-ROM drive support for international users and A/UX compatibility.

Doesn't sound too interesting, but surely some home users could use these new offerings.

HyperCard 1.2.2 does fix some minor bugs from earlier versions, and the new version also has improved sound capabilities. Of particular interest to you may be its improved operation in low-memory situations. If you have a one-megabyte Mac, *HyperCard* 1.2.2 is a good upgrade for you.

Apple calls this version an optional update, and U.S. customers aren't required to upgrade. If you're interested, the update is available from all registered Apple dealers.

Under the Apple

When they're stored as desk accessories, applications take on a new character. Word processors under the Apple menu become handy scratch pads with text-manipulation capabilities. Databases under the Apple become easy-access fountains of information. Generally, desk accessories aren't as feature-packed as stand-alone programs in the same genre, but they offer enough for people who have only an occasional need for the application.

Preferred Publishers has released two such packages: *DAtabase* and *Vantage. DAtabase* is as good an information manager as most of us need. *Vantage,* on the other hand, really can't replace your word processor. (But then, your word processor probably can't replace *Vantage,* either.)

Although its reporting features are limited, *DAtabase* offers many useful functions. Using a *HyperCard*-like interface called DAtabase Builder, that's part of the package, you create forms that look like cards. Besides graphics tools, DAtabase Builder offers basic text fields, calculated fields, check-box fields, and pop-up menu fields.

Once you've designed the look of your database form, you quit DAtabase Builder and start up *DAtabase* from the Apple menu. From there, you can enter, browse, sort, and search for your information. *DAtabase* stores text and graphics, so you can catalog clip art and other pictures as well as phone numbers and addresses.

Too bad DAtabase Builder isn't more closely linked

www.commodore.ca

with its parent, *DAtabase;* you'll probably want to adjust the form once you start entering data.

Vantage is a good desk accessory for people who share text files with other computer formats. As a mini-word processor, it can't compete with something like *QuickLetter,* but as a utility for stripping control characters, sorting text lists, adding line numbers, and editing text, it's a good package. Even if you perform these tasks only a few times each year, you still may want a program to do the dirty work. *Vantage* will clean up cheerfully.

DAtabase retails for $129.95; *Vantage,* for $99.00. For more information, contact Preferred Publishers at 5100 Poplar Avenue, Suite 706, Memphis, Tennessee 38137; (901) 683-3383.

— *Heidi E. H. Aycock*

ATARI ST

Wouldn't it be nice if you could switch between two programs at a moment's notice? One way to do this is to use *Juggler 2,* from MichTron (576 South Telegraph, Pontiac, Michigan 48053; 313-334-5700; $49.95).

The package actually includes two programs. The first is the original program, called The Juggler. It displays several programs in separate windows at the same time. To switch between the programs, you just click on the window containing the program you want. While The Juggler is handy, it doesn't work with programs that don't follow the rules for programming under GEM.

Juggler 2, the other program in the package, works with many more programs. Depending on memory, as many as eight partitions can be set aside, each independent of the others. To switch between the partitions, simply press Shift and Alternate simultaneously. The partitions can contain either GEM or TOS programs, and these programs can even be in different resolutions on a color monitor.

The first time you switch to a partition, that partition is booted to the desktop with any programs or accessories that you have in your AUTO folder. By naming boot disk folders AUTO1, AUTO2, AUTO3, and so on, you can customize the partitions and what automatically appears in each. The desktop layout of each partition can also be customized by placing a DESKTOP.INF file in the AUTOX folder.

You may find two small glitches in *Juggler 2.* The JUGGLER2.PRG file must be the last to run from an AUTO folder; however, even then, JUGGLER2.PRG doesn't run all the programs ahead of it when booting a partition after it's been added to an existing AUTO folder. The problem is easily solved: Simply delete the AUTO folder and rebuild it by dragging files to it in the exact order that they should run in.

The desk accessory *Universal Item Selector II* (mentioned in this column in the February 1989 issue) caused *Juggler 2* to crash repeatedly. Oddly, though, *UISII* didn't cause this crash when used inside *Multi-Desk,* perhaps because the accessory is loaded after *Juggler 2* in this configuration.

Another switching solution is *Revolver* (Intersect Software, 2828 Clark Road, Suite 10, Sarasota, Florida 34231; 800-826-0130; $49.95). *Revolver* allows you to separate your ST's memory into partitions of 256K or more. The partitions can be different sizes and offer different resolutions on a color monitor.

Cycling through the different partitions takes just a keystroke. A partition can be rolled out—saved to disk in a compressed format—or rolled in—retrieved from disk. The first time you access a partition, it's booted from disk. Pressing Reset reboots only the current partition, leaving the others alone. You can even view one partition while in another partition.

The package includes a reset-proof ramdisk, a print spooler, and a disk I/O buffer, all of which will survive a warm boot.

A control-panel button gives you access to a screenful of file functions, such as copy, rename, move, and delete. The control panel also lets you adjust such items as key-click control, key repeat on/off, bell on/off, mouse speed, and time and date settings. A built-in VT52 emulator is also included, along with a timed automatic reminder to roll out a partition. You'll also find a fix for the famous 40-folder bug (this bug crashes the ST after you've accessed 40 folders).

The one problem with *Revolver* is that you can't perform certain operations on the partition you're in, so you must first switch to another partition. The control panel, however, doesn't tell you which partition you're in and will let you choose the active partition or even a nonexistent partition.

Bloody Games

There's nothing delicate about *Technocop,* from Epyx (600 Galveston Drive, Redwood City, California 94063; 415-366-0606; $39.95). In this graphically violent game, you play a police officer of the future. In the first segment you drive your car down a winding road. If you're feeling nice, you can avoid enemy cars and motorcycles, but if you're feeling belligerent, you can run them off the road or blast them with your guns. The game ends when your vehicle becomes damaged (by running off the road, ramming a tree, and so on).

In the second segment, you arrive at a crime scene. You enter a building and, under a time limit, try to apprehend the criminal. You can duck, jump, use elevators, and defend yourself in the quest for the miscreant, whose presence is monitored on a wrist-mounted radar.

As you move through the building, various toughs assault you with axes, whips, knives, and other instruments of mayhem. Blasting them with your .88 Magnum reduces them to a quivering pile of bloody bones. You must also avoid blasting innocent bystanders. This game is loaded with gratuitous violence and is not recommended for the squeamish.

Accessorize

The six-desk accessory limit of the ST has become a problem as larger memory configurations become more common. A variety of all-in-one desk accessories have been marketed to address this problem, but they share one drawback: You may not need everything that such packages offer, but you still have to sacrifice the memory required for the whole package even if you only need one or two of the tools offered.

Yet another ST desk accessory limitation is that the accessories are set when you boot up and can't be changed unless you reboot.

Codehead Software (P.O. Box 4336, North Hollywood, California 91607; 213-386-5735) intends to change all that. Its *Multi-Desk* ($29.95) is a remarkable utility that circumvents the ST's desk accessory problems.

Multi-Desk lets you access as many as 32 desk accessories from a single slot in the Desk menu. (And because *Multi-Desk* can occupy more than one of these slots, the number of desk accessories is virtually unlimited.) Further, *Multi-Desk* lets you load and unload accessories at any time. Configuration options allow you to store accessories in a folder, load a slate of desk accessories at boot-up, and reserve memory. You can even run *Multi-Desk* as a regular program—just change the extension—so you can run desk accessories from the Desktop the same way you run regular programs.

— *David Plotkin* ⊡

www.commodore.ca

IBM Software as low as $2.49

Thousands of IBM/Compatible Public Domain and Shareware Programs
Are Available from the Micro Star Library and at Incredibly Low Prices!
We feature the best and most up-to-date shareware available.
Our software is guaranteed against bugs, defects, viruses, etc.
And We Offer FREE Technical Support For Our Customers

VISA MasterCard

ORDER TODAY on our TOLL FREE PHONE LINES • ORDERS SHIPPED OUT SAME OR NEXT DAY

INCREDIBLY LOW PRICES

1-9 Disks	$2.99 ea.
10-19 Disks	$2.69 ea.
20 or more	$2.49 ea.

GAMES

ARCADE GAMES (106) Has Kong, 3-D Pacman, Bricks, Pango. (Requires color.)
BASIC GAMES (107) Pacman, Lunar Lander, Startrek, Meteor, Breakout, and others.
CARD GAMES (109) Canasta, hearts, draw poker & bridge.
STRIKER (110) Defender-like game. "Top Gun" in space.
FLIGHTMARE (112) Futuristic fighter pilot game. (Requires color graphics adapter.)
SLEUTH (117) Who done it?
DND (119) Like Dungeons and Dragons.
ROUND 42 (120) Better than Space Invaders. 42 levels.
GAMES IN BASIC (124) Lander, biorhythms, desert, Phoenix, Star Wars, others.
QUEST (152) Role playing adventure fantasy game. (Requires CGA.)
SPACE WAR (158) Dogfight in outer space, using phasers, photon torpedoes, etc.
BRIDGE PAL (171) Complete game of contract bridge, with tutorial.
FENIX (193) Just like the famous arcade game.
PINBALL GAMES (197) Pinball, Rain, Twilight Zone, Wizard, etc.
KID-GAMES (GAM8) Animals math, clock game, alphabet, etc.
CHESS (GAM9) Incredible. 2D and 3D. Many levels. Play back moves, store games.

EGA RISK (GAM11) World domination in great color. Includes EGA Asteroids.
PC PRO-GOLF (GAM27-28) Great graphics. Complete 18 hole, 72 par course. (CGA)
PEARL HARBOR (GAM32) Shoot down Jap Zeros before they destroy U.S. Fleet. (CGA)
ULTIMA 21 DELUXE (GAM34) Best Blackjack game around. Includes Video Poker.
FORD SIMULATOR (GAM37) Great driving simulation. (Requires CGA).

MUSIC

PIANOMAN 4.0 (301) Turn your keyboard into a piano.
PC-MUSICIAN (302) Compose, save, and play music.

WORD PROCESSING

PC-Write 3.0 (434, 435, 436) (3 disks) Newest version! Very popular and complete. Includes spelling checker.
PC-TYPE+ (421-423) (3 disks) Excellent. Includes mail merge, 100,000 word spelling checker. Interfaces with PC-File+, PC-Style.
MAXI-MAX (432) 59 macros to use with Word Perfect 4.2 or later. 11 templates for forms, border designs, etc.

GRAPHICS

KEYDRAW CAD SYSTEM (1001, 1002, 1065, 1066) (4 disks) Popular. Also uses mouse. (Requires color graphics).

SIDEWAYS (1007) Prints text sideways. Useful for Lotus.
SIMCGA/HGCIBM (1027, 1062) (2 disks) Use with Hercules graphics card/compatible to run programs requiring CGA on your monochrome PC.
IMAGE 3-D (1048) Create and edit 3-D objects. Move, scale, rotate and tip image.
FINGERPAINT (1050) Use keyboard or mouse to draw. Like MacPaint. (Requires CGA or EGA).
DANCAD 3-D (1051, 1052) (2 disks) Create 3-D graphics. Rotate, magnify, etc. Runs on CGA, EGA, or Hercules.
FANTASY (1057) Create flowing graphic images with mouse or keyboard. (CGA).
FLOWCHARTING (1078-1079) Complete system for flow charts, organizational, electrical, etc., with symbols.

SPREADSHEETS

AS-EASY-AS (505) Great. Includes screen help menus. Utilizes function keys. A Lotus clone that reads Lotus files.
PC-CALC+ (512-514) (3 disks) Jim Button's famous Lotus clone.

BASIC

PC-PROFESSOR (1401) BASIC tutorial. Good.
BASIC PROGRAM GENERATOR (1402) The menu driven way to write programs.
B-WINDOW (1407) Give windowing capabilities to your Basic program.

UTILITIES

HOMEBASE (2608, 2612, 2613) (3 disks) Complete desktop organizer. Great.
PROFESSIONAL MASTERKEY (2805) Like Norton's. Retrieve deleted files. A lifesaver.
BAKER'S DOZEN (2821) 13 utilities from Buttonware.
AUTOMENU (3003) Make PC menu driven. Incl passwords.
SCREEN (3006) Save your monitor from screen burn-in.
DOT MATRIX FONTS (3061-3062) (2 disks) Print your test in different fonts.

ACCOUNTING/FINANCE

MARKET CGA (BUS17) Performs sophisticated analysis on stocks, funds, etc. (EGA version is BUS16).
BILLPOWER+ (BUS 40, 41) (2 disks) Bill clients for time and materials, advances, retainers, etc. Computes, taxes, past due interest, etc. Has full G/L.
CPA LEDGER (706-708) (3 disks) Complete general ledger for corporations, partnerships or sole proprietors.
PERSONAL FINANCE MANAGER (715) Household budget manager. Track checking, savings, investments.
PAYROLL USA (725-726) Up to 2,000 employees in any state. dBaseIII and Lotus compatible. Complete P/R system.
EXPRESS CHECK (786) Check account with running balance, monthly reports, etc. Prints checks.
FINANCE MANAGER II (774-775) (2 disks) For personal or small business financial management.

DOS

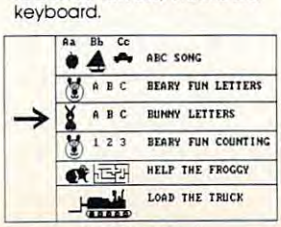
DOS TUTORIAL (1301) Teaches you to use DOS.
STILL RIVER SHELL (1304) Run DOS commands from a menu. Makes DOS easy.
BATCH FILE TUTORIAL (1305) Utilize batch file processing.
MORE DOS TIPS (1318, 1323) (2 disks) More about DOS.
HELP DOS (1326) On line DOS help with menus. Includes DOS dictionary of terms and a hints menu.

RELIGION

THE BIBLE (3301-3306) (6 disks) Old Testament, King James version.
THE BIBLE (3307-3308) (2 disks) New Testament, King James version.
WORD WORKER (3309-3310) (2 disks) Bible search program. New Testament, King James version.
BIBLEMEN (3330) Excellent Bible quiz program.

EDUCATION

AMY'S FIRST PRIMER (248) Child's learning game teaches letters, numbers, keyboard.



AMY'S FIRST PRIMER

FUNNELS AND BUCKETS (201) A fun way to learn math.
MATHPAK (202) Tutorial with lessons in higher math.
PC-TOUCH (204) Learn typing.
BASIC TUTORIAL (208) Learn programming with BASIC.
BEGINNING SPANISH (211) Tutorial.
SPANISH II (232) Sequel.
BIBLEQ (214) Learn the Bible with this Q-A tutorial.
FACTS 50 (239) Geography lessons for U.S. Nice graphics.

SPREADSHEET TEMPLATES

LOTUS MACROS (601) Save hours of work. (Req. Lotus)
LOTUS SPREADSHEET TEMPLATES (602) Ready-made. (Requires Lotus 1-2-3)
GOAL-SEEKER V3.5 (624) Achieve objectives by changing spreadsheet and seeing result. (Requires Lotus).
LOTUS TUTORIAL (630) Learn Lotus (requires Lotus).

APPLICATIONS

FORM LETTERS (1907) Commonly used form letters and business applications.
E-Z FORMS (1908) Make forms to meet different needs.
MANAGER'S PLANNER (1920) Daily planner. Prints out.
HOME INVENTORY (1966) Track all your possessions.
BIORHYTHM (1990) Display the 3 biological cycles; physical, emotional, intellectual.
FAMILY HISTORY (2203-2204) (2 disks) Create files and genealogical reports.
LOTTO PROPHET (2364) Best Lotto program we've seen.
CITY DESK (2513) Simple desktop publisher.

TELECOMMUNICATIONS

Q—MODEM 3.1 (1101, 1102, 1144) (3 disks) Powerful but easy to use. Fast.
RBBS V16.1A (1107-1109, 1150) (4 disks) Multi-user bulletin board system.
PROCOM 2.43 (1156) Outstanding modem software.

SECURITY/HACKING

COPY PROTECTION I (1219) Instructions for unprotecting commercial software.
COPY PROTECTION II (1220) More software unprotect.
COPY PROTECTION III (1221) More software to unprotect.
FLUSHOT (1225) Checks software for viruses.

DATABASE PROGRAMS

PC-FILE dB (853, 854, 855) (3 disks) Newest version! Rated better than dBase III+.
FILE EXPRESS 4.0 (803-804) Powerful system. Allows 32,000 records. Sorts to 10 fields.
DBASE III+ ROUTINES (851-852) (2 disks) Latest utilities to help you utilize dBase III+.

MICRO STAR

ORDER FORM

PLEASE PRINT DISK NUMBERS

____ ____ ____ ____ ____ ____ ____
____ ____ ____ ____ ____ ____ ____
____ ____ ____ ____ ____ ____ ____

NAME _____

ADDRESS _____

CITY _____ STATE ____ ZIP _____

PHONE ( ) _____

NUMBER OF DISKS ____ X (PRICE) ____ = _____
($2.99 PER DISK FOR 1-9; $2.69 FOR 10-19;
$2.49 FOR 20 OR MORE; NOTE: 2 DISK SETS ARE 2 X (PRICE),
SOFTWARE ON 3.5" DISKS ADD $1.00 EACH.)

CALIF. RESIDENTS ADD 7% TAX = _____

SHIPPING AND HANDLING = $3.50

(FOREIGN ORDERS ADD $5/CANADA $2) = _____

MAIL CHECK OR MONEY ORDER TO: **TOTAL = $** _____

MICRO STAR • 1105 SECOND ST. • ENCINITAS CA 92024

IF PAYING BY VISA OR MASTERCARD, PLEASE GIVE

NUMBER: _____

EXP. DATE: _____ SIGNATURE: _____

We also accept COD orders (add $4.00). Call or write for free catalog.
Phone orders shipped same or next day.

CALL TODAY FOR FREE CATALOG

800-444-1343

From 7 AM to 5 PM PST Monday - Saturday

FOREIGN: (619) 436-0130

www.commodore.ca

fast looks

Tool DOS, Tackle Toons, Lounge with Larry, Explore College, Tread Softly, Hit and Stick, Play the Angles, Zone Out, Create Cartoons, Share a Story, Write It Up, Build a Town, and More

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

Kings of the Beach

Kings of the Beach is volleyball the way volleyball was meant to be, save that you play it on your computer—spikes, sun, and sand from California and Hawaii to the beaches of Australia.

Using some complicated joystick controls, you have a choice of three serves, three offensive plays, and a defensive block. You can also use a mouse or the keyboard to control the game, but the joystick is best. Seldom can you return a ball on the first hit, so you really get a feel for the pass/set/spike strategy used by competitive teams.

The court appears 3-D and is hard to get used to at first. But if you learn to follow the ball's shadow you'll gain an edge. Spiking the ball onscreen is almost as hard to master as it is on the court. It's a matter of timing: Jump at the wrong time and you'll hit the ball out of bounds or miss it entirely.

Luckily, you don't have to face your opponents cold. A visit to the practice courts will hone your skills—and you'll need the drill. This tough game demands that you start out easy. You can always increase the difficulty later.

If you're itching to put your fingers on leather and your feet in the sand, this game's for you. Don't forget the sunscreen.

— *HA*

IBM PC and compatibles—$39.95
($44.95 for a package with both a 5¼-inch version and a 3½-inch version)

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

Apple II Video Overlay Card

Desktop video may be the newest buzzword in the computer business, but the phrase is just phosphor on the screen unless you have the right equipment. Until recently, that left the Apple IIe and IIGS out of the picture. Not any more.

Acting essentially as a genlock card, the new Apple II Video Overlay Card fits inside an Apple IIe or IIGS and accepts video input from a VCR, videodisc, video camera, or television. It then synchronizes these video signals with the Apple II so that you can superimpose Apple II graphics on the video pictures. Immediate uses for such a card might include titling the video you shoot at home or in the classroom or combining computer animation you create with a program like *Cartooners* with a video of the new baby gamboling about the living room.

The Overlay Card dramatically improves the video signal that leaves the Apple II, ensuring that what goes out is just as crisp as what goes in. Special *VideoMix* software makes it a snap to control the mixing of video and computer graphics. And a variety of already-available software is compatible with the Overlay Card, including such first-rate Apple IIe and IIGS packages as *Deluxe Paint II, Fantavision,* and *Art & Film Director.*

If you're trying to marry these two technologies—computers and video—a

www.commodore.ca

genlock board is a must. And for the moment, Apple's Video Overlay Card is the only card game in town.

— *GK*

Apple IIe and IIgs—$549

Apple Computer
20525 Mariani Ave.
Cupertino, CA 95104
(415) 996-1010

Project Firestart

Since it's been called "a horror movie in space," you can probably guess which film *Project Firestart* took as inspiration. Inexorable, insatiable creatures are loose on a space station. You have to stop them.

You arrive at the station, aware only that something is very wrong. Immediately, you encounter carnage of the most gruesome sort: severed limbs, blood-splashed walls, rooms carpeted with corpses. This is not a game for the squeamish or the very young.

The rest of us can have grim fun exploring the large, multilevel station, unlocking its secrets, walking its long corridors, looking for lurking monsters. Pay attention—your life depends on it.

While you're armed with lasers and can find other weapons, your most important tool is your wits. By accessing computer records, for example, you can uncover the creatures' tolerances and vulnerabilities. If you're quick, you can manipulate station systems to produce deadly traps.

Cutaway scenes enhance the game's cinematic feel. Graphics and animation are well realized, and the soundtrack is excellent. Documentation is slight, but a few minutes with the game should familiarize you with most of its conventions.

This is an entertaining, if unspectacular, program that succeeds at what it sets out to do—put you in a horror movie in space.

— *KF*

Commodore 64/128—$29.95

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

MenuWorks

This program won't plan nutritious meals or draw up a grocery list. But it will customize your IBM PC or compatible computer so that you can run your favorite programs at the touch of a key—without ever facing the DOS command line.

Upon installation, *MenuWorks* will search your hard disk for executable files (.EXE) and build menus for those applications. For instance, if it finds *WordPerfect* in your computer (WP.EXE), it will construct a menu called Word Processing and make *WordPerfect* an item on that menu. *MenuWorks'* artificial intelligence routines recognize more than 1000 popular software programs, from business applications to games.

If you'd rather design the menus yourself, *MenuWorks* gives you that option as well. The program works with color and monochrome systems, offers mouse support, allows for password protection, and supports an almost unlimited number of menus with as many as 81 choices in each. It also features several useful DOS commands that are tied to function keys—everything from setting the date to copying files.

If you want to move away from the DOS prompt but the thought of creating batch files and arranging the syntax in your AUTOEXEC.BAT file gives you heartburn, this nifty little program sets a fine table.

— *PS*

IBM PC, PS/2, and compatibles—$24.95

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

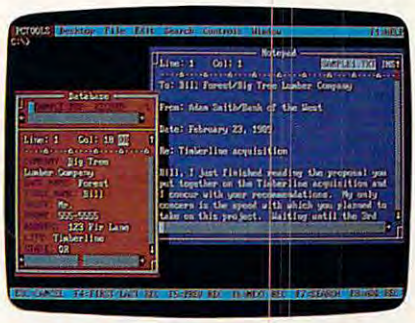
Contributing to "Fast Looks" this month were Heidi E. H. Aycock, Keith Ferrell, Gregg Keizer, and Peter Scisco.

PC Tools Deluxe, Version 5.0

PC Tools Deluxe is more than a diverse collection of utilities—it's truly a program for everyone. Beginners seeking a single program to help them get started, intermediate users looking to improve their productivity, and power users wanting to wring out the last bit of performance from their PCs will find what they need in this renaissance package.

Beginners will benefit from *PC Tools Deluxe's* PC Shell, which gives MS-DOS a friendlier face, making it easier and faster to use. Managing files with PC Shell's *1-2-3*–style menus works well, although some of the key assignments could benefit from a better arrangement.

In the shell, a drive directory tree appears on the left of the screen, a list of files in the currently highlighted directory on the right. Choose from Copy, Move, Compare, Change, and other commands when working with files; for disk management, you can also select Search, Format, Park Disk, and Get Disk Info. Users can maintain directories, print files, use a simple text editor, run programs, and perform other tasks from the shell.



Move quickly from task to task with the latest version of *PC Tools Deluxe*.

If desired, you can customize the PC Shell screen colors, size of windows, and other attributes. More importantly, you can also add your favorite programs to the Applications menu and, from there, launch *WordPerfect, 1-2-3,* or other applications with only three keystrokes.

The Applications menu comes packed with utilities: Compress Disk, to improve disk performance; PCBACKUP, with optional fast-backup and size-compression features; MIRROR, which offers great insurance against accidentally formatting a disk; PC Format, which replaces the standard DOS command; and PC Secure, for password protection and file encryption.

If the shell provides comfortable shelter for beginning PC users, then *PC Tools Deluxe's* Desktop furnishes power with an expansive versatility. Open as many as 15 windows at a time. Switch between tasks at will. Besides a notepad, a database (a nonrelational file manager), a calculator, and a calendar, the Desktop includes an outline editor, a telecommunications program, a macro editor, a clipboard, and miscellaneous utilities.

The notepad won't replace a full-featured word processor, but it's great for popping up over another application to create or edit a file quickly. The notepad's autosave and spell-checking features are also a boon to busy computer users, as are the macros that let you produce special printing effects—if you're prepared to spend time and effort learning how. Until you gain that experience, you can port important

www.commodore.ca

documents over to a full-featured word processor for editing and printing.

The Desktop's outliner, while no *MaxThink,* is a solid worker. You can expand the current outline level, expand all levels, show the current level only, collapse the current level, show the main level only, or promote and demote the current item and its subsets.

The database manager is a great way to create, view, and edit *dBase*-compatible database files. Printing data is easy, though you've got to use the notepad to do so. But as easy as printing data is, I would have liked more flexibility in defining the records I want to select.

The program's appointment scheduler outperforms many stand-alone reminder programs. It offers the essential features, like a monthly calendar display, as well as options for defining repeating appointments. The built-in To-Do List works well enough, sorting itself by priority and allowing for future to-do items. You can also assign items a starting and an ending date.

The three desktop calculators are each designed for a different kind of math. The Algebraic calculator offers a visual scrolling tape, the Financial calculator emulates the Hewlett-Packard 12C calculator, and the Programmer's calculator operates in and converts between hexadecimal, octal, binary, and decimal number systems.

PC Tools Deluxe's telecommunications module includes background communications capabilities, XMODEM-protocol support, and a script language. The program's macro editor lets you redefine keys on the keyboard and assign commands and keystrokes to those keys (subject to some limitations). If you use the macro editor with the appointment scheduler, you can run programs or enter DOS commands automatically at preset times.

With all it has to offer, *PC Tools Deluxe* is a terrific one-shot power boost to any PC or compatible. But there's room for improvement. Help screens could be better, with beginner and expert help files that you can read from the disk. It would also be helpful if the notepad supported more file formats and offered more cursor-control options. Lastly, the program would benefit from a pop-up *1-2-3*–compatible spreadsheet program for editing work sheets.

Those criticisms notwithstanding, the breadth and depth of *PC Tools Deluxe* assure it a place in the world of power computing. Fortunately, its ease of use extends its reach even further, bringing full functionality to both expert and novice at an extremely attractive price. Instead of spending your money on several packages, this one program can do it all. Few programs cover so much ground so well for so little.

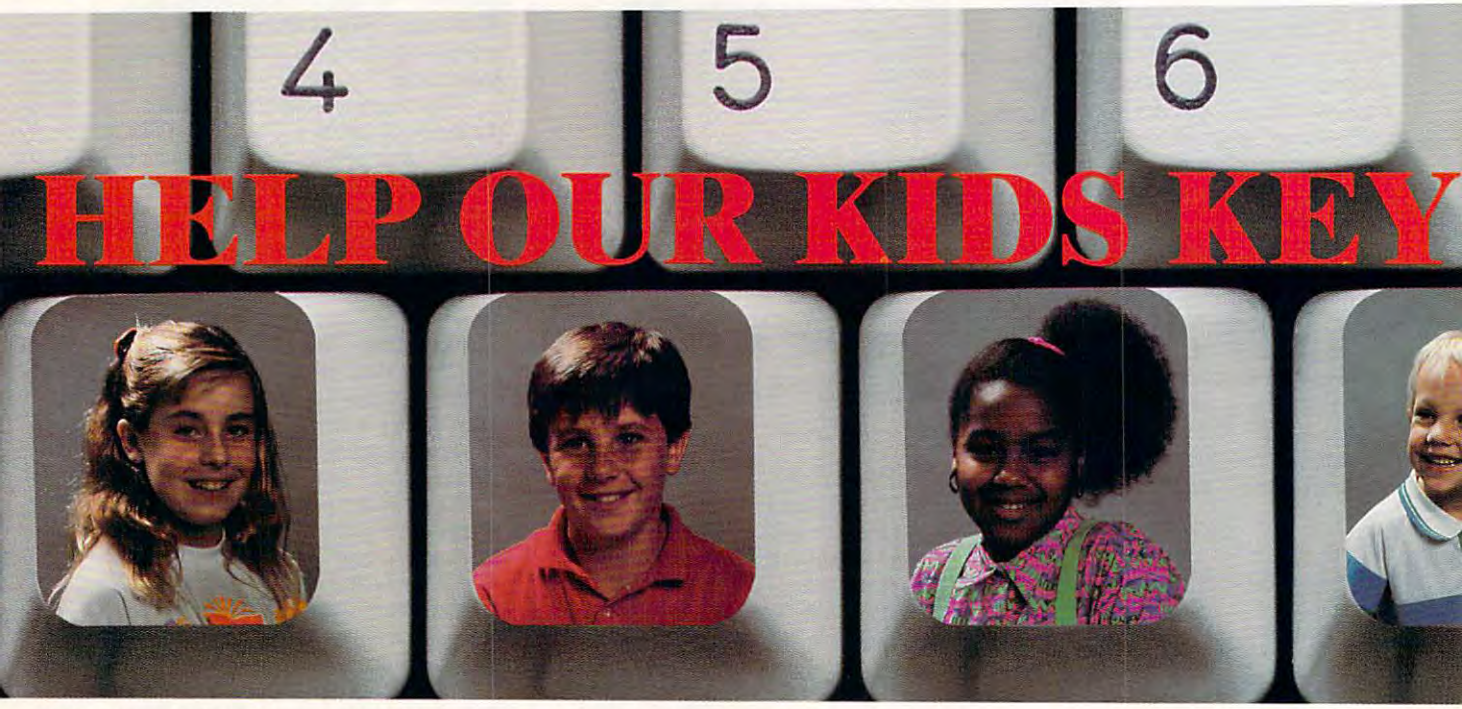
— J. Blake Lambert

PC Tools Deluxe, version 5.0

For . . .
IBM PC and compatibles—$79

From . . .
Central Point Software
15220 NW Greenbrier Pkwy. #200
Beaverton, OR 97006
(503) 690-8090

And . . .
Owners of version 4.0 can update for $15.



Kids are key to America's future. And so are computers. By the year 2010, virtually every job in our nation will require some computing skills. That means preparing all of our youth today to take on technology tomorrow.

Our students' math and science scores are far below those in other countries. To excel in our high tech times, our kids need to catch on to computers. They're tools that can inspire them to think more independently. More creatively.

The Computer Learning Foundation is a non-profit organization that's taking the lead in computer literacy efforts nationwide. We're bringing together companies, state departments of education, national non-profits and local groups.

Our Computer Learning Month in October is a focus for thousands of community and classroom programs. We've involved millions in discovering the benefits of computing.

The Computer Learning Foundation is sponsored by: Academic Computing®, Broderbund Software, Inc., Classroom Computer Learning, Compute!, Computer Chronicles, Gaming World, Electronic Learning, IBM Corporation, inCider Magazine, Logo Computer Systems, Inc., MECC, Mindscape, Inc., Prodigy Services Company, Scholastic Software™, Inc.,

www.commodore.ca

Who Framed Roger Rabbit

Who Framed Roger Rabbit is an action-packed, gag-filled software salute to Hollywood's full-length feature of the same name. Loosely based on scenes from the film, players join Roger Rabbit in three madcap, arcadelike adventures as he tries to save Toontown from the evil Judge Doom. The dastardly villain wants to destroy Toontown by dissolving its Toon inhabitants, who are made of ink and paint, with buckets of Dip.

But first, the story: The year is 1947. Marvin, owner of Toontown and the Gag King genius behind the Gag Factory, supplies novelties and props to the cartoon industry. One night Marvin turns up dead, his will missing. Since he had promised to give Toontown to the Toons, they have only one hope for survival—find the missing will. They call upon Roger, our hare-brained hero, to recover the document and rescue the seductive but lovable Jessica from the menacing manacles of the malevolent Judge Doom.

Toontown remains on the brink of portentous peril and Jessica languishes at the Gag Factory while you, in the role of Roger, outmaneuver the Judge and his wily weasel henchmen. Your mission is fraught with danger. With every mishap, another bucket of Dip is added to your tally. If you accumulate five buckets, you vanish from computer memory as fast as a Toon dissolves in Dip.

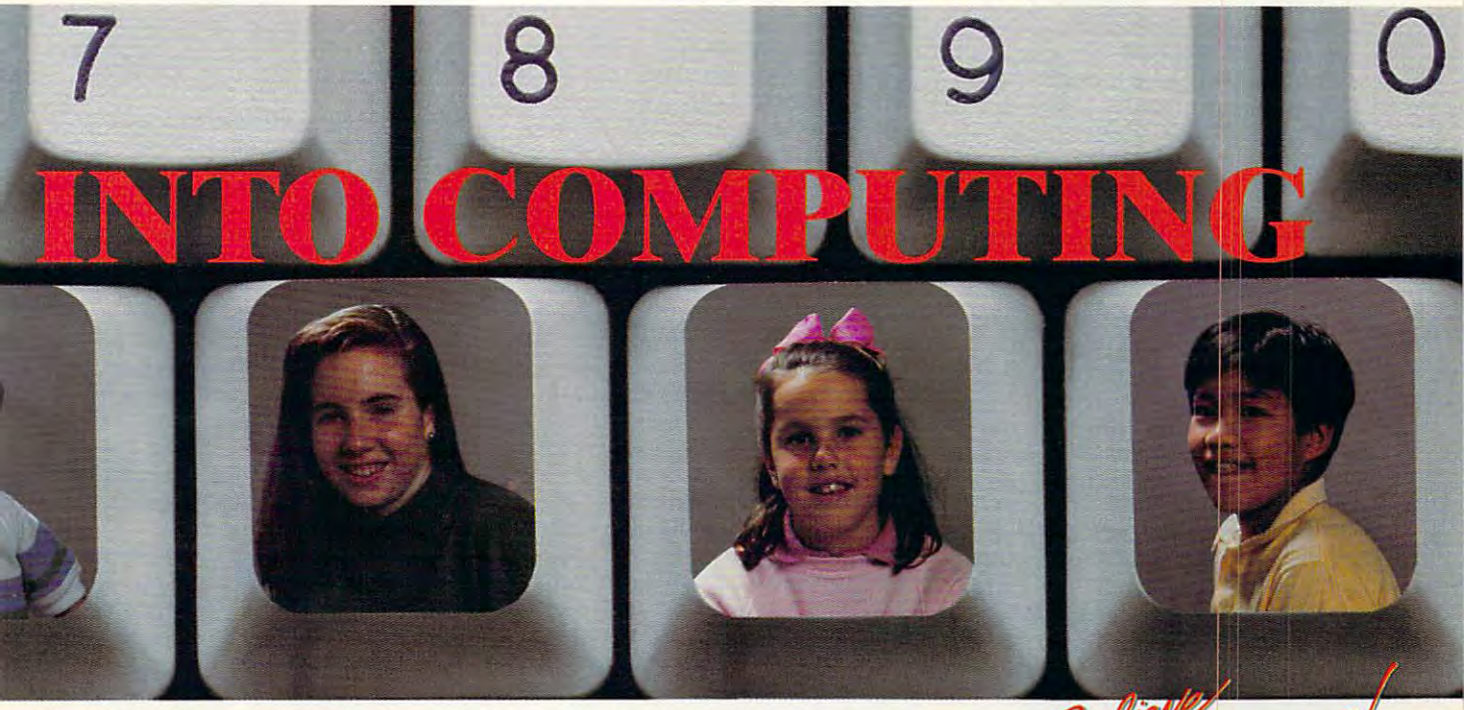
You begin your quest behind the wheel of Benny the Cab, steering your way through the bustling streets of Los Angeles. You must beat Judge Doom to the Ink and Paint Club while avoiding numerous obstacles. Stay away from the weasels in their Toon Patrol wagons, avoid collisions with the Red Cars, and parry the puddles of despicable Dip. But be quick: The sooner you arrive at your destination, the more time you'll have to rescue Jessica.

Benny the Cab's accordionlike suspension lets him rise to the occasion. He leaps out of trouble by hopping onto buildings. You can also maneuver him to help you grab useful items along the way. Grab a tire for a burst of superspeed, rubber gloves to protect you from the Dip puddles, and diamonds to reduce your Dip tally by one bucket.

Once at the Ink and Paint Club, you must answer a question from the 1947 summer edition of the Gag Factory Catalog, which is included with the game. This method of copy protection gives you three chances—answer incorrectly and the game ends abruptly; answer right and you're inside the club.

Inside, it's a mad rush to find the missing will. You circle the club's seven tables, each set with drinks and papers. One of the papers contains the will, but since Marvin used invisible ink when he penned his final testament and you don't know which of the papers is the real thing, you have to grab them all.

It's not easy. If you accidently grab a drink, you lose time. As you near your goal, penguin waiters pop up to restock the tables with more drinks and papers. Watch out for Bongo, the gorilla bouncer—a chance encounter with him, and he'll boot you from the club. You're also working against a clock, trying to make your rounds and collect the pa-



Join us. We're here to help you discover the ease and fun of computing.

Contact the Foundation now for more information about our contests, books, free materials, programs and events. We're dedicated to sharing computer learning ideas. Write us today: Computer Learning Foundation, Dept. CP6 P.O. Box 60007, Palo Alto, CA 94306-0007.

You Won't Believe What You'll Achieve!

COMPUTER LEARNING FOUNDATION

Curriculum Product News, Davidson & Associates, Inc., DLM Teaching Resources, Early Childhood News, Education Systems Corporation, Soft-Kat/Baker & Taylor, Teaching and Computers, T.H.E. Journal, Today's Catholic Teacher

www.commodore.ca

pers before the music stops. If time runs out, it's good-bye Ink Club, hello Benny, as you find yourself back on the streets of Los Angeles, racing Judge Doom to the Gag Factory.

At the Factory, weasels galore stop at nothing to pound Roger to a pulp. Your only hope is to grab the gags that lie strewn about and use them to disable your opponents. The more gags you try, the more the weasels laugh. Eventually, they giggle themselves into oblivion.

Who Framed Roger Rabbit sets you off on three madcap adventures.

But watch your step: Some of those stray gags will backfire and there's always a perilous puddle of Dip to avoid. Survive the weasel onslaught and you confront the evil judge himself—just as he's about to send Jessica to that big Toontown in the sky. Defeat Judge Doom, rescue Jessica, and you become Toontown's greatest superhare-o.

Who Framed Roger Rabbit is as entertaining as it is exciting. It's packed with amusing animated high jinks. Colorful graphics, while not as three-dimensional as the Toons in the film, add a flamboyant touch. Add music and sound effects, and you have a rich, if simple, program.

This merry chase through Toontown offers several hours of pleasurable playing—easy to start but hard to finish. It's loads of fun—but when you mix Disney with Spielberg, and then add Buena Vista, it's hard to imagine anything else.

— Carol S. Holzberg

Who Framed Roger Rabbit

For . . .
Amiga—$44.95
Apple II—$39.95
Commodore 64/128—$29.95
IBM PC and compatibles—$39.95

From . . .
Buena Vista Software
500 S. Buena Vista
Burbank, CA 91521
(818) 972-3300

Leisure Suit Larry II: Looking for Love (In Several Wrong Places)

You know the type—terribly obnoxious but somehow endearing. The kind of guy you'd never hang out with, but you would get a kick out of watching from across the room as he hits on, and is promptly rejected by, every woman he approaches. You know the type—a guy like Larry Laffer.

Larry's special brand of charisma surfaced in *Leisure Suit Larry in the Land of the Lounge Lizards* and returns in the sequel, *Looking for Love (In Several Wrong Places)*. Sierra's latest installment not only lives up to the original, but surpasses it: The graphics and animation are better and the story line is more intricate and sophisticated. One thing that remains unchanged, however, is the humor. *Looking for Love* doesn't focus quite as much on the adult aspects of Larry Laffer's adventures as did *Lounge Lizards,* but it's every bit as funny.

Looking for Love opens with our favorite nerd down and out near Beverly Hills. After he's told in no uncertain terms to hit the road by Eve, the woman he had planned to spend the rest of his life with, Larry sets out in search of romance. Before leaving, however, he finds a dollar in Eve's garage—all he needs to turn his life around. He buys a lottery ticket at the local convenience store, then weasels his way into a nearby television station and onto the set of the Lucky Life lottery show. A spin of the big wheel turns Larry's buck into a million dollars a year for life. What's more, while waiting in the green room at the TV studio, Larry is mistaken for Bachelor Number 2 and ends up as the big winner on the Dating Connection show. His prize: a cruise to the South Pacific aboard the U.S.S. Love Tub.

Before setting sail, Larry gets to spend some major bucks. First stop: Rodeo Drive. (Where else can you break a million-dollar bill?) After he's bought a $100,000 swimsuit for his cruise and dropped a cool $100 for a haircut, Larry heads back to the convenience store for a 32-gallon Grotesque Gulp—a soft drink the size of a small trash can that somehow fits into Larry's jacket pocket (along with everything else he collects during his adventure).

Unfortunately for Larry, his luck soon begins to run out. A case of mistaken identity puts him right in the middle of a bizarre plot of international intrigue involving an evil doctor's plan to take over the world. The cruise ends in disaster, with Larry escaping to a small island in the Pacific, where he is pursued by KGB agents. To survive, Larry must resist the temptation to fall for every pretty face he sees.

Looking for Love is thoroughly entertaining from beginning to end. The story is as interesting as anything you're likely to find on network television, and less predictable to boot. In addition, the way Larry moves around in his 3-D world (you use the keyboard, a mouse, or a joystick) and interacts with other people and objects creates a realistic environment that makes you forget you're sitting in front of a computer.

Join Larry Laffer in his search for everlasting love in *Leisure Suit Larry II: Looking for Love (In Several Wrong Places).*

Also impressive is the way the game's designers have included effects, such as animated traffic flowing in the distance, and employed adventure "extras": characters who have nothing whatsoever to do with the story but who go about their business oblivious to your, or even Larry's, presence. These features create the illusion that you're peeking into a world that continues to function even when you put the disks away.

A variety of game options let you adjust the overall speed of the animation, control the volume, or toggle the sound on and off. You can adjust a setting in the game to minimize or maximize the adult aspects, and you can insert your own favorite cliché to replace the *Have a nice day* line.

Because of the adult nature of *Looking for Love,* it isn't suited for young players—not because it's overtly offensive, but because a certain amount of sophistication and experience is required to appreciate the puns, double entendres, and innuendos that compose the game's humor. If such risqué ri-

www.commodore.ca

poste appeals to you, this is a terrific sequel to one of the best adventure games ever written.

— *Bob Guerra*

Looking for Love (In Several Wrong Places)

For . . .
Atari ST—$49.95
IBM PC and compatibles—$49.95

From . . .
Sierra
P.O. Box 485
Coarsegold, CA 93614
(209) 683-4468

And . . .
Hard disk recommended; the IBM version supports Roland MT-32, Ad Lib, and IBM music cards and includes 3½- and 5¼-inch disks.

College Explorer

Choosing a college isn't easy. You're faced with stacks of catalogs, piles of brochures, and mounds of applications. Out of all that, how do you cull the school that best fits your goals, your abilities, and your financial situation? It's a laborious process, but one made much easier by *College Explorer*, a software package in a class by itself. Secondary schools, libraries, college-placement services, parents, and students will find this program a nearly indispensable tool during the search process.

Hunting for the right school is made a little easier with *College Explorer*.

College Explorer's two databases include pertinent information on more than 2800 colleges. The program works as a kind of filter, guiding you first through broad criteria like type of degree offered (associate's or bachelor's) and, in the end, allowing you to narrow your choices by means of some 400 features and preferences. The program focuses on fields that can help this narrowing-down process: Location, size, campus life, fees, competitive sports, and majors offered are among the fields you can explore. And after you've made your choices, *College Explorer* can sort your list by a number of criteria, including location, tuition, and enrollment size.

Because of the breadth of information, plan on spending at least 30 minutes with the program each time you start it. Surprisingly, one of *College Explorer*'s strengths leads to one of its weaknesses: Although specification in each field is encouraged, the program gives no warning as to how many explicit choices you can make before you run the risk of eliminating every college. The guidelines for stating necessities and preferences should be clearer. I frequently put down so many preferences that the computer couldn't find a match. But don't worry if that happens to you, because you can easily reenter the program to make more general selections and to continue your explorations.

Immediate entry into the database, an easy-to-use manual, and helpful menus make *College Explorer* a pleasure to use. Its impeccable technical performance—complete and simple menu access to features, effortless loading and operation, quality recordkeeping, and easy saving and printing of your selections—is without flaw. The user's guide is concise, explicit, and informative. No special skills are needed. Even if you haven't had much previous computer experience, you should be able to use the program easily and extract its valuable information smoothly.

College Explorer will help you in your search for a college, but that's just the beginning of the search process. You still must write to each college for catalogs and detailed information. The database descriptions of colleges are extremely dry. In future updates I'd like to see a sampling of courses offered at the colleges, listed according to preferences I indicate; also, a listing of faculty and their respective distinctions would be informative. Any attempt to personalize the directory of colleges would be welcomed.

The listing of degrees offered for each selected college is somewhat confusing, if complete. The list itself is much like that found in standard college guides; the only difference is that a *Y* or an *N* appears before each degree to indicate whether it is offered. It would be much clearer if those not offered were struck from the list. This criticism also applies to other fields, like sports and extracurricular activities.

Given the amount of time and money many of our college-bound stu-

FREE
Home Office Catalog

Here's the only catalog to offer and explain the products that boost small-office productivity.

Before you decide on desktop equipment for your home office, check the Crutchfield Personal Office catalog:

- Brand-name equipment at affordable prices, fully described and explained with full-color photos.
- Exclusive comparison charts and helpful editorials put the products and their uses in perspective.
- PCs and components for novice and advanced users:

  Complete, performance-oriented systems and software for business, word processing and entertainment.

  "Speed-up" boards, video cards, monitors, disc drives, and other upgrade components.
- Fax machines, Personal copiers, Word processors
- Telephones, Answering machines, Electronic accessories

Call Toll-Free
1-800-521-4050
CRUTCHFIELD
Personal Office

Name

Address Apt. #

City State Zip
1 Crutchfield Park, Dept. CP, Charlottesville, VA 22906

www.commodore.ca

dents spend requesting catalogs, preparing essays, visiting colleges, and thinking about the many choices before them, an investment in *College Explorer* is minimal and can pay handsome dividends. Deciding which college to attend is up to you. *College Explorer* doesn't rob you of that responsibility, but it does assist you in the more tedious operations. And that will make your hunt for the right school a pleasure.

— *Kristen Sternberg*

College Explorer

For . . .
Apple II (128K RAM and extended 80-column card needed for IIe)—$49.95
IBM PC, PS/2, and compatibles in either 5¼- or 3½-inch disks—$49.95

From . . .
The College Board
College Board Publications
Box 886, Dept. PO8
New York, NY 10101-0886
(212) 713-8165

Abrams Battle Tank

There's a firestorm every minute in the land of rolling thunder, Western Europe, where the Warsaw Pact has broken through NATO defenses to begin World War III. You're in command of an M1A1 Abrams tank, history's most sophisticated armored fighting vehicle. If Patton had ridden in this tank, Berlin would have made him mayor.

Abrams Battle Tank gives you a taste of what it's like inside one of these 60-ton iron maidens. Whether guiding your crew through a single mission or holding your own in a World War III invasion scenario, be prepared for firing action from every angle—east, west, north, south, and even from above.

From the main menu, you select from four options: Scenario, Campaign, M1-Info, and Exit. M1-Info gives you a rundown of your weapon systems, using illustrations and appropriate military jargon. Select Scenario to choose a single battle from among eight missions; choose Campaign to move through all eight missions in an order randomly selected by the computer.

Before you head to war with the Russkies, you'll report to the fuel depot. That's where you choose your armament mix, balancing Sabot (very effective against tanks and other armored vehicles), HEAT (very effective against infantry and constructions like enemy headquarters), and AX (an experimental wire-guided weapon that can vaporize enemy helicopters) rounds. It's enough to make *weapons procurement* part of your everyday vocabulary.

Out on the battlefield, you play three roles: commander, gunner, and driver. Each position offers a unique view of the outside world and is accessed by a specific function key (F1 to move to the gunner's position, for instance).

In the heat of battle, moving from one station to the other can cost you time—and your life. Therefore, you'll almost always stick with the commander and gunner stations. The driver's station is more an afterthought than a necessity: You can get speedometer readings from the commander's station and receive warnings if you're working the motor too hard. I would gladly trade the driver's perspective for a good pair of binoculars: Spotting the enemy at a distance is imperative to survival.

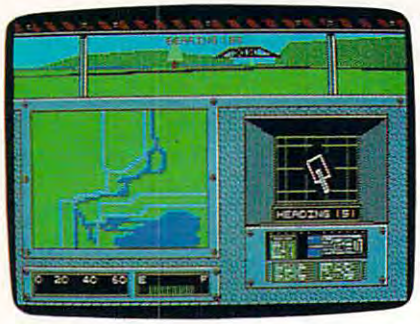
Guiding the tank is your first challenge. You'll have to learn to distinguish between heading (the direction in which the body of the tank is pointing) and bearing (the direction the turret—and therefore the main gun—is facing). To turn the tank or the turret, press the left- or right-arrow key or move your joystick to the right or left. The A key aligns the turret and the tank; the C key switches control between the tank and the turret.

For example, suppose you're in the commander's station and your heading is 270 degrees (there are no compass directions in this game—just degrees). You take a hit bearing 2 degrees. You can swing the entire tank toward the right (0 degrees is due north), or you can switch control to the turret and change your bearing to point your cannon at the enemy. Getting a moving, southbound enemy into your sights when you're rolling west at 40 kilometers an hour is a skill that takes hours to develop.

Your main defenses are speed, natural cover, and smoke canisters that blind the enemy for about 20 seconds. To see through the smoke or to see at night, you can switch on your thermal imaging system (press the T key). If your tank is too heavily damaged to continue the fight, you can return to base for repairs.

When you contact enemy forces, use your target acquisition and designation system (press the Enter key while in the gunner's station) to identify the target—don't shoot friendly forces, or headquarters will have your head. Press the L key to lock onto the target and hit the space bar to fire. If your hit takes out the enemy, your commander appears onscreen to acknowledge the kill.

My few objections to *Abrams Battle Tank* center on its operation. The game ran well on an AT clone, but the tank was slow to respond on my Tandy 1000 EX. To compensate, I had to anticipate my movements—another level of confusion to an already-complex game. Also, the skill levels—Novice, Moderate, and Expert—function only in the Scenario mode; if you choose Campaign, you must play on the Expert level. Fighting on that level, while much more realistic than fighting on the other two (no tank can survive hit after hit without serving up its crew like so much fondue), is frustrating for beginners eager to fight an entire campaign. My tours usually ended with a snap, crackle, and pop—and I'm not talking Rice Krispies.



Hit your enemies on the run if you want to survive in *Abrams Battle Tank*.

Abrams Battle Tank provides hours of rapid-fire warfare simulation without much emphasis on real NATO defensive strategies. (No one expects a single tank to rescue a stranded convoy—that's a job for a helicopter gunship—or to take on single-handedly several enemy battalions.) But if you put those questions aside and accept the game as a graphically excellent, tactically complex simulation, you'll get a lot of bang for your buck.

— *Peter Scisco*

Abrams Battle Tank

For . . .
IBM PC and compatibles—$39.95

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

And . . .
A combination pack for the IBM that includes 5¼- and 3½-inch disks sells for $44.95; an Amiga version is planned for an August release, but no price has been set.

www.commodore.ca

TV Sports Football

Red dog 23! Hut! Hut! Hut! Thud! Ooof! Crash! Uunh! Arrgh!

Once you've heard Cinemaware's *TV Sports Football*, you'll know this program is, as the package says, "so real . . . it sweats!" Its bone-crushing, in-the-trenches action propels this gridiron simulation to the top of the computer-football heap.

As in real football, there are strategic and tactical levels to the game. You can play with either the 28-franchise Cinemaware Football League (CWFL), modeled on the NFL, or use the program's editing features to build your own players, teams, and leagues. The computer can run any or all of the franchises, or you and up to 55 (!) of your friends (one each as offensive and defensive captains of each franchise) can play against each other. This game encourages team play, an aspect lost in many other sports games. You have to play an entire season, but if you can't devote that much time to the turf, the computer can play most of the games for you.

The CWFL franchises have offensive and defensive strengths and weaknesses modeled after the actual records of NFL teams; you can even play a franchise against itself, which can settle those nagging postseason disputes about the relative merits of one team's offensive and defensive squads. The program saves league stats on a separate disk, which must remain in a second drive while you play.

You perfect your tactics by watching exhibition games and then trying practice plays. Learn how to hand off, pitch out, rush, kick, and pass with the joystick. It takes practice to learn how to drop into a pocket, spot a receiver, avoid the rush, fire the ball, and then make a diving catch. Don't rush into a season before you're prepared.

You select your plays from the Playcalling screen, which also shows play diagrams, the score, the down, yards to go for a first down, and the game clock. Choose a play by selecting the appropriate icon in the lower part of the Playcalling screen, or let the computer call the play for you. Over time, *TV Sports Football* learns the kind of plays you are likely to call in any situation and will call those plays if you're temporarily away from the game raiding the fridge.

Once you have selected a play, you switch to the playing-field screen to run it. With the joystick you can control key players, such as the quarterback, receivers, and defensive backs; or, you can let the computer handle them. If you want to veg out in front of the screen as you do during a real TV game, the computer will run the entire game.

Calling and running plays is exciting, but *TV Sports Football* also scores in the visceral-impact department. The look and feel of the game are amazingly authentic. The design, pacing, and graphics accurately mimic a televised game, with commentators, pregame and postgame shows, commercials, and a halftime extravaganza. The colorful screens, detailed players, and smooth animation are what you'd expect from a Cinemaware game, especially on the Amiga; you won't be disappointed.

Added to the stunning visual effects is the game's realistic sound. With the digitized samples you'll hear the explosive grunts of colliding linebackers, the roar of the crowd, and the calls of the refs. The ball does make a funny arcade-type noise as it flies through the air, but that helps you read its flight and position your receiver. Even the program's musical score sounds like the kind of

UNITED COMPUTER EXPRESS
724 7 AVE, NEW YORK CITY, NEW YORK 10019
800-448-3738 212-397-1081
ALL UNITS ARE TESTED AND FORMATED BEFORE SHIPPING

IBM IBM IBM IBM IBM

ORIGINAL IBM XT 26 PC. PACKAGE
IBM XT CPU + Keyboard · 4.77 MHz-360K Floppy Drive · Expandable to 640K · 12" Computer Monitor · Software bundle · 10 Diskettes · Disc Drive Head Cleaner.
$768
26 PC. PACKAGE AVAILABLE WITH:
20 MEGABYTE $1018
30 MEGABYTE $1088
40 MEGABYTE ..... CALL
60 MEGABYTE ..... CALL

ORIGINAL IBM AT 26 PC. PACKAGE
IBM AT CPU + Keyboard · 1.2mg Floppy Drive 12" Computer Monitor-Software bundle · 10 Diskettes · Disc Drive Head Cleaner.
$1468
26 PC. PACKAGE AVAILABLE WITH:
20 MEGABYTE $1798
30 MEGABYTE $1848
40 MEGABYTE $1995
60 MEGABYTE ..... CALL

EPSON EPSON EPSON

EQUITY I+ IBM XT COMPATIBLE 26 PC. PACKAGE
Equity 1+ CPU + Keyboard · 360K Floppy Drive · 12" Computer Monitor · Software bundle · 10 Diskettes · Disc Drive Head Cleaner.
$618
26 PC. PACKAGE AVAILABLE WITH:
20 MEGABYTE $868
30 MEGABYTE $918
40 MEGABYTE $978
60 MEGABYTE ..... CALL

EQUITY II+ IBM AT COMPATIBLE 26 PC. PACKAGE
Equity 11+ CPU + Keyboard · 640K Floppy Drive · 12" Computer Monitor-Software bundle · 10 Diskettes · Disc Drive Head Cleaner.
$1058
26 PC. PACKAGE AVAILABLE WITH:
20 MEGABYTE $1318
30 MEGABYTE $1368
40 MEGABYTE $1418
60 MEGABYTE ..... CALL

GE LEADING EDGE LEAD

MODEL D IBM XT COMPATIBLE 26 PC. PACKAGE
Model D CPU + Keyboard · 512K · 360K Floppy Drive 4.77-7.13 MHL-12" Monitor Software bundle · 10 Diskettes · Disc Drive Head Cleaner.
$616
26 PC. PACKAGE AVAILABLE WITH:
20 MEGABYTE $868
30 MEGABYTE $918
40 MEGABYTE ..... CALL
60 MEGABYTE ..... CALL

MODEL D2 IBM AT COMPATIBLE 26 PC. PACKAGE
Mode D2 CPU + Keyboard · 1.2mg Floppy Drive 12" Monitor · Software bundle · 10 Diskettes · Disc Drive Head Cleaner.
$1068
26 PC. PACKAGE AVAILABLE WITH:
20 MEGABYTE $1328
30 MEGABYTE $1378
40 MEGABYTE $1428
60 MEGABYTE ..... CALL

VENDEX VENDEX VENDEX

POWERMATE II IBM AT COMPATIBLE 26 PC. PACKAGE
Powermate II CPU + Keyboard · 1.2mg Floppy Drive · 12" Computer Monitor Software bundle · 10 Diskettes · Disc Drive Head Cleaner.
$1078
26 PC. PACKAGE AVAILABLE WITH:
20 MEGABYTE $1348
30 MEGABYTE $1398
40 MEGABYTE $1449
60 MEGABYTE ..... CALL

HEAD START IBM XT COMPATIBLE 26 PC. PACKAGE $718
26 PC. PACKAGE AVAILABLE WITH:
20 MEGABYTE $968
30 MEGABYTE $1018
40 MEGABYTE $1068

VENDEX HEAD START II
FEATURES INCLUDE: 640K Ram · 5¼" Drive · 3½" Drive · 888 Processor 4.77/10 Megahertz

VENDEX HEAD START III
FEATURES INCLUDE: 640K Ram · 286 Processor · 5¼" Drive · 3½" Drive · 8/12 Megahertz · VGA System

CALL FOR NEW LOW PRICES!!

FAXS
We Carry a Full Line of Fax Machines
PANAFAX CANNON
TOSHIBA COBRA
RICOH MURATA
SHARP
All FAX's are Guaranteed Next Day Delivery with Lowest Prices.

Also Full selection of Monitors, Hard Drives, Controllers, Modums, and Software peripherals please call for system prices and package deals. Systems consist of all *Name Brands* products. All systems checked and formatted by trained technicians.

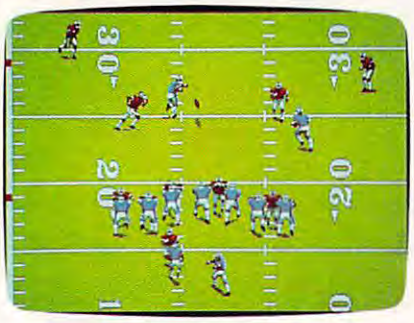
OPEN 7 DAYS A WEEK FROM 9-7
CALL TOLL FREE 1-800-448-3738 NY RESIDENTS/INFO CALL (212)397-1081
Use M/C, Visa, AMEX Or Send Money Order. Certified Checks. All Merchandise Brand New Factory Fresh. Shipping Charges Non-Refundable. For Mail Orders Please Call Before Sending in Money Order. All Prices Subject To Manufacturers Increase/Decrease. Refunds Within 7 Days Only With Original Packaging & Unfilled Guarantee Card. No Refunds Accepted Without Prior Verbal Authorization. Customer Service Between 12pm-6pm. Pictures Are For Illust. Purposes Only. Not Responsible For Typographical Errors. Prices Good For Mail Orders Only.
FAX NUMBER (212) 397-3056

ALL IBM COMPATIBLE COMPUTERS AVAILABLE WITH 20/30/40/60/80 HARD DRIVES
ALL SYSTEMS SUPPORT MGA/CGA/VGA/MULTISCAN
PACKAGE DEALS AVAILABLE ON ALL SYSTEMS!!

commodore.ca

hyped-up fanfare that opens and closes every NFL game. I do have one quibble: The announcers are silent. Instead of reading text, I would have liked to hear John Madden's ravings. Maybe Cinemaware couldn't fit him on the disk.

Another gripe I have, at least with the Amiga version, is that you can't run it from one disk drive, install it on a hard disk, or multitask it with other programs. Cinemaware has bypassed the Amiga operating system entirely in its new games, resulting in software that loads faster from disk but behaves badly by Amiga standards. That won't bother the typical fan, however.



The onscreen action rivals the real thing in *TV Sports Football.*

By making a game that mirrors the good and bad points of televised sports, Cinemaware has achieved something new, something more than the standard run-of-the mill computer football game.

If you're turned off by the video hoopla and blather of professional football, you'll want to pass up *TV Sports Football.* But no gridiron addict should be without it; it's simply the most realistic football simulation ever created. The only problem fans face is whether to watch the game on TV or play it themselves.

— Steven Anzovin

TV Sports Football

For . . .
Amiga with external disk drive and joystick—$49.95

From . . .
Cinemaware
4165 Thousand Oaks Blvd.
Westlake Village, CA 91362
(805) 495-6515

And . . .
Release of a version for the IBM PC and compatibles is imminent. Apple IIgs, Atari ST, and Commodore 64/128 versions are under development.

Geometry

Almost all students will, from time to time, need some extra coaching when confronting their studies. Unfortunately, teachers and parents are sometimes unavailable or unprepared to offer help. Enter the electronic tutor.

Geometry, newly released for the Apple IIGS and long available for the Macintosh, follows a standard high-school textbook approach. It offers ten chapters on a variety of topics: points, lines, planes, angles, triangles, congruence, parallel lines, parallelograms, and more. Each chapter contains about a dozen subtopics for further exploration.

For example, some of the subjects covered in Points, Lines, and Planes include geometric figures, the distance postulate, the angle-measure postulate, and theorems about complementary, supplementary, and vertical angles. A student interested in similarity can examine ratios, proportions, the properties of proportion, and more.

Geometry retains its book metaphor throughout; students can "turn" pages with a mouse or brush up on a particular concept by looking it up in the program's online index—an alphabetized list of terms arranged on tabbed indexlike cards.

To use the index (located under the Subject menu), students click on the tab where the term is likely to be listed. For example, to find out more about *hypotenuse,* the student would select the tab labeled *F–I.* Then, he or she could select *hypotenuse* directly with a double click. The student can use the scroll bar to examine all the index listings on a particular card in searching for a specific subject.

Throughout the program, students advance at their own pace. They can work on more than 350 problems, or they can stick to the tutorials, reviewing each chapter's concepts. The graphics capabilities of the IIGS and Macintosh—and both computers' intuitive interface (icons, dialog boxes, point-and-click mouse control, and pull-down menus)—enhance the program's operation. Keyboard commands also assist with cursor control.

One advantage to selecting subjects on a chapter-by-chapter basis is the animated graphics that appear at the start of each lesson, illustrating the concepts under discussion. For example, the chapter on congruence opens with two animated triangles. As the triangles rotate, they change shape. At some points in their movement, the triangles are congruent, while at others they are not, providing a clear sense of what *congruence* means.

Among *Geometry*'s several convenient features is the Save Place command, which lets you place a "bookmark" in the program and automatically return to that point the next time you run *Geometry.* To find your place, click on the BookMark icon from the Finder or the Restore Place command in the File menu. If you're running *Geometry* from a hard disk, the Save Place and Restore Place commands are fully functional, but you won't be able to take advantage of the BookMark file directly from the Finder.

Other useful features include the Help menu options, which provide background information on the current page or problem, clues to solve the current problem, and even the solution to problems.

The program does suffer from an initial lack of grace. Because *Geometry* comes on three 800K floppy disks, it demands multiple disk swaps to launch, even if you have two 3½-inch disk drives.

Use *Geometry* to get the right angle on your math studies.

A hard disk will reduce the time it takes to boot and reboot, but not all users are prepared to make that purchase. Likewise, not all users are prepared to increase their computer's memory. While *Geometry* runs on a IIGS with 512K, you'll encounter problems if you print pages that include animation, because such printing eats a lot of memory. Printing such pages with the Print Page command means rebooting when printing is done. Apple IIGS programs are notorious for their long launch time, so the last thing you want to do is reboot on a regular basis. *Geometry* doesn't take advantage of GS/OS, which could have sped up program loading. And the program supports AppleTalk only if your system is equipped with at least 768K.

Geometry's user's guide provides a thorough explanation of program operation, but it's an inadequate reference

www.commodore.ca

tool. Concept definitions and references are available only on disk. Students should bring their geometry text home from school or use the program index, from which they can print the information they need.

Despite the demands it places on your hardware, *Geometry* successfully underscores the computer's role as an instructional aid. Its interactive learning abilities and animated geometric figures that rotate through several planes bring abstract theorems and classical postulates to life. This may be the angle teachers and parents need to get kids to enjoy their geometry lessons.

— *Carol S. Holzberg*

Geometry

For . . .
Apple IIgs—$79.95
Macintosh—$99.95

From . . .
Brøderbund Software
17 Paul Dr.
San Rafael, CA 94903-2101
(415) 492-3200

And . . .
A school edition, with supplemental teaching aids, retails for $109.95 (Macintosh) and $89.95 (Apple IIgs); a lab pack, with five copies of the program and supplemental teaching aids, retails for $219.95 (Macintosh) and $199.95 (Apple IIgs).

Twilight Zone: Crossroads of Imagination

Consider for your approval: You're an average person in a routine situation going through the everyday motions we all find so comforting. But take a wrong turn at a strange intersection or a walk down an unfamiliar road, and suddenly you find that you've crossed over into a new dimension—a world of imagination, a strange place to which others remain oblivious.

You have just returned to the Twilight Zone, but not to the late-fifties-to-early-sixties television series. Instead, the popular science-fiction show lives on in *The Twilight Zone: Crossroads of Imagination,* the first in a series of role-playing adventures from First Row Software Publishing based on Rod Serling's classic show.

Twilight Zone begins with a normal setting. It's a typical 1980's unkempt bachelor's bedroom, complete with blaring television set. Bleary-eyed and unshaven, the hero awakens and glances around his room. He has no idea of the problems that lie ahead—perhaps a meeting with the Grim Reaper himself. Suddenly, a very ordinary day takes a very nasty turn.

Once you enter the sixth dimension, there's no going back. You must conquer all obstacles or face a horrible fate. Before it's all over, you'll save a young girl from a fiery death, perform valiantly in an important race, and serve honorably a grateful king. You'll wander city streets, bury the wounded in distant jungles, and solve baffling riddles. And when it's all over, then . . . well, only then will you discover how it all ends.

Of course, you understand that I'm sworn to secrecy. But—what the heck—a few brief hints won't give anything away. Just don't tell anyone where you heard them. If A. J. Foyt calls, remember to request a few pointers; a consultation with a member of the local volunteer fire department wouldn't hurt; and if your memory isn't as sharp as it once was, you might consider rereading the legend of Excalibur. Take these suggestions for what they may (or may not) be worth. From here on my lips are sealed.

This game is a classic text adventure. You interact by reading text and then reacting to it with typed commands. The program responds predictably to the usual direction commands (North, South, and so on), as well as Inventory, Load, Save, and Quit. In addition, it recognizes an unusually large vocabulary of verbs and objects.

One of *Crossroads of Imagination's* most noteworthy attributes is an especially good parser. The manual credits artificial-intelligence routines for taking the game far beyond the common verb-object syntax of many text adventures. The command *Take book and read it,* for example, works fine. In some instances, the program even requires qualified commands like *Tie hunter with rope.*

The game's numerous graphics aren't necessary to the adventure, serving only to help players imagine the described settings. That doesn't mean the artwork looks bad. But players who run the text-only version will suffer no disadvantage and, in fact, will gain speed by deactivating the pictures.

Similarly, sound also plays an unimportant role. On occasion, your computer speaker will emit a few notes from the television show's theme song, but mostly you're left alone to think and type. Although some players might prefer interactive graphics and more sound, an engaging plot with carefully constructed responses ensures the game's success.

Cross the threshold into danger in *Twilight Zone: The Crossroads of Imagination.*

Unfortunately, the well-planned responses are marred by many misspellings and grammatical errors. It's not unreasonable to expect professional software to deliver a higher measure of technical excellence.

Twilight Zone rates high marks for plot construction and player involvement. It's easy enough for beginners yet challenging enough for more advanced players. With a bit more polishing, it could be outstanding, sparking renewed interest in that world of space and time, the world of imagination.

Too tee too doo too tee too doo. . . .

— *David Stanton*

Twilight Zone: The Crossroads of Imagination

For . . .
Amiga—$39.95
Apple II—$39.95
Commodore 64/128—$29.95
IBM PC and compatibles—$39.95

From . . .
First Row Software Publishing
900 E. 8th Ave.
Suite 800
King of Prussia, PA 19406-9773
(215) 337-1500

Cartooners

You wake up Saturday morning. You hear nothing. The TV is silent. Where are the kids? Surely not sleeping—no kid sleeps late on Saturday. After all, it's the day of the marathon cartoon.

The answer is in the computer room. Your kids are creating their own cartoons. They squeal with laughter as they program a rabbit to jump high in the air, turn around, and land next to a

www.commodore.ca

weasel. They giggle uncontrollably as a pig does the moonwalk in a cornfield. If it's unusual for your kids to use brainpower on Saturday morning, wait until you boot up a copy of Electronic Arts' *Cartooners*. The Flintstones were never like this.

Cartooners uses the excellent graphics and sound capabilities of the IIGS to full advantage. Background scenes take on a 3-D effect. Clouds, for example, look multilayered in the sky behind the windmill. And the only way to improve the lively and complex music would be to hook your Apple IIGS into your stereo.

Write your own gags and be a comic genius with *Cartooners*.

These fantastic features extract their price. You'll need at least one megabyte of memory and, though the program will run on one drive, you should have a second disk drive. *Cartooners* comes with a program disk and an art disk; another drive makes the program easier for young children to use. If you've been waiting to add memory to your computer, this program gives you a pretty good excuse for opening your wallet.

Making animation with *Cartooners* is a blast. The instructions are easy to follow, and the menu-driven program is easy to use. The menu bar across the top of the screen allows for every scene, actor, action, and text needed for creating a cartoon. While the program disk carries some of the information, the art disk has most of the selections.

The program includes plenty of background scenes, ranging from a cornfield to a park to a graveyard on a dark night. Choose one and you're on the way to producing your first cartoon. The next step is to select the actors, which can be animal characters or objects such as clouds, shrubs, weasels, and butterflies. Each actor can be programmed to move independently of the other actors in the scene. The rabbit can walk, hop, turn around, or freeze. The butterfly can fly forward, backward, up, or down. You can also program the timing and speed of the action, but you'll need practice to get everything coordinated. You can have one actor walk in front of or behind another. Five copies of an actor can be placed on the scene at once; for example, you could have a group of squirrels dancing around a campfire and a raccoon doing the shimmy nearby.

The cartoon's action is controlled by the number of frames it takes to complete a move. The menu bar at the bottom of the screen provides the options for movement. To set the frames, click on the forward button and advance it as far as needed. To go back, click on the rewind button. When the play button is clicked, the cartoon starts from the beginning. The frame counter indicates which frame the cartoon is showing and changes according to the action on the screen.

Actors speak through the use of speech balloons, which you can fill with as much or as little text as needed. An invisible balloon programmed to move upward and off the screen can give the effect of a scrolling caption. Speech balloons are controlled the same way the actors are; a pause feature lets you hold a frame, giving you time to read the text.

After you've created and saved your cartoon, you can string it with others to run as a show. You can also record your cartoons on videotape, freeing you from the computer when you want to put on a show.

Cartooners does import graphics from *Deluxe Paint II;* however, the color palette may be a little different, so be watchful. Music can be composed and imported as well, using *Instant Music.*

If you get up really early next Saturday morning, maybe you'll beat the kids to the computer and get to try *Cartooners* for yourself. But since most kids think they can operate a computer better than any adult can, don't be surprised if they find you funnier than the cartoon you create.

— *Nancy Rentschler*

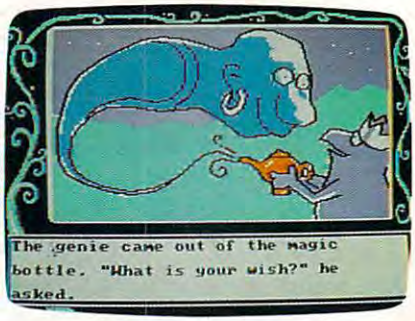
Cartooners
For . . .
Apple IIGS—$59.95
From . . .
Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
(415) 571-7171

Flodd, the Bad Guy

In a kingdom far, far away, kindly young King Alex rules, and everyone lives happily and without a care in the world. Alex and his canine cohort, Ollie, have great times together. Life is so terrific, in fact, the young monarch has never had to use his magic lamp with its genie and three wishes.

This peaceful scene is the setting for *Flodd, the Bad Guy,* an electronic *lapware* adventure from the Reading Magic Library of Tom Snyder Productions. The program builds reading, problem-solving, and decision-making skills in youngsters ages 2 through 6 while giving kids and adults the opportunity to share a computer. It's known as lapware because kids can sit in a grownup's lap while reading the story and playing at the computer.

In the story, Flodd, the bad guy, sneaks into town one summer night. He pulls the plug from the water tower, leaving Alex's subjects high and dry. Alex summons the genie and uses wish number 1—rain to fill up the tower. When Flodd threatens to pull the plug again, Alex rubs the lamp once more for wish number 2—the water tower plug to stick forever.



Share a tale of genies, magic, princes, and villains in *Flodd, the Bad Guy*.

In a fit, Flodd kidnaps Ollie, Alex's trusty companion. In desperation, Alex summons the genie for wish number 3, his last. Much to everyone's surprise, however, Alex doesn't plead for Ollie's return. Instead, he asks the genie to make Flodd happy. The story ends on a heartwarming note when Flodd returns, carrying Ollie in his arms, and the boy king and his dog are reunited.

The story of *Flodd, the Bad Guy* is simple. The accompanying graphics are colorful, but not exceptional. The animation is dynamic, yet uncomplicated. Nevertheless, the program is a success. Prereaders will find its highly interactive quality very appealing. ▷

www.commodore.ca

Advertisers Index

Reader Service Number/Advertiser	Page
102 Ad Lib	5
103 California Freeware	55
104 Computer Direct	50–51
105 Computer Learning Foundation	64–65
Crutchfield Personal Office	67
106 Indus-Tool	77
107 Lyco Computer	43–46
108 Mad Scientist Software	75
109 Melbourne House	IFC
110 MIBRO Co., Inc.	84
111 Micro Star	61
112 Montgomery Grant	57
NRI Schools	9
113 Paragon PC Software	85
114 Parsons Technology	1
115 Parsons Technology	26–27
116 Precision Data Products	75
117 Radio Shack	IBC
118 Renco Computer Printer Supplies	77
119 Sierra On Line	BC
120 Smart Luck Computer Systems	75
121 Soft-Byte	73
122 Software Discounters of America	87
123 Software Excitement	35
Strategic Simulations Inc.	11
124 SubLOGIC Corp.	15
125 United Computer Express	69

COMPUTE! Books Hot New Selections	13
COMPUTE!'s Amiga Resource Subscription	25
COMPUTE!'s PC Disk Subscription	17

COMPUTE! Publications, Inc. is seeking a fulltime **Assistant Editor** to join its inhouse staff in Greensboro, NC.

The position requires extensive experience using MS-DOS computers and a knowledge of the computer industry. Excellent writing and editing abilities required. Undergraduate degree in journalism, English, or technical writing required.

Excellent company benefits.

Send résumé in complete confidence to:
Personnel Department
COMPUTE! Publications, Inc.
P.O. Box 5406
Greensboro, NC 27403

A Capital Cities/ABC, Inc. company

COMPUTE! Publications

Back Issues/ Disk Orders

Individual back copies of *magazines* and *disks* are available by mail only while quantities last.

Please clip or photocopy, and mail completed coupon and check to:

COMPUTE! Publications
Single-Copy Sales
P.O. Box 5188
Greensboro, NC 27403

Name: _____

Street: _____

City: _____

State: _____ Zip: _____

Type of computer: _____

Quantity	Issue (Month/Year)	Magazine or Disk Name	Price*

SUBTOTAL:	
NY residents—Add 8¼% Tax:	
NC residents—Add 5% Tax:	
TOTAL:	

* Back issues of *COMPUTE!*, and *COMPUTE!'s Gazette* are $6.00 each. No issues dated prior to January, 1986, are available. In addition, the following issues are **NOT** available: ***Gazette:*** 1/86, 3/86.
* Single disks for *COMPUTE!'s Gazette* are $15.00. Disk/magazine combinations are $16.00 NOTE: No disks dated prior to June 1986 are available. The October, 1987 *Gazette* disk is no longer available.
* Back issues of *COMPUTE!'s PC Magazine* are $16.00 each. This publication is available only as a magazine/disk combinations. The following issues are **NOT** available: ***PC Magazine:*** 9/87, 11/87.
* Back issues of *COMPUTE!'s Amiga Resouce* magazine are available beginning with Spring, 1989 for $6.00 each. Back issues of *COMPUTE'S Amiga Resource Disk* are available beginning with Summer, 1989 for $10.00 each. Disk/magazine combinations are $12.00.

Shipping and handling included.
NO CREDIT-CARD ORDERS ACCEPTED.
Payment must be in U.S. dollars by check drawn on U.S. bank.

95

The *original* lotto data analyzer.

ANALYZES 6 & 7 number lotto's AND THREE & FOUR NUMBER DAILY GAMES (freq., tracking, pairs, odds/even, etc). It's the sensible way to INCREASE your odds. Entirely MENU driven, it's the easiest to use software of its kind. Contains a built-in TUTORIAL to get you started fast. Sold by leading software dealers or call us for FAST service!

Commodore 64, AMIGA, APPLE $29.95
MS/DOS (IBM) version $39.95

SOFT-BYTE
513-278-1110
P.O. Box 556 • Forest Park
Dayton, Ohio 45405 CP

VISA MasterCard

MAIL TO:

COMPUTE!
SUBSCRIBER SERVICE

P.O. Box 3245, Harlan, 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 $24.00 _____ Two years $45.00
(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.

www.commodore.ca

As a parent or other adult reads the story aloud, the child gets to "turn" the pages by pressing any key on the keyboard. Children may turn pages forward or use the left-arrow key to go back to previous pages. Once a page is turned, the built-in timer waits for a full second before the child can advance the story any further. This keeps the child from skipping ahead before the pages can be read.

At numerous points in the narrative, youngsters must make decisions about what happens next. Should Alex ask people where Flodd lives, or should he follow Ollie's nose? Should he and Ollie enter the dark passage or the lit one? Is it better to follow Flodd to the aquarium or take the shortcut?

Children decide how to proceed by pressing the first letter of the choice word. To ASK, for example, a child would press A; to take a SHORTCUT, the child would press S. Each choice word appears onscreen in colorful capital letters, with its first letter standing out from all the rest. Every choice word is accompanied by an expressive graphic clue—kids use it to figure out the corresponding letter. Next, they locate the letter on the keyboard and press the key. The story continues when the correct letter is pressed. There's no negative feedback if the youngster presses an incorrect key; however, once a decision is made, it can't be reversed.

The story's numerous turning points are highlighted by flashing animated graphics with positive-sounding audio reinforcement. Some kids will want to hear the story again and again in order to try out all the possible plot variations. Others will feel more comfortable making the same choices every time. Either way, this tale provides a wonderful opportunity for prereaders to polish their early reading skills in a nonthreatening electronic setting.

Besides promoting reading skills, *Flodd, the Bad Guy* introduces young children to the computer keyboard and promotes shared computer time between adults and kids. This successfully interactive storybook strengthens letter and word recognition as it gives children a sense of power over their computing environment. The package comes with a copy-protected program disk, an instruction booklet, and a color poster. You may purchase a backup for $10 or swap the 5¼-inch floppy for a 3½-inch version (or vice versa) for $2 plus the original disk.

The next time you turn on your computer, think about *Flodd, the Bad Guy* (or any of the other stories in the Reading Magic Library) and share your lap and some time with a small person. If you sit still and don't misbehave, your child may even let you make some of the program's important decisions.

— Carol S. Holzberg

Flodd, the Bad Guy

For . . .
Apple II—$34.95
IBM PC and compatibles with CGA—$34.95

From . . .
Tom Snyder Productions
90 Sherman St.
Cambridge, MA 02140
(800) 342-0236 or (617) 876-4433

And . . .
Also in the Reading Magic Library line, *Jack and the Beanstalk* for Apple II and PC—$34.95; EGA and Tandy 16-color versions scheduled for February release.

Publish-It! Lite!

Just because you're on a budget doesn't mean you want your documents to look like Brand X. *Publish-It! Lite!* can help. Despite its silly name (I guess they couldn't call it *Publish-It! Less*), it's the best of the very-low-end IBM PC and compatible desktop publishing packages.

This program differs significantly from competitors like *First Publisher, The Newsroom,* and *Pages.* Using *Lite*—the baby sibling of Timeworks' *Publish-It!,* a medium-price desktop publishing program that has earned rave reviews for its ease of use and power—is like driving the base model of a luxury car. Not all the features are there, but the quality still is. Like its older sibling, *Lite* is fast and easy to use and has well-designed fonts and good print quality.

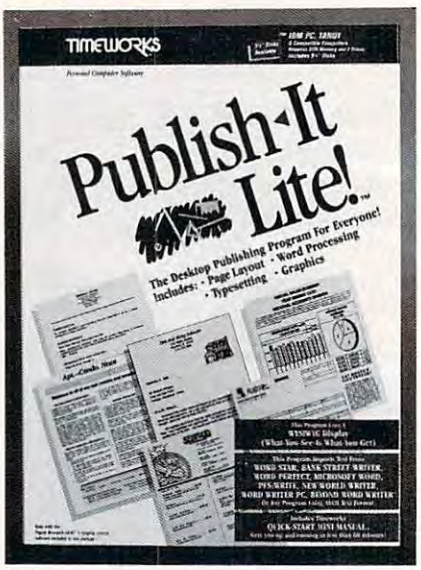
On the screen, *Lite* looks similar to *Ventura Publisher.* It uses the familiar GEM interface with drop-down menus, scroll bars, and a sidebar that contains the mode selector and a list of files or attributes. You can view a page as actual size or double size, and in full-page mode.

With *Lite,* you create up to six column guides to help you design pages. These guides don't print, but appear on the screen as dotted lines. The guides also have a snap-to feature that aligns your frames within the column guides.

Use your frame to place text or graphics on the page. You create a frame by clicking on the frame icon and then clicking and dragging the mouse. If you don't already have a frame selected, *Lite* presumes you want to create one. You can then create four styles of lines around the frame box: thin, thick, thicker, and double.

To load text, click on the frame and then on Import Text, which displays a list of file formats. *Publish-It! Lite!* reads files from *WordWriter* and *Quintet* but doesn't directly read files from *WordPerfect, WordStar,* or *Microsoft Word.* To import text from those programs and others, you'll have to save your work in ASCII. This limitation means *Lite* can't import bold, underline, or italic attributes from your word processor. However, it does convert normal typewriter quotation marks into real typographic quotation marks—a small victory.

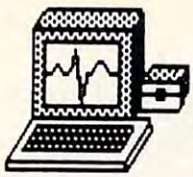
If all your text won't fit in one frame, you can create another. *Lite* automatically redirects text so that it wraps around a new frame placed on top of a frame already filled with text. This feature helps you create more attractive and professional-looking pages because text will continue to wrap around the frame no matter how often you move it, making it easier for you to experiment with design. Besides importing text from a word processor, you can also type directly onto the page. *Lite* automatically scrolls the screen and offers a handy search-and-replace function—even *Ventura Publisher* lacks these features.



***Publish-It! Lite!* offers low-cost entry into the world of desktop publishing.**

You place graphics on the page as you place text—by creating a frame and importing the graphic. *Lite* will read only *PC Paintbrush* and *GEM Paint* files; while this is somewhat limiting, these are the two most popular bit-

www.commodore.ca



1988 Antic Award Winner "Outstanding Product"

The ACLS Teaching Series featuring

Cardiac Arrest!

An Incredible Simulation

IBM, Apple II, Apple Mac, Amiga, Atari XE, Atari ST

Don't let our low costs fool you! You've never seen anything this good on desktop computer. Not an IF-THEN or choose A,B,C-type program, Cardiac Arrest! is a mathematically-based simulator. You interpret the history, on-screen EKG, lab data, and vital signs, then give treatment orders in plain English.

Antic: "Inpressive and amazingly complete. Information packed manual."

Am. J. Emerg. Med.: "A godsend for ACLS training."

ST World: "Both highly educational and fun. Remarkably easy to use."

Computer News for Physicians: "This program series is an excellent value."

Cardiac Arrest! is almost as fun to use as it is educational. There are varying degrees of difficulty, with over 45 patients — and none is ever the same twice. You can actually go "beyond ACLS" with hypothermia, hypocalcemia, hyperkalemia, and more. Yet the manual is so complete and well-organized that non-medical people use the simulator to "play doctor."

Our other medical teaching software is excellent, and priced within reach of those who need to use it.

ACLS Teaching Series*	$109
Cardiac Arrest!	$69
ACLS Protocols	$29
EKG Teaching	$29
CardioQuiz	$19
Blood Gases	$24

*The four-disk ACLS Teaching Series includes Cardiac Arrest!, ACLS Protocols, EKG Teaching, and CardioQuiz at 34% savings.

Mad Scientist Software
2063 North 820 West, Pleasant Grove, UT 84062
Visa/MC orders call 801-785-3028

BEAT THE LOTTERY

13 Major Lotto Prizes (Including TEN FIRST PRIZE JACKPOTS) Totaling $30.8 Million Have Been Won Using Gail Howard's Systems.

Gail's latest book — ***LOTTO: HOW TO WHEEL A FORTUNE*** — gives you the most complete information available on how to improve your odds of...

Gail Howard is the creator of the most famous lottery systems used in the world today. Her success in producing Jackpot Winners is unprecedented in the history of Lotto.

WINNING THE LOTTERY

This book has over 100 easy to use Balanced Wheeling Systems™ with:

- Valid Minimum Win Guarantees
- EXACT Guaranteed ODDS IMPROVEMENT up to **667%**
- Multiple wins possible with each system **(ONLY $14.95+$2 s/h)**

GAIL HOWARD'S SMART LUCK COMPUTER WHEEL™

Gail Howard's Balanced Wheeling Systems™ give your Lotto dollar more leverage and dramatically improve your odds. No other lottery computer system offers so much! A must for every serious Lotto player.
5¼"-$29.95 +$2 s/h.
3½"-$32.95 +$2 s/h.

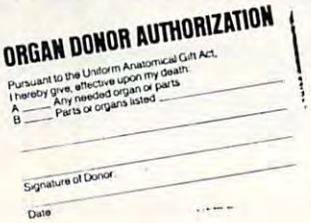
GAIL HOWARD'S SMART LUCK COMPUTER ADVANTAGE™

Gail Howard's famous **Lottery Advantage®** charts to pick the best numbers to play in your favorite state or international Lotto game ($7 for each additional Lotto game). Please specify which Lotto game(s).
5¼"-$39.95+$2 s/h.
3½"-$40.95+$2 s/h.

SMART LUCK
COMPUTER SYSTEMS

P.O. Box 1519 - Dept. D-7
White Plains, NY 10602
for information or technical support
312/934-3300
Visa/Mastercard orders only — call toll free
(800) 876/G-A-I-L (4245)

Before you do crack, do this.



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

✔ Check Out This Sale

✔	3M Diskettes	Each
00263	5.25" DSDD (W/O Slip Case)	$ .55
00234	5.25" DSDD (10 per Slip Case)	$ .59
12100	5.25" DSHD (10 per Slip Case)	$1.09
12661	3.5" DS (W/O Slip Case)	$1.22
12042	3.5" DSDD (10 per Slip Case)	$1.27
12513	3.5" DSHD (10 per Slip Case)	$3.04

✔	3M Data Cartridges	
12200	DC2000	$14.95
33047	DC300XL/P	$17.85
00310	DC600A	$19.65

✔ **ACCO® Surge Protector**
- Four protected outlets
- High 240 joule capacity
- Three-year limited warranty
- Wall Mounted
- Audible status alarm

Order No. 50673 **$34.95**

Name Brand Supplies for your Laser Printer!
Let us be your source!
You'll love our prices!

Order Toll Free: 1-800-258-0028

FREE CATALOG. Complete Line of Quality Supplies For Your Computer.
S&H: F.O.B. Grand Rapids, MI. Terms to well-rated firms.
Minimum Order: $25.00. Prices Subject to Change.
Foreign Inquiries Invited.

Precision Data Products™
P.O. Box 8367, Grand Rapids, MI 49518
MI: 800-632-2468 • 313-645-4980
616-452-3457 • **FAX: 616-452-4914**

www.commodore.ca

mapped formats. You can use the program's graphics editor to edit bit-mapped graphics and object-oriented graphics (for drawing lines, boxes, and circles). And unlike *Pages,* which takes forever to display pictures, *Publish-It! Lite!* quickly handles that task. That means you can use the program efficiently on a PC or XT—no need to upgrade to an AT-class computer.

Publish-It! Lite! really shines when it prints. While the font quality of some low-end publishing programs is suited only for children's play, *Lite's* printing is a cut above. That quality, however, is limited to Epson-compatible 9- or 24-pin dot-matrix printers.

Lite comes with three typefaces: Dutch (Times Roman), Swiss (Helvetica), and Bullets. You can print any of these fonts in sizes ranging from 7 to 36 points.

The program's excellent manual is easy to follow and includes a complete tutorial. The onscreen help is limited—enough to jog your memory, but not complete enough to replace the documentation.

As good as it is, however, *Publish-It! Lite!* has some significant limitations. More experienced users will find the program lacking in advanced features. It can't, for example, create documents longer than four pages, and it hogs memory when producing graphics.

Also, there are no automatic headers, footers, or page numbers. Hyphenation is completely manual, a blow to justified text. You can't move frames from page to page, and you can't turn off the nonprinting page and frame guides, so your screen display, while accurate, isn't what-you-see-is-what-you-get quality. Most inconvenient, you can't set a default type style for imported text: You must manually select the text and then select a type style.

Publish-It! Lite! is also missing manual control for leading (the space between lines). This limitation can be a benefit to the beginner, who is ensured that text is always set with enough leading (no complicated settings to master). More limiting, however, is *Lite's* inability to print landscape (sideways) pages.

Despite these limitations, *Publish-It! Lite!* operates on a more professional level than its low-priced competitors. Its greatest edge is its upgrade path. An inexpensive Laser Accessory Pack lets you print to a laser printer. And, if you outgrow *Publish-It! Lite!* (and you will if you're a frequent desktop publisher), you can graduate to the standard *Publish-It!,* a full-featured program with all the bells and whistles *Publish-It! Lite!* lacks.

Publish-It! Lite! offers a stable, affordable entry into desktop publishing. Though limited, it offers beginners an easy-to-use framework within which they can hone their page-design skills. It's a good place to start.

— Daniel Will-Harris

Publish-It! Lite!

For . . .
IBM PC, PS/2, and compatibles with two disk drives or a hard disk; 512K RAM (640K is required for Hercules or EGA displays); and CGA, EGA, MCGA, or Hercules graphics—$59.95

From . . .
Timeworks
444 Lake Cook Rd.
Deerfield, IL 60015
(312) 948-9202

And . . .
A Laser Accessory Pack sells for $19.95; users may upgrade to *Publish It!* for $99.00.

WriteNow 2.0

There's nothing wrong with a word processor that doesn't jump through hoops blindfolded, as long as it's designed to handle pure text processing with grace and common sense. In this regard, T/Maker's *WriteNow* 2.0 holds its own.

WriteNow is a good example of what an entry-level word processor should offer: ease of use, sufficient speed, and economy. If you want a complicated program that runs like an Olympic sprinter and offers a long list of obscure features, go out and buy a $400 word processor that eats up more than a megabyte of RAM. But if you want a shallow learning curve, the endurance of a marathon runner, and just the right features to produce basic documents, buy *WriteNow.* You only have to feed it 512K of RAM.

As with most Macintosh word processors, you format paragraphs in *WriteNow* 2.0 by changing settings on a ruler at the top of the screen. Icons control various tabs, margins, first-line indents, line spacing, and text alignment. If you've been using a more powerful word processor, you may miss features that automate paragraph formatting, like the style sheets in Microsoft *Word. WriteNow* has similar features, but they're not as elegant. To transfer formats, you must copy and paste rulers throughout your document. You can change all paragraphs controlled by identical ruler settings, though, by selecting them and holding the Shift key when you change ruler settings for one of the paragraphs: the others will change accordingly. A similar control works on fonts, type styles, and type sizes. For example, select several lines of text, starting with a boldface entry; then hold the Command key as you select Underline from the Styles menu, and all selected, boldface entries will change to underline.

The program's spelling checker is speedier than some because it skips text previously checked until those sections are revised. Several buttons control the spell-checking procedure. One suggests intelligent alternatives to misspelled words—it's even smart enough to suggest transposed spellings. Another button ignores spellings that are unique to a particular file. Other buttons add and

***Write Now* 2.0 is a high-performance word processor in an entry-level package.**

www.commodore.ca

subtract words. The 100,000-word dictionary is so well stocked that it recognizes contractions and some possessives.

WriteNow 2.0 includes several little details that affect ease of use and the general appearance of your document. You can, for example, set typographic-style quotation marks and apostrophes by choosing Smart Quotes in the Page Setup dialog box when you start a document. (It won't change any punctuation you've already typed, though.) The Window menu is another nice feature; it lets you move from one open file to another. Center, right, and decimal tabs increase your options for designing tables and charts; flexible line spacing makes room for graphics that are too big for the line of type they inhabit. Headers, footers, and automatically numbered footnotes give your document a professional or scholarly appearance. Tab leaders add a little zip to your tables of contents. All in all, these little features are as welcome as the more significant ones. They don't slow down the program, and they improve the look of your pages.

Features like mail merge were once the territory of more expensive word processors. *WriteNow*'s mail merge lets you use conditional statements and merge more than one document into your template. A stationery feature stores default formats as well as text and graphics that will appear on each new document you open. You can suppress this feature by holding down Option when you launch *WriteNow*.

Many people who have been using *Microsoft Word* would be pleased with *WriteNow*, so T/Maker has included a system of filters for converting *Word* files into *WriteNow* format. The process, however, is relatively clumsy, for you must first save the *Word* file in RTF format. There's also a filter for converting *MacWrite* files directly into *WriteNow*'s format. Filters for other word processors will be available soon. Text-only files, of course, are easily imported to *WriteNow*.

WriteNow 2.0 answers your demands and more. Some of its features work very well; however, others can't compete with similar features in full-featured packages like *Microsoft Word* or *WordPerfect*. The multicolumn option is impressive, but the format you choose controls the whole document. You can't even run a headline across several columns without a pair of scissors and a bottle of glue. Background printing is another impressive offering, but it's sluggish and slows down any other computer work you do while you wait for your printing to finish.

Compared with the entry-level word processors that used to dominate the Macintosh market, *WriteNow* 2.0 is a slick, sophisticated writing tool. But it has limits. Use it to produce plain documents—letters, reports, great novels—and you'll be pleased with its performance.

— Heidi E. H. Aycock

WriteNow 2.0
For . . .
Macintosh—$195
From . . .
T/Maker
1390 Villa St.
Mountain View, CA 94041
(415) 962-0195

Hometown, U.S.A.

If you've ever wanted to design the exterior of a house or build a small village, then you'll want to visit *Hometown, U.S.A.* Publishing International's program is just the thing for budding architects and closet city planners.

Designed for adults and children, *Hometown, U.S.A.* includes templates of 13 large structures and several smaller ones. Also included are patterns for doors, windows, signs, and other items you can use to "dress up" the buildings you design.

The program's Ideas Book contains hints for getting the most out of the program and suggestions for cutting and assembling the buildings. A second manual contains loading instructions, shots of the parts of each structure, and miscellaneous items. Also included are predesigned buildings that will give you an idea of how your buildings could be placed and decorated.

The first step to designing a building is picking the basic structure. Since there are so many choices, you'll have no problem locating a pattern you like. It gets trickier when you must decide which doors, windows, balconies, fencing, and other additions to use. If you're building a store, for example, you'll have to pick a sign, which you can alter further with the program's paint/graphics capabilities.

The paint/graphics feature is also handy for adding shingles and bricks to your building—just select Patterns from the menu bar. Flood Fill lets you instantly create a roof. (You'll have to add color by hand. Crayons will do, but

COLOR RIBBONS & PAPER

COLOR RIBBONS — RED, BROWN, BLUE, PURPLE, GREEN, YELLOW,

Ribbons	Price Each	Black	Color	Heat Transfer
Apple Imagewriter I/II		3.75	4.50	6.50
Citizen 120 D		5.00	6.00	7.95
Commodore MPS 801		4.15	4.75	5.75
Commodore MPS 802		6.00	6.75	–
Commodore MPS 803		4.95	5.95	7.00
Commodore MPS 1000		3.95	4.95	6.75
Commodore MPS 1200		5.00	6.00	7.95
Commodore 1525		6.00	–	–
Okidata 82/92/93		1.75	2.25	4.50
Okidata 182/192		6.50	7.50	–
Panasonic KX-P 1090		6.75	7.75	–
Seikosha SP 800/1000		5.25	6.50	7.95
Star SG 10		1.75	2.25	4.50
Star NX10/NL10		5.00	6.00	7.95

COLOR PAPER
BRIGHT PACK—200 Sheets/50 each color: Red, Blue, Green, Yellow. 9 1/2 x 11 — $10.90/pk.
PASTEL PACK—200 Sheets/50 each color: Pink, Yellow, Blue, Ivory. 9 1/2 x 11 — $10.90/pk.

T-SHIRT RIBBONS (Heat Transfer) — Call For Price.

COLOR DISKETTES
5 1/4" DS/DD Rainbow Pack. 10/pack — $12.50

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. Add $2.25 C.O.D. add'l. IL res. add 6.25% tax. MC & Visa accepted.

RENCO COMPUTER PRINTER SUPPLIES
P.O. Box 475, Manteno, IL 60950 U.S.A.
1-800-522-6922 • (IL) 1-800-356-9981
815-468-8081

Save on BROWNOUT protection!

LINE CONDITIONER
keeps power constant during voltage sags and power surges!

Prevents damage and downtime on computers, phone systems, cash registers, etc. by providing full voltage support when AC input power varies up or down. Maintains constant output of 120V. *Line Stabilizer* is a stepped transformer system that has *higher* efficiency than CVT's (constant voltage transformers) and gives lower waveform distortion at FAR LOWER COST. Built-in spike and noise suppression. 1-Year warranty!

1200-Watt, 4 Outlet	1800-Watt, 6 Outlet
ONLY $199	ONLY $259

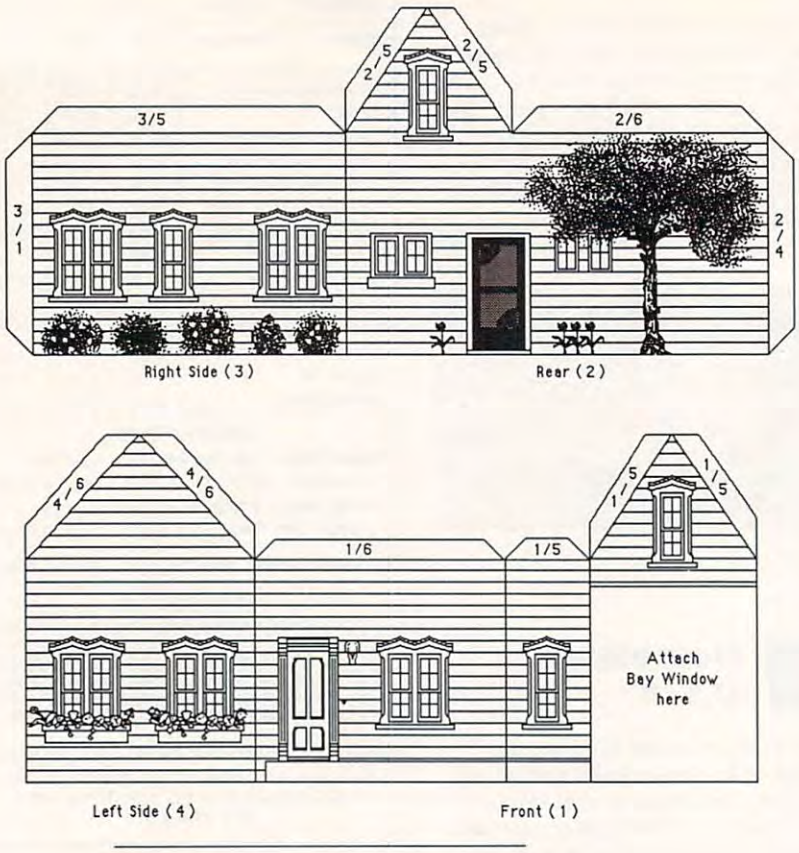
Order toll free 1-800-662-5021
IN ILLINOIS CALL 1-312-648-2191 OR MAIL COUPON

INDUS-TOOL, 730 W. Lake Street
Dept. C!, Chicago, IL 60606

Enclosed is $_____ or charge on
☐ MasterCard ☐ Visa ☐ *Expires*_____
Card No. _____
Send ☐ **1200-Watt @ $199** ☐ **1800-Watt @ $259**

Name _____
Company _____
Address _____
City,State,Zip _____
Phone _____

www.commodore.ca



Build the house of your dreams with *Hometown, U.S.A.*

markers or watercolors give a more finished look.)

After you've finished designing your building, you can print it out on a dot-matrix or laser printer (Macintosh version only). For best results, you'll want to use heavy bond or textured paper. Several pieces of the structure appear on each page, and it may take two or three pages to print all the parts your building requires.

The next step is to put your creation together. The program's manual offers excellent suggestions about how to cut, paste, and assemble your building. There are step-by-step directions for putting together each structure. Numbers printed on the tabs of the parts identify the section and indicate to which part it is to be glued. To make your structures even sturdier, glue the parts to cardboard or cardstock before you start. Use sharp scissors or an X-ACTO knife to get more finely cut edges.

The buildings differ in size, but are close to the HO scale familiar to model-train users. (To give you an idea of the basic size, a cassette tape fits nicely inside the hotel.) If you want to make your buildings larger or smaller, you can enlarge or reduce the printed templates with a photocopier before cutting.

There's no wanting for ideas on using your model buildings around the house. The tiny homes could be turned into containers for cookies or candies given as holiday gifts. Reduce the size of the buildings and they make clever Christmas tree ornaments or, placed on a table, form a Christmas village. Construct a town for your child's (or your own) electric train. Stuff some potpourri in a schoolhouse for a great gift for your child's teacher. You'll find lots of clever ways to use your buildings.

Hometown, U.S.A. also has many classroom applications. For example, a social studies project might have children design the neighborhood where they live. The step-by-step design process, followed by the construction of the buildings, bolsters logical thinking skills. Vocabulary and cooperative-learning skills are practiced as groups of children work together to create their own community.

Parents eager to share in their child's learning experience will benefit from the teamwork that a program like *Hometown, U.S.A.* fosters. Adults and children work as partners, creating a place they can call home.

— Nancy Rentschler

Hometown, U.S.A.

For . . .
Apple II—$39.95
Apple IIgs—$39.95
Commodore 64/128—$39.95
IBM PC and compatibles—$39.95
Macintosh—$39.95

From . . .
Publishing International
333 W. El Camino Real
Suite 222
Sunnyvale, CA 94087
(408) 738-4311

And . . .
Print drivers for laser printers are being developed for the IBM version. ⊡

To receive additional information from the advertisers in this issue, use the handy reader service card in the back of the magazine.

www.commodore.ca

new products!

HFS-III Upgraded

Jay Gold Software has updated its *Home Finance System-III* for the IBM PC and compatibles to version 3.2. The financial management program tracks income and expenses, balances checkbooks, writes reports, and prints checks.

With this version, users can view a report onscreen, send the report to disk, or send it right to the printer. A Find feature allows access to selected transactions for viewing or editing, while Smart menus follow keystrokes to the desired menu entries. A Quick Questions card refers to the Main Menu and answers other common user questions. The program supports laser printers for checks, and an onscreen check-design option lets you purchase business-size checks from any vendor. The suggested retail price for *HFS-III* is $49.95.

Jay Gold Software, P.O. Box 2024, Des Moines, IA 50310

Circle Reader Service Number 200.

Powerful Lightweight

Weighing in at 11.6 pounds, the T1600 80C286 laptop is the lightest and most powerful of Toshiba's battery-powered portable PC line. The system boasts a 12-MHz clock speed and comes equipped with 1 megabyte of RAM (expandable to 5 megabytes), a 20-megabyte hard disk with 27-millisecond access time, and a high-capacity 1.44-megabyte 3½-inch IBM PS/2–compatible disk drive.

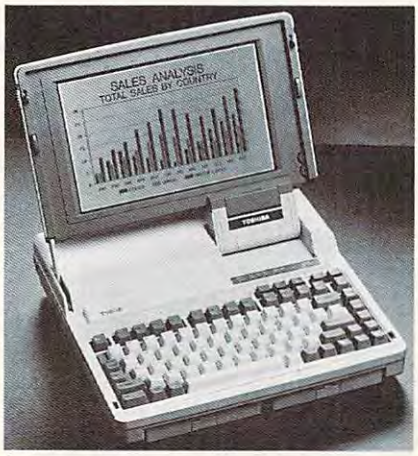
A detachable backlit supertwist EGA liquid-crystal display is standard; an external monitor can be connected through the system's EGA port. Other system ports include a parallel, two serial, one for an external 5¼-inch external disk drive, and one for a numeric keypad. The dedicated modem slot accommodates Toshiba's optional 2400 bits-per-second Hayes-compatible modem. A general-purpose expansion slot is also available.

The computer comes with one 15-ounce battery pack but can support two. A Sleep Mode for the microprocessor and power-down features for the hard disk drive and backlit display conserve battery power. An AutoResume feature allows for instant reentry into an application without rebooting or reloading application software.

The T1600 comes with MS-DOS 3.3, *PC-Kwik Power Pak* disk-cache utility software, a hypertext disk-resident DOS, and user documentation. The suggested retail price is $4,999.

Toshiba America, Information Systems Division, 9740 Irvine Blvd., Irvine, CA 92718

Circle Reader Service Number 201.



The Toshiba T1600 portable PC weighs 11.6 pounds.

Copter Rescue and Attack

ThunderChopper, SubLOGIC's helicopter flight simulator, requires players to execute rescue and combat missions. But before facing the enemy, players must complete a set of training missions.

In the first combat mission, Armed Escort, players must guide ground troops to safety through enemy territory, protecting them from guerrilla fighters. Rescue at Sea asks players to locate and rescue the survivors of a major naval engagement. Players must search the floating wreckage while staying on alert for enemy ships.

An on-board flight computer provides mission instructions and performance feedback. Flight instrumentation includes Forward-Looking Infrared, CO2 laser radar, and zoom television. The helicopter's armament includes TOW and Stinger missiles, Zuni rockets, and a Hughes Chain Gun.

ThunderChopper requires an IBM PC or compatible with a CGA, EGA, or VGA graphics card and a color or monochrome graphics monitor. The suggested retail price is $39.95.

SubLOGIC, 501 Kenyon Rd., Champaign, IL 61820

Circle Reader Service Number 202.

Goofy Golfing ST Style

Electronic Arts' *Zany Golf* has come to the Atari ST. On this unusual miniature golf course, as many as four players compete for best score over nine holes, each of which provides a different challenge and experience.

For example, players must maneuver a golf ball through flashing lights while on the Pinball hole; putts must clear a bouncing burger on the Hamburger hole; and the Energy hole features dart laser beams, particle rays, and transporter pads. Other holes have moving walls, magic carpets, a castle, and, of course, the classic windmill. One hole seems to have a mind of its own, while another remains a secret.

The suggested retail price for the Atari ST version of *Zany Golf* is $39.95. The game was previously released for the Apple IIGS and the IBM PC and compatibles at the same price.

Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404

Circle Reader Service Number 203.

That's Some Display

Boca Research's Dual Graphics Adapter enables IBM PC and compatibles users to enhance monochrome-monitor resolution and upgrade to a CGA monitor with one adapter. The board combines the functions of CGA, MDA, and

Mickey McLean

www.commodore.ca

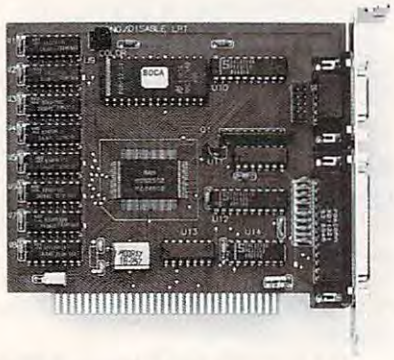
the Hercules graphics card.

Display enhancements on TTL monochrome monitors include standard 80 × 25 line text and 720 × 348 Hercules graphics. On CGA, EGA, or other RGB monitors, the adapter delivers 80 × 25 sixteen-color text, 320 × 200 four-color graphics, or 640 × 200 two-color graphics.

Other features include automatic mode switching and a 25-pin parallel port. The installation procedure consists of the board's insertion into any 8- or 16-bit PC-style bus and setting its jumper; no software is required.

The Dual Graphics Adapter carries a suggested retail price of $99.

Boca Research, 6401 Congress Ave., Boca Raton, FL 33487
Circle Reader Service Number 204.



Boca Research's Dual Graphics Adapter enhances both monochrome and CGA monitors.

New and Improved GEOS 128

A new and enhanced GEOS 128 has been released by Berkeley Softworks. The new version includes *geoWrite* 2.1, a full-featured word processor; *geoSpell 128,* an 80-column spelling checker; and *geoPaint,* a high-resolution graphics workshop.

Also included with the package is an enhanced deskTop program that supports two disk drives and a RAM expansion unit, offers multiple file selection, and displays the date and time. Other features include geoMerge, which creates customized form letters and labels; Text Grabber, which imports text from any Commodore word processor; and the Desk Accessories, which include a calculator, a notepad, an alarm clock, a screen preference manager, and both photo and text managers and albums.

GEOS 128 (version 2.0) supports numeric keypad, keyboard, and other input device options, as well as more than 70 printers. The system is compatible with the entire family of GEOS application products. The suggested retail price is $69.95. Upgrades are available for $35.00 plus shipping and handling.

Berkeley Softworks, 2150 Shattuck Ave., Berkeley, CA 94704
Circle Reader Service Number 205.

Circle Gets the Square

For those tired of waiting for an invitation to a game show, GameTek offers home computer versions of "Hollywood Squares," "Super Password," and "Double Dare!."

Hollywood Squares asks players to second-guess computer celebrities in the popular game of tic-tac-toe. The game comes complete with the show's theme music and wisecrack comments and answers. Two computer contestants can compete head to head or one can play Gametek's expert player, Microkid.

In *Super Password,* one or two players are paired with computer celebrities to give and receive word clues. Players go through the same rounds that their television counterparts do, including the $10,000 speed round, in which the champion must correctly guess ten words in 90 seconds.

Double Dare, based on the syndicated game show produced by MTV, combines questions with physical challenges, including launching contestants off a teetertotter and onto a trampoline. Players control their onscreen character's ability to jump over, throw, or toss objects.

The three games are available for the IBM PC and compatibles, the Commodore 64/128, and the Apple II for $14.95 each.

GameTek/Navarre, 6750 W. Broadway, Brooklyn Park, MN 55428
Circle Reader Service Number 206.

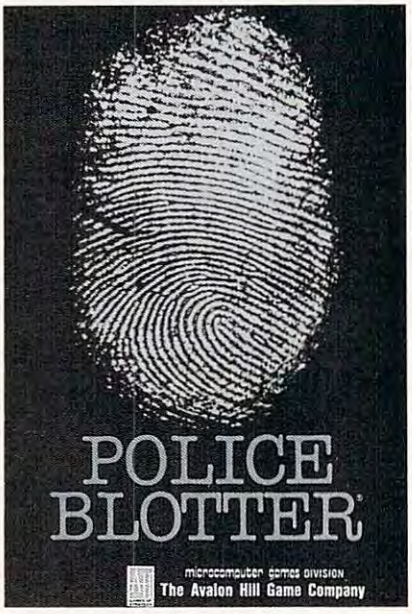
Crime Solver

Avalon Hill has released a detective mystery game that challenges your crime-solving abilities. *Police Blotter* places you in the role of a rookie detective of the 13th Precinct of the Queensport Police Department. You must interview witnesses, decipher police reports, and gather clues.

The game features seven mysteries involving blackmail, kidnapping, theft, and murder. Each of the seven cases is programmed for three levels of complexity. False clues, red herrings, and dead ends tend to make finding a solution difficult. An onscreen case clock tracks the time it takes you to apprehend a suspect.

The game is currently available for the Apple II and has a suggested retail price of $29.95. Versions for the Macintosh and the IBM PC and compatibles are planned.

The Avalon Hill Game Company, Microcomputer Games Division, 4517 Harford Rd., Baltimore, MD 21214
Circle Reader Service Number 207.



One to four players can attempt to solve mysteries in *Police Blotter.*

Roll With It

Test your joystick skills as you maneuver a ball through a multidimensional puzzle on ten different planes in *Mind-Roll,* from Epyx. Each successive plane increases in difficulty, but players can rearrange the planes in any order for play or practice.

Players must walk a plank, hunt for hidden amulets, fill the screen with tiled squares, and roll over puzzle squares in a predetermined sequence. All onscreen activities must be completed before time expires. Plane 7 features time boosters that give you extra seconds to negotiate obstacle courses, roll down a racetrack, or complete a maze.

After each plane, any remaining time units are converted into points. ▷

www.commodore.ca

BEST GAZETTE™ GAMES

on disk

ONLY $9.95! including postage and handling

For Arcade and Strategy Game Lovers

Gazette has published more than 200 games in the past six years. Which are the best? The most exciting? The most challenging? The editors have looked at them all and picked the best dozen arcade and strategy games for the 64. Now they're all on one disk—with documentation—ready to load and play.

12 Top Ready-to-Run Games for the 64!

- **Crossroads II: Pandemonium** Action-packed shoot-'em-up that you'll play for hours—includes maze editor for customizing.
- **Basketball Sam & Ed** Delightfully clever one- or two-player arcade game with outstanding graphics and animation.
- **Delta War** Fast and furious two-player game loaded with options.
- **Heat Seeker** Arcade action at its best—for the nimble-fingered and nimble-minded.
- **Omicron** Frantically paced, multi-level arcade action.
- **Powerball** Futuristic version of *Breakout,* packed with challenges.
- **Q-Bird** Graphically stunning action/strategy game.
- **Trap** 3-D universe that demands your best strategy skills for survival.
- **Arcade Volleyball** Fast-paced, two-player arcade version of America's favorite beach sport.
- **Mosaic** Classic battle of wits for one or two players.
- **Power Poker** One of the most addictive strategy games you'll ever play—guaranteed.
- **Scorpion II** Superb game of mental challenge with great graphics.

YES! Send me ____ copies of the *Best Gazette Games* disk.

I've enclosed $9.95 for each copy.

Name _____

Address _____

City _____ State _____ ZIP _____

Amount _____

Sales Tax* _____

Total _____

Mail personal check or money order for $9.95* to ***Best Gazette Games* Disk**
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 by check drawn on a U.S. bank. Sorry, no credit card orders accepted. Please allow 4–6 weeks for delivery.

www.commodore.ca

Players also have the opportunity to improve their score with bonus rounds following each completed plane.

Mind-Roll is available for the Commodore 64/128, the Amiga, and the IBM PC and compatibles. The suggested retail price is $29.95.

Epyx, 600 Galveston Dr., P.O. Box 8020, Redwood City, CA 94063

Circle Reader Service Number 208.

Keyball or Trackboard?

Octave Systems has combined a keyboard and a trackball in KeyTrak, which was designed to save desk space and increase the efficiency of computer users.

The trackball is compatible with both Microsoft and Mouse Systems serial mouse drivers. It has a serial port and a *Y*-shaped cable that plugs into the keyboard port; plus, it can switch between XT- and AT-class computers. Three mouse buttons are located above the trackball, and the primary button is duplicated on the left-hand side of the keyboard.

KeyTrak has a suggested retail price of $189.

Octave Systems, 1715 Dell Ave., Campbell, CA 95008

Circle Reader Service Number 209.

KeyTrak combines a trackball with a keyboard.

Start Off Right

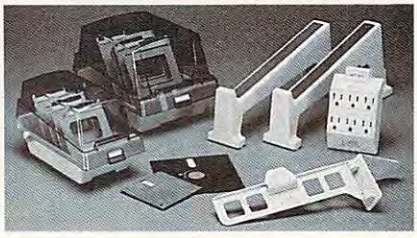
Curtis Manufacturing has introduced The Computer Starter Kit, five computer accessories designed to protect computers, save valuable desktop space, and provide greater user comfort. The kit contains a disk file, a Curtis Clip copy holder, universal printer legs, a computer-cleaning kit, and a surge protector.

The kit can contain either a 3½- or a 5¼-inch cleaning kit that rids disk drives of dust and debris and a disk file that holds up to fifty 5¼- or forty 3½-inch disks. The Curtis Clip attaches directly to the monitor and swings out of the way when not in use. Any desktop printer can be elevated with the kit's printer legs, and the Safe-Bloc Surge Protector, with hot-to-neutral protection, features six multipurpose outlets and mounts directly into any duplex wall outlet.

The Computer Starter Kit carries a suggested retail price of $59.95.

Curtis Manufacturing, 30 Fitzgerald Dr., Jaffrey, NH 03452

Circle Reader Service Number 210.



The Computer Starter Kit combines five computer accessories into one package.

In Stereo

Give your Commodore 64 or 128 six-voice stereo music capabilities with the SID Symphony Stereo Cartridge from Dr. Evil Laboratories. The cartridge lets you play Sidplayer songs, both standard and enhanced, including ones available in the public domain, such as Mark A. Dickenson's *Stereo Player* version 10.0. You can also create your own stereo Sidplayer songs with *COMPUTE!'s Music System for the Commodore 128 and 64: The Enhanced Sidplayer,* written by Craig Chamberlain and available from COMPUTE! Books.

The SID Symphony Stereo Cartridge requires no assembly; however, you will need two RCA male-to-male cables to connect the outputs of the computer and cartridge to a stereo system. The cartridge is powered by a replaceable 9-volt alkaline battery.

The suggested retail price for the SID Symphony Cartridge is $34.95.

Dr. Evil Laboratories, P.O. Box 190, St. Paul, IN 47272

Circle Reader Service Number 211.

Portable Fax and Data

Touchbase Systems has released the WorldPort 2496 Portable Fax/Data Modem. The small battery-powered modem combines a 9600–bits-per-second (bps) Group III facsimile modem with a full-featured 2400-bps data modem. Designed for use with IBM PC–compatible portable and laptop computers, the external unit can also be used with desktop computers.

Features include two standard RJ11 telephone jacks and an interface for acoustic-coupler operation, which allows the unit to be used in phone booths, hotel rooms, and with non–U.S. phone jacks.

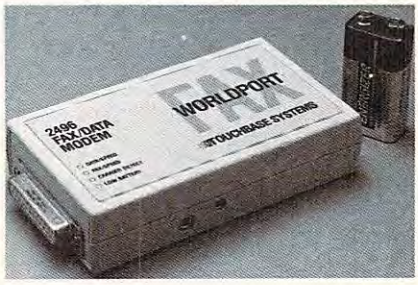
The unit can automatically detect and route an incoming fax or data call. Proprietary PC software allows unattended background operation for sending or receiving fax transmissions and sending group broadcasts; it integrates full data-communications features for the data-modem section.

Data-modem features include AT command-set compatibility, autodial/auto-answer/auto-rate select, Bell and CCITT compatibility, a speaker, and LED indicators.

The WorldPort 2496 has a suggested retail price of $699.

Touchbase Systems, 160 Laurel Ave., Northport, NY 11768

Circle Reader Service Number 212.



The WorldPort 2496 Portable Fax/Data Modem combines fax and data.

Label It

A program for creating and customizing mailing labels for the IBM PC and compatibles is now available from POP Computer Products. *Labels!* can store as many as 4000 names and addresses and features a Lookup Engine that allows for quick recall if the user remembers only a few characters such as part of a name or street address.

Users can type labels in any format, with or without fields. Up to ten different address and label formats can be kept in memory. The program can also import and export ASCII text files.

The Grabber feature lets you enter an address once and then have the data available later for printing an envelope. The address is stored until it's time to print, but the feature isn't a traditional memory-resident program: The Grab-

www.commodore.ca

ber is only memory-resident while the user writes a document.

Labels! supports most printers. It carries a suggested retail price of $29.95.

POP Computer Products, P.O. Box 1833, Evergreen, CO 80439
Circle Reader Service Number 213.

Users can create and customize labels with *Labels!*.

C-128 Wall Decorator

Free Spirit Software has released *Poster Maker 128* for the Commodore 128 running in 128 mode. The program allows users to create posters as large as five feet by five feet.

You can print the posters or save them to disk as picture files. A graphics utility lets you import *Basic 8, Sketchpad 128,* or *Spectrum 128* graphics files. These files can also be enlarged on both the *x*- and the *y*-axes. A utility that reduces the size of graphics screens to create clip art is also included.

Poster Maker 128, which operates in 128 mode with an 80-column display, runs on the Commodore 128D or the Commodore 128 with 64K video-RAM upgrade. Resolution is 640 × 200 pixels. A 1351 or compatible mouse and a 1571 disk drive are required. Optional support is provided for a 1571 or 1581 disk drive as a second drive. The suggested retail price is $29.95.

Free Spirit Software, P.O. Box 128, 58 Noble St., Kutztown, PA 19530
Circle Reader Service Number 214.

From Across a Crowded Room

Salespeople, educators, and others responsible for presentations and demonstrations will find Forté Communications' remote-control device handy for working with an IBM PC or compatible computer from a distance. With Remote Keyboard, users can run and manipulate programs from as far as 50 feet away.

Remote Keyboard transmits infrared signals to a receiver that plugs into the computer's serial port. Users point the device at the computer's display and then press a button to control the PC. Built into the product's disk-based software is a pointer that can be used to call attention to specific displays during presentations.

The hand-held device weighs less than ten ounces, including batteries. The suggested retail price is $395.

Forté Communications, 680 W. Maude Ave., Sunnyvale, CA 94068
Circle Reader Service Number 215.

Users can control their PC from as far as 50 feet away with Remote Keyboard.

Convoy Escort Service

Command a Destroyer Escort ship in the North Atlantic during World War II in *Destroyer Escort,* from Medalist International's MicroPlay Software line.

The safety of a World War II supply convoy is your responsibility. There are six convoy routes to choose from, each with three difficulty levels. Players can pick a route that provides the type of challenge they seek, such as one that is prone to submarine attacks.

The escort ship's weapons include torpedoes, a five-inch gun, depth charges, and an antiaircraft gun you can use against submarines, aircraft, and surface ships. Seven different battle screens provide control over your ship.

Destroyer Escort, a one-player game, is initially available for the Commodore 64/128 and has a suggested retail price of $39.95. Medalist International is a division of MicroProse Software.

Medalist International, 180 Lakefront Dr., Hunt Valley, MD 21030
Circle Reader Service Number 216.

Escort a convoy of World War II supply ships in *Destroyer Escort.*

Attack Copter

The Sega arcade hit *Thunder Blade* has been released by Mindscape for the Commodore 64/128, the IBM PC and compatibles, the Amiga, and the Atari ST.

As a helicopter pilot, you must defeat the enemy while flying over skyscrapers, mountains, deserts, and ocean.

The game offers two different visual perspectives: top-down and from behind the helicopter. The top-down view lets you see the surrounding area in 3-D, while the rear view lets you see forward through the approaching landscape.

The Commodore 64/128 version of *Thunder Blade* has a suggested retail price of $34.95. The IBM PC and compatibles version sells for $39.95; the Amiga and Atari ST editions retail for $49.95.

Mindscape, 3444 Dundee Rd., Northbrook, IL 60062
Circle Reader Service Number 217.

Young Storytellers

Compu-Teach has released a sequel to *Once Upon a Time . . . .* Like the original, the program allows children ages 6–12 to write, design, and publish their own illustrated books.

The new version, *Once Upon a Time . . . II,* features subjects associated with the forest, dinosaurs, and underwater. Hundreds of graphic images are

www.commodore.ca

available to encourage children to use their imagination to create stories and illustrations. Vocabulary, reading, and spelling skills are combined with concepts that teach story creation and illustration techniques, including those associated with perspective and other spatial relationships.

Available for the IBM PC and compatibles and the Apple II, the program retails for $39.95. A classroom pack with five sets of disks and instruction booklets sells for $79.95 in 5¼-inch format and $99.95 in 3½-inch format.

Compu-Teach, 78 Olive St., New Haven, CT 06511

Circle Reader Service Number 218.

Free Game Offer

Consumers who purchase any two Cinemaware products can receive a third product free, while supplies last.

Buyers can select from such packages as *Lord of the Rising Sun, TV Sports Football, Rocket Ranger,* and *The Three Stooges,* as well as Spotlight titles like *Deathbringer, Federation, Dark Side,* and *Speedball.* Other titles will become available through June 1989.

To receive their free software, consumers must send in the original dated sales receipts and completed registration cards from two qualifying packages, a coupon found in specially marked packages or available at many software retailers, and $3 for shipping and handling. Consumers can choose their free program from among *Defender of the Crown, S.D.I., Sinbad and the Throne of the Falcon,* or *The King of Chicago.*

Cinemaware, 4165 Thousand Oaks Blvd., Westlake Village, CA 91362

Circle Reader Service Number 219.

Amiga Gunship

MicroProse's helicopter simulation, *Gunship,* will soon be available for the Amiga. The game puts you behind the controls of a U.S. Army AH-64A Apache attack helicopter armed with Hellfire and Sidewinder missiles, folding-fin aerial rockets, and a 30mm cannon capable of firing 625 rounds per minute.

A variety of skill and reality levels, mission types, and specific mission objectives are available for players who can earn commendations, medals, and promotions during gameplay.

Gunship pilots must fly missions in Southeast Asia, Central America, the Middle East, and Western Europe. A training scenario conducted in the U.S. gets players used to the helicopter in a less hostile environment.

The Amiga version runs on the Amiga 500, may be installed on a hard disk, uses the key-disk copy-protection routine, and can be controlled by joystick. The suggested retail price is $54.95. *Gunship* is already available for the Commodore 64/128, the IBM PC and compatibles, and the Atari ST.

MicroProse, 180 Lakefront Dr., Hunt Valley, MD 21030

Circle Reader Service Number 220. ⊡

SEE US AT
world of commodore
LOS ANGELES CONVENTION CENTER
MAY 19–21, 1989

MIBRO CO., INC.
OUR ONLY STORE
ESTABLISHED 1950
64 WEST 36th ST
NEW YORK CITY
NEW YORK 10018

COMPUTER DISCOUNTS ON ALL YOUR COMPUTER NEEDS

CALL TOLL FREE 1-800-451-9780
NEW YORK STATE RESIDENTS CALL (212) 695-7133
CUSTOMER SERVICE CALL (212) 967-2353 FAX NO. (212) 695-0982
MON.-SAT. 10:00AM-7:30PM • SUN. 10:30AM-6:00PM

EPSON

EQUITY I + PACKAGE IBM XT COMPATIBLE®
PACKAGE INCLUDES: Equity 1 + CPU & Keyboard •360K Floppy Drive •12" Computer Monitor •10 Diskettes •Disc Drive Head Cleaner •Owners Manual •Word Processor •Spread Sheet •Data Base $648
SAME PACKAGE AVAILABLE WITH:
20 MEGABYTE HARD DRIVE.....$898
30 MEGABYTE HARD DRIVE.....$948
40 MEGABYTE HARD DRIVE.....$998

EQUITY II+ 25 PIECE PACKAGE IBM AT COMPATIBLE®
PACKAGE INCLUDES: Equity II + CPU & Keyboard •1.2 MB Floppy Drive •12" Computer Monitor •10 Diskettes •Disc Drive Head Cleaner •Owners Manual •Word Processor •Spread Sheet •Data Base $1098
SAME PACKAGE AVAILABLE WITH:
20 MEGABYTE HARD DRIVE.....$1348
30 MEGABYTE HARD DRIVE.....$1398
40 MEGABYTE HARD DRIVE.....$1448

LEADING EDGE

MODEL D 25 PIECE PACKAGE IBM XT COMPATIBLE®
PACKAGE INCLUDES: Model D CPU & Keyboard •360K Floppy Drive •12" Computer Monitor •10 Diskettes •Disc Drive Head Cleaner •Owners Manual •Word Processor •Spread Sheet •Data Base $598
SAME PACKAGE AVAILABLE WITH:
20 MEGABYTE HARD DRIVE $898
30 MEGABYTE HARD DRIVE $948
40 MEGABYTE HARD DRIVE $998

MODEL D2 25 PIECE PACKAGE IBM AT COMPATIBLE®
PACKAGE INCLUDES: Model D2 CPU & Keyboard •1.2 MB Floppy Drive •12" Computer Monitor •10 Diskettes •Disc Drive Head Cleaner •Owners Manual •Word Processor •Spread Sheet •Data Base $1048
SAME PACKAGE AVAILABLE WITH:
20 MEGABYTE HARD DRIVE $1298
30 MEGABYTE HARD DRIVE $1348
40 MEGABYTE HARD DRIVE $1398

VENDEX®

NEW PRODUCTS FROM VENDEX
VENDEX HEAD START II
FEATURES INCLUDE: 640K Ram •5 1/4" Drive •3 1/2" Drive •8088 Processor 4.77/10 Megahertz
VENDEX HEAD START III
FEATURES INCLUDE: 640K Ram •286 Processor •5 1/4" Drive •3 1/2" Drive •8/12 Megahertz •VGA System
CALL FOR NEW LOW PRICES!!

HEAD START 25 PIECE PACKAGE IBM XT COMPATIBLE®
PACKAGE INCLUDES: Head Start CPU & Keyboard •360K Floppy Drive •12" Computer Monitor •10 Diskettes •Disc Drive Head Cleaner •Owners Manual •Word Processor •Spread Sheet •Data Base $698
SAME PACKAGE AVAILABLE WITH:
20 MEGABYTE HARD DRIVE $948
30 MEGABYTE HARD DRIVE $998
40 MEGABYTE HARD DRIVE $1048

IBM

ORIGINAL IBM IBM XT 25 PIECE PACKAGE
PACKAGE INCLUDES: IBM CPU & Keyboard •360K Floppy Drive •12" Computer Monitor •10 Diskettes •Word Processor •Spread Sheet •Data Base •4.77 Megahertz $798
SAME PACKAGE AVAILABLE WITH:
20 MEGABYTE HARD DRIVE.....$1048
30 MEGABYTE HARD DRIVE.....$1098
40 MEGABYTE HARD DRIVE.....$1148

ORIGINAL IBM IBM AT 25 PIECE PACKAGE
PACKAGE INCLUDES: IBM AT CPU & Keyboard •1.2 MB Floppy Drive •12" Computer Monitor •10 Diskettes •Word Processor •Spread Sheet •Data Base $1498
SAME PACKAGE AVAILABLE WITH:
20 MEGABYTE HARD DRIVE $1698
30 MEGABYTE HARD DRIVE $1748
40 MEGABYTE HARD DRIVE $1798

ALL IBM COMPATIBLE COMPUTERS AVAILABLE WITH 20/30/40/60/80 HARD DRIVES
ALL SYSTEMS SUPPORT MGA/CGA/VGA/MULTISCAN
PACKAGE DEALS AVAILABLE ON ALL SYSTEMS!!

ORDER NOW!! PHONE ORDERS ONLY
CALL TOLL FREE 1-800-451-9780 NY RESIDENTS/INFO CALL (212) 695-7133
Use M/C, Visa, AMEX Or Send Money Order, Certified Checks. All Merchandise Brand New Factory Fresh. Shipping Charges Non-Refundable. 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 & Unfilled Guarantee Card. No Refunds Accepted Without Prior Verbal Authorization. Customer Service Between 12 pm-6 pm. Pictures Are For Illust. Purposes Only. Not Responsible For Typographical Errors. Consumer Affairs License No. 800-253. Prices Good For Mail Orders Only.

www.commodore.ca

Classified

SOFTWARE

Quality **IBM SOFTWARE** from **$2** per disk. Games/WProc/DBases/Educ/Sprsht/Util/More. PD/Shareware-Latest Versions! Free Catalog. SOFSOURCE, Box 828, East Lansing, MI 48826 (517) 349-3560 CALL OR WRITE TODAY!

OUTSTANDING IBM SOFTWARE
The Best of P.D. & Shareware programs $2.50/disk for 5.25" or $3.50 for 3.5" Free list or 75¢ stamp for disk catalog. ACL., 1621 Fulton #35-C6 Sac. CA 95825

ATARI 800/XL/XE SOFTWARE—New Releases, Hits, Classics—ALL INTERESTS! FREE INFORMATION. Write or call: 25th Century, Box 8042, Hicksville, NY 11802 (516)932-5330

FREE SOFTWARE FOR C64. Send one stamp for catalog or $2.00 for 30 sample programs and catalog (refundable). RVH Publications, 4291 Holland Rd, #562-A, Virginia Beach, VA 23452

YOUR IBM & COMPATIBLE SHAREWARE DISTRIBUTOR. Over 500 in library-5¼" & 3½" avail. Send #10 SASE for wint. catlg. T & Z Software PO Box 780217-C, Sebastian, FL 32978-0217

TECHNICAL SOFTWARE for technicians, engineers, and hobbyists. IBM Compatible. Free info. Innovative Software Solutions, Box 17554, Greenville, SC 29606

IBM SOFTWARE SALE - 6 DISKS ONLY $10
Enjoy our most popular programs including Word Processor, Database, Checkbook, DOS Tutor, Spreadsheet, and 12 exciting games with color. Send $10 to Pacific Exchange, 333 Cobalt Way #107, Sunnyvale, CA 94086.

FREE* IBM SOFTWARE *FREE
5¼" AND 3½" FORMATS
FREE CATALOG: AP-JP, INC.,
BOX 1155, W. BABYLON, NY 11704

TRY BEFORE YOU BUY: C64, 128, AMIGA. Games utilities, educn'l, classics, new releases. 100's of titles. Free brochure. Specify computer. RENT-A-DISC, Frederick Bldg. #221, Hunt'n, WV 25701 (304) 529-3232

WIN LOTTO MILLIONS!
LOTTO PICKER PLUS v2.1
Lotto Picker Plus, the original lottery selection software, allows you to store winning Lotto, Keno, & Pick 3/4 numbers & choose between three modes of probability analysis (hot, due, unbiased) in order to give you the winning edge! Guaranteed to work for all lotteries. Bonus numbers are easily handled and our full-featured database editor gives you access to your files. We give you the PICKS—not a bunch of jumbled statistics! **$34.95** (+5.55 s/h). 64/128, IBM, 64K Apple II. NY res. add tax. NOT Copy-protected.
ORDER TODAY! 1-800-634-5463 ext 293 (M-F 8-5)
GE RIDGE SERVICES, INC., 170 Broadway Suite 201-CG, New York, NY 10038
Info/Dealers 718-317-1961

FREE CATALOG OF DISCOUNT SOFTWARE. Apple, Atari, Commodore and IBM. WMJ Data Systems-C, 4 Butterfly Drive, Hauppauge, NY 11788. 800-962-1988 ext. 122

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—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

Large library of the best public domain software for the IBM, C64, and the 8 bit Atari. Free catalog. (specify computer) C&T, Box 893-E, Clinton, OK 73601

BULK PRICED SOFTWARE FOR THE IBM & COMP.
Public Domain & Shareware on 5.25 Disk's GAMES #1 produces 11 million bytes or 31 disk's full for $29.95, Business #1 over 15meg, Utility #1 over 15meg, Programming 12meg. $29.95e. V/M-COD-Check 312-657-1160 SAVEWARE, P.O. 274F, Glenview, IL 60025

COMPUTER BOOKS AND SOFTWARE CATALOG! Send $2.00 (refundable with first order) for catalog, disk 5-1/4" or 3-1/2" formats. DOYLE SYSTEMS, 12178 Greenspoint Drive No. 318, Houston, TX 77067

SHAREWARE/PD Programs for IBM PC and compatibles-5.25". Games/Util + more. For list send SASE to: Desert Diskware PO Box 9399, Scottsdale, AZ 85252

ONLY $2/DISK. IBM PD SW. **FREE** CATALOG WITH Descriptions. Huge selection. No minimum. Free delivery (USA). Visa/MC. CSS, POB 1323, Dept. B, Pasadena TX 75501 (713) 472-2458

IBM-AT COMPATIBLE COMPUTER SYSTEM w/Network File Server, 725 MgByte H.D. with NEC Laser Printer and Complete Software. Commercial Recovery Inc, 313-632-6528, Fax 313-632-7799

Preformatted 5¼" DD/DS. 25 for $14.00; 50 for $24.00; 100 for $44.00. Postage Paid. Send check/money order to American Software, PO Box 750233, Houston, TX 77275

COMPUTERS SERVICES

CONVERT 720Kb diskettes to 1.44Mb easily & reliably! Save 60% Complete details, $19.95 ck/mo. NASH Engineering Ent. Box 514, Mary Esther, FL 32569

BUSINESS OPPORTUNITIES

WORK AT HOME. 1000+ companies hiring. Computer & other skills. Specific job leads. Deatils: TWN, Box 820a, Rancho Cordova, CA 95741. Include long SASE.

GET PAID for mailing letters! $200.00 daily. Write: PAASE - NS4. 161 Lincolnway, North Aurora, Illinois 60542

PERSONAL COMPUTER OWNERS CAN EARN $1000 to $5000 monthly selling simple services part time. Free list of 100 best services. A.I.M.C.G., Box 60369, San Diego, CA 92106

STOP! LOOK! $4,000/month with computers. Homebased. Proven. No experience/capital. Guaranteed. Free details. MacKenzie, Box 91181-PSC, Pasadena, CA 91109

COMPUTE! Classified is a low-cost way to tell over 250,000 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.

Shareware at it's Best!!!

The PARAGON Difference

- **100's of Programs** Our catalog features 100's of programs all hand picked to give you the best available shareware.
- **Full Disks** Unlike other shareware disks, we pack every disk full of great programs for your IBM Compatible.
- **Technical Support** Our free technical support means help is only a phone call away.

For your free catalog with over 30 pages of programs, call toll-free, today!

1-800-426-3061

Paragon..PC software
P.O. Box 187
Moravian Falls, NC 28654-0187

100% IBM Compatible!
LOW PRICES!

www.commodore.ca

Cocaine can make you blind.

Cocaine fools your brain.

When you first use it, you may feel more alert, more confident, more sociable, more in control of your life.

In reality, of course, nothing has changed. But to your brain, the feeling seems real.

From euphoria...

You want to experience it again. So you do some more coke.

Once more, you like the effects. It's a very clean high. It doesn't really feel like you're drugged. Only this time, you notice you don't feel so good when you come down. You're confused, edgy, anxious, even depressed.

Fortunately, that's easy to fix. At least for the next 20 minutes or so. All it takes is another few lines, or a few more hits on the pipe.

You're discovering one of the things that makes cocaine so dangerous.

It compels you to keep on using it. (Given unlimited access, laboratory monkeys take cocaine until they have seizures and die.)

If you keep experimenting with cocaine, quite soon you may feel you need it just to function well. To perform better at work, to cope with stress, to escape depression, just to have a good time at a party or a concert.

Like speed, cocaine makes you talk a lot and sleep a little. You can't sit still. You have difficulty concentrating and remembering. You feel aggressive and suspicious towards people. You don't want to eat very much. You become uninterested in sex.

To paranoia...

Compulsion is now definitely addiction. And there's worse to come.

You stop caring how you look or how you feel. You become paranoid. You may feel people are persecuting you, and you may have an intense fear that the police are waiting to arrest you. (Not surprising, since cocaine is illegal.)

You may have hallucinations. Because coke heightens your senses, they may seem terrifyingly real.

As one woman overdosed, she heard laughter nearby and a voice that said, "I've got you now." So many people have been totally convinced that bugs were crawling on or out of their skin, that the hallucination has a nickname: the coke bugs.

Especially if you've been smoking cocaine, you may become violent, or feel suicidal.

When coke gets you really strung out, you may turn to other drugs to slow down. Particularly downers like alcohol, tranquilizers, marijuana and heroin. (A speedball—heroin and cocaine—is what killed John Belushi.)

If you saw your doctor now and he didn't know you were using coke, he'd probably diagnose you as a manic-depressive.

To psychosis...

Literally, you're crazy.

But you know what's truly frightening? Despite everything that's happening to you, even now, you may still feel totally in control.

That's the drug talking. Cocaine really does make you blind to reality. And with what's known about it today, you probably have to be something else to start using coke in the first place.

Dumb.

© 1987, DDB Needham Worldwide Inc.

Partnership for a Drug-Free America

www.commodore.ca

SOFTWARE DISCOUNTERS OF AMERICA

S.D. of A.

USA/Canada Orders—1-800-225-7638
PA Orders—1-800-223-7784
Customer Service 412-361-5291

- Free shipping on orders over $100 in continental USA
- No Surcharge for VISA/MasterCard
- Your Card is not charged until we ship

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.

ACTIVISION ENTERTAINMENT SOFTWARE

Can one Hack writer, two Yale co-eds & a stale loaf of french bread save the world from a galactic conspiracy?

Zak McKracken
List $44.95
Our Discount Price $29

Over 50 New Titles Added This Month For Your IBM Or Compatible!

ACCOLADE
Ace of Aces $9.88
Apollo 18 .....$24
Bubble Ghost $23
Fast Break $24
4th & Inches Football .$24
Grand Prix Circuit ...$24
Hardball $9.88
Jack Nicklaus Golf ...$32
Mini-Putt $24
Rack 'Em $24
Serve & Volley $24
Test Drive $24
Test Drive 2: The Duel$29
T. Drive 2 Calif. Scenery$14
T. Drive 2 Super Cars .$14
The Train $23
T.K.O. $25

ACTIVISION
Battle Chess $32
Battlehawks 1942 ....$32
Black Jack Academy ..$24
Last Ninja $26
Maniac Mansion $29
Might and Magic 1 or 2$32 Ea.
Music Studio 3.0 .....$65
Prophecy 1: Trinadon .$25
Rampage $24
Starglider 2 .....Call
Zak McKracken $29

ARTWORX
Bridge 6.0 .....Call
Centerfold Squares ...$19
Creative Cuisine $19
Daily Double Horse RacingCall
Data Disk #1 Female .$14
Data Disk #2 Male ...$14
Data Disk #3 Female .$14
Linkword Languages ..Call
Strip Poker 2 .....$25

BOX OFFICE
Alf's First Adventure $9.88
California Raisons $16
High Rollers $9.88
$100,000 Pyramid ..$9.88
Psycho $16

BRODERBUND
Ancient Art of War at Sea $29
Carmen San Diego Europe $29
USA $29
World $25
Downhill Challenge ..$19
Jet Fighter: Adventure $32
Karateka $6.88
Loderunner $6.88
Print Shop $36
P.S. Companion $32
P.S. Graphics Library #1 or #2 $21 Ea.
Science Tool Kit $49
Space Racer $29
Star Wars $25

BUENA VISTA
Roger Rabbit $25

CENTRAL POINT
Copy 2 .....$23
PC Tools Deluxe $47

CINEMAWARE
Defender of the Crown$32
Three Stooges $32

DATA EAST
Bad Dudes $25
Guerilla War $25
Heavy Barrel .....Call
Ikari Warriors $25
Karnov $25
Lock On $25
Platoon $25

Super Hang-on .....Call
Victory Road $25

DATASOFT
Fire Zone $19
Hunt for Red October .$32
Time & Magik $26

DAVIDSON
Algeblaster $32
Math Blaster Plus $32
Reading & Me $24
Word Attack Plus $32

DESIGNWARE
Designasaurus $25
Jigsaw $25

ELECTRONIC ARTS
Software Classic Series:
Arctic Fox $9.88
Lords of Conquest ...$9.88
Marble Madness $9.88
Patton vs. Rommel ..$9.88
World Tour Golf $9.88

ELECTRONIC ARTS
Bard's Tale 1 or 2 .$32 Ea.
Chessmaster 2100 ....$32
Chuck Yeager's AFT ...$26
Deluxe Paint 2 .....$65
Demon Stalkers $26
Double Dragon $26
Earl Weaver Baseball ..$26
Empire $32
Jordan vs. Bird $26
Kings Beach Volleyball $26
Modem Wars $26
Scavengers $32
Sentinel Worlds: Future Magic $32
Skate or Die $23
Starflight $32
Strike Fleet $26
Wasteland $32
Zany Golf $26

EPYX
California Games $24
Death Sword $19
Destroyer $14
Dive Bomber $14
Final Assault $14
4x4 Off Road Racing ..$14
Home Video Producer .$32
Impossible Mission 2 ..$14
Omnicron Conspiracy .Call
Print Magic $39
Sporting News Baseball$24
Street Sports Baseball .$14
Street Sports Basketball$14
Street Sports Soccer ..$14
Sub Battle Simulator ..$14
Summer Games 2 ....$14
The Games: Summer Edition $32
Winter Edition $32
Winter Games $14
World Games $14

GAMESTAR
Champ. Baseball ...$9.88
Champ. Basketball ..$9.88
GFL Ch. Football ...$9.88
Pete Rose's Pennant Fever$29
RM250 Motocross ...Call

GAMETEK
Candy Land $9.88
Chutes & Ladders ..$9.88
Double Dare $9.88
Go To Head of Class $9.88
Hollywood Squares .$9.88
Super Password $9.88

HI-TECH
Desk Power $9.88
Fun House .....Call
Muppet Print Kit .....Call
Print Power $9.88
Remote Control .....Call
Ses. St. Print Kit $9.88
Ses. St. Writing Kit .$9.88
Swim Wear $6.88
Win, Lose or Draw .$8.88

INFOCOM
Battletech $32
Beyond Zork $9.88
Hitchhikers Guide ..$9.88
Journey .....Call
Leather Goddesses ..$9.88
Shogun .....Call
Zork 1 .....$9.88
Zork Trilogy $32
Zork Zero .....Call

LEARNING COMPANY
Math Rabbit $25
Reader Rabbit $25
Think Quick! $32
Writer Rabbit $32

MECA
Andrew Tobias: Managing Your Money $139

MELBOURNE HOUSE
John Elway's QB $19
War In Middle Earth ..$32

MICHTRON
Time Bandit $25

MICROPROSE
Airborne Ranger $25
F-15 Strike Eagle $23
F-19 Stealth Fighter ..$44
Gunship $32
Pirates $25
Red Storm Rising $35
Silent Service $23

MINDSCAPE
Balance of Power 1990$32
Captain Blood $25
Combat Course $23
Gauntlet $25
Indiana Jones $25
Int'l Team Sports ....Call
MISL Soccer $24
Out Run $25
Paperboy $25
Pole Position 2 .....$16
Road Runner $25
Shadowgate $29
Space Harrier $25
Super Star Ice Hockey $25
Super Star Soccer $25
Uninvited $25

MY SOFTWARE
My Label Maker $9.88
My Mail List $9.88

ORIGIN
Moebius $25
Times of Lore $25
Ultima 1 or 3 ....$25 Ea.
Ultima 4 or 5 ....$39 Ea.
Ultima Trilogy $39

POLARWARE
Tracon $29

Get out your fatigues & shine your boots. You've been drafted for a top-secret training camp for military elite. Fast paced action. Construction set option.
Combat Course
List $34.95
Our Discount Price $23

POWER UP!
Address Book Plus ...$65
Calendar Creator Plus $32
Labels Unlimited $39
Name Tag Kit $65
Name That Disk $32

SHARE DATA
Concentration $9.88
Family Feud $8.88
Jeopardy $8.88
Jeopardy 2 .....$9.88
Sports Jeopardy $8.88
Wheel of Fortune ..$8.88
Wheel of Fortune 2 .$9.88
Wheel of Fortune 3 .$9.88

SIERRA
Black Cauldron $25
Gold Rush $25
King's Quest 1, 2, 3 or 4 ....$32 Ea.
Leisure Suit Larry $25
Leisure Suit Larry #2 ..$32
Manhunter $32
Mother Goose $19
Police Quest 1 or 2$32 Ea.
Space Quest 1 or 2 $32 Ea.
3-D Helicopter Sim. ...$32
Thexder $23

SIR TECH
Deep Space $23
Heart of Maelstrom ..$32
Knight of Diamonds ..$32
Legacy of Lylgamin ...$32
Proving Ground $32
Return of Werdna $32

SPECTRUM HOLOBYTE
Falcon $32
Solitaire Royale $23
Tetris $23

SPINNAKER
Backgammon $14
Eight in One $39
Kindercomp Gold $25
Resume Kit $25
The Scoop $25
T-Shirt Maker $9.88

SPRINGBOARD
Certificate Maker $24
C.M. Library #1 .....$19

SSI
Demon's Winter .....Call
First Over Germany ...Call
Gettysburg $39
Heroes of the Lance ..$26
Hillsfar .....Call
Mech Brigade $39
Questron 2 .....$29
Pool of Radiance $32
Star Command $32
Stellar Crusade $32
War Game Const. Set .$23
Warship $39
Wizard's Crown $26

TAITO
Arkanoid $23
Bubble Bobble .....Call
Rastan .....Call
Renegade $23
Sky Shark .....Call

THREE SIXTY
Dark Castle $24
Thud Ridge $24

TIMEWORKS
Data Manager $25
Publish It! $129
Word Writer $32

ACCESSORIES
Disk Case 5¼ or 3½$6.88 Ea.
Drive Cleaner 5¼ or 3½$6.88 Ea.
Epyx 500 XJ Joystick ...$25
Sony 3½ DSDD .$18.90 Bx.
Sony 5¼ DSDD .$6.99 Bx.

ACCOLADE

THE DUEL is on. Head to head racing between a Ferrari F40 & a Porsche 959! Also available for use with Test Drive 2 are Calif. Challenge Scenery & Super Cars Disk at $14 Ea.

Test Drive 2: The Duel
List $44.95
Our Discount Price $29

MELBOURNE HOUSE

Tolkien's panoramic vision of the cataclysmic struggle between good & evil has been skillfully crafted into a game of epic proportions.

War in Middle Earth
List $49.95
SDA Discount Price $32

P.O. BOX 111327—DEPT. CP—BLAWNOX, PA 15238

*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 S.D.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 S.D.of A.'s 800# 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.

www.commodore.ca

impact

DAVID D. THORNBURG

Turn On Your Computer and Throw Open a Window onto the Wonders of Science

The popular cartoon image of science depicts bespectacled men in white lab coats standing around a blackboard filled with equations and carries a caption like *Here's the problem: It's* x *before* y *except after* z. The reality of science is quite different. During my ten years as a scientist, many of my colleagues were women, most of us didn't wear glasses, and we rarely stood in front of blackboards—we sat in front of computers.

It's hard to imagine what scientific research would be like if the computer had never been invented. Computers are used in all aspects of scientific research, from the acquisition of data to the development of abstract theories.

Any experimental scientist will tell you that the most tedious part of the job is collecting data. Typically, one measures a variety of parameters (resistance or blood pressure, for example) under varying conditions (different voltage or sound levels, for instance) and then generates tables or graphs that depict the relationship (if any) between the stimulus and the response. It's not uncommon for a single experiment to generate thousands of data points.

When data is taken by hand, the opportunity for writing numbers incorrectly is always present. And even if the numbers are recorded properly, that data usually goes into a computer program for analysis: more chances for error. Only by using a computer to capture data over long periods of time can errors be decreased.

Inexpensive products for the personal computer, like Brøderbund's *Science Toolkit* and Sunburst Communications' *Exploring Science,* allow home computer users to conduct scientific experiments using automated data acquisition.

Today's high school students, armed with personal computers, are exploring scientific ideas that were beyond the reach of the best nineteenth-century scientists. Much of the excitement in scientific circles today revolves around exotic subjects like *chaos*—a branch of science with simple principles, but whose results remained obscure prior to the spread of computers. But now many of these fascinating theories can be explored outside the laboratory—by individuals using their personal computers.

Historically, physicists and other scientists developed theories laden with simplifying assumptions in order to make the resulting equations simpler to compute by hand. The result was a collection of theories filled with various "fudge" factors designed to compensate for these simplifying assumptions. Scientists could often adjust these factors to allow a theory to fit any set of data that was handy—hardly the basis for a rigorous proof. Now that computers allow scientists to deal with the complexity and nonlinearity of the real world, theories of greater accuracy can be proposed and tested.

Besides theoretical explorations, another application for computers in the sciences, and one with a tremendous future, is simulation. Computers allow us to construct microworlds based on certain assumptions. By monitoring the behavior of these microworlds over time, we can see what the long-term consequences of these assumptions might be. For example, simulations that show collisions of two galaxies over millions of years can be presented, in animated form, on a display screen in a few minutes. The popularity of simulation programs (often offered as games) reflects some of the power that can come from these microworlds. In any software store, one can find simulations of nuclear reactors, war, and aircraft flight—and recently even a simulation of an entire city.

The growth of the home video market has opened even more doors for simulation and scientific exploration. Genlock cards allow images from videodisc or videotape to be blended or overlaid with computer graphics. An animated computer model of a skeletal structure can be superimposed on a video image of a walking person, for example, to show how various bones move in relation to each other. Or, a teacher might use a videodisc to illustrate cell division to a class. During the presentation, the teacher can freeze the image and then label its parts with a drawing program.

The impact of computers on science is tremendous, but another aspect of scientific computing is even greater. Personal computers have made science accessible to people who had felt intimidated by the field's apparent abstractions. By allowing people to "mess around" with ideas and to play with those ideas until they make sense, the personal computer has greatly increased people's awareness of scientific issues.

The personal computer helps to make abstract theoretical ideas tangible and concrete. It demystifies science without taking away any of its wonder, informing all of us with the miracle of our world. At a time when science and technology are playing an increasing role in private life, the need for an informed public has never been greater. ⊡

www.commodore.ca

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)

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

Mr./Mrs./Ms. (circle one) (please print)

Street Apt. No.

City State Zip

Check one:
☐ Payment enclosed
☐ Please bill me later

Basic rate $24. Outside U.S. add $6 per year for postage. Excluding Canada all orders must be in U.S. currency. Prices subject to change.

www.commodore.ca

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

www.commodore.ca

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!

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

Circle 101 for a one year new U.S. subscription to COMPUTE!; you will be billed for $12.97.

Please let us know. Do you

own:	plan to buy:
☐ IBM or compatible ___ 270	☐ 271
☐ Apple ___ 272	☐ 273
☐ Commodore 64/128 ___ 274	☐ 275
☐ Macintosh ___ 276	☐ 277
☐ Amiga ___ 278	☐ 279
☐ Atari ST ___ 280	☐ 281

Please print or type name and address.
Limit one card per person.

Name _____

Address _____

City _____

State/Province _____ Zip _____

Country _____

Phone _____

Please Include ZIP Code

Expiration Date 7/31/89 GAO689

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 $24. Excluding Canada, all foreign orders must be in U.S. currency.

www.commodore.ca

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

www.commodore.ca

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

The Tandy 1000 HX

Still, the most affordable PC compatible with built-in MS-DOS®

The Tandy 1000 HX is one of the easiest-to-use PC compatibles ever. MS-DOS is built into memory. This "power-and-run" feature lets you insert your program disk and go!

The feature-packed 1000 HX is ready to run from day one. It includes a built-in 720K 3½" disk drive and our exclusive Personal DeskMate™ 2 applications software.

Personal Deskmate 2 gives you seven great programs. Write with Text, prepare budgets with Worksheet, and store important data with Filer. There's an appointment calendar, and a telecommunications program for use with an optional modem. You can even exercise your creativity with the Music and Paint programs. Personal DeskMate 2's pull-down menus and pop-up dialogue boxes make it easy to use—add a mouse for "point and click" convenience!

Of course, the 1000 HX also runs today's popular IBM® compatible software. Choose from programs for your child's education, financial planning, exciting games, sophisticated word processing, and much more.

The Tandy 1000 HX. From the best-selling family of PC-compatibles made in America.

Send me a 1989 RSC-20 computer catalog.

Mail to: Radio Shack, Dept. 89-A-929
300 One Tandy Center, Ft. Worth, TX 76102

Name _____

Address _____

City _____

State _____ ZIP _____

Phone _____

Tandy Computers: Because there is no better value.™

MS-DOS/Reg. TM Microsoft Corp. IBM/Reg. TM IBM Corp.

Radio Shack®

The Technology Store™

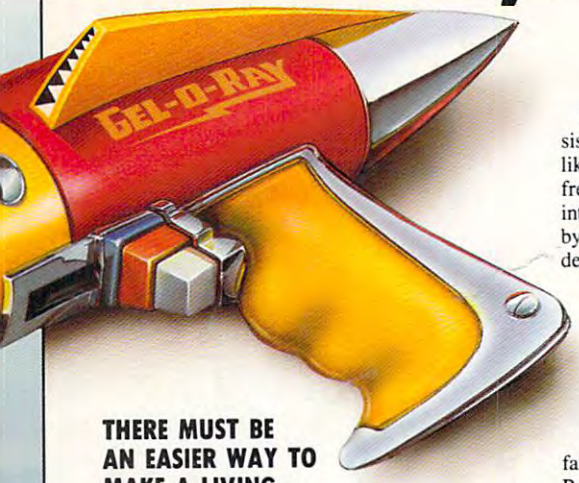
A DIVISION OF TANDY CORPORATION

www.commodore.ca

SUCH ADVENTURE SUCH DANGER SUCH WONDERFULLY SILLY FUN

- Questbusters

YOU'RE IN DEEP PLASMA THIS TIME, ROGER WILCO!



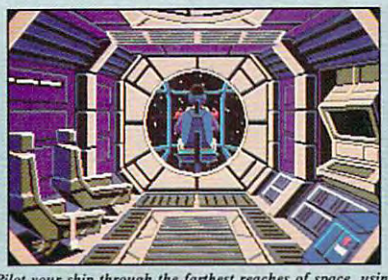
THERE MUST BE AN EASIER WAY TO MAKE A LIVING

There's never a moment's rest for galactic heroes, and when you're Roger Wilco, space-age swashbuckler and all-around nice guy, the thrills just keep on coming. It seems there's always some kind of dangerous mess to clean up.

This time it's those Two Guys from Andromeda, bestselling designers of Space Quest and Space Quest II, who have gone and gotten themselves foully abducted by the pesky pirates of Pestulon, those poaching parasites, those perverse perpetrators of petty mischief and putrid software.

If Roger can't rescue the two guys from the bowels of the Scumsoft Software stronghold, his days as a popular adventure game character are definitely numbered.

So it's simple, right? Just set course for Pestulon and storm the gates of Scumsoft.



Pilot your ship through the farthest reaches of space, using onboard computer to navigate between planets and defend yourself from enemy fighters.

NOT SO FAST, SPACEWIPE!

But the Two Guys don't write games for sissies. If you can't stomach being picked up like so much trash by a wandering garbage freighter, stalked by giant rubbish rats, ground into hamburger in the belly of the Mog, zapped by a scorpazoid in the deserts of Phleebhut, or deep-fried like a chimichanga on the planet Ortega, you'd better play one of those 'nice' games. In Space Quest III, *The Pirates of Pestulon*, you're not likely to be shown any mercy.

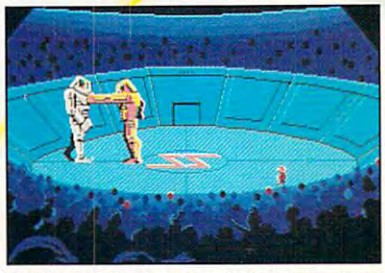
LIFE'S NOT EASY FOR HEROES

Real heroes thrive on danger, and space-faring broomjockey and freelance good-guy Roger Wilco is no exception. Is he afraid of being fried by lightning in a megathunder-storm? Is he afraid of landing in the trash shredder in the depths of the intergalactic garbage truck? Is he afraid of finishing the Belcher Combo plate at Monolith Burger? You bet your sweet asteroid!

Check out all the crazy and absurd junk, er, uh, treasures at Fester Blatz's wacky World of Wonders.

TRASH HEAPS OF PRAISE FOR OUR TWO GUYS

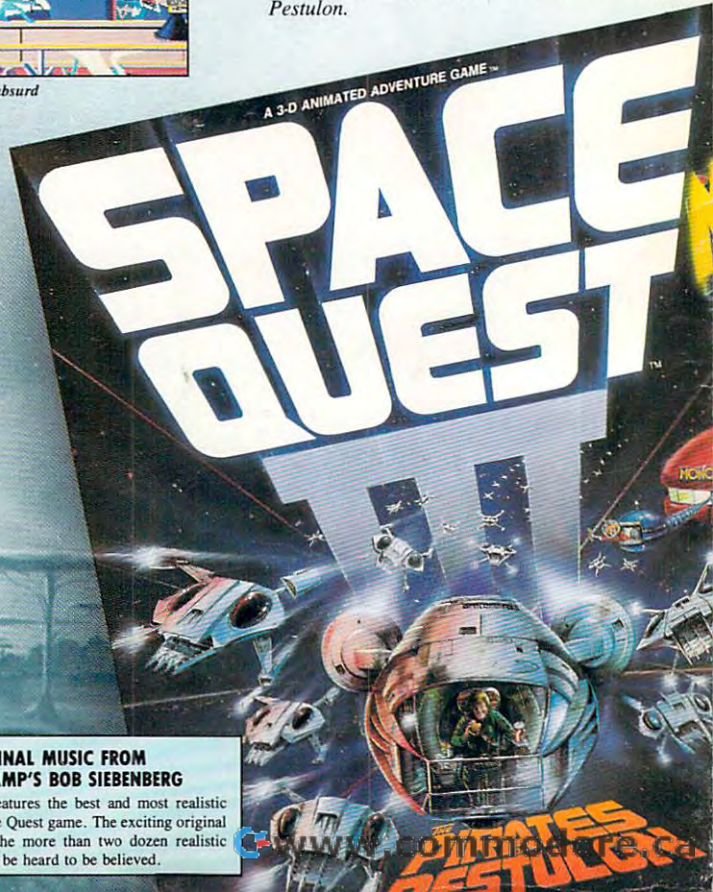
Game reviewers throughout the galaxy love Space Quest games: "...humorous and challenging...", "laugh-out-loud funny...", "genuinely entertaining...", "...A three dimensional graphic wonder..."



Battle for your life in the arena with the Nuke 'em- Duke 'em robots. He's down! He's up! This crowd is out for blood, and it might as well be yours.

HAVE YOU GOT WHAT IT TAKES? NOW'S YOUR CHANCE TO FIND OUT

But don't take *their* word for it -- blast off for adventure, challenge, and laughs with Roger Wilco and the Two Guys from Andromeda in Space Quest III, *The Pirates of Pestulon.*



ORIGINAL MUSIC FROM SUPERTRAMP'S BOB SIEBENBERG

Space Quest III features the best and most realistic sound of any Space Quest game. The exciting original music score and the more than two dozen realistic sound effects *must* be heard to be believed.

SIERRA®

SIERRA ON-LINE, INC. • COARSEGOLD, CA 93614 • (209) 683-6858

www.commodore.ca