

**inCider**

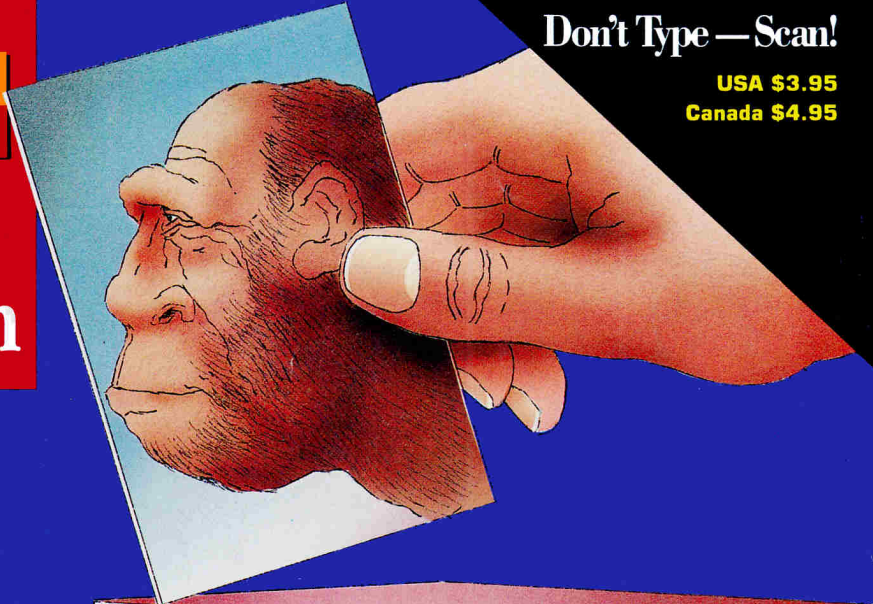
AN IDG COMMUNICATIONS  
PUBLICATION  
May 1991

**Editors' Choice**  
**InWords**  
Don't Type — Scan!

USA \$3.95  
Canada \$4.95

**A+**

**Apple II / Macintosh**



# HYPERCARD

**The Missing Link  
For the IIGS and Mac?**

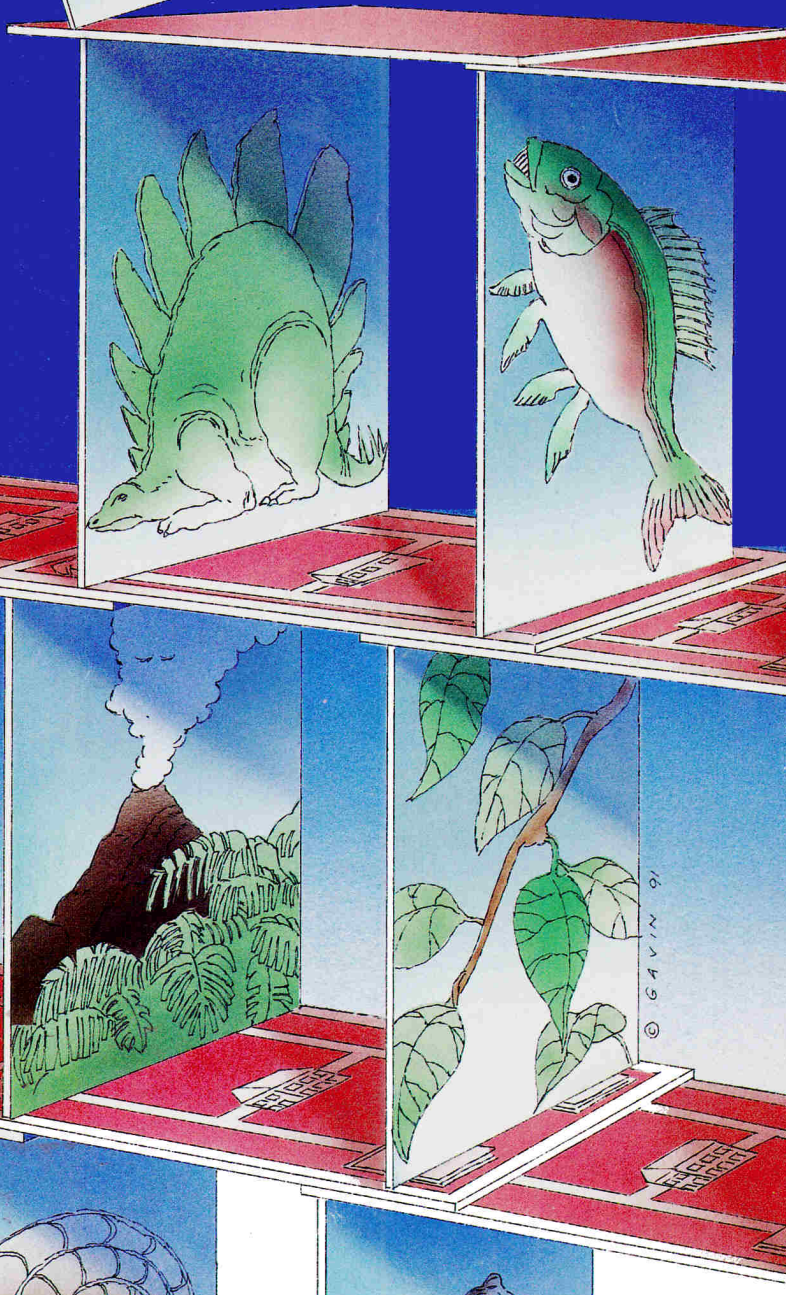
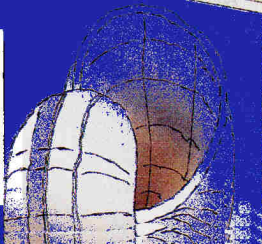
**Plus— the 10 Best  
Shareware Stacks**

**CD-ROM  
COMES OF AGE  
14 Discs Compared**

**GRAPHICS TIPS  
Getting Started**

**REVIEWS**

**Low-Cost 3.5-inch  
Drives Compared**

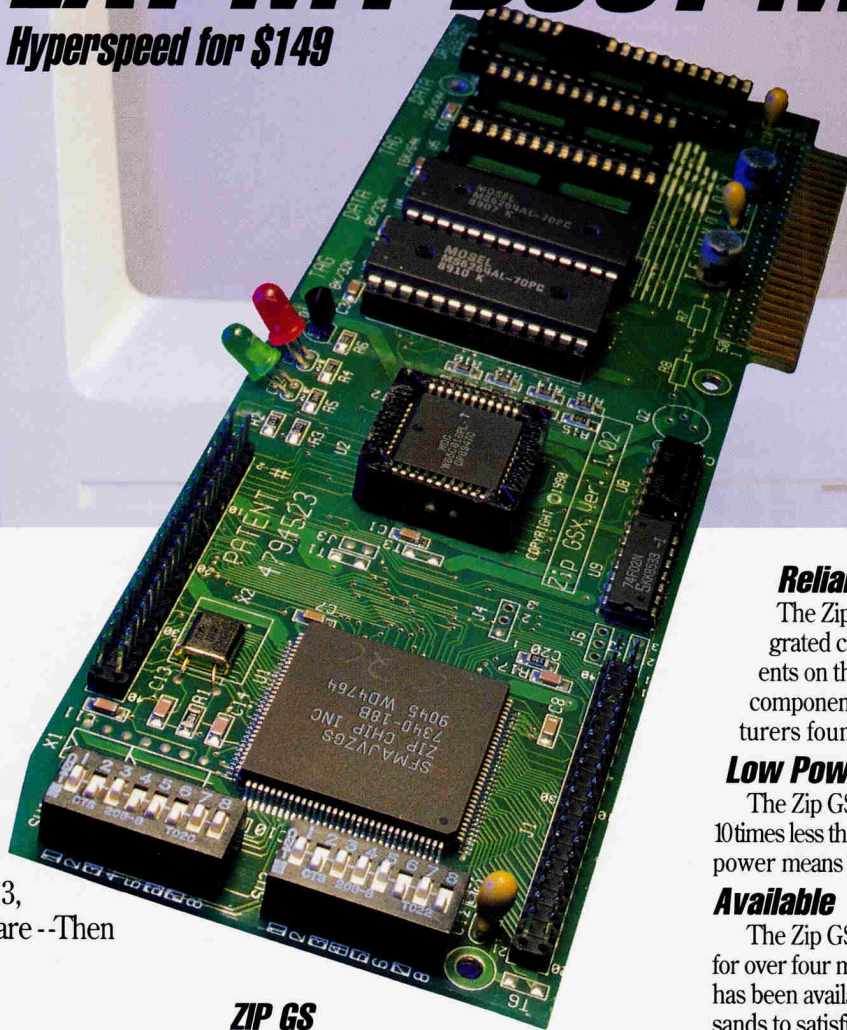


© GAVIN '91

# EAT MY DUST Mac...

Hyperspeed for \$149

GS+ Magazine



## If You Use...

- Appleworks GS
  - Managing your Money
  - Printshop GS
  - HyperCardGS
  - Springboard Publisher
  - DeluxePaint
  - Quicken • Publish it 3,
- or any other GS software --Then you need a Zip GS.

## Here's Why...

To use powerful programs you need a powerful computer. Apple Computer left one thing out of the IIGS when they designed it...speed. The Zip GS puts the speed back in. The Zip GS comes standard with 8 K cache memory and runs at a very speedy 7 Mhz. The Zip GS gives you all the speed you need now and in the future because it's expandable. You will never have to buy another accelerator card again. All upgrades are available now.

Can you imagine the time you will save having your GS running up to 10 Megahertz faster. Appleworks performs like you always thought it should, recalculations in the blink of an eye. Word processing faster than on the new line of Macintosh computers. Nibble magazine said it this way "Apple Computer take note: this chip makes a full featured GS word processor faster than several Macintosh word processors running on a monochrome display." (monochrome display is the fastest) Hallelujah! **ZIP GS DELIVERS!**

## ZIP GS

- Is very easy to operate.
- Needs no special boot-up.
- Provides Macintosh speeds for your GS
- Is compatible with all GS hardware and software.
- Uses 1/10 the power of competing boards.
- Address all memory.
- Upgradable to 64 K cache memory.
- 16 variable speeds at the touch of a key.
- 30 day money back guarantee and a 1 year warranty.
- Upgradable to 10 megahertz.
- Fully DMA compatible.

## Installation

Anyone can install the Zip GS in a matter of minutes. To help with the installation, we include an animated pictorial instruction manual which gives detailed instructions on installation and operation.

## Upgradable

The Zip GS can be upgraded at any time. Zip Technology has available upgrade kits that boost the speed to 10Mhz.! We will be happy to do the upgrade labor for free within 48 hours.

## Reliable

The Zip GS has only one custom integrated circuit. The other three components on the Zip GS are the same reliable components from the same manufacturers found in your GS Computer.

## Low Power

The Zip GS requires only 120 ma of power- 10times less than other accelerators. The low power means it will always run cool.

## Available

The Zip GS has been available and shipping for over four months. In the short time that it has been available, we have delivered thousands to satisfied customers around the world.

## Special Introductory Offer

The Zip GS is priced at \$199.00 retail. During this introductory offer the Zip GS is only \$149.00, a savings of \$50.00.

## ZIP GS Introductory Offer \$149.95

8Mhz upgrade	add only	\$29.95
9Mhz upgrade	add only	\$59.95
8K cache upgrade	add only	\$19.95
32K cache upgrade	add only	\$49.95
Zip GS --10 Ultra Fast 10 Mhz		call

## Risk Free Offer/Money Back Guarantee

If you are not satisfied with the performance of your GS Plus, simply return it in the original box within 30 days for a refund.

Order Today Call Toll Free:

# 1 800-937-9737

Checks, VISA, Mastercard, American Express and Discovery cards accepted.

Now Shipping  
Standard Air By



TECHNOLOGY™ 5601 West Slauson Avenue, Suite #190 • Culver City, CA 90230 • Phone: (213) 337-1313 • FAX: (213) 337-9337

Circle 189 on Reader Service Card.

All product names are trademarks of their manufacturers

# Is Your Apple IIGS™ Already Obsolete?

WELL, DON'T RUSH OUT AND BUY A NEW MAC OR 386/PC JUST YET!

With a supply of good software, your Apple IIGS is still one of the best personal computers ever produced. Because we are actively developing new software for the Apple IIGS, a software subscription to SOFTDISK G-S™ can be very valuable to you.

## WHAT IS SOFTDISK G-S?

SOFTDISK G-S is a unique concept in Apple IIGS software. Every month we'll send you an 800K disk packed with an exciting assortment of software for your Apple IIGS. You'll get personal productivity programs, entertaining games, financial programs, Appleworks™ templates, fonts, clip art, desk accessories, hint and tips, and lots more all at a very affordable price.

## SOFTDISK G-S IS ORIGINAL SOFTWARE THAT IS UNIQUE AND COLLECTIBLE.

Don't confuse SOFTDISK G-S with "shareware" or "public domain software." There are no extra fees to pay for our programs or for your free technical support. It's all included in your software subscription.

## HERE ARE THE PROGRAMS, GRAPHICS, AND SOFTWARE FROM A SINGLE ISSUE OF SOFTDISK G-S.

### CONTENTS OF SOFTDISK G-S # 13

**REFLEXION** — Send your Alcorian Hyper-Marbles across the grid of Time and find the mysterious objects in Three-Space! A puzzle game with clean graphics and fun sounds.

**PS VIEWER-IMAGES** — This month's Print Shop Graphics features school images and some cool aliens.

**HACK ATTACK LEVEL SET** — Here's a new load of bricks to blast on your way to Doh! Load it into Arkanoid II and try to beat it!

**JUKEBOX** — Three incredible new songs, each compatible with Music Studio 2.0™! Sit back and listen, or play any Music Studio songs.

**SPORTS CLIP ART** — Two pages of detailed 640 clip art just loaded with sports figures.

**FRESHSCRIPT FONT** — A great GS font in four point sizes for use with all GS word processing applications, including WordWorks™ and AppleWorks GS™!

**SPENCER'S PAGES** — A sensational seasonal page layout template, "Lantern Light." Just boot up your AppleWorks GS and use this fabulous document.

**G-ESSENCE** — A column about the current state of the Apple world and things to enhance your GS productivity.



## HERE'S WHAT THE EXPERTS ARE WRITING ABOUT SOFTDISK G-S:

"Programs, desk accessories, fonts, games . . . SOFTDISK G-S is a great value."

— InCider A+

" . . . this is a full-blown software package with beautiful graphics and an extensive help session . . . it's an economical way to add interesting software to your library."

— Apple IIGS Buyer's Guide

## HERE'S WHAT OUR SUBSCRIBERS ARE WRITING TO US:

"Dear Softdisk: Your Softdisk G-S is great! I am very impressed, the moving icons, interesting columns, matter-of-fact reviews, up-to-date system software, spiffy user interface, etc. I will definitely renew when the time comes."

So there you have it. Original software, outstanding quality, free technical support, and all at a price you can afford. Would you spend \$9.97 a month for an 800k disk packed with programs, postage free? If you're not sure, why not

take advantage of this special offer and try just 3 issues — no risk. If you're not completely satisfied, we'll refund your money. No questions asked.

CALL FREE **1-800-831-2694** SOFTDISK PUBLISHING  
OR FAX THIS COUPON TO **318-221-8870** monthly software

**FREE**

YES! Rush my FREE bonus, 200 Printshop® Graphics for my IIGS, and start my three-month trial subscription to **Softdisk G-S** and/or **Softdisk**, postage paid. Make check or money order payable to **Softdisk Publishing** in U.S. funds. (LA residents, add 4% sales tax).

Check one:

- Softdisk G-S** (For the Apple IIGS) \$29.95, Can./Mex. \$34.95, Other For. \$37.95
- Softdisk** (For the Apple II) \$19.95, Can./Mex. \$24.95, Other For. \$27.95
- COMBO** — **Softdisk GS & Softdisk** \$39.95, Can./Mex. \$34.95, Other For. \$37.95

Check Disk format:  Two 5 1/4" disks  One 3 1/2" disk

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip +4 \_\_\_\_\_

Phone # \_\_\_\_\_

Discover  Visa/MC  AmEx  Payment Enclosed (U.S. funds only).

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

**SOFTDISK PUBLISHING** • P.O. Box 30008 • Shreveport, LA 71130-0008  
318-221-8718 • **1-800-831-2694** IN051

# QUALITY COMPUTERS

# OVER-NIGHT!

School P.O.s  
Welcome!

# 1-800-443-6697

School P.O.s  
Welcome!

Only  
Quality Computers  
gives you  
**ENHANCE**



Enhance is Quality Computers bi-monthly informative-technical-entertaining newsletter. Enhance gives you the kind of information you need to make your Apple the effective work/educational tool it was designed to be, like product reviews and comparisons, new product announcements, news, and two special sections, Enhancing Education — written by teachers for teachers, and Computer Club Corner — designed to spark interest in User Groups across the country.

Enhance also includes our catalog — full of all the hardware and software you need for your Apple II. Quality Computers catalog includes detailed product descriptions and MONEY-SAVING COUPONS.

Quality Computers has been publishing Enhance for over 4 years. It's free to all QC customers, or you can call for your free subscription today!

"... an excellent publication."  
Wanda Bullion  
SJAUG User Group, Cherry Hill NJ

"I enjoy reading the articles and always learn something new."  
Charles S. Saunders  
Skokie, IL

Get your **FREE** subscription  
**TODAY!**  
**1-800-443-6697**

## HARD DRIVES

### QUALITY COMPUTERS (w/Apple SCSI)

40 MEG. (Conner Drive)	599.95
100 MEG. (Conner Drive)	849.95
200 MEG.	Call
Tape Backup	Call
CD ROM	Call

### CMS (Apple SCSI)

40 MEG. (Conner Drive)	649.95
60 MEG.	699.95
45 MEG. (Removable)	749.95

### APPLIED ENGINEERING

20 MEG. Vulcan (Ile, IIGS)	519.95
40 MEG. Vulcan (Ile, IIGS)	649.95
100 MEG. Vulcan (Ile, IIGS)	1,285.95

## SCSI INTERFACE CARDS

Apple High-Speed	109.95
RamFAST/SCSI (w/256K RAM)	179.95

## MEMORY CARDS

### AE RAMWORKS III

256K	133.95
512K	159.95
1 MEG.	199.95
RGB ColorLink Option	99.95

### AE RAMFACTOR

256K	169.95
512K	189.95
1 MEG.	229.95

### AE Z-RAM ULTRA II

256K	179.95
512K	199.95
1 MEG.	239.95

### AE RAM EXPRESS II

256K	149.95
512K	169.95
1 MEG.	209.95

### AE GS-RAM PLUS or ULTRA

1 MEG.	199.95
2 MEG.	259.95
3 MEG.	319.95

### AE GS-RAM II

1 MEG.	149.95
2 MEG.	209.95
4 MEG.	329.95

## CV TECH. GS MEMORY BOARD

1 MEG.	149.95
2 MEG.	209.95
3 MEG.	269.95
4 MEG.	329.95

### CHINOOK 4000 GS

1 MEG.	149.95
2 MEG.	209.95
4 MEG.	329.95

## MEMORY CHIPS

256K (bank)	19.95
256Kx4 (set of 2)	19.95
1 MEG. (bank)	69.95
1 MEG. SIMMS	59.95

## DISK DRIVES

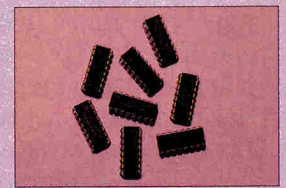
AE 3.5"	199.95
AE 3.5" High-Density	239.95
AE 5.25"	129.95
AMR 1.4 MEG. 3.5"	199.95
AMR 5.25" Daisy chainable	129.95
Laser 3.5"	149.95
Laser 5.25"	99.95
Laser UDC	49.95
Apple 3.5" (Ile, II+)	309.95
Apple 3.5" (Ile Plus, IIGS)	319.95
Apple 5.25"	249.95
Apple Controller	49.95
Apple Unidisk Controller	64.95

## PRINTERS

ImageWriter II	459.95
Hewlett-Packard DeskJet 500	579.95
Panasonic 1180	199.95
Panasonic 1191	249.95
Panasonic 1124	329.95

## PRINTER INTERFACE CARDS

AE Parallel Pro	79.95
AE Serial Pro	109.95
Fingerprint GSi	89.95
Fingerprint Plus	89.95
Fingerprint G+ or SS w/cable	59.95
Graapler 9 Pin	84.95
Graapler Plus	79.95
<b>SPECIAL!</b> SuperWriter 924	64.95
<b>SPECIAL!</b> SMT Printech	29.95



## MEMORY CHIPS

Expand your RAM with these high-quality RAM chips. Fully Apple IIc, IIe and IIGS compatible. Easy to install on most RAM cards. Five year warranty.

256K	\$19.95/bank
256Kx4	19.95/set of 2
1 MEG.	69.95/bank

## ATTENTION PRICE- HUNTERS!

- We'll match any nationally advertised price!
- We have it in stock!
- Our service can't be beat!

PRICE MATCH POLICY AT MANAGER'S DISCRETION

## COMPLETE GS SYSTEMS



Let us put together an Apple IIGS system to fit your needs. Our knowledgeable sales staff can recommend a system designed for . . .

- the beginner
- extra storage
- extra speed
- the works!

. . . AT PRICES YOU CAN LIVE WITH!



Quality Computers

POWER FOR PERFORMANCE

## YOUR COMPLETE APPLE SOURCE

Quality Computers is one of the largest Apple mail order companies in the country. Why? We offer more: a staff of Apple sales experts; a complete product line; user-friendly Customer Service; the best Technical Support in the business; Q Labs, our own software development division; our own newsletter, *Enhance*; and special programs, like the Teacher Bonus Program. No other company offers all this at prices you can live with.

Circle 136 on Reader Service Card.

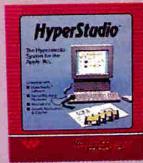
# QUALITY COMPUTERS

# OVER-NIGHT!

School P.O.'s  
Welcome!

# 1-800-443-6697

School P.O.'s  
Welcome!



### HYPERMEDIA

Your Apple II can become a hypermedia machine! Integrate text, sound, and graphics to

create an interactive tutorial, computerized slide show, and more!

**HyperStudio** — Apple IIGS  
Requires 1.25 MEG. **\$82.95**

**Hypercard IIGS**  
Requires 1.5 MEG. **\$79.95**

**Tutor-Tech** — Apple IIe, IIc, IIGS  
Requires 128K **\$149.95**

### MODEMS

AE DataLink 2400 (Internal)	159.95
AE DataLink Express	159.95
AE DataLink Express w/MNP5	189.95
AE DataLink Express w/Send-FAX	Call
SupraModem 2400	99.95
9600 Baud	599.95

### MONITORS

12" Amber or Green Monochrome	99.95
Magnavox RGB	299.95
Custom Cable	24.95
Apple RGB	459.95

### INPUT DEVICES

AppleMouse IIe	119.95
A+ IIGS Mouse	79.95
Laser Mouse	49.95
Kensington Turbo Mouse	109.95
CH Mach III Joystick	29.95
CH Mach IV Plus Joystick	62.95
CH Flightstick	47.95
IBM-Compatible Keyboard	79.95
Cutting Edge ADB Keyboard	129.95

### SOUND & GRAPHICS HARDWARE

Quickie	199.95
LightningScan	199.95
ThunderScan	149.95
ComputerEyes IIe	99.95
ComputerEyes IIGS	195.95
Apple Video Overlay Card	429.95
AE Sonic Blaster	98.95
AE Audio Animator	179.95
Echo II	109.95

### ACCELERATORS

AE TransWarp GS	259.95
ZipChip 8MHz (IIe)	139.95
Zip GSX Plus	249.95

### COMPUTERS

Apple IIGS CPU (w/1 MEG. RAM)	799.95
Laser 128EX	387.95
Laser 128EX-2 (*5.25)	409.95
Laser 128 Color System	510.95

### ACCESSORIES

AE Conservor	77.95
AE PC Transporter	259.95
AE PC Transporter IIe Installation Kit	29.95
AE PC Transporter IIGS Installation Kit	39.95
AE Power Supply	64.95
AE Power Supply IIGS	79.95
AE TimeMaster	78.95
AE TransDrive	189.95
AE TransDrive (Duo)	289.95
Apple IIe Enhancement Kit	59.95
Cables (most)	14.95
Extended 80 Column Card (IIe)	27.95
Kensington Antiglare Filter (IIGS)	39.95
Kensington System Saver IIe	59.95
Kensington System Saver GS	69.95
Kensington Dust Covers	11.95
SMT No Slot Clock	29.95
Switchboxes	from 32.95

### HYPERMEDIA

HyperStudio GS	82.95
<b>NEW!</b> HyperCard IIGS	79.95
Tutor-Tech (IIe, IIc, IIGS)	149.95

### BUSINESS SOFTWARE

AppleWorks 3.0	
Consumer Version	169.95
10 Pack (3.5" or 5.25")	949.95
Appleshare Network Version	1,089.95
AppleWorks GS	
Consumer Version	199.95
10 Pack	1,139.95
AppleWorks 3.0 Companion	24.95
BeagleWrite	48.95
BeagleWrite GS	59.95
BusinessWorks Bundle	249.95
BusinessWorks Payroll	99.95
BusinessWorks System Manager	79.95
DB Master Pro	189.95
Managing Your Money 5.0	89.95
Quicken	38.95
ReportCard II	52.95
Sensible Grammar	52.95
Sensible Speller	79.95
WordPerfect IIe or IIGS	104.95

### COMMUNICATION SOFTWARE

Point to Point	59.95
ProTERM v.2.2	79.95
ProTERM School Pack	279.95
AE ReadyLink	59.95
TIC	39.95

### EDUCATIONAL SOFTWARE

<b>ORANGE CHERRY — TALKING SHOOHOUSE</b>	
Talking ABC's GS	38.95
Talking Addition & Subtraction GS	38.95
Talking Animals Activity Set GS	38.95
Talking Classroom GS	38.95
Talking USA Map GS	38.95

### THE LEARNING COMPANY

Reader Rabbit or Math Rabbit	24.95
Talking Reader Rabbit GS	34.95
Children's Writing & Publishing Center	32.95

### BRØDERBUND

Where in the World is Carmen Sandiego?	25.95
Carmen USA, Europe, Time, or World GS	29.95
The Playroom	24.95
Geometry GS	54.95
Science ToolKit - Master Module	54.95
Science ToolKit - Modules 1, 2, or 3	27.95

### WEEKLY READER

Sticky Bear Numbers, ABC's, Opposites, or Shapes	24.95
Talking Sticky Bear ABC's, Opposites, or Shapes	29.95

### MECC

Calendar Crafter GS	32.95
Fraction Munchers or Number Munchers	24.95
Oregon Trail	24.95
USA GeoGraph GS	54.95
Word Munchers	24.95
World GeoGraph GS	54.95

### DAVIDSON

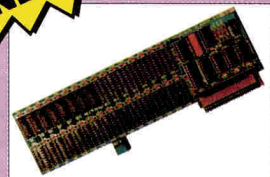
AlgeBlaster Plus	32.95
Grammar Gremlins	32.95
MathBlaster Plus	32.95
MathBlaster Mystery	32.95
Read & Roll	34.95
Spell It Plus	32.95
Spell It Data Disks	14.95
Word Attack Plus	32.95



### INWORDS

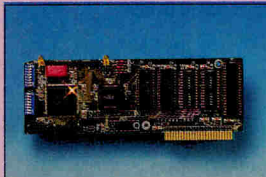
**WESTCODE**  
The revolutionary new way to enter text into your computer. With InWords

and a hand-held scanner, you can scan virtually any printed information — just as if you typed it from the keyboard — only faster. Ready to edit, analyze, calculate or print. Enters up to 500 words per minute. Requires Apple IIGS or enhanced IIe with 512K, and Quickie or compatible hand-held scanner. **\$79.95**



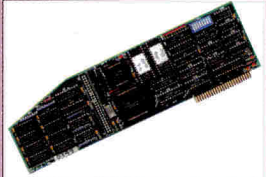
### GS MEMORY BOARD CV TECH.

Expand your RAM with this DMA compatible IIGS memory card. Its unique piggyback connector lets you use your existing 1 MEG Apple Memory Expansion card, 4 MEG GS Juice Plus, or 4 MEG Chinoak RAM 4000 for added memory. 1 MEG. **\$149.95**



### ZIPGSX PLUS ZIP TECHNOLOGY

With a ZIPGS installed, you will never wait on your favorite programs again. GS/OS, AppleWorks GS and your favorite desk-top publisher become a joy to use. Features 8MHz speed, 16K cache, DMA compatibility, and is upgradeable to 12MHz+. **\$269.95**



### RAMFAST/SCSI CV TECH.

The fastest hard drive interface available. Just plug the card into your Apple IIe, or IIGS, and fasten your seatbelt. Features: SCSI compatibility, built-in configuration software, 256K RAM, 10MHz processor, cache-lookahead, built-in ROM disk, and more! **\$179.95**

**ASK ABOUT OUR  
TEACHER BONUS POINT  
PROGRAM!**

**Quality Computers**

POWER FOR PERFORMANCE

### POLICY

- We ship via Airborne Express, UPS, DHL, and US Mail. Saturday deliveries available. If order is split, we pay freight on balance of items. Add \$3.95 for C.O.D. certified.
- RETURNS: All defective or mis-shipped items may be returned within 30 days for refund or replacement. Items returned with damaged or incomplete packaging will be charged replacement fees. No refunds on software items (unless otherwise specified).
- Prices subject to change without notice.
- We accept school P.O.'s by mail or FAX (313) 774-2698.



Circle 136 on Reader Service Card.

**SAVE \$**  
**Ask about School Editions, Lab Packs, and Site Licenses.**  
**Get your FREE Educational Software Catalog.**



# SIMPLY THE BEST

**A**s the Apple hard drive leader, we've sold and serviced every hard drive on the market. We've shipped them out, and we've seen them come back - in droves. We've listened to thousands of complaints and processed hundreds of returns.

Finally, those days are over. We are proud to announce a hard drive we trust so much that we put our name on it - the Q Drive.

Why do we trust the Q Drive? Simply, we demanded the best, and we got it:

**THE BEST INTERNAL MECHANISM.** Other companies sell hard drives with poor quality internal mechanisms to keep their costs down. We didn't settle for that. That's why the Q Drive uses only top-quality Conner mechanisms. The Conner is fast (25ms), quiet, reliable, and uses the latest hard drive technology, including a voice coil actuator for faster head positioning, and track buffering for quick data access.

**THE BEST COMPATIBILITY.** We demanded SCSI compatibility. With SCSI you get complete compatibility with all present and future Apple products, as well as almost any new system you get, whether it's Apple, Macintosh, or IBM. The Q Drive comes with the Apple High-Speed SCSI card, standard, or the RamFAST/SCSI card on request.

**THE BEST DOCUMENTATION.** The Q Drive's plain-English manual is the most complete available. It not only covers installation and set up, but also hard drive basics, ProDOS, pathnames, subdirectories, GS/OS, the Finder, backups, maintenance, and troubleshooting. There's even a glossary of hard drive terminology.

**EASIEST TO USE.** The Q Drive's software makes setting up a breeze. It instantly determines which Apple it's running on and

configures the Q Drive appropriately. The latest system software is built-in, along with the Finder or ProDOS 8 Mini-Selector, and 15 MEG of the best public domain software available. The Q Drive even performs diagnostics, and can install EasyDrive for you, automatically.

**THE BEST SERVICE AND SUPPORT.** The Q Drive is backed by the Quality Computers Technical Support staff - the best in the business. It comes with a hassle-free 30-day money back guarantee, and a 1-year limited warranty. Plus, should your Q Drive ever fail, you can count on 72-hour average service time, and complete data recovery in most cases.

**THE BEST PRICE.** We priced the Q Drive to make it one of the most affordable hard drives available. Hardware, software, support, and price make the Q Drive the best Apple hard drive value. Take one for a test drive today!

### WHAT THEY'RE SAYING

"The Q Drive is fantastic! Super-fast, formats itself, and a super 15 MEG software base — what a bonus!

*Howard J. Dillon  
Las Vegas, NV*

"... the Q Drive software is so easy to use that it practically sets up the drive itself."

*inCider Magazine*

**40 MEG. .... \$599.95**

**100 MEG. .... 849.95**

**Includes the Apple High-Speed SCSI card.**

**Add \$70 for RamFAST/SCSI card.**



Undecided about a hard drive? Get the Hard Drive Buyer's Guide. **ONLY \$6** (Shipped overnight to most locations — Refundable when you buy a hard drive from Quality Computers)



20200 Nine Mile Road • Box 665  
St. Clair Shores, MI 48080  
**SALES: 1-800-443-6697**  
Tech. Support: (313) 774-7740  
Cust. Service: (313) 774-7200  
FAX: (313) 774-2698

VICE PRESIDENT/GROUP PUBLISHER Paul Boulé  
EDITOR IN CHIEF Dan Muse  
EXECUTIVE EDITOR Eileen T. Terrill  
SENIOR EDITOR Paul Statt  
ASSOCIATE EDITOR Carla Barker  
ASSOCIATE EDITOR Cameron Crotty  
SPECIAL-PRODUCTS MANAGER Janet Cote  
WEST COAST EDITOR Jeff Cable  
CONTRIBUTING EDITORS Joe Kohn  
Gregg Keizer  
Ruth K. Witkin  
Cynthia Field

### DESIGN

ART DIRECTOR John Sizing  
ASSISTANT ART DIRECTOR Dianne K. Ritson  
PRODUCTION MANAGER/DESIGNER/AD GRAPHICS Elizabeth Auer

### ADVERTISING Eastern Sales Office

ASSOCIATE PUBLISHER/NATIONAL SALES MANAGER Dale Strang (800) 441-4403  
SALES REPRESENTATIVE Diane Maguire (800) 441-4403  
ADVERTISING COORDINATOR Mary Hartwell (800) 441-4403  
ADMINISTRATIVE ASSISTANT Lisa Benway-Caron

### Western Sales Office

WESTERN SALES MANAGER James Burns  
2421 Broadway  
Suite 200  
Redwood City, Ca 94063  
(415) 363-5230

### MARKETING SERVICES/PROMOTION

DIRECTOR OF MARKETING Peg Brown  
MARKETING ASSISTANT Rita Rivard

### CORPORATE PRODUCTION

PRODUCTION DIRECTOR Sue Gross  
MACINTOSH COORDINATOR Doreen Means

### IDG COMMUNICATIONS/PETERBOROUGH

PRESIDENT Roger Murphy  
VICE PRESIDENT Dennis Christensen  
MANUFACTURING/OPERATIONS Bonnie Welsh-Carroll  
VICE PRESIDENT Jeffrey D. DeTray  
CIRCULATION/PLANNING  
DIRECTOR OF TECHNOLOGY RESEARCH Linda Ruth (800) 343-0728  
SINGLE-COPY SALES DIRECTOR Debbie Walsh  
NEWSSTAND PROMOTION MANAGER Megan Lane  
CIRCULATION DIRECTOR Laurie K. Seamans (800) 343-0728  
ASSISTANT CIRCULATION MANAGER William M. Boyer  
CUSTOMER SERVICE  
DIRECTOR OF CREDIT, SALES AND COLLECTION Cecile Giguere  
AUDITS AND STATISTICS Wayne Green  
FOUNDER

*inCider/A+* supports a forum on America Online. For information on obtaining appropriate software, call Quantum Computer Services at (800) 227-6345 x5290 or 5291.



*Cider/A+* (ISSN #1054-6456) is published monthly by IDG Communications, 80 Elm Street, Peterborough, NH 03458. Phone: (603) 924-0100. Second-class postage paid at Peterborough, NH, and additional mailing offices. (Canadian second-class mail registration number 9590.) Subscription rates in U.S. are \$27.97 for one year, \$43 for two years and \$59 for three years. Foreign orders must be prepaid in U.S. funds drawn on a U.S. bank. One year only: Canada \$37.97 (price includes GST), Mexico \$37.97, foreign surface mail \$47.97, foreign air mail \$82.97. Nationally distributed by International Circulation Distributors. **Postmaster:** Send address changes to *inCider/A+*, Subscription Services, P.O. Box 58618, Boulder, CO 80322-8618. (Send Canadian changes of address to *inCider/A+*, P.O. Box 1051, Fort Erie, Ontario L2A 5N8.)

# QUALITY COMPUTERS OVER-NIGHT!

School P.O.s Welcome!

## 1-800-443-6697

School P.O.s Welcome!

### HARD DRIVE BUYERS' GUIDE

Base your decision to buy a hard drive on fact, not fiction. *The Hard Drive Buyers' Guide*,

exclusively from Quality Computers, is packed with the kind of information you need to make an intelligent hard drive purchase. It comes with a guide to ProDOS 8 & 16 and GS/OS, plus, the cost of the guide is refundable when you buy a hard drive from Quality Computers. Shipped overnight to most locations **\$6.00**

### OTHER TITLES

Crossword Magic	34.95
Katie's Farm	24.95
McGee	24.95
<b>NEW!</b> McGee at the Fun Fair	24.95
Mavis Beacon Teaches Typing	27.95
Mavis Beacon Teaches Typing GS	33.95

### ENTERTAINMENT SOFTWARE

Bard's Tale II	22.95
Battle Chess GS	32.95
Block Out GS	26.95
The Cryllan Mission	44.95
Crystal Quest	32.95
The Duel: Test Drive II	32.95
Grand Prix Circuit	28.95
Hunt for Red October	22.95
Immortal GS	34.95
Jack Nicklaus Golf GS	34.95
Tetris	27.95
Space Ace	36.95
Tunnels of Armageddon	29.95
Xenocide	32.95
Zany Golf GS	26.95

### SOUND & GRAPHICS SOFTWARE

Award Maker Plus	29.95
Bannermania	24.95
Dazzle Draw	33.95
Deluxe Paint GS	24.95
Design Your Own Home GS	59.95
Font Factory GS	25.95
GraphicWriter III	74.95
GS Font Editor	29.95
<b>NEW!</b> InWords (OCR)	79.95
Labels, Labels, Labels	28.95
Platinum Paint	59.95
PrintShop <b>NEW!</b> (3.5 or 5.25)	29.95
PrintShop GS	36.95
PrintShop GS Companion	32.95
PS Graphics Libraries	each 16.95
PS Graphics Libraries GS	each 24.95
PS Lover's Utility Set (11e or IIGS)	27.95
Publish It! 3	89.95
VCR Companion	34.95

### TIMEOUT SERIES — BEAGLE

DecisionPak	89.95
PerformancePak	69.95
StylePak	79.95
MacroEase	25.95
DeskTools, FileMaster, PowerPack, SideSpread, TextTools, or Thesaurus	32.95
QuickSpell, SpreadTools, or UltraMacros	40.95
SuperFonts, SuperForms or Telecomm	42.95
Outliner	42.95
ReportWriter	48.95
Graph	52.95

### UTILITIES & LANGUAGES

Apple IIGS System Software Update 5.04	44.95
Chinook SCSI Tools	29.95
Copy II Plus 9.0	25.95
CrossWorks	69.95
GS Desk Accessories	34.95
Micol Advanced BASIC IIe	59.95
Micol Advanced BASIC IIGS	89.95
Orca/M or DesignMaster	39.95
Orca/PASCAL or Orca/C	80.95
Orca Learn to Program	119.95
Q LABS	
RepairWorks or SuperPatch	34.95
RepairWorks/SuperPatch Combo	49.95
RAMUP, EasyDrive, or TIC	39.95
Ruth Witkin's Best New AW Templates	39.95
SALVATION	
Exorciser, Deliverance, or Harmonie	29.95
Independence	24.95
Guardian, or Renaissance	34.95
Wings	49.95
Supreme (5 modules)	119.95

### INSTRUCTIONAL MATERIAL

The Hard Drive Buyer's Guide	6.00
1001 Things to do with Your Apple IIGS	10.95
Using AppleWorks GS	15.95
AppleWorks Made Easy	15.95
Exploring MicroSoft Works	24.95
The Official Print Shop Handbook	15.95

30-DAY TRIAL



### EASYDRIVE Q LABS

The complete management system for your hard-disk. Includes a Launcher, Selector, File Maintenance Program, Image Backup/Restore (with compression), Disk Optimizer, Index Program, and an informative guide to ProDOS and GS/OS. **\$39.95**

30-DAY TRIAL



### TIC Q LABS

Enjoy a full-featured communication program at a price you can live with. TIC includes a comprehensive macro language (over 70 commands), dozens of terminal emulations, file compression, a no-nonsense command structure and GS/OS compatibility. **\$39.95**

## Salvation Supreme

### SALVATION SUPREME VITESSE

The total hard-drive volume utility for the Apple IIGS. Salvation Supreme includes a point & click hard drive backup utility; The Exorciser, a virus detector and cure; Wings, a comprehensive hard drive management system; Renaissance, a fast, thorough hard drive optimizer; and Deliverance, an easy-to-use file repair/recovery utility. **\$119.95**

## Get ENHANCE free!

Enhance is Quality Computers' bi-monthly technical-informative-entertaining newsletter. It is packed with the kind of information you need like technical tips, product reviews, classroom tips, new product announcements, classified ads where you can buy/sell used equipment, dollars-off coupons, and more. Plus, Enhance includes our complete catalog! Join the hundreds of thousands who have enjoyed Enhance for over 4 years. Get your free subscription today!

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Phone ( \_\_\_\_\_ ) \_\_\_\_\_

Clip and mail to: QUALITY COMPUTERS, P.O. Box 665, St. Clair Shores, MI 48080  
 Or call 1-800-443-6697

30-DAY TRIAL



### REPAIRWORKS/SUPERPATCH

RepairWorks is the award-winning AW database/word processing recovery and repair program. SuperPatch is the AW customization program that lets you change AppleWorks in over a hundred ways. **\$34.95/ea. 49.95/combo**

### SENSIBLE GRAMMAR

SENSIBLE SOFTWARE  
 A fast, easy-to-use proof-reading program that

lets you check manuscripts for common writing errors. Identifies over 2,000 commonly misused phrases as well as punctuation, capitalization, and other typographical errors. Works with most ProDOS word processors. Requires 128K and 80 column display. **\$52.95**

OVERSEAS ORDERS  
 VIA DHL  
 3 DAY DELIVERY!

Circle 165 on Reader Service Card.

Member Better Business Bureau



Quality Computers

POWER FOR PERFORMANCE

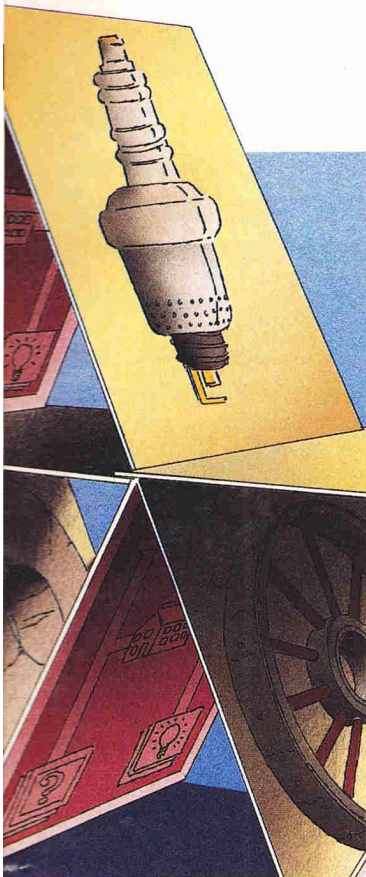
### BUSINESS HOURS

SALES: 1-800-966-1508 or 1-800-443-6697 Mon.-Fri. 9AM-9PM Sat. 10AM-4PM (Eastern Time)  
 TECHNICAL SUPPORT: (313) 774-7740 Mon.-Fri. 10AM-12/1PM-5:30PM (Eastern Time)  
 CUSTOMER SERVICE: (313) 774-7200 Mon.-Fri. 9AM-5PM (Eastern Time)

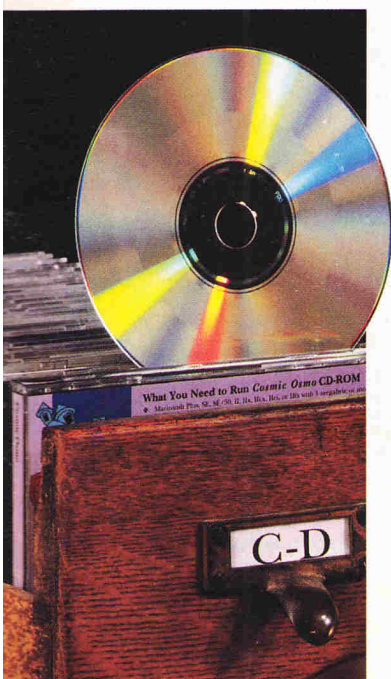
20200 E. Nine Mile Road • Box 665 • St. Clair Shores, MI 48080  
 Orders & P.O.'s by FAX (313) 774-2698







p. 34



p. 44

## ARTICLES

### 34 **HyperClass: Interactive Multimedia Revolutionizes Education**

Students and teachers have used the Mac-based HyperCard software system to produce astounding multimedia results — and the GS version promises to open the door to still more kids and educators who want to try their hand at this new kind of creative programming.

### 40 **Hyperstacks Done Dirt Cheap**

The hypermedia revolution puts the power of programming into the hands of Apple users at all levels of experience. *inCider/A+* presents a sampling of shareware applications for HyperStudio and Mac HyperCard, available from user groups, BBSes, on-line services, and disk houses. Explore an exciting new dimension in teaching, learning, and entertainment.

### 44 **CD-ROM Comes of Age**

Is it time to take CD-ROM seriously? Drives are plentiful and affordable. A wide variety of software is also available, offering hundreds of megabytes of information on everything from Beethoven to world history.

### 57 **Hard-Disk Drives Made Easy: It Pays to Be Organized**

Don't let your hard drive's speed and convenience go to waste — follow your operating system's own file structure to manage your data effectively and efficiently.

### 62 **Graphics Gallery: Vive la Différence**

Fear of the blank screen is often the most difficult hurdle for computer artists to overcome — but seeing things in a different light is the key to getting started.

## COLUMNS

**inCider's View** \* *Dan Muse*  
What's New ..... 8

**Status Report** \* *Paul Statt*  
Darwin and the Computer ..... 20

**AppleWorks in Action** \* *Ruth Wilkin*  
Crystal Gazing ..... 64

**Bridging the Gap** \* *Gregg Keizer*  
Printer Polygamy ..... 68

**Press Room** \* *Cynthia E. Field*  
Show-Offs ..... 74

**Apple IIgs Basics** \* *Ron Lichty*  
Battle of the Languages ..... 78

**Learning Curve** \* *David D. Thornburg*  
Compact Discovery 2 ..... 88

## DEPARTMENTS

**Letters to the Editor** ..... 10

**What's New** ..... 16

### Apple Clinic

Editing BASIC with AppleWorks, Convert Word Processing, What's Beta Testing? Problems with GET in BASIC, Mouse Support in BASIC, Where's the Mini-Assembler? Saving Graphics Images, AppleWorks Clinic ..... 22

### Reviews

Applied Engineering HD vs. Sprite SD 340, Time-Liner, Salvation-Bakkuup, The Immortal, Pipe Dream ..... 28

### Hints & Techniques

While the Cat's Away: No More Mousetrap ..... 90

### Editors' Choice

InWords ..... 96



p. 96



**INCIDER'S  
VIEW**

## WHAT'S NEW

By **DAN MUSE** \* EDITOR IN CHIEF

**W**e're left  
with one question  
for HyperCard  
and CD-ROM  
developers:  
Why ignore  
the IIGS?

WHEN DOES SOMETHING NEW STOP being new? To some people, a new car stops being new when you stop inspecting it for the smallest ding before you drive it. After you wear a new tie once, it's old. A new dog becomes old when you can no longer teach it new tricks. And to many, a new technology ceases to be new only when you can actually use it productively.

Weary computer users tend to run when they hear "new" and "technology" mentioned in the same sentence — and with good reason. If you can't rely completely on the hardware and software you use in your home, school, or office, how valuable can it be?

This month, *inCider/A+* explores two new technologies. But in this case, new doesn't mean unproven. HyperCard and CD-ROM (compact-disc read-only memory) have been evolving for years; it's just their adoption by educators, and computer users in general, that's new.

In fact, CD-ROM is probably the computer industry's oldest new technology. CD-ROM has been looking for an application for more than five years. At first, CD-ROM appeared headed for business, where large databases that had traditionally lived on mainframe and mini-computers could move to a PC-based CD-ROM drive. What has legitimized CD-ROM, however, — and what we think will drive it in the future — are education and entertainment products.

The other "new" technology we cover this month is HyperCard. In many ways HyperCard and CD-ROM were made for each other. CD-ROM discs can store hundreds of megabytes' worth of graphics and text, and HyperCard provides an intuitive interface that makes it easier to access that data. To really put the power of HyperCard to good use, you need a large storage capacity. For example, HyperCard is perfect for tracing the events of the Civil War. But how creative can developers get with sound, graphics, and text when they're limited to floppy disks? A marriage between the two technologies is natural.

We're impressed by both HyperCard and

CD-ROM, but we're left with one question for developers: Why ignore the IIGS? As author Carol Holzberg prepared her list of discs to review, the lack of Apple II products was staggering. Apple's CD SC drive is a SCSI (small-computer-systems interface) device, so it works with an Apple II and SCSI card. And it should go without saying that the II is still the most widely used computer in schools. So what's the problem?

We're also anxious to see HyperCard IIGs take off. As Gregg Keizer discovered, teachers around the country are doing some amazing things with HyperCard on the Mac. As we've reported in the past, they're also producing some stunning stacks with Roger Wagner's HyperStudio. We're hoping HyperCard IIGs finds its niche — a niche that seems fairly well defined already. Teachers who know how to use HyperCard on the Mac can jump right into HyperCard IIGs. With a million GSeS out there, there's certainly an installed base to sell to. Even if the Mac LC does what Apple hopes it will do in the classroom, the GS has a hefty head start.

HyperCard IIGs isn't for the thrifty GS owner, though. And that causes Apple a bit of embarrassment. The standard IIGs with one megabyte of RAM (random-access memory) and no hard-disk drive can't run HyperCard IIGs. For that reason, Apple doesn't include HyperCard IIGs with every GS, unlike the Mac version. In addition to buying HyperCard IIGs, you'll need to add a hard-disk drive and extra memory — the more the better — to use HyperCard IIGs. You should probably have an accelerator, too.

HyperCard and CD-ROM offer both educators and parents a rare combination of power, ease of use, and creativity. Judging from the number of HyperCard stacks and CD-ROM discs available, software publishers have recognized that fact. What they apparently fail to see is what they'll miss if they don't include the Apple II in the new-product picture. Apple IIGs owners have the technology; all they need are the products. □

# Let's talk more about deals you can't refuse...

I'm gonna keep taking care of you and your Apple. So you check out the price of something you need with the other MOB's (*Mail Order Businesses*) and see what they gotta say. Then you give me a call. I'll beat the other MOB's best advertised price in this magazine, or I'm gonna send you a check for \$5.\* *How can you refuse?*

**Thousands  
of Apple  
Products in  
Stock and  
Ready to Ship.**

Featuring these  
manufacturers:

(along with hundreds of  
others too numerous to list)

Abbracadata • Accolade  
Addison Wesley • American  
Micro Research • Applied  
Engineering • Apricorn •  
Artworx • Beagle Bros •  
Broderbund • CH Products •  
Claris • CMS Enhancements  
• CV Technologies •  
Davidson & Assoc. • Digital  
Visions • Electronic Arts •  
Glen Bredon • Insync • Intuit  
Software • Kensington •  
Laser Computer • Lawrence  
Prod • Magnavox • Micro  
Revelations • Microsoft •  
Morgan Davis Group • Night  
Owl • Ohio Kache Systems •  
Orange Micro • Passport  
Designs • Progressive •  
Pygraphics • Readysoft •  
Roger Wagner • Sensible  
Software • Seven Hills •  
Sierra On-Line • Softspoken •  
Strategic Studies • Supra  
Corporation • Thirdware •  
Timeworks Software •  
Victory Software • Vitesse •  
Westcode Software •  
Wordperfect Corp • Zip  
Technology

**Call today  
for a FREE  
catalog.**

**Still the No. 1 MOB  
and going strong.**

## HOW TO ORDER:

**Orders only: 1-800-438-2883**

**FAX: 1-619-274-2440**

15% (¢15/min. restocking fee on  
refunded items only)

**Price quotes & technical support:**

**1-619-274-1253**

**8am-5pm PST Monday-Friday**

• Committed to Value Since 1985 •

# Roger Coats

P.O. Box 171466  
San Diego, CA 92197

Circle 90 on Reader Service Card.

## OUR FINE PRINT:

\*Certain limitations apply to MOB offer:

1. Advertised price must be published in this magazine.
2. We reserve the right to question misprints.
3. Limited to items we carry & stock on hand, excluding games.
4. Management reserves the right to make final decision.

We accept the following methods of payment:

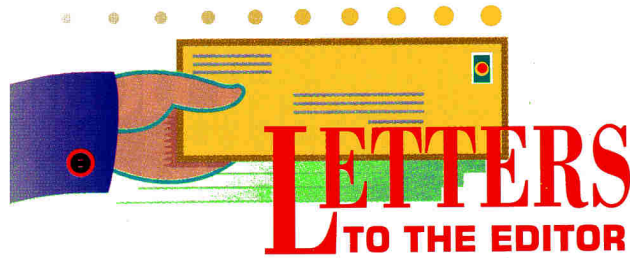
- School Purchase Orders • VISA & MasterCard
- Bank Wires • Certified Checks • Money Orders • NO C.O.D.s

• Sorry, No Software Refunds

- Not responsible for product compatibility
- Sorry, no shipping, handling, or insurance refunds

• FOB San Diego, CA • We really appreciate your business!





## HYPERBIAS

I'VE BEEN AN APPLE II USER SINCE 1978. I've also been a Mac user since 1985. I've used both for multimedia for many years; therefore, I read with interest Roger Wagner's letter in the February issue. (See "The Apple IIGs: What the Mac LC Should Have Been?" p. 13.) I've observed the progress of Mr. Wagner and his company for many years and I respect him a great deal, so I was surprised by the inaccuracy and bias I found in almost all his arguments.

Mr. Wagner states that the Apple IIGs is superior because it can be connected to a monitor or TV, and that to do the same with a Macintosh would cost \$2000 or more. This isn't true. There are NTSC converters for the Macintosh priced under \$500, and Apple itself provides (but doesn't warrant or support) the cheapest option — the Apple Video Card Utility, which is free. This software, combined with a cable you can make for under \$15, lets you display Macintosh video on a classroom monitor. You can use any TV by adding a \$10 RF modulator or connecting through a VCR, which in many schools is already attached to the TV cart. And, you can then record the output with the VCR. I've used the Video Card Utility with HyperCard stacks and it works amazingly well.

Mr. Wagner also claims that "to just draw a line or two in color you'll need a IIGs with HyperCard or HyperStudio." I find it hard to believe that he's never heard of SuperCard, PLUS, AuthorWare, or Macro-mind Director, all of which provide multimedia support with color graphics, and run rings around HyperStudio and HyperCard IIGs.

He alleges that to use the microphone on the LC you must leave HyperCard and

run a separate program. The Audio Help Stack, which comes on the hard disk of every LC, lets you record and even edit sounds without leaving HyperCard. You can incorporate those sounds into your stack with a single command.

I can only partially refute his last point — that stack building on the IIGs is easier. Obviously, stack building with HyperCard on the IIGs is the same as it is on the Mac. It may be easier with HyperStudio, but only because HyperStudio can't do as much, therefore limiting the choices and skills required.

I agree wholeheartedly that the IIGs isn't outdated technology and that it's a terrific multimedia computer. Its graphics screens are adequate, its sound capabilities are awesome, and the Apple II Video Overlay Card is a steal at \$500. But as an open-minded and devoted supporter of both the Apple II and the Macintosh, I felt that Mr. Wagner's lopsided comparison begged a rebuttal. The Mac LC may be more expensive, but its multimedia capabilities exceed those of the IIGs.

**Jim Taylor**  
Manager  
Microcomputer Support for Curriculum  
Brigham Young University  
69 South 400 East  
Orem, UT 84058

## RESPONSIBILITYWARE

AFTER READING SO MUCH ABOUT the work of Brian Greenstone and Dave Triplett in your magazine, I decided to purchase a couple of their shareware games, including Cosmocade. When I got it up and running, I saw their message to the people who use their games and don't send in the shareware fee;

they say that they didn't finish Cosmocade and aren't going to do any more work for the GS if they don't get some real support.

To all readers: If you own an Apple, you probably have a copy of at least one shareware product. Why haven't you sent in your money? Apple users are always crying for support, but when we finally get it, we're willing to let it slide down the drain because we're too cheap to part with a measly \$15. If you never use a shareware program, fine; throw it out or pass it on to someone else. But if you're using shareware without paying for it, don't complain when there isn't any software around anymore. It's your own fault.

**Ruel Smith**  
Cincinnati, OH

*We couldn't have said it better ourselves. — eds.*

## WHERE CREDIT IS DUE

AS THE PRESIDENT OF PELICAN Software, I want to thank you for the excellent review of SuperPrint II, distributed by Scholastic Inc. (See October 1990, p. 32.)

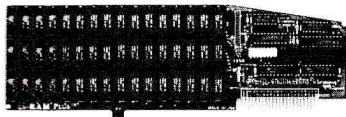
Pelican welcomes all reviews — the ones that point out flaws in our programs (nah, we never have any flaws), the ones that keep us on our toes, and the ones that are so positive I buy tons of copies of *inCider/A+* to give to our friends and family. Traditionally, though, software reviews ignore the developers of the product and mention only the publishers.

My staff — Susan Swanson, Ken Grey, Lester Humphrey, and all our wonderful artists — are the force behind the concept, interface, look, and feel of SuperPrint. I believe that software products should be reviewed as if they were movies. Academy Awards aren't given to a film's distributor; ↗

# FROM HOME TO SCHOOL AND BACK AGAIN, FAS-TRACK DELIVERS!

- NEARLY A DECADE OF SERVICE TO OUR CUSTOMERS
- TOLL-FREE SUPPORT—BEFORE AND AFTER THE SALE
- EVERYDAY LOW PRICES
- WE WELCOME SCHOOL PURCHASE ORDERS
- ALL SCHOOL ORDERS ON APPROVAL
- CALL FOR FREE 72 PAGE CATALOG

## Applied Engineering



GS Ram II w/1 Meg	\$149.95
GS Ram II w/2 Meg	\$199.95
GS Ram Plus w/1 Meg	\$199.95
GS Ram Plus w/2 Meg	\$249.95
TransWarp IIgs	\$254.95
TransWarp IIe (4 mhz)	\$96.95
RamWorks III w/256K	\$144.95
DataLink 2400B Modem	\$169.95
w/Sendfax (IIgs)	\$204.95
DataLink Express Modem	\$164.95
w/MNP5 & sendfax(IIgs)	\$224.95
Vulcan 20 Meg Drive	\$499.95
Vulcan 40 Meg Drive	\$649.95

## AE 3.5" Daisy-Chain Drive



800K **\$194.95**  
1.6 Meg **\$254.95**

## Laser Computers

Laser 128 w/RGB mon	\$499.95
Laser 128EX w/RGB mon	\$579.95
Laser 190A Printer	\$194.95
Laser 190M Printer	\$224.95

(Computer prices include freight)

## Accessories



IW Black Ribbon  
1-5 **\$2.95** 6+ **\$2.50**  
IW 4-Color  
1-5 **\$6.50** 6+ **5.75**

10 DS/DD 3.5" Disks	\$5.50
10 High Density 3.5" Disks	\$10.50
25 DS/DD 5.25" Disks	\$8.75
Locking 3.5" or 5.25" Case	\$7.95

## Memory Chips

256K x1 Drams (8 - 120ns)	\$19.95
256 x 4 Drams (2 - 120ns)	\$19.95
1 Meg x 1 Drams (8 - 10ns)	\$59.95

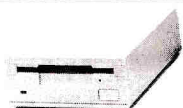
## Vitesse Quickie Scanner



Quickie 400DPI  
Handscanner for  
Apple IIe & IIgs  
includes new 16  
gray shade  
software  
**\$194.95**

InWords OCR(Req. Quickie)	\$79.95
Quickie Update	\$79.95
Harmonie	\$30.95

## AMR AS14K 3.5" Drive



IIe+, IIgs 800K;  
Macintosh 1.4 Meg  
**\$189.95**  
IIgs 5.25" **\$139.95**

Apple IIe UDC Card **\$39.95**

## Zoom 2400B Modem Package



Package includes Zoom MX 2400 baud  
external modem, Beagle Brothers Point-  
to-Point Communications software,  
Compuserve and Genie starter Kits and  
more. Compatible with Apple IIe, IIc,  
IIgs, and Laser 128 series **\$139.95**

## Digital Vision

ComputerEyes IIe	\$99.95
ComputerEyes IIgs	\$194.95

## Other Hardware

Thunder Scan	\$154.95
FingerPrint GSI	\$89.95
IIe 80 Column 64K Card	\$24.95

## Print Shop Companion IIgs



Apple IIgs  
**\$29.95**

## The New Print Shop



Apple 128K  
**\$29.95**  
Print Shop IIgs  
**\$35.95**

## DTP and Graphics Software

Publish It!3	\$79.95
4 in one Graphics Pack	\$74.95
Educational Graphics	\$25.95
Children's Writing & Publishing Center	\$36.95
Children's Writing & Publishing Center Graphics Pack	\$46.95
Mickey's Crossword Maker	\$24.95
VCR Companion	\$29.95

## Beagle Brothers Software

Platinum Paint (IIgs)	\$61.95
AW 3.0 Companion	\$24.95
T.O. Style Pack	\$81.95
T.O. Decision Pack	\$93.95
T.O. Performance Pack	\$68.95
T.O. TextTools, Thesaurus	\$30.95
T.O. Superfonts	\$42.95
T.O. Desktools I or II	\$30.95
T.O. Sidespread	\$30.95
T.O. ReportWriter	\$49.50
T.O. SuperForms, Outliner	\$43.95

## Entertainment Software

Chessmaster 2100 (IIe or IIgs)	\$31.95
The Immortal (IIgs)	\$32.95
Pipe Dream (IIe and IIgs)	\$17.95
Task Force (IIgs)	\$24.95
Prince of Persia	\$20.95
Hunt for Red Oct(IIe or IIgs)	\$21.95
Zany Golf (IIgs)	\$26.95
Maniac Mansion	\$14.95
Tetris (IIe and IIgs)	\$24.95

Sampler Graphics IIe	\$19.95	IIgs	\$19.95
Party Graphics IIe	\$19.95	IIgs	\$19.95
School & Business Graphics IIe	\$19.95		

## Productivity Software

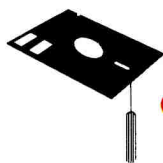
AppleWorks 3.0	\$169.95
AppleWorks GS 1.1	\$199.95
Design Your Own Home Architecture, Interior, Landscape each (IIe) \$44.95 (IIgs) \$55.95	
HyperStudio 2.1 (IIgs)	\$89.95
Quicken	\$37.95
ProTERM	\$79.95
Swiftax 1990	\$39.95

## Utility Software

Copy II Plus 9.1	\$24.95
Prosel 16 (IIgs)	\$54.95
Cross-Works	\$69.95
Vitesse Salvation Series(IIgs)	\$119.95

## Educational Software

Where in Time	\$27.95
Where in the World	\$25.95
Where in the USA	\$27.95
Where in Europe	\$27.95
Oregon Trail	\$24.95
McGee or Katies Farm(IIgs)	\$26.95
McGee Fun Fair (IIgs)	\$26.95
GeoQuiz	\$24.95
GeoPuzzle (IIe or IIgs)	\$24.95
Think Quick	\$29.95
Mavis Beacon Typing (IIe)	\$25.95
Mavis Beacon Typing (IIgs)	\$31.95
Computer SAT or ACT	\$30.95
The Playroom	\$25.95



**FAS-TRACK**  
COMPUTER PRODUCTS

ALWAYS CALL  
TOLL-FREE



**1-800-272-1600**

**1-614-847-4050** (Central Ohio)

**1-614-847-4180 FAX**

Business Hours: Mon—Fri 9 AM to 8 PM/Sat 10 AM to 5 PM (EST)

We accept MasterCard, VISA, and Discover Card—no extra charge. We accept school purchase orders. Continental U.S., F.P.O., and A.P.O., add 3% (minimum \$4.00) for each shipment. AK, HI, PR, VI, and Canada, add 5% (minimum \$10). International orders, except Canada, will be shipped priority mail insured and charges will be added to your order. No C.O.D. Ohio residents add 5.75% Sales Tax. **Absolutely no returns without prior authorization.** Schools have 30 days to approve software ordered on a purchase order. Personal orders: We can only accept returns within 45 days on defective merchandise for replacement. Shipping charges are not refundable. Prices and availability are subject to change without notice.

APPLE IIgs, IIe, IIc

# Quality Software at Affordable Prices

★ FREE 800 Order Line ★ 24 HOUR Turnaround  
★ FREE Technical Support Service

★ Largest And Most Up-to-Date Libraries of Apple II/IIgs Software  
★ 100's of New Software Selections Offered Every Quarter!  
★ Most Complete, well-indexed public domain/shareware directories

## APPLE IIgs 3 1/2" DISKS

### Word Processing

NEW GS229 Eitwrite Easy-to-use word processor, with instructions plus 117 fonts! ★ Best Seller . . . . . \$9

### Print Shop™ IIgs Graphics - PDE Exclusives!

- GS155 100 color pictures of sports, hobbies, games\* . . . . \$9
- GS156 100 color pictures of people, faces, clothing\* . . . . \$9
- GS157 100 color pictures of animals of every kind!\* . . . . \$9
- GS158 100 color pictures of symbols, emblems, & logos\* . . \$9
- GS177 100 educational pictures, history, science, geog, flags\* \$9
- GS178 100 pictures of fonts and color borders\* . . . . . \$9

\*Requires Print Shop™ IIgs to use.

### Graphics/Graphic Utilities

- GS63 Cheap Paint—full-featured color pnt prog (288K REQ.) (SWH) \$9
- GS131,GS132 84 fonts for desktop publishing, (2 DISKS) \$18
- GS230 Movie.pics—"Honey I Shrank The Kids", 12 more . \$9
- GS236 Star Trek Clips of Cpt Kirk+Spock in action (SWH) . \$9

### Adult Graphics

- GS136,GS137 Adults-only: 44 gorgeous ladies (2 DISK SET) \$18
- GS187,188 50 more lovely ladies to dazzle you. (2 DISK SET) \$18

### Games/Entertainment/Education

- GS206 Rush.Hour.GS+more new arcades-puzzles (SWH) \$9
- GS216,217,218 Bouncing Bluster—like Brickout, with realistic sound/graphics. Best arcade ever! (SWH) (3 DISKS) \$27
- GS219 Space Cluster—shoot alien invaders, fast-paced, joystick \$9
- GS220 Star Wizard—fight off starships, fly thru 3-D maze . \$9
- GS221,GS222 Cosmocade—blow away aliens in the jungle and in space, along with music, joystick (2 DISK SET) \$18
- NEW GS225 Card Games: Wisconsin Rummy, more (SWH) \$9
- GS226,GS227 Dinostacks—watch and learn about dinosaurs! (REQ. HYPERSTUDIO™) (2 DISK SET) (1SW) . . . . \$18
- GS231 Horoscope GS—interpret your stars! (SWH) . . . . \$9
- NEW GS233 Columns—Addictive puzzle arcade w/music \$9
- NEW GS248 Star Trek Classic—game with stereo and great graphics. (REQ. 1.5 MEG. AND SYSTEM 5.0.4) (1SW) . . . \$9

ANY 10 DISKS FOR ONLY . . . . \$59.95

## APPLE II 5 1/4" DISKS

### Apple II Print Shop™ Graphics

- 937 70+ b/w pictures of sports, hobbies, games\* . . . . \$5
- 938 70+ b/w pictures of people, faces, clothing\* . . . . \$5
- 939 70+ b/w pictures of animals of every kind!\* . . . . \$5
- 940 70+ b/w pictures of symbols, emblems, & logos\* . . \$5

\*Requires Print Shop™ to use.

### Games/Education

- 814 Monopoly: The popular board game . . . . . \$5
- 974 Flobynoid—great Tetris™ clone, more. (SHAREWARE) \$5
- 976,977 World of Pinball—14 great pinball games. (SWH) (2 DISKS) \$10
- NEW 983 Understanding Taxes easy, step-by-step program \$5
- NEW 985 Make your own Wordsearch puzzles, prints, w/doc \$5
- NEW 987,988,989,990 Study galaxies, clusters, and nebulae with Sagarro's Deep Sky Database (4 DISK SET) . . . . . \$20

### Passion

- 190,800 X-Rated graphics for adults only (2 DISK SET) . . \$10
- 961,962 Beach Girl, more lovely ladies. (2 DISK SET) . . \$10

† The author requests a specified donation if you decide to use the program.

## SPECIAL!

Any 6 disks  
(IIgs disks may be included)  
plus 1 Yr. Membership  
Only \$39.95  
(plus \$4 s/h)

- One Yr Membership (\$20 value):
- Complete fully-indexed directories of software
  - Apple directory describing over 5000 programs, OR
  - Apple IIgs directory describing 1000 programs
  - 28 pg qtrly Magazines w/100's of new software selections
  - Members-only discounts!
  - Plus 6 Disks of your choice (ONLY \$3.33 each!—only as part of this special!)

Add \$4.50 US & \$5 Canada (\$15 foreign) shipping/handling for orders. CA orders add sales tax. If ordering a 6 disk Special, please check 1 box:

Apple II Membership       Apple IIgs Membership

Enclosed \$ \_\_\_\_\_ by  Check  VISA  MC

Card No. \_\_\_\_\_ Exp. \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

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

In California  
408-496-0624

**P.D.E.**  
2078-C Walsh Ave., #793  
Santa Clara, CA 95050

# ORDER TOLL FREE 800-331-8125

Circle 269 on Reader Service Card.

# LETTERS TO THE EDITOR

they're given to the actors, directors, producers, and so on. Thanks again for your kind review.

**Joel Fried**  
**President**  
**Pelican Software**  
**768 Farmington Avenue**  
**Farmington, CT 06032**

*Let's have a hearty round of applause for all the unsung developers out there. Where would publishers be without products?* — eds.

## DESKTOP VIDEO

**A**FTER MONTHS OF READING every article you had that mentioned the Apple II Video Overlay Card, I decided to get one and breathe the new life into my VCR Companion software. Unfortunately, I discovered my Apple IIe wasn't "Revision B" and that the Overlay Card wouldn't work. I still want to overlay some basic things on video and to move up into more varieties of such software. Should I get a IIgs or should I go ahead and get a Macintosh? How cheaply can I get into desktop video on the Mac?

**Clarence E. Mosley**  
**4314 N.W. 9th Avenue #140**  
**Pompano Beach, FL 33064**

*For basic video editing and creation, it's less expensive to buy an Apple IIgs than a Mac, primarily because the IIgs has composite output (via RCA plug) built in. In a word, you can't get into desktop video cheaply on a Mac.* — eds.

## FOREIGN-LANGUAGE DIFFICULTIES

**F**ROM READING THE LETTERS TO the Editor in your December 1990 issue, I can see why more teachers haven't gotten involved with foreign-language word processing. The need for configuring AppleWorks with special add-on programs has always made me feel as though I had to pay electronic dues to word-process in another language. It simply shouldn't have to be that way. The simplest program I've found to do foreign-language word processing is Classroom News International, by Educational Activities (\$65; 1937 Grand Avenue, Baldwin, NY 11510). It's effective enough to quickly take care of my tasks as a foreign-language/ESL director and easy enough to use with students to create classroom newspapers. The program simply doesn't require that you have a specific level of computer knowledge to be able to accomplish your tasks.

**Lynda Hamlett**  
**Foreign Language/ESL Director**  
**Amityville Schools**  
**Long Island, NY**

## QUALITY SERVICE

**D**URING MY CHRISTMAS VACATION from teaching high school, I tried to install a Q-Drive and EasyDrive that I had purchased at Quality Computers' open house in December. I had a lot of

## CORRECTIONS

In our February issue (p. 96), we incorrectly implied that our Editors' Choice, Pipe Dream, was available only for the Apple IIgs. Pipe Dream is 8-bit software and will run on earlier versions of the II as well.

In "A New Approach to Personal Finance" (March 1991, p. 66), the update price for TaxCalc-90 on 5.25-inch disk by Perfect Solutions Software was priced incorrectly as \$44.95; it should be listed as \$24.95. In addition, the information on Sierra On-Line's

Smart Money program contains inaccuracies. According to a spokesperson for the company, Sierra On-Line is discontinuing its productivity product line; 8-bit Apple IIe/IIc and 16-bit IIgs versions of Smart Money are still available while supplies last. Sierra On-Line has never offered a Macintosh version of Smart Money.

Frontier Technologies ("Apple II to Mac and Back," March 1991, p. 77) has a new address: 2128 Scotten, Detroit, MI 48209-1667.

trouble, so I called the company and talked to a service representative named Walker Archer. We determined that my EasyDrive software was defective. He said that he'd send me a new copy.

Within a week I received the new software and again tried installing it. Again, I had problems, so I called and spoke to someone named Steve who spent 30 minutes on the phone with me, but we never got my drive running.

On January 11th, I called again to see if the company was open on Saturday and to ask if I could bring in my computer and drives and have someone install EasyDrive for me. I spoke to Mr. Archer, and when he found out I lived in Westland, he said, "I'm coming to Livonia tomorrow. I'll bring some tools and visit you." I couldn't believe my ears. He arrived with a new Apple SCSI card to try first, and sure enough, my SCSI card was defective. He replaced it and did some double-checking, and my Apple has been running smoothly ever since. Quality Computers means quality service, and Walker Archer has proven that to me.

**George Calder**  
P.O. Box 2306  
Livonia, MI 48151-0306

*This must have been Quality Computers' month. We received several letters praising the company's customer service, but this one was the most unusual. Well done!* — eds.

## DARE WE SAY CONNECTIVITY?

IN A SIDEBAR IN YOUR DECEMBER issue, you mentioned that Pam Michaelson used her Apple IIe with Ultra-Macros to do her word processing, and then transferred those AppleWorks text files to her Mac for desktop publishing with PageMaker. (See "Connecting in the '90s," p. 72.) Last year, my high-school publications staff and I decided to produce our yearbook, newspapers, and literary journal on the Mac. The only hangup was that we had only one Mac and one LaserWriter to use. We overcame that by doing all our word processing in AppleWorks, then taking those text files from IIes to the school's only IIGs so that we could get them onto a 3.5-inch disk for the Mac. We

processed more than 500 text files though Apple File Exchange. It was a logistical nightmare, but in just two class periods a day and some hard work after school we produced four large newspapers, a good-looking literary magazine, and a 232-page yearbook.

In the process, we saved almost \$1000 on the production of the yearbook and cut newspaper production costs in half with camera-ready copy, and the literary magazine almost paid for itself. We also received generous donations of peripherals and software from Claris, MegaGraphics, Altsys, Cal-Comp, and Irwin Magnetics totaling nearly \$5000 in retail value to help us with our desktop-publishing venture.

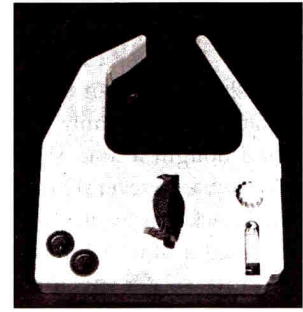
In January, our school district is setting us up with some Mac Classics and we'll become a primarily Macintosh-based publications staff. So far this year, however, we've continued to rely on Apple IIs to do our word processing, and I've no doubt that we'll continue to use them frequently. AppleWorks is a tremendous program that works flawlessly and can be learned quickly. Nothing on the Mac works as easily with students. On the other hand, nothing on an Apple II can compare to Pagemaker for desktop publishing. A smart teacher draws on the strengths of all available resources.

The Mac and the Apple II are perfect classmates. Your publication — and only yours — acknowledges that. Perhaps you're simply the first to declare a truce in the Cold War between the two branches of the same Apple tree. I agree with your contention that there's room for both machines in schools, and that a decision to use one and exclude the other is foolish. Congratulations on your new stance, and I once again look forward to seeing issues of *inCider/A+* in our library.

**Martin Fullington**  
Publications Advisor  
21 Forest Ridge Drive  
Arden, NC 28704

## CUSTOMER SUPPORT

I FOUND YOUR DECEMBER 1990 issue of *inCider/A+* most interesting. I started off with a IIGs and have since jazzed it up with all the goodies I could plug into the slots — increased memory, modems, internal/external hard drives,

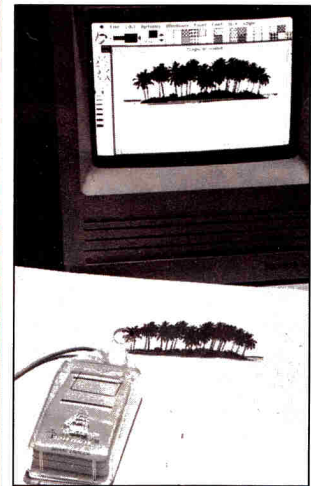


DON'T THROW IT AWAY  
RE-INK IT IN THE PRINTER

### THE FALCON

This is the **only** product that re-inks in the printer. The average cartridge lasts for only 100 pp. **The Falcon** lasts as long as your ribbon (1000 pp. guaranteed). The ribbon cartridge and ink (4 drops every 50-75 pp.) are included for **only \$18.95**.

**The Falcon** fits DEC L450, Imagewriters I + II, most C. Itohs, NEC 8023 and many more.



TRACE DRAWINGS, LOGOS,  
DIAGRAMS, ARTWORK, ETC.

### SHARP TRACER

This product is custom made to fit the Apple II and Mac Plus Mouse. **It fits all Apple Mouse Models.** Use with "T" square or free hand with CAD, Desk Top, or with Paint/Draw etc.

It is injection molded from Optical Grade Acrylic to a thickness up to 1.4". The forward extending arm has a 2-X Lens with a bulls eye. **\$19.95**

M101 The Falcon \$18.95  
M102 Sharp Tracer \$19.95  
\$3 Shipping Overseas add \$6

**Order Both Shipping Free**

Orders: (800) 451-3589

Questions: (504) 845-3188

Fax: (504) 845-4429

Write: Mando Products  
803 Bocage Lane  
Mandeville, LA. 70448

and so on. This is truly an all-purpose machine that meets my family's needs.

Last year I bought a Mac SE/30, and have since purchased several peripherals and software packages for it. Now that I have a IIGs and a Mac, I find that I'm better able to assign a specific task to whichever machine is more efficient at it. Don't throw out your old computer — use it next to your new one!

Primarily, though, I want to say that the treatment I got from dealers and developers of IIGs products affected my Macintosh purchasing decisions. The companies that gave me good on-line support in the past got my orders for new hardware and software. As far as my money is concerned, the companies that made me listen to elevator muzak or a busy signal, or fight my way through a phone-mail system, can go to the Nintendo market.

I'd like to remind dealers and developers (especially mail-order houses) that we computer users like to talk about you, and

bad news tends to go around much faster than good. Developers also need to remember that a company that fails to offer continuing support (or at least inexpensive upgrades) for an older product will leave us wondering what will happen when its latest offering reaches its second or third birthday.

**Daniel J. Kenny**  
1522 North Lantana Street  
Camarillo, CA 93010

**FAMILY COMPUTING**

I SUPPOSE I WAS MEANT TO BE A Macintosh user — young urban professional, three children, fast-paced life, and so on. My son, however, is visually impaired, and a graphical user interface is no friend to those without excellent sight. Thus, we made the somewhat anachronistic purchase last year of an Apple IIc Plus with a Street Electronics speech synthesizer.

The pleasant surprise has been the use-

fulness of the computer and the fun it has brought to our home. All of our children, even the 2-year-old, use it daily. My wife, an avowed computerphobe, keeps all her small-business records on it. And I'm convinced that operating in a text-based environment with AppleWorks and Proterm is simply the fastest, easiest, most user-friendly solution to all my computing needs.

I use PCs and a DEC system at work, and often fool around with Macs at friends' homes, but I've yet to find anything to top my two favorite programs on my IIc Plus. And, now that I have a 32K memory-expansion card in my ImageWriter, I can really produce!

**Bruce Williams, M.D.**  
7 Manning Street  
Lexington, MA 02173

*The American Printing House for the Blind (APH, Box 6085, Louisville, KY 40206, 502-895-2405) is another excellent source of materials for the visually impaired.* — eds.

*"My own favorite simulator...is Design Your Own Train (he was comparing Railroad Tycoon, PC-Railroad, and Design Your Own Train). I like laying out the road without having to worry about costs and grades and bridges, and I love switching trains around tracks and stations without regard to economic factors. I'm totally enthralled by railroad collisions..." Don Trivette, PC Magazine, Nov. 27, 1990*

**NEW Design Your Own RAILROAD NEW**

*You asked for it. Here it is!*

Precision designing for scales HO, O, N, Z, S, G. Simulate actual railroad operations! Zoom/identify or un/couple any of the dozens of individual cars in the operating railroad. Run up to 16 cars per train. User-definable car database. Revenue and delivery reporting. Much more!!

Apple II's, Laser 128 (64K) ..... \$49.95  
IBM ..... (available in March 1991)  
Macintosh ..... (call for availability)

**Design Your Own Train**  
Build your own train system without taking up space in your house. Run up to four trains at once. Build locomotives. Includes 26 operating switches, auto-run, painting, color-fill, whistle, pre-drawn scenery shapes, and more.

IBM (512K) ..... \$59.95  
Apple II's, Laser 128 (64K) ..... \$49.95  
Macintosh (512K) ..... \$49.95

**Run Your Own Train**  
The "flight simulator" for down to earth people. Puts you in the engineer's seat! Design, build and operate your dream layout.

IBM (512K) ..... \$39.95  
Apple II's, Laser 128 (64K) . . . \$34.95

**Ask about our library**  
(Works with all 3 programs)

**Abacadata**  
the source of plan-making software  
Dept. D P.O. BOX 2440  
EUGENE, OR 97402  
(503) 342-3030

**Orders: 800-451-4871 or FAX: 503-683-1925**  
Order by mail: Add \$7 shipping first program plus \$2 ea additional. Send Visa/MC # (with exp. date) or check.

**IN SEARCH OF CD-ROMs**

I'VE INSTALLED GS/OS SYSTEM 5.0.4 on my hard disk and have discovered that it contains a CD-ROM interface. I haven't seen any ads for CD-ROMs for the IIGs and am wondering what's available and where I can get them. Also, can I add a CD-ROM player as part of a SCSI daisychain?

**John Croft**  
60 Verde Drive  
Santa Cruz, CA 95060

*CD-ROM technology for the Apple IIGs is currently limited to developer technical-support mailings and two commercial discs. To answer your second question: Yes, you can use a CD-ROM player as part of a SCSI daisychain. See "CD-ROMs Come of Age" in this issue, p. 44, for details on hardware options and disc products available for the Macintosh and the IIGs.* — eds.

*IN CIDER/A+ WELCOMES READERS' COMMENTS. WE RESERVE THE RIGHT TO EDIT LETTERS FOR CLARITY, STYLE AND SPACE. PLEASE ADDRESS YOUR CORRESPONDENCE TO LETTERS, IN CIDER/A+, 80 ELM STREET, PETERBOROUGH, NH 03458.*

Circle 40 on Reader Service Card.





USA/CANADA TOLLFREE  
1-800-624-2926

IN ILLINOIS  
708-888-8300



YOUR SINGLE SOURCE SUPPLIER FOR COMPUTER SOFTWARE ■ DISKETTES ■ ACCESSORIES



APPLE  
MACINTOSH  
CD-ROM/LASERDISCS  
ACCESSORIES  
NETWORKING/SITE LICENSES

Visit  
Our

**NEW**  
Chicagoland  
SHOWROOM

19  
91

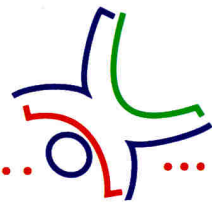
Spring  
Catalog

# YOUR Single Source Multimedia Solution

CALL NOW FOR YOUR **FREE** 156 PAGE **COLOR** CATALOG

EDUCATIONAL RESOURCES • 1550 Executive Drive • Elgin • Illinois • 60123

# WHAT'S NEW



edited by Paul Statt

## APPLE ROLLS OUT!

**W**e're especially excited about the Macintosh LC," said Bernard Gifford, Apple Computer's vice president of education, at a recent **Apple Education Solutions Forum** in Tampa, Florida, "because [the Mac LC] represents a new horizon in education and incorporates many features that educators have long been asking for."

The capabilities of the Mac LC were the center of attention in every city where the Apple Education Solutions Forum stopped, strutting its stuff in San Francisco, Long Beach, Tampa, New York, and Chicago. "With the LC now shipping," Gifford said, "we thought it was extremely important to 'hit the road' so our customers could see for themselves the results of their input."

Evidently Apple's customers have been asking for better sound input and output, better color graphics, more multimedia applications, including CD-ROMs and videodiscs, foreign-language software, integrated learning

systems for AppleTalk networks, administrative tools, and problem-solving software.

Apple also announced two new software guides for educators, which are available at no charge to teachers and administrators. The **Macintosh Educational Software Guide 1991** reviews more than 450 titles in business and vocational training, early learning, fine arts, foreign language, language arts, math science, and social studies. It also includes articles on the use of Macintosh computers in special education, bilingual education, multimedia,

networking, and integrated learning systems. The smaller **Macintosh Administrative and Teacher Productivity Guide** describes 250 programs for people who work in schools. You can order either guide

by writing to Macintosh Educational Software Guide

1991 or Macintosh

Administrative

and Teacher

Productivity

Guide at

Apple

Computer,

20330

Stevens

Creek

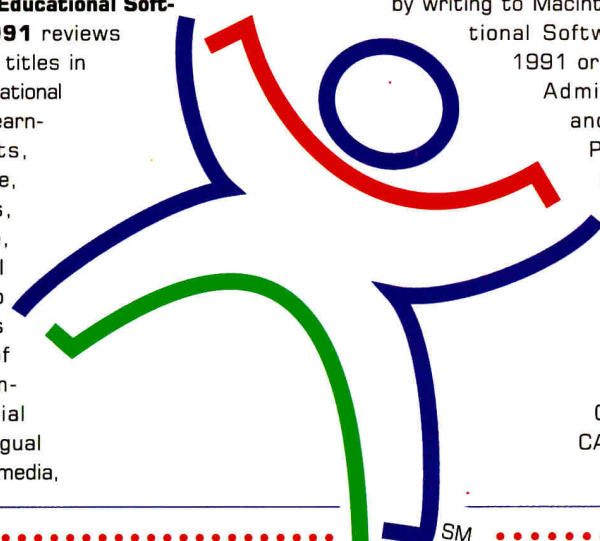
Boulevard,

MS 36-AN,

Cupertino,

CA 95014.

— P.S.



### You Can't Beat This Offer!

**R**oger Wagner Publishing has an unbeatable offer for any school that has an Apple IIgs and wants to see what all the talk about "multimedia" means: a complete **Multimedia Test Drive Kit** you can try at no charge, including copies of the company's HyperStudio software, with microphone and audio-digitizing software. The publisher is also working with manufacturers of such multimedia hardware as touch-window screens, scanners, videodisc players, and video digitizers to lend teachers all the equipment they need. The Multimedia Test Drive Kit also includes a 50-page workbook for conducting a one- or two-day workshop. Roger Wagner, president of the company, wants the world know that "the tools for the effective use of hypermedia are available right now. The only remaining obstacle is a simple lack of information and experience. We're happy to provide this package as a significant breakthrough in giving teachers an immediate and hands-on way to find out about hypermedia." For details, contact Della Smith at Roger Wagner Publishing, 1050 Pioneer Way, Suite P, El Cajon, CA 92020, (800) 421-6526.

### THE FRENCH CONNECTION

The quality of French software for the Apple IIgs is undisputed: Programs such as Photonix and Modulae are public-domain stars in this country. But now a new company called ToolBox — ironic, because most French software for the GS eschews the use of Apple's tools — will be selling some of these popular programs retail.

The first title from ToolBox (6 Rue Henri Barbusse, 95100 Argenteuil, France, telephone 0 11 33 1 30 76 18 64) will be PHOTONIX II, priced at \$45, plus \$5 for airmail shipping. Toolbox describes it as "that crazy copy program" you

may have seen duplicating disks at lightning speed using a witty, unique "spaceship" interface. The Photonix II package now includes written instructions in English and can copy Macintosh disks, too. It's been upgraded to work with any Apple IIgs, and can be copied easily to a hard-disk drive.

In France, ToolBox produces a GS publication called "ToolBox Mag" — in French only — and has just released a book called "Le IIgs Épluché" ("Peeled" or "Examined Closely"). Look for American versions of Tarot, Bouncing Bluster, and Space Shark soon. — P.S.

---

---

# + = MATH ÷ SOFTWARE

---

---

Math teachers with Macs don't have to master Mathematica, the high-powered, high-priced program that's changing the way colleges and universities teach "the queen of sciences." But even Mathematica is now available in a less-expensive basic version that may be more suited for secondary-school math teachers. The **MATHEMATICA STUDENT VERSION** for the Macintosh costs only \$139, from Wolfram Research. For more information, contact the company at P.O. Box 6059, Champaign, IL 61826, (217) 398-0700, or circle number 352 on the Reader Service card.

---

---

**G**eometry is the visual side of mathematics, so **The Geometer's Sketchpad**, from Key Curriculum Press, is a natural for the Mac. It does for geometry what the calculator did for arithmetic: It's a tool for constructing geometric figures on the computer, which the student or teacher can then manipulate. It offers tools for locating and labeling points, constructing circles, and drawing lines. Using these basic tools, you can manipulate and measure almost any geometric figure. The Geometer's Sketchpad is designed for use in grades 8 through 12, and is filled with lesson plans and ideas for teachers. It's priced at \$169.95. For more information, contact Key Curriculum at P.O. Box 2304, Berkeley, CA 94702, (800) 338-7638, or circle number 353 on the Reader Service card.

\*Algebra teachers may take more comfort from **Algebra Xpresser 1.1**, \$149 from William K. Bradford. It's a symbolic manipulator and graphing program that expands, calculates, simplifies, solves, and charts algebraic expressions. It's combined with Bradford's **Graph Wiz 1.2** (a \$99 value), a powerful function and relation plotter that illustrates graphs of algebraic and trigonometric equations and inequalities. For more information, contact the company at 310 School Street, Acton, MA 01720, (508) 263-6969, or circle number 354 on the Reader Service card.

\*Another use for the Mac during or

after algebra class is **Missing Link Software's Algebra I Homework Tutor**, a program that walks students through the solution, simplification, and factorization of equations, inequalities, and expressions. Homework Tutor helps in any of three ways: by checking each step of the student's work, by showing similar examples, or by actually telling the student what to do at each step of the problem. The effortless way in which it catches careless errors in arithmetic or punctuation and prints neat results without crossing out makes it popular even among the best students. Algebra I Homework Tutor costs \$120 from Missing Link, 67 Pupek Road, South Amboy, NJ 08879, (201) 721-2569. Circle number 355 on the Reader Service card for more information.

\*A teacher who's just looking for a good way to draw graphs need look no further than **GrafEq**, a full-featured equation grapher from Pedagogy Software. GrafEq is sold as a school site license for \$200; each student can then buy a copy for only \$20. GrafEq draws just about any graph you might need in high-school math classes: polynomials and trigonometric, with Cartesian or polar coordinates, as well as some "precalculus" graphs such as derivatives. It offers outstanding control of the size, shape, and scale of the finished graph, and flexibility in printing. For more information, write Pedagogy at 4446 Lazelle Avenue, Terrace, BC V8G 1R8, Canada, or circle number 356 on the Reader Service card.

## GS GAMES ARE GREAT!

**T**he Apple IIgs continues to attract game developers. Strategic Studies Group and Victory Software are two such companies that have released new titles.

SSG's **PANZER BATTLES** is a vivid re-creation of armored warfare on the Russian Front in World War II. That front, between Nazi Germany and the Soviet Union, was probably the greatest concentration of military armor the world has ever known. Panzer Battles uses SSG's land-combat system to simulate six famous struggles: the encirclement at Minsk, 1941; the Gates of Moscow, 1941; Prokhorovka, 1943 — probably the greatest tank battle ever; Kanev, 1943; and Korsun, 1944.

Panzer Battles illustrates the freewheeling attacks and counterattacks of the elite German SS and Army Panzer Divisions and the Russians' Siberian Shock Troops and Guards Tank Army. Panzer Battles requires a GS with 1 megabyte of RAM and at least one 3.5-inch disk drive; it's not copy protected, and it sells for \$45.

For more information, contact the company at 1747 Orleans Court, Walnut Creek, CA 94598, (415) 932-3019, or circle number 350 on the Reader Service card.

Victory Software promises that **2088: THE CRYLLAN MISSION: THE SECOND SCENARIO** will be "completely different, and the ending will be shocking!"

But it isn't only the plot of this completely independent game (you don't even need to know what the first Cryllan Mission was) that's new. The computer/player interface has been enhanced: Most frequently used menu options are displayed as easy-to-use buttons. Interactive conversation with characters has been added, and movement has been accelerated more than 80 percent, resulting in faster, more rewarding play.

Like the original Cryllan Mission, **The Second Scenario** begins on the planet Crylla with the bad news that the crew of the USS Houston is missing. The resemblance ends there, however: Victory Software has redesigned the planet and added five new lands, as well as redrawn all the dungeons and monsters — and there are twice as many monsters.

If you played and conquered the first Cryllan Mission, you'll enjoy this new challenge. If you're a fan of role-play multiplayer adventures, you shouldn't be a stranger to Crylla — don't wait — visit it today.

For more information, contact Victory Software, P.O. Box 821381, Houston, TX 77282-1381, (713) 493-3232, or circle number 351 on the Reader Service card.

— P.S.

## ▼ NOTES from the AppleWorks Programmers Association

### Users & Programmers Sharing the Power to Create

**AW Tip:** Speed up AppleWorks! Users with a 128K single or dual 5.25-inch disk-drive system can eliminate much of the disk swapping necessary with AppleWorks 3.0 by creating **specialty AppleWorks disks**, containing only the program segments required for the word-processor, database-manager, or spreadsheet module you're accessing. Make a separate specialty disk for each module. You'll find instructions in the AppleWorks 3.0 reference manual (Appendix B).

Another suggestion: **Create a boot disk** including ProDOS 1.9 (for an earlier version of ProDOS patched with Bird's Better Bye) together with Basic.System and a one-line BASIC STARTUP program: 10 PRINT CHR\$(4);"BYE". Remove the ProDOS file from the specialty disk to gain just enough disk space to install TimeOut UltraMacros. Then start AppleWorks from the boot disk, remove the boot disk, insert the specialty disk, press the tab key twice, and choose ULTRA.SYSTEM from the ProDOS selector menu. Do all your system and enhancement configuration on your AppleWorks disks (backups, of course) before creating a specialty disk.

**Adding a 3.5-inch disk drive or hard disk** to your Apple II system lets you place all your AppleWorks program files into one directory (folder); this eliminates disk swapping and enhances ease of operation and speed. Recent SCSI hard-drive systems will dramatically increase access speed. These larger storage devices are especially desirable when adding TimeOut and other enhancements to AppleWorks. (For more information, see the "Hard-Disk Drives Made Easy" series beginning in the January 1991 issue.)

**Increasing the amount of random-access memory (RAM)** available to your Apple II will also enhance AppleWorks' operation and speed. Increased memory provides for larger desktops and file size. (Various **add-on memory cards** are available from several vendors; call for advice on size and installation.) AppleWorks 3.0 preloads into this expanded memory; if enough is available, the entire program preloads and the need for later disk access is eliminated. The APA suggests at least 1 megabyte of memory for most serious AppleWorks users.

Another hardware answer for improving AppleWorks' performance is to increase your computer's processing speed by **adding an accelerator card or chip to your system**. Speeds of up to eight times the standard 1 megahertz are possible. Spreadsheet users might also investigate the advantages of speeding up calculations with a math coprocessor board.

How about software solutions? A program called **AppleWorks 3.0 Companion** from Beagle Bros includes a patch to reduce the 9999-row spreadsheet to a faster-calculating 999 rows. **SpellCopy** from Jem Software can speed up the AppleWorks spell checker by moving its dictionaries to a RAM disk. **TimeOut UltraMacros** from Beagle Bros can save considerable time by automating routine keyboard input, navigation, and more. **SuperPatch 7.0** from Q-Labs offers "hotkey" and other patches that eliminate routine keystrokes.

Speeding up AppleWorks' operation by one or more of the suggested methods outlined above promises to increase productivity and make the program even more enjoyable; it's especially cost effective for small-business applications. With the proper enhancement, Apple-

Works has the speed and productivity to serve almost every home, school, and small-business need.

**AW Enhancements: Patcher 1.5** is freeware created by the staff members of Beagle Bros. It's a menu-driven program that fixes several annoying bugs in AppleWorks 3.0. Patcher is compatible with virtually all AppleWorks enhancements. What kinds of bugs are we talking about?

- In the AW word processor, Control-C, Control-N, Control-P, and Control-R make the cursor jump to the top of the file.
- In the word processor, you can't clear a tab ruler in a header/footer after you use it.
- The database manager can't print multiple copies of a report.
- The spreadsheet adjusts formulas incorrectly when you delete more than 255 rows.
- Deleting the default printer creates problems adding a new printer.
- Text-file importing to the database manager is flawed.
- OA-Right Arrow locks up both the database manager and the spreadsheet, with the cursor jumping out of the work area.
- The AW database manager behaves erratically when you use the open-apple key in combination with the period or greater-than sign as a command to go to the last category.
- Saving to an existing file you've

locked doesn't work properly: The temporary AWTEMP000 file isn't removed.

Patcher 1.5 fixes these bugs among others, plus some problems with earlier Patcher versions. You can get a copy from most Apple user-group disk libraries, your local club's Beagle Buddy, or on line. Patcher is also included in the monthly APA disk prepared for this column as described below.

**AW Macros:** Here's one (see box below) that spell-checks an entry in the AppleWorks database manager. Invoke the macro with Solid apple-V within any entry in multiple- or single-record layout in a database.

**APA maintains files, templates, patches, and information that are available to AppleWorks Classic users. If you have questions or requests, call or write the Pro-APA BBS. Templates, macros, and detailed documentation for items described in this column are available on 5.25-inch disk for \$4 shipping. Include the inCider/A+ issue date with your request. For information contact the AppleWorks Programmers Association, 6531 Lexington Avenue, Los Angeles, CA 90038, modem apa@pro-apa.cts.com (213) 463-9289, or voice (213) 469-9916. The AppleWorks Programmers Association is registered with the Apple User Group Connection.**

#### Setup

```
V:<adb : display #off : Status = peek $8520 : if S = 82 goto ba-v :  
endif : Direction = peek $851d : if D = 68 rtn up : endif : if D = 82 rtn  
oa-tab : endif : oa-z goto ba-v>!
```

#### From single-record layout (called by SA-V)

```
<ba-v>:<all : rtn : up : cell : q = peek $0c54 : oa-Q esc rtn>3<rtn :  
rtn>xx<rtn : oa-o>lm<rtn>0<rtn>rm<rtn>0<rtn esc : print "| PRESS  
ESCAPE WHEN SPELLCHECK COMPLETE |" : rtn rtn : print $0 :  
display #on : oa-V rtn : msg " PRESS ESCAPE WHEN SPELLCHECK  
COMPLETE " : keyto 27 : msgxy 0,0 : msg chr$ 3 : msgxy 4,4 : msg &C&  
: msgxy 0,128 : display #off : oa-q rtn : poke $0c6c,0 : cell :  
esc>4<rtn rtn : oa-Q : print q : rtn : oa-y print $0 : rtn up : if S = 47  
oa-z : endif : oa-q : display #on rtn>! :
```

# We don't recommend plucking your Vulcan™ off a table and dragging it along the ground. But it's nice to know you could.

October 30, 1990

Gentlemen:

*I use my Apple IIGS with a Vulcan and an AE A/D converter at professional waterski tournaments to measure jump distances. I wish to commend you on the durability of your Vulcan Hard Drive.*

*I was using the computer at the U.S. National Waterski Championships in August when a gust of wind picked up the canopy under which we were operating. Wires running to my system were attached to the canopy and when the canopy blew away, it pulled the computer with the Vulcan off the table and onto the ground, dragging it along the ground some twenty feet. I was actually in the process of writing data to the hard disk at the time.*

*Even though the incident pulled many of the attaching wires out of the computer, no damage occurred to the computer or the hard drive. I subsequently verified all of the data on the hard drive and found no errors and no bad or damaged blocks in either ProDOS or MS-DOS (I use half my storage for my PC Transporter's MS-DOS files and half for ProDOS).*

*Needless to say, I am very grateful for a soundly built and well-engineered product.*

*Sincerely yours,  
Roger Dilling  
Milledgeville, Georgia*

**We hope you never** drag your hard disk through the dirt, but can appreciate the engineering required to make the above letter possible. Until recently, if you wanted a hard disk for your Apple, you had to add an outdated, external box to your desktop clutter. Now, with Vulcan™ on the scene, you have an internal to consider. One that's lightning fast, clean, powerful and affordable.

**A glance at the other** computer manufacturers; IBM, Compaq, Dell, Mac, tells



you something. They're all very different systems, but all come with internal hard disks (it's hard to even find a Mac these days without an internal hard disk). The reason? Internals are the latest advance. The modern storage solution. They become a transparent part of your system, and in the case of Vulcan, actually enhance the rest of your system.

**Enhancing the rest of your system.** Many feel Apple's standard power supply is insufficient. Add a Vulcan and you make a significant improvement to the rest of your system. The high efficiency power supply in Vulcan is rated in excess of 70 watts, nearly double the capacity of Apple's standard power supply and that of other drives. Vulcan power supply components are heatsinked to the aluminum case for cool operation and long life. And we added an ultra-quiet, flush-mounted cooling fan to keep things cool inside. Vulcan actually beefs up your power supply. External hard disks drain it.

**Ease of use.** Most hard disks are pretty intimidating. It's frustrating to bring home a new hard disk, only to discover you've got to spend a lot of time setting up for your particular operating system, partitions and formatting. Vulcan comes pre-formatted, pre-partitioned and includes the latest Apple Operating System. You'll be using your Vulcan within minutes. Just pull out your old power supply, plug the Vulcan in it's place, insert the card and turn on the computer. Vulcan will boot to your familiar Apple Finder in a few seconds. Now *that's* ease of use.

**Incider/A+ Magazine put it simply** in their "Best of the Best" Holiday Shopping Guide: "*The best internal hard disk is the Vulcan from Applied Engineering - you can use it with DOS 3.3, ProDOS or GS/OS, and it comes with its own fan and power supply*". Vulcan incorporates the most popular standard protocols for a hard disk and includes an ultra-fast 16-bit data bus controller, not

the less expensive 8-bit others use. And since Vulcan is fully compatible with our PC Transporter, you can create ProDOS or MS-DOS storage space, in addition to GS/OS, DOS 3.3, CP/AM or Pascal 1.3. No



other hard disk works with all these operating systems.

**Vulcan gives your Apple** IIGS, IIe, II+ or II upgradeability (20-100 MB), useable speed, safe power (its FCC certified and works on 110/220 VAC, even European 115/230 VAC at 50-60 Hz), practically unlimited size and AE's famous tech support and one-year warranty.

**Order today!** To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 8 1/4% sales tax. Shipping not included.

**Vulcan 20 MB.....\$699**  
**Vulcan 40 MB.....\$899**  
**Vulcan 100 MB.....\$1795**



**Applied Engineering®**  
*The enhancement experts.*

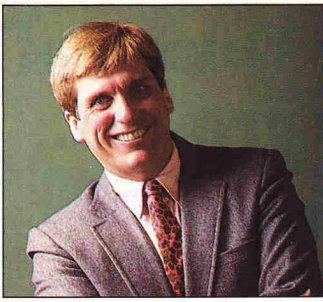
A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100  
Carrollton, TX 75011



©1990. AE Research, Inc. All rights reserved. Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders.



STATUS  
REPORT

# DARWIN AND THE COMPUTER

By PAUL STATT \* SENIOR EDITOR

**D**oes the game represent *Darwin's* dilemma — as if the old naturalist himself were the driving force behind the process of evolution?

DARWIN'S DILEMMA (\$49.95, INLINE Design, 5 West Mountain Road, Sharon, CT 06069, 203-364-0063) is an intelligent game for the Apple Macintosh, but its name is inept. The game owes nothing to Charles Darwin, author of *The Origin of Species* (1859), and much to Brad Wilhemsen, creator of I.O. Silver (1984), an arcade classic from Beagle Bros for the Apple II (still available from JEM Software, 7578 Lamar Court, Arvada, CO 80003, 303-422-4856, for \$20).

Like all great games — chess, Tetris, and so on — Darwin's Dilemma is simple to play, but difficult to master. All you do is move icons. You decide which icons to merge to create higher orders of life — combining worms to make fish, fish to make reptiles, reptiles into birds, birds into mammals, and so on up the evolutionary ladder. You push these beings around a rectangular grid on the screen of your Mac. But you can't mimic evolution that way.

In its earlier incarnation — as I.O. Silver — the point of Darwin's Dilemma was to combine computer chips into memory boards, then boards into computers, and finally computers into supercomputers. Time was limited, and you lost immediately if you ran over.

The Beagle Bros version of this game was more challenging, if less visually appealing, and lacked the pseudo-scientific claim to be "loosely based on the ideas of evolution." If Darwin's Dilemma is based on evolution, so is *TV Guide*: Both *TV Guide* and evolution presuppose that time passes.

Darwin's Dilemma, the game, offers a neat answer to the question: Does life on earth mean anything? It's a big question, if you dare to ask it. Not many people do. The game gives up its solution slowly but surely — if not as slowly as life. The goal is to create Man — or Man and Woman, in this politically, if not scientifically, correct game — who represents the "end" of evolution. Real-life evolution, on the other hand, hides no agenda. We people, who happen to be living today, are not the point.

The name troubles me: Does this game represent *Darwin's* dilemma — as if the old naturalist himself were the driving force behind the process of evolution? I guess InLine Design couldn't very well have named the game "God's Dilemma" — the creationists would have had a fit. Natural selection is automatic and nondeliberate.

Darwin's Dilemma has nothing to do with natural selection or Darwin's theory of evolution. Don't get me wrong: I enjoyed the hours I spent playing the game. You should play Darwin's Dilemma. If you don't have a Mac, you can play I.O. Silver on any Apple II. But I'd hate to see a teacher inflict this pseudo Darwinism on unsuspecting students.

If you're sincerely interested in natural selection, and have a Macintosh (or MS-DOS computer), spend your money at a bookstore on Richard Dawkins' *The Blind Watchmaker* (W.W. Norton, New York, \$9.95) and its accompanying software (\$10.95 when you buy the book). Dawkins' book attempts to show "why the evidence of evolution reveals a universe without design," so I can't recommend it to readers who think P.T. Barnum invented dinosaurs.

But *The Blind Watchmaker* tries to solve what was indeed a serious dilemma for Darwin: the so-called "argument from design." If all the world's living creatures evolved by chance out of mud, 19th-century creationists asked, how is it possible that every complex creature has turned out so well? Could as intricate an organ as the human eye have happened by chance? Dawkins' book, and especially his software, use the power of the Macintosh to prove that given enough time, chance can accomplish miracles.

Speaking of dilemmas, I'm reminded of the paleontologist and writer Stephen Jay Gould's response to those who fear the moral vacuum of a world without extrinsic purpose: "The answers to moral dilemmas are not lying out there, waiting to be discovered. They reside, like the Kingdom of God, within us — the most difficult and inaccessible spot for any discovery or consensus." □

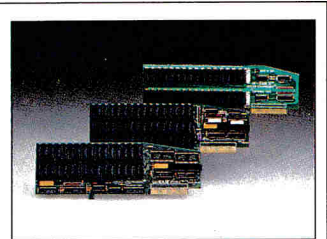
# Preferred Products, Preferred Prices

## Storage Devices

**Applied Engineering**  
Vulcan Hard Drives include controller card (specify machine).  
Vulcan 20 Meg ..... \$499  
Vulcan 40 Meg ..... \$639  
**New!** 3.5" 1.6 Meg (GS) ..... \$248  
3.5" 800k (GS,IIe,IIc+) ..... \$189  
3.5" Controller card (IIe,II+) ..... \$65  
5.25" disk drive (all Apple IIs) .... \$124  
5.25" Controller Card (IIe,II+) ..... \$55

**AMR**  
A5.D 5.25" drive (GS,IIe,IIc) ..... \$139

**Apple**  
High Speed SCSI (GS,IIe) ..... \$109



The best memory expansion cards you can buy for your Apple IIGS computer. GS-Ram II low-cost expansion up to 4 meg. GS-Ram Plus offers expansion up to 6 meg on one board and GS-Ram Ultra offers expansion up to 4 meg using 256k x 4 bit chips. See line listing for prices.

## Memory Expansion

**Applied Engineering**  
GS-Ram II 1 Meg (GS) ..... \$147  
GS-Ram II 2 Meg (GS) ..... \$219  
GS-Ram II 4 Meg (GS) ..... \$366  
GS-Ram Plus 1 Meg (GS) ..... \$205  
GS-Ram Plus 2 Meg (GS) ..... \$292  
GS-Ram Ultra (GS) ..... \$Call  
RamWorks III 256k (IIe) ..... \$139  
RamWorks III 1 Meg (IIe) ..... \$227  
RamFactor 256k (IIe,II+) ..... \$175  
RamFactor 1 Meg (IIe,II+) ..... \$264  
Ram Express II 256k (IIc,IIc+) ..... \$146  
Ram Express II 1 Meg (IIc,IIc+) ..... \$205  
Z-Ram Ultra Series (IIc) ..... \$Call

## Accelerators/Co-Processors

TransWarp GS ..... \$259  
TransWarp (IIe,II+) ..... \$99  
FastMath (GS, IIe,II+) ..... \$131  
PC Transporter 768k (GS,IIe) ..... \$239  
IIGS Installation kit ..... \$36  
IIe/II+ Installation kit ..... \$29  
MS-DOS v4.01 (5.25") ..... \$85  
IBM Keyboard w/cable ..... \$101  
**New!** ADB Keyboard (GS) ..... \$139

**TransDrives**  
Combo 5.25" & 3.5" ..... \$289  
Dual 5.25" ..... \$284  
Single 5.25" ..... \$189  
3.5"-720k Add-on drive (PCT) ..... \$99  
5.25"-360k Add-on ..... \$125

## Communications

**Applied Engineering**  
**Special!** FREE ReadyLink software with purchase of DataLink 1200 .. \$95  
DataLink 2400 bps (int.) ..... \$160  
DL 2400 w/SendFAX! (GS) ..... \$199  
DL/X 2400 (ext.) ..... \$169  
DL/X 2400 w/MNP-5 ..... \$99  
DL/X 2400 w/MNP-5 & SendFAX (Specify machine) ..... \$239  
MNP-5 option (for DL/X) ..... \$65  
ReadyLink Communications ..... \$59

**Morgan Davis Group**  
ModemWorks ..... \$49  
ProLine BBS (Apple II BBS) ..... \$175



The most versatile modems available for the Apple II. DataLink Express 2400 bps modem offers MNP levels 2-5 and SendFAX options. DataLink 2400 is now available with SendFAX option. **Special!** DataLink 1200 modem with FREE ReadyLink software. See line listing for prices.

## Apple II Software

**Apple Computer**  
New! HyperCard GS ..... \$89

**Applied Engineering**  
AE Software upgrades ..... \$Call

**Broderbund**  
Bank Street Writer Plus ..... \$59  
Print Shop ..... \$35  
Print Shop GS ..... \$45

**Cammen Sandiego Series**  
Where in the USA ..... \$Call  
Where in Time ..... \$Call  
Where in the World ..... \$Call

**Central Point Software**  
Copy II+ ..... \$29

**Claris**  
AppleWorks v3.0 ..... \$179  
AppleWorks GS ..... \$219

**Morgan Davis Group**  
MD-BASIC ..... \$Call

**Roger Wagner**  
HyperStudio (GS) ..... \$89

**TimeWorks**  
Graph It! (128k) ..... \$53  
Publish It! 3 (128k) ..... \$77

**WestCode Software**  
**New!** InWords (128k) ..... \$78

**Word Perfect Corp.**  
Word Perfect GS ..... \$119  
Word Perfect IIe ..... \$119

## Accessories

**Applied Engineering**  
TimeMaster HO (GS,IIe,II+) ..... \$77  
Serial Pro (GS,IIe,II+) ..... \$109  
Parallel Pro (GS,IIe,II+) ..... \$77  
Buffer Pro 32k ..... \$85  
Buffer Pro 128k ..... \$95  
Buffer Pro 256k ..... \$109  
**Sal!** Phasor (GS,IIe,II+) ..... \$77  
Sonic Blaster (GS) ..... \$95  
**Sal!** Audio Animator (GS) ..... \$160  
ViewMaster 80 (II+) ..... \$124  
RamCharger ..... \$139  
Conservor (GS) ..... \$77  
Conservor Drive cable (GS) ..... \$17  
IIe/II+ Power Supply ..... \$77  
IIGS Power Supply ..... \$89  
8 bit A/D & D/A ..... \$175  
12 bit 16 channel A/D ..... \$219  
I/O 32 ..... \$77  
Signal Conditioner ..... \$77

**CH Products**  
MACH III joystick ..... \$39  
MACH IV Plus ..... \$69  
**Sal!** Mirage ADB & Quad ..... \$29

**Digital Vision**  
Computer Eyes GS (color) ..... \$199  
Computer Eyes (BEW) ..... \$108

**Kensington**  
System Saver (IIe) ..... \$69  
System Saver (GS) ..... \$Call  
Turbo Mouse ADB (GS,Mac) ..... \$124

**Magnavox**  
CM135 Analog/Digital RGB monitor (IIe,GS) ..... \$289  
IIGS Analog Cable ..... \$25

**Seiko**  
**Closeout!** DataGraph 2001 scheduling system. Includes Seiko watch and a proDOS compatible clock. Originally sold for \$189! (II+,IIe,IIc only) ..... \$39

**Street Electronics**  
**Special!** Echo IIc ..... \$99

**Vitesse**  
Quickie Scanner (GS, IIe) ..... \$199



Finally, a low-cost alternative to the high price of Apple disk drives! The AE 3.5" 800k drive. Buy the 800k drive now and upgrade to 1.6 meg later (GS only) or purchase it with the 1.6 meg option already installed! AE uses the same Sony drive Apple does. See line listing for prices.

**AE APPLIED ENGINEERING**  
Authorized Dealer

### Why buy from us?

15 day money back guarantee on hardware. If it doesn't meet your needs, we'll refund the purchase price. No hassles.

We handle only the industry's best hardware and software.

All memory cards come with factory installed & tested RAM.

We're nice guys that want to help. We want our business to grow because of repeat customers & word of mouth.

UPS and Federal Express Next day service available.

# 1-800-327-7234

FAX your Order: 214/247-8151

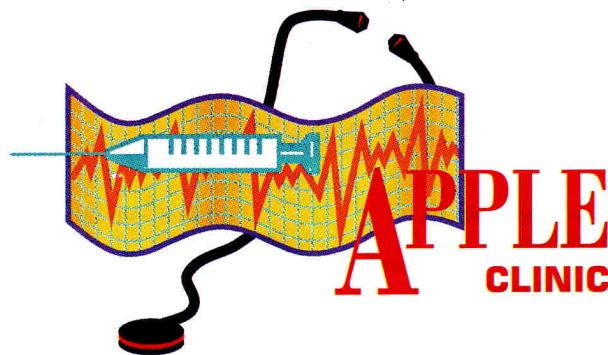
To Order,  
Call Toll-Free

Questions and Customer Service Call 214-484-5464

VISA, MasterCard & COD orders accepted. Order by phone or mail. School & Government Purchase Order's welcome. Special and Sale items are limited quantities. Prices & Specifications subject to change without notice. Please verify product compatibility before ordering. Texas residents add 7.25% tax.

# Preferred Computing

P.O. Box 815828 Dallas, Tx 75381



# APPLESOFT BASIC WORKS

Use your word processor to create  
EXECable text files — but watch out  
for those gremlins.

By CECIL FRETWELL

## EDITING BASIC WITH APPLEWORKS

WHEN I TYPE A PROGRAM INTO AppleWorks Classic and save it as an ASCII text file, I can't get Applesoft to accept it. All I get are beeps and syntax errors. What's wrong?

Corwyn Y. Miyagishima  
Highland Park, NJ

Corwyn, you're using AppleWorks in a way most people, even programmers, don't know about. You can EXEC the ASCII text files that AppleWorks "prints" to disk from BASIC just like regular sequential text files. If you're not careful, though, you'll undoubtedly hear a lot of beeps and get some syntax errors in the process. You may even lose part of your program.

If you're using AppleWorks Classic, the errors are probably caused by the carriage returns that the program inserts at the end of every text-file line it writes. For instance:

```
1351 PRINT D$;"PR#4": PRINT CHR$(1);  
PRINT D$;"PR#0": PRINT D$;"IN#4"
```

This may look fine in Applesoft BASIC, but when AppleWorks Classic writes this to a text file, it'll insert a carriage return somewhere in the middle of the last PRINT D\$. The result?

When Applesoft is EXECing the file, it finds incomprehensible garbage like NT D\$;"IN#4" strewn about and complains — vehemently.

You can do one of two things. Either edit the AppleWorks file to keep the lines from being split (in other words, make the lines shorter than the width established by your margins, and add line numbers as needed), or upgrade to AppleWorks 3.0. When this version converts a word-processing file to text, it presents the option of not inserting the extra carriage returns.

Even if you upgrade to AppleWorks 3.0, don't forget another Applesoft gotcha: The EXEC process likes lines of 255 characters or fewer. Give it more than 255 characters and you'll be serenaded again.

## CONVERT WORD PROCESSING

I OWN AN 128K APPLE IIe AND have recently purchased a Smith Corona word processor (PWP-85LT). The Smith Corona outputs data to a printer via an RS232 port.

Is there any way to dump the Smith Corona files to my Apple? Common sense tells me that because the Smith Corona can send output to a printer, I should be able to make it "print" to my Apple II.

Peter A. Stinson  
Kingston, PA

The answer is to make your Apple II think it's receiving data from a modem.

- Connect the Smith Corona's printer cable to a serial card on the Apple II. You may need a null modem adapter, depending on the pin assignments for the connectors.

- Run a terminal program, such as Beagle Bros' Point-to-Point (\$129; 6215 Ferris Square, Suite 100, San Diego, CA 92121, 619-452-5500), on the Apple II to capture the file as it prints. The Smith Corona thinks it's talking to a printer; the Apple II thinks it's talking to a modem and capturing a text file.

- Check your printer manual to make sure the printer understands XON/XOFF protocol. It must understand this protocol so that the printer will wait when the terminal program has to write to disk.

Thanks to Jim Shapiro for his help answering this question.

## WHAT'S BETA TESTING?

I'VE OFTEN SEEN THE TERM "BETA testing." What separates this from other kinds of testing? The term "beta" implies only the second round of tests, yet there seems to be a great deal of excitement when a product reaches this stage.

Harold Rothschild  
Leverson, OR

A "second round" is a good way to think about beta testing, Harold. Once vendors have written and checked their software to the best of their ability, they send the product to a selected number of people for testing. These people may be new to the product or they may be existing customers using an older release of the software.

The idea behind beta testing is that an objective observer will often catch errors that the developers might miss. An outside person in the





## Shop both sides of the software aisle.

You've been there, right? You walk into your computer store and find exactly the software you want - on the wrong side of the aisle. The IBM side. Now for a fraction of the cost of an IBM clone, your Apple II has the power to run virtually all MS-DOS programs.

And your Apple IIGS, IIe or II+ will run those programs at more than *three times the speed* of an IBM XT. Run Lotus 123, dBASE III PLUS, Symphony, Microsoft Works, Flight Simulator and thousands of other titles you can't get for your Apple II!

**Works with your Apple's peripherals.** PC Transporter was designed to take full advantage of the Apple-compatible peripherals you already own. So you won't need an extra printer, monitor, mouse, modem or hard disk. They can all be used for either MS-DOS or ProDOS. And you can switch back and forth instantly, even transfer files from ProDOS to MS-DOS and back again.



Your Apple-compatible peripherals and PC Transporter not only work together,

you get faster operation and better quality graphics, since your Apple analog monitor is sharper than IBM-standard digital monitors.

**PC Transporter works as a universal disk drive controller,** enabling your Apple or AE 3.5 Drive to run MS-DOS or ProDOS and to shift instantly between the two. If you need 5.25 MS-DOS capability, our optional 5.25 IBM format drives enable you to access 5.25 MS-DOS disks and will also store ProDOS.

**Discover thousands of new titles** you couldn't run at home before. Exchange ProDOS and MS-DOS files with your friends and co-workers. Store IBM programs on any ProDOS storage device including the Apple or AE 3.5 Drive, Apple UniDisk 3.5, Apple or AE 5.25 Drive, Vulcan, SCSI or ProDOS compatible hard drives.

**Easy to install and use.** PC Transporter was designed by the experts so you don't have to be one to use it. We include clear, understandable installation instructions, pre-boot software and even an installation video to help.

**The do-everything computer.** Turn your Apple into a fast, powerful tool that'll change the way you think about

shopping for software. And know that Applied Engineering stands behind PC Transporter with a full one-year warranty. Then get out there and start shopping both sides of the aisle!

**PC Transporter with 768K.....\$349**  
**IIGS Installation Kit.....\$49**  
**IIe/II+ Installation Kit.....\$39**  
**Optional 5.25 IBM Format 360K Drive Systems**  
**Single-Drive System.....\$259**  
**Dual-Drive System.....\$389**

### Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. Welcome. Texas residents add 8 1/4% sales tax. Shipping not included.

  
**Applied Engineering®**  
*The enhancement experts.*

A Division of AE Research Corporation

(214) 241-6060

P. O. Box 5100  
 Carrollton, TX 75011

**Made  
 IN THE  
 USA**

©1990. AE Research, Inc. All rights reserved. Prices subject to change without notice. Brands and product names are registered trademarks of their respective holders.

## APPLEWORKS CLINIC

By Claris Corporation  
and the National AppleWorks Users Group

### MAILING LABELS

#### How can I create mailing labels in AppleWorks Classic?

The best way is to print a labels report from a database file:

1. Press Open-apple P (OA-P) to go to the Report Menu.
2. Select "Create a New Labels Report," choose "From Scratch," and name your report. You'll see all the categories that you created in your database.
3. Now hide the categories you won't need for your labels report. For example, if you don't want to print the Invoice Number category, select it and type OA-D. (Don't press Return.) Keep in mind that you're only hiding this category, not throwing it away.
4. Tractor-feed labels usually measure 1 or 1.5 inches from the top of one label to the top of the next. Therefore, if your printer normally prints six lines to the inch, 1-inch labels accommodate six lines and 1.5-inch labels accommodate nine lines. Move your cursor to the blank line below your categories and press OA-D or the down-arrow key to decrease or increase the number of lines that each record will print. If you can't decrease the number of lines without deleting a category, you must rethink your label.
5. Place your cursor on one of the category names, hold down the open-apple key and press the right-arrow key. The category name will move to the right. Use the open-apple key in combination with the appropriate arrow key to arrange the category names as you want them to appear on your label.
6. Change the paper length (PL) to 1 inch by typing OA-O and adjusting the PL to 1. You'll also want to adjust your printer margins in this same screen to match the width of your labels. Also, make sure that Print Report Header is set to NO.
7. When you have everything adjusted properly, save your work and print.

If AppleWorks keeps asking you to press the spacebar after each label, go to Change Printer Information from the Other Activities menu and set Accepts Top-of-Page Commands to NO.

### HOW DOES IT FIGURE?

#### I recently upgraded from AppleWorks 2.0 to 3.0, but have since been unable to configure my KXP 1091 Panasonic printer. Do you have any suggestions?

If you're using Orange Micro's 9-pin Grappler card, set AppleWorks printer information for an Epson RX. Be sure the switches on the Grappler are set to off, on, on, on.

Don't remove the ImageWriter printer driver that's shipped with AppleWorks. If you've done so already, recopy AppleWorks 3.0 from your original disk and configure your Panasonic as the second printer. If you have an Apple IIe, don't forget to set the proper interface-card code as listed in your interface-card documentation. (AppleWorks 3.0 ships with a database file that contains the printer-interface codes for the most common interface cards. You can find this file under the Advanced subdirectory.)

### NUMBER'S UP

#### How do I make AppleWorks generate page numbers beyond the limitation of 511 pages?

1. Issue an OA-K command to find out the location in the text that page 511 ends. End of Page 511 will appear below the last line of the text for that page.
2. Create a new word-processing file with a different name and move everything below the page-511 break to the new file.
3. Create a page header at the beginning of the new file. Be sure that this new page header is identical to the first one. Position a cursor at the location you want the page number to appear and enter a 5. Then use the OA-O options to insert the command.
4. From the Options menu (OA-O) issue a page-number command and designate the first page as page 12.

Now the first part of your document will end on page 511 and the second part will print beginning with page 512. (The computer will think it's printing pages 12, 13, and so on.) You'll need to repeat this procedure for each 100-page range.

### WHAT'S THE CODE?

#### I have an Apple IIe and I've changed the control code to match my interface card. The printout still shows ON at the top. What could be the problem?

Check to see if the characters JN appear in your printer code. If they do, try removing them. If that doesn't work, try calling the card's manufacturer for technical support.

In general, before any change can take effect, you must turn the printer off and then on again to clear the previous information from the printer's memory.

### PRINT IRREGULARITY

#### Sometimes when I print a document it comes out fine; other times the second page has a large top margin and the print runs over the end of the page. The print looks okay, it's just in the wrong place on the paper. There doesn't seem to be any pattern to the malfunction. What's going on?

When you turn on the printer, it assumes that the paper is positioned with the top edge just under the paper bail. As long as you leave your printer turned on, it remembers this position as the top of the page. It may be that you've turned the platen by hand while the power is on.

If you want to change the location at which the page break occurs, follow these steps:

- Switch off the printer.
- Turn the platen knob to advance the paper to the top of the first page.
- Switch on the printer.

This procedure will register the position as the top of your page and will advance your page breaks properly.

APPLEWORKS CLINIC IS A FORUM FOR ANSWERING YOUR QUESTIONS ABOUT THE POPULAR INTEGRATED PACKAGE APPLEWORKS — CLASSIC, 3.0, OR GS. ADDRESS YOUR CORRESPONDENCE TO APPLEWORKS CLINIC, *INCIDER/A+*, 80 ELM STREET, PETERBOROUGH, NH 03458. MENTION OF THIRD-PARTY PRODUCTS IN THIS COLUMN DOES NOT IMPLY ENDORSEMENT BY CLARIS CORPORATION.

normal course of using the program may press the wrong keys or make other mistakes and thereby test more thoroughly a program's error-handling routines.

Optimally, beta testing resembles day-to-day use of the package. Beta testers also try to look at the software from the untutored end user's point of view and ask such questions as "Is the system user friendly?" or "How can we improve the documentation?" or "Are there any features the developers could add to make the software more powerful or easier to use?"

Beta testing is usually done on a volunteer basis. In return for testing, a beta "site," as a tester is called, will often receive future releases of the software free of charge.

## PROBLEMS WITH GET IN BASIC

I'M WRITING A PROGRAM IN Applesoft and I need it to check to see if the end user has pressed a key — while the rest of the program keeps running. Then I need the program to find out which key the user pressed — even if it was a control character or an arrow key. I can't use INPUT because I don't want the user to have to keep typing RETURN. I can't use GET because then the entire program stops and waits.

**Jennifer Pike**  
San Jose, CA

Instead of the GET statement, try this:

```
110 IF PEEK(-16384) < 128 THEN 110
120 X = PEEK(-16384)
130 POKE -16368,0
```

Line 110 places the program in a loop as it waits for the end user to press a key. Line 120 retrieves the decimal ASCII code for the character. Use PRINT CHR\$(X) to see the actual character. Line 130 is very important; it clears the strobe that indicated a key was pressed. Omit it and your program will always think a key is pressed when none has been.

This logic has only one potential headache. When you loop through this subroutine, the cursor disappears until the end user presses a key. (When a cursor vanishes, many people become nervous because they think the system has crashed.) If you want a cursor, you must

provide one. A crude but effective way to create a cursor is to add 100 PRINT CHR\$(255);CHR\$(8); to the above code.

This line creates a rectangular inverse character — CHR\$(255) — on screen, then moves the regular cursor back to its original location — CHR\$(8). Although the cursor doesn't flash, it's more user friendly.

If you want to echo the typed character back to the user, add 140 PRINT CHR\$(X);. This will let your user see what he or she is typing and will also overwrite the cursor you produced.

## MOUSE SUPPORT IN BASIC

I KNOW THAT TEXT MENU-driven software isn't always user friendly. I really like the way the mouse makes using GS/OS much simpler to use than ProDOS. I'd like to offer that same level of simplicity in my programs. Can I incorporate mouse support using Applesoft BASIC? If so, what commands are involved?

**Kenneth Richardson**  
Maple Glen, PA

You're in luck, Ken. Just skip over to "While the Cat's Away" in this issue's Hints & Techniques section (p. 90) and learn how Associate Editor Cameron Crotty captures and tames the wild Apple mouse.

## WHERE'S THE MINI-ASSEMBLER?

I HAVE EXPLORING THE APPLE IIGs by Gary B. Little, published by Addison-Wesley Publishing Company (Reading, MA); on the second page it says that the Apple IIGs has a built-in mini-assembler. How do I get to the mini-assembler? How do I use it?

**Mike Wilson**  
Auburn, CA

The mini-assembler has actually been around for years. The original Apple IIGs had it installed in their Integer BASIC ROMs (read-only memory). Apple chose not to install the mini-assembler in the II Plus and IIe, but it has since included it in the enhanced IIe and the IIGs.

Activating the mini-assembler is easy. First, enter the monitor from BASIC (CALL -151). With the monitor prompt active, type an exclamation mark (!) followed by the return key, and the prompt changes to the exclamation mark — you're now in the mini-assembler. From here, you may enter assembly-language statements, such as JSR, \$F0DC, or LDA #1. Note this is an absolute assembler; you must know the exact target address for instructions such as JSR, LDA, and so on, rather than being able to assign a name to an address as you can with a full-fledged compiler. The mini-assembler, therefore, isn't meant to replace powerful assemblers, such as Byte Works' ORCA/M (\$69.95; 4700 Irving Blvd. NW, Suite 207, Albuquerque, NM 87114, 505-898-8183) or Roger Wagner's Merlin (\$124.95; 1050 Pioneer Way, Suite P, El Cajon, CA 92020, 619-442-0522).

Explaining how to use the mini-assembler is beyond the scope of this column, so I'll refer you to some books:

- Roger Wagner's Apple IIGs Machine Language for Beginners (chapter 3, p. 39), published by Compute! Publications, Inc. (Greensboro, NC).
- Lon Poole's Apple II User's Guide, Second Edition (p. 316), published by Osborne/McGraw-Hill (Berkeley, CA).
- Apple Computer's Apple IIGs Firmware Reference (p. 51), published by Addison-Wesley Publishing Company (Reading, MA).

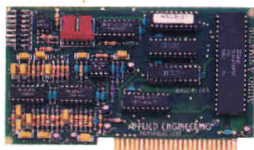
## SAVING GRAPHICS IMAGES

IF YOU'RE USING A MAC LC IN Apple IIe mode with the Apple IIe card, can you transfer an Apple IIe screen image to the Mac clipboard — say, for importation into a Mac DTP program such as PageMaker?

**Phil Shapiro**  
Washington, D.C.

According to Apple Computer's Matt Gulick, the "father" of the SCSI card, press Shift-Command-3 to save a PICT image of the current screen in IIe mode, just as you would if you were running a Mac program.

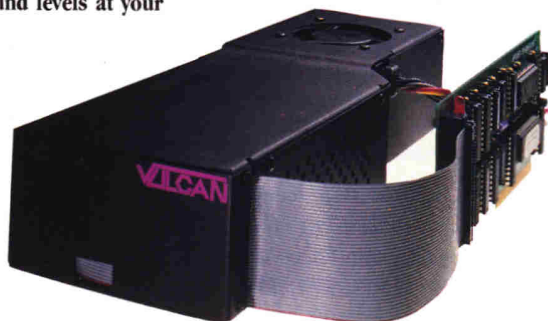
APPLE CLINIC IS A FORUM FOR ANSWERING YOUR QUESTIONS ABOUT APPLE II AND MACINTOSH HARDWARE AND SOFTWARE. ADDRESS YOUR CORRESPONDENCE TO APPLE CLINIC, INCIDER/A+, 80 ELM STREET, PETERBOROUGH, NH 03458.



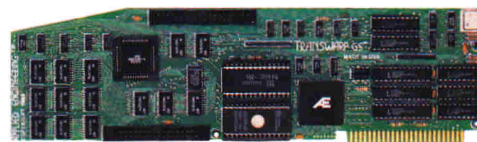
Audio Animator unleashes the sound potential your IIGs was born with. Complete MIDI interface, software and external mixer. \$219



External mixer (included with Audio Animator) places precise control over sound levels at your fingertips.



Vulcan internal hard disk replaces the Apple power supply with 70 watts of pure power and up to 200 MEGs of storage capacity. From \$699.

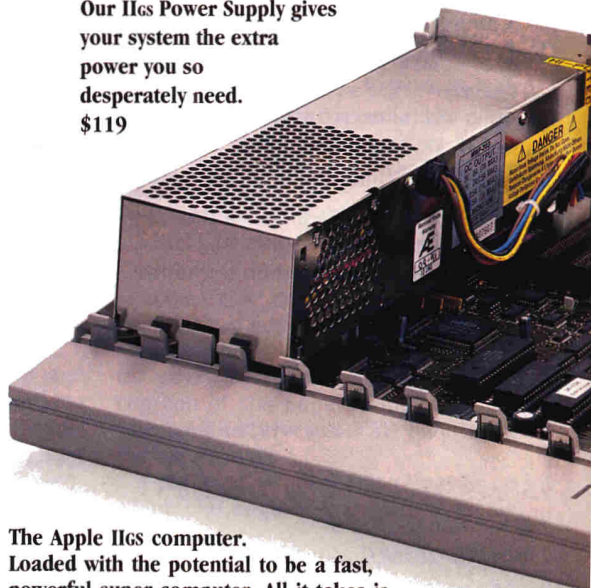


Compute at Warp speed with TransWarp GS. More than doubles processing speed and it's upgradable. \$349



PC Transporter lets your IIGs run IBM's MS-DOS. Shop both sides of the software aisles. \$349

Our IIGs Power Supply gives your system the extra power you so desperately need. \$119



The Apple IIGs computer. Loaded with the potential to be a fast, powerful super computer. All it takes is a lot of love and a little help from Applied Engineering.

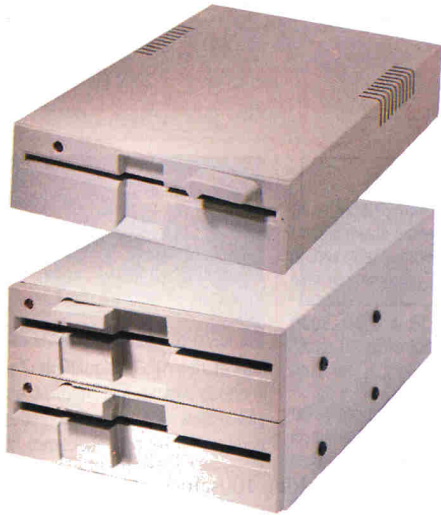
# Super System IIGs

For ten years, Applied Engineering has set the Apple II industry standard for quality and reliability. We do it with top-notch tech support, innovative new products and a commitment to design and build the best products possible. To receive your free 32-page Applied Engineering product catalog, see your dealer or call (214) 241-6060 today, 9 am to 6 pm, Monday through Friday. To place an order, send check or money order to Applied Engineering. MasterCard, VISA, and C.O.D. welcome. Te: add 8.25% sales tax. Shipping not included.



P.O. Box 5100 • Carrollton, TX 75011 • (214) 241-6060

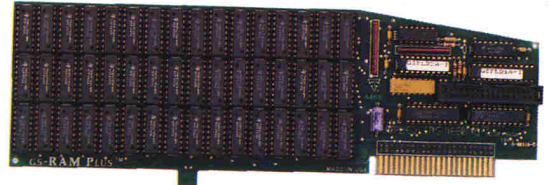
© Copyright 1991. AE Research, Inc. All rights reserved. Prices subject to change without notice



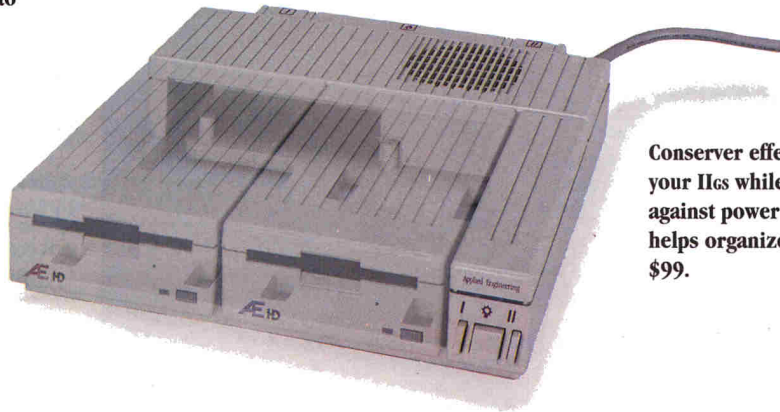
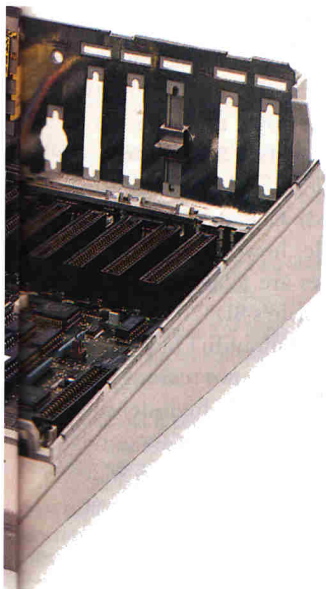
Applied Engineering's 5.25 disk drive (top) features a new design for virtually flawless performance. \$169

MS-DOS compatible 5.25 Drive System (bottom) allows MS-DOS programs on 360K disks to boot from PC Transporter. From \$259

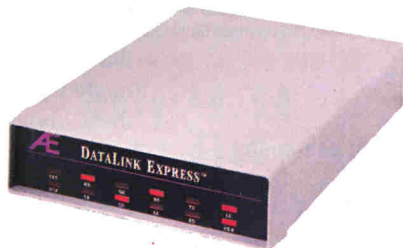
The AE 3.5" Disk Drives are completely Apple compatible. The AEHD can store 1.44 Mb per disk! 800K - \$279  
1.44Mb - \$339



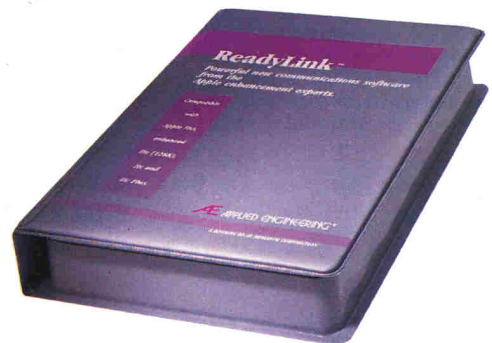
The GS-RAM Plus memory card grows from 1 to 6 Mb, with full compatibility. From \$189.



Conservor effectively cools your IIgs while it protects against power surges and helps organize workspace. \$99.



Our modems, both internal and external, are upgradable, Hayes compatible and now have a Send-Fax option. Complete with software and free online time. From \$219.



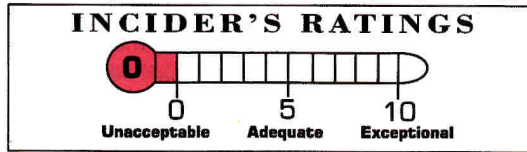
The easiest, most complete, most popular communications software available. It's ReadyLink. \$99.



**Applied Engineering®**  
The Apple enhancement experts.

A Division of AE Research Corporation

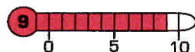
# REVIEWS



## APPLIED ENGINEERING HD vs. SPRITE SD340

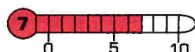
APPLIED ENGINEERING, P.O. Box 5100, DALLAS, TX 75208-9100, (214) 241-6060

AE HD, \$339



SPRITE, INC., 1120 STEWART COURT, SUITE G, SUNNYVALE, CA 94086-3918, (408) 773-8888

SD340, \$279



If you're a Mac owner who's been thinking about purchasing Apple's external SuperDrive, but who shivers at the thought of paying a premium for the company's multicolored logo, take heart. Two third-party manufacturers have come to the rescue with their own versions of 1.4-megabyte, 3.5-inch floppy drives — and these products carry significantly

lower price tags. Offering essentially the same features as their Apple counterpart, the Applied Engineering HD drive has a suggested price of \$339, while the Sprite SD340 lists for \$279.

All Macs since the IIx come standard with at least one SuperDrive, sometimes called the FDHD (floppy disk, high density — pronounced "fudd-hudd"). Compatible

with the older 400- and 800-kilobyte Mac formats, the SuperDrive stores up to 1.4 megabytes on special high-density floppies and can use the Apple File Exchange utility provided with each Mac to read from and write to 3.5-inch 800K Apple II ProDOS or GS/OS disks, as well as 720K and 1.4-megabyte MS-DOS or OS/2 disks created by IBM PC compatibles. Remember, we're talking about swapping data files, not running programs from other computers.

Although designed primarily as Mac alternatives to the SuperDrive, the Applied Engineering and Sprite high-density drives also work in 800K mode on any Apple II that supports 3.5-inch drives (currently the Apple IIgs, IIc Plus, and IIe with controller card). Cheaper 800K-only drives are available, however (AE's Mac and Apple II drives are \$289 and \$279, respectively, and Sprite's SD320 is \$249), and Apple II owners shouldn't buy more than they need. There are two reasons you might want to splurge on the high-density drive, though. For one thing, it's a good buy if you anticipate purchasing a Mac eventually. The second reason is that newer models of the Applied Engineering HD drive come with a special GS/OS driver that lets standard IIgs programs use high-density disks with a proprietary 1.6-megabyte format. (If you already have AE's 800K drive, the company can upgrade your system to an HD drive for \$79.) You won't be able to swap high-density disks with friends unless they too own an Applied Engineering drive, but you may find the high-capacity format useful when you back up your disks.

Both third-party drives are based on Sony mechanisms, but not the same ones found in Apple drives. Applied Engineering uses a stock Sony model F17W-5PF, whereas Sprite uses the Sony F17-10 with a custom disk-eject motor. One feature

# Public Domain Software



**GS117 Star Trek Classic GS:** This shareware game by Joe Jaworski is a remake of one of the earliest computer games ever written. Fire your photon torpedoes and laser, do short range scans and use your warp drives to defeat Klingon and Romulan star ships. It requires 1.5 Megs of RAM and System 5.0.4.

## IIGS Games

**GS110 Milestones 2000:** This reliefware game by Dr. Ken Franklin is great for younger children. Based on an old French card game, you have to play mileage cards to advance your own auto while stalling your opponent with flat tires and accidents.

**GS105 Space Clusters:** This game is a clone of Galaxian. Use a joystick to shoot the invaders before they can swoop down and destroy your ship.

**GS118 Memory Card Game:** This disk contains a full-color GS version of the classic card game called Concentration. It's great for young children. Also included are Hearts and Wisconsin Rummy games.

**GS103 & GS104 Cosmocade:** On the first disk, you must Journey to Callibus in a fast-paced arcade style game. Part two is called Naxos. A joystick and 768K is required. This is a shareware game.

**GS88 PicMix:** This program turns any SHR graphic into an on-screen jigsaw puzzle.

**GS119 Columns Version 2.0:** In this game which is similar to Tetris, you arrange falling blocks so that colors line up. Includes rock music background.

**GS112 Arkanoid II Levels & Cheat:** This disk contains several new levels and a super cheat program for use with Arkanoid II by Taito.

**GS72 Cartus Primus Card Game:** This disk contains card games for cribbage, pinocle, gin rummy, hearts, pitch, euchre and sheephead.

## IIGS Sound & Music

**SL01 MiidiSynth™ Jukebox:** This program is the hottest music program available for the IIGS. Full orchestral sounds with unbelievable quality. You won't believe your ears!

**SL02, SL03 & SL04 MidiSynth Song Disks:** Three full disks for MidiSynth songs for Jukebox program.

**GS94 Modulæ:** If you liked Nucleus, then you'll love this sound and graphic demo program which really shows off the IIGS.

**GS63 HyperStudio Sound Effects:** A collection of sounds in ACER format which are just right for use with *HyperStudio*.

## HyperCard GS Stacks

All *HyperCardStacks* require Apple's *HyperCard GS* program and 1.5 Megabytes of RAM.

**HC01 HyperCard Starter Pak:** A sampling of the first stacks created for this great program.

## HyperStudio Stacks

All *HyperStudio Stacks* require Roger Wagner's *HyperStudio* program version 2.1.

**HS30 thru HS35 Star Trek Stack:** A six-disk complete encyclopedia of facts about Star Trek: The Next Generation TV series. Includes sound effects, animations and database of facts.

**HS26 & HS27 Civil War Stack:** Learn about the causes, the personalities and the history behind the U.S. Civil War. Great graphics & sound effects.

**HS20 & HS21 Dinosaur Stack:** Learn all about dinosaurs with this excellent two-disk stack. For each type of dinosaur this stack shows the relative size, a map showing the geographic distribution, some textual info and three scanned pictures.

**Only \$3.50  
per disk  
Why Pay More?**

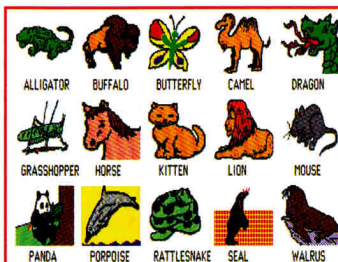
All the disks listed in this ad (plus hundreds more) are available from Big Red for only \$3.50 a piece. Why pay more for public domain and shareware disks? And if you order ten or more disks the price drops even lower to only \$3.10 per disk. All disks listed in this ad are 3.5" disks and the price includes all shipping and handling fees (U.S. addresses only). You do not have to be a member to order. We also have a large collection of 5.25" disks for Apple IIe & IIc computers. Big Red has been in business for over nine years and is one of the largest distributors of Apple II public domain software in the world. We will be happy to provide technical support for any disk we offer.

**Big Red**  
COMPUTER CLUB

423 Norfolk Avenue  
Norfolk, NE 68701

To order, write or call today. We'll ship your order within 48 hours. We accept MasterCard, Visa, school purchase orders, money orders and personal checks as payment. Please note: Some of the programs listed here are shareware. If you use these programs you're asked to make additional payment to the program's author. *Help Support Shareware!*

**Free Catalog Available - Call Now! - (402) 379-4680**



**GS123 Animal Print Shop GS Graphics:** An all-new collection of over eighty multicolor graphics for use with Print Shop GS. All of the graphics are of animals. This disk is shipped with a sheet showing all the graphics on the disk. Copyright (c) 1991 Big Red Computer. Only \$3.50.

## IIGS Graphics

**GS07, GS08, GS29, GS35, GS77 & GS78 Graphics, Fonts and Borders for Print Shop GS:** Six completely different disks for use with *Print Shop GS*. Each disk contains at least 72 graphics and all but GS35 also contains borders and fonts. A sheet showing what is on each graphic is shipped with the disk. Each disk is only \$3.50.

**GS100 Holiday Print Shop GS Graphics:** Our best selling multi-color graphic disk for use with *Print Shop GS*. Contains Santas, Easter bunnies, Valentines and much more.

**GS107 Yet Another Fractal Program:** This program allows you to create Mandelbrot, Julia, Dragon or Biomorph fractal graphics. It is very easy to use and contains many help screens. You can limit the size of the fractal to be generated and the number of iterations so that full-color fractals can be generated in as little as 15 minutes. There are also many pre-generated graphics on the disk so you can see how they look.

**GS122 Fkt Graphics:** This program can be used to draw graphs of functions of the type  $f(x)$ . You can use sin, cosine, tangent, etc. The computed graphs are SHR pictures which can be imported into DTP programs like *AppleWorks GS*.

**GS48 GIF Graphics:** 75 colorful graphics in GIF format plus an all-new IIGS graphic utility program to view or convert them.

**GS124 Dinosaur Clip Art:** Black and white clip art (640 mode) of dinosaurs which we have converted from the Mac. It's great for use in GS programs such as *AppleWorks GS*, *HyperStudio* or *HyperCard GS*.

**GS59, GS64, GS67, GS73, GS74, GS86, GS87 & GS98 Super Hi Res Clip Art:** These 8 disks contain clip art graphics that we either converted from the Mac or scanned in on the IIGS. They're great for use with *AppleWorks GS* or *HyperStudio*.

**GS40 Fractals & Animations:** This disk contains 11 programs that create animated computer graphics or fractal displays.

**GF02 Display Fonts:** A collection of GS-type fonts for use with most GS programs and *SuperFonts*. These are medium-sized fonts which work great for desktop presentations.

**GS32 FontAsm:** This is the best shareware GS-font editor available. Plus it comes with several new fonts.

## IIGS Utilities

**GS120 Icon Mania:** Everything you need to add new icons to the IIGS desktop. Two icon editors and hundreds of pre-drawn icons you can use.

**GS121 HoroscopeGS:** A desktop program to generate birth horoscopes. You enter your date of birth and the longitude and latitude of your place of birth. A horoscope will be drawn which represents astronomical information such as the positions of the planets at the time of birth. Many people believe that a person's character is affected by planet positions and such.

**GS47 GS/OS Goodies:** Our all-time best selling disk. This disk contains over 20 brand new desk accessories including D.T. Painter, Screen Saver & GS Catalog.

**GS83 Customize GS/OS:** Load fonts and desk accessories on the fly, plus A2.FX, Instant Icon, Finder.Patcher, and RunQ.

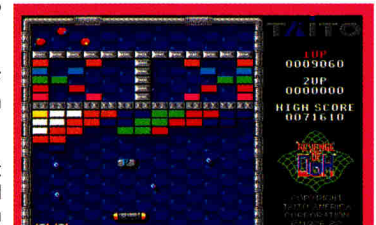
**GS99 Twilight Screen Saver:** This shareware CDev is a completely modular screen saver which operates under the Graphic Control Panel. This is a must-have program for all IIGS owners.

**GS76 Productivity Disk:** This disk is loaded with useful tools including Write-It!, a desk accessory which is a complete word-processing program.

**GS93 IIGS Telecommunications:** If you own a modem, you need this disk. It contains the GS-version of Shrink-It plus a host of other telecomm programs.

**K301 DB Master 1.0.1 3.5" Version:** A complete shareware database management system for the Apple IIe, IIc or IIGS. Great for a small business. You can create files and forms in just minutes.

**GS62 Desk Accessories:** Included on this disk are DA's that allow you to format a disk, copy and view files, control an ImageWriter printer, preview fonts and locate files on your hard disk. Plus a Tetris-like NDA game.



**Taito Closeout:** We've purchased the remaining inventory of Apple II games from Taito and are offering them at special reduced prices. This includes Arkanoid II: The Revenge of DOH. In Arkanoid, you use energy balls to break down force barriers to advance on to more levels. There's even an editor so that you can design your own levels. Here's your last chance to purchase these great Apple II games.

**TA61 Arkanoid II: DOH GS** ..... 15.00  
**TA60 Qix GS** ..... 5.00  
**TA06 Renegade for Apple IIe/IIc** ..... 5.00  
**TA05 Qix for Apple IIe/IIc** ..... 5.00  
**TA89 GS Super Combo Pak:** For only \$20, we'll send you all three GS titles: Arkanoid II, Qix GS and Renegade.

# REVIEWS

exclusive to the Apple mechanism is automatic "inject," which sucks the disk in when it's partially inserted. With the Applied Engineering and Sprite drives you must push disks into the drive manually.

As far as speed is concerned, all of the drives take the same amount of time (1 minute, 25 seconds) to format a 1.4-megabyte high-density disk, but when it comes to formatting a double-density disk as either 400 or 800 kilobytes, the Apple drive is 10 percent slower than the others; the third-party drives have faster stepping motors moving the read/write heads over the surface of the disk.

In our tests initializing high-quality, name-brand disks, the Applied Engineering and Sprite drives failed to verify the media half the time, but proceeded smoothly on subsequent attempts. The Apple drive also had trouble initializing disks occasionally, but the failure rate was far below 50 percent. High-density disks have less tolerance for error because they utilize weaker currents to change the magnetic state of the disk coating. Regardless, once formatted, none of the disks exhibited any problems in real-world daily usage, and according to an Applied Engineering representative, "[on the AE HD, the disk's] field-failure and return rates are extremely low."

The AE drive has a unique dual-mode LED (light-emitting diode) on the front that turns red when the drive writes to disk, and green when it reads. Neat, but not a necessity. The Sprite drive also has an access LED, but it doesn't distinguish between writing and reading.

Both drives have eject buttons on their front panels, but the Sprite works only if a disk fails to mount properly on the Finder's desktop. Furthermore, both drives have a small hole on the front into which you can insert a straightened paper clip to remove a disk manually. The Sprite drive spits disks clear of the drive and onto your desk — a humorous idiosyncrasy at first, but one that soon becomes annoying. Early units from Applied Engineering had the same problem, but the current model features a hinged door that prevents the drive from ejecting the disk fully, keeps out dust, and makes the drive somewhat quieter.

By just looking at Applied Engineering's drive you could easily mistake it for a bona-fide Apple product — the case consists of

platinum-colored plastic and has the same lines as Apple's drive. The Sprite drive, on the other hand, has a more industrial look with its unadorned metal case. By the time this review appears in print, Sprite plans to be shipping its drive in a plastic case, which, incidentally, may prevent disks from ejecting all the way out of the drive.

Unlike the Sprite drive, the back of the Applied Engineering drive sports a solid plastic loop through which you can thread an antitheft cable, available from Kensington Microware. Although both drives have DB-19 connectors on their rears, the Mac supports a maximum of one external floppy, so you can daisy-chain additional drives only when you attach them to an Apple II.

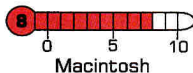
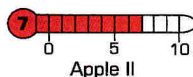
From a purely functional standpoint, the Apple SuperDrive is a bit more robust and reliable than the less expensive AE and Sprite high-density floppy drives. Of the latter two, I think the Applied Engineering HD drive is the better buy, despite the fact that it lists for \$60 more than the Sprite SD340. After all, Applied Engineering is a proven company and its drive has many extras, such as a proprietary 1.6-megabyte Apple IIgs format, dual-mode LED, operational eject button, attractive case design, and security anchor. The Sprite SD340 is a fine drive in its own right, but it just doesn't stack up well to the competition.

**Owen W. Linzmayer**  
San Francisco, CA

## TIMELINER

**TOM SNYDER PRODUCTIONS, 90 SHERMAN STREET,  
CAMBRIDGE, MA 02140, (800) 342-0236**

Customized time-line program; 64K Apple IIe, IIc, IIgs, includes 3.5-inch and 5.25-inch disks, \$59.95; 1-megabyte Macintosh Plus, SE, Classic, II, \$69.95



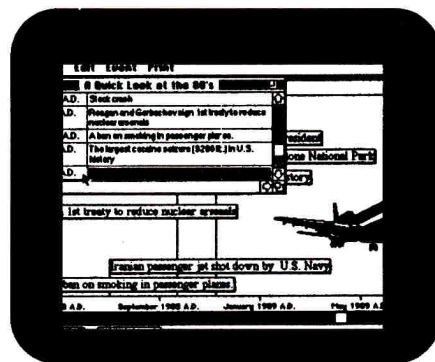
When it's important to be in the right place at the right time, Tom Snyder's TimeLiner may be just the design tool to give you "perspective." This application lets you create and print proportionally correct time lines for quick reference, or prepare a variety of wall

displays to supplement classroom instruction. Teachers will find TimeLiner charts helpful to students trying to remember historical events, but you can also use the product to chart contemporary or future chronologies, plan project schedules, and sketch comparisons for items such as weight, speed, length, or temperature.

TimeLiner is available for Macintosh and Apple II computers, and both applications are easy to operate. Each comes with a comprehensive guide for teachers featuring detailed operating instructions and suggestions for on-line activities.

The program lets you build time lines spanning a day, a week, a year, or many years. You can even use the Merge function to combine two time lines into one, making it easier to compare them.

Enter data in any order because TimeLiner automatically sorts the entries chronologically, then saves time lines to disk, prints them, or loads them into memory for editing. If you're stuck for ideas, boot up the program's accompanying disks and take a look at several ready-



**Put life in perspective with TimeLiner.**

to-use electronic time lines. Print these templates as is, or modify them as needed.

### AN APPLE A DAY

If you have an Apple II, your version of TimeLiner comes with 3.5-inch and 5.25-inch floppies that include six sample time lines, a manual containing a helpful index for quick reference, and reproducible black-line student worksheets on topics such as daily activities, class schedules, family history, the Oregon Trail, and the Underground Railroad. Use these worksheets to chart chronological data about a topic, then launch the application to translate written data into electronic format. ➤



# CDA Offers You Complete Apple/Mac Solutions

Since 1980, CDA has worked to create something unique in the field of computer mail order. A company that could provide customers with the support they would expect from a local computer dealer, along with the convenience and economy of direct-order, by mail, fax or phone. To offer a customer-oriented purchasing solution we have built a talented staff who are knowledgeable in Apple/Mac and many vertical markets. And, all products purchased from CDA are backed by our 30 Day Money Back Guarantee as well as a One Year Performance Guarantee!



## Apple Computers

Apple IIGS w/1 Meg .....\$879  
 Macintosh Classic w/1 Meg .....\$899  
 Macintosh LC 40/2 .....\$1979  
 (all include keyboard & mouse)

## Monitors

Apple IIGS RGB Color Analog ....\$465  
 Magnavox Color RGB IIGS .....\$299  
 Magnavox Color RGB (Mac) .....\$459  
 Apple (Mac) 12" RGB .....\$469

## Drives and More

Apple 3.5 Disk Drive .....\$349  
 Applied 3.5" Disk Drive .....\$209  
 Apple 5.25 Disk Drive .....\$259  
 AE Vulcan HD/20 Mb .....\$519  
 AE Vulcan HD/40 Mb .....\$659  
 Microtech Europa  
 20MB Hard Drive (Mac) .....\$399  
 Microtech Classic 50 Mb HD  
 w/3 Mb RAM Bundle .....\$579  
 PC Transporter 768K .....\$269  
 IIGS Installation Kit .....\$39  
 Iie Installation Kit .....\$32  
 TransDrive Single 360K .....\$185  
 Crossworks by SoftSpoken .....\$69

## AE 3.5" Disk Drive

This drive offers all the reliability and performance of Apple's 3.5 drive but at a more affordable price. The 1.4 Mb upgrade allows for future enhancements & Mac compatibility. ....\$209  
 3.5" High Density Drive (GS) ...\$259  
 3.5" High Density Drive (Mac) \$229



## Apple IIGS Power System

- Apple IIGS CPU w/1 Mb RAM
- AppleColor RGB Monitor
- Applied 3.5" Disk Drive
- 20Mb Vulcan Hard Drive
- System Dust Cover Set
- 6 Outlet Surge Protector
- 10 Diskettes w/Storage Box
- ImageWriter II w/cable
- Mouse Pad

Ask for Package #9160  
 CDA System Price \$2,679

## Macintosh LC System

- Mac LC w/Apple 40Mb HD, Apple SuperDrive, 2 Mbs of RAM, Microphone, Keyboard and Mouse
- Apple 12" Color Monitor
- Virex Anti-virus Software
- Adobe Type Manager
- 6 Outlet Surge Protector
- Mouse Pad
- 10 High Density 3.5" Disks
- Diskette Storage Case

Ask for Package #9150  
 CDA System Price \$2,599

## Memory Upgrades

GS-RAM II - 1 Meg .....\$159  
 GS-RAM II - 2 Meg .....\$229  
 GS-RAM II - 4 Meg .....\$389  
 GS-RAM Plus - 1 Meg .....\$219  
 GS-RAM Plus - 2 Meg .....\$309  
 RamWorks - III 256K .....\$149  
 RamWorks - III 1 Meg .....\$239  
 256K 120ns Chipset .....\$23  
 Mac Classic Upgrade (1 Mb) ....\$119

## Macintosh Classic System

- Macintosh Classic w/4 Mbs & Apple SuperDrive
- Microtech 50 Mb Hard Drive
- Virex Anti-virus Software
- Adobe Type Manager
- 6 Outlet Surge Protector
- 10 Diskettes w/Storage Box
- ImageWriter II w/cable
- Mouse Pad

Ask for Package #9103  
 CDA System Price \$2,069

## ImageWriter II Package

- ImageWriter II Printer
  - 6 ft Printer Cable
  - Printer Dust Cover
  - Extra Black Ribbon
  - Rainbow Ribbon
  - Package of Paper (500 sheets)
- IIGS/Mac - \$475 Package #9171  
 Iic - \$475 Package #9172  
 Iie - \$529 Package #9173  
 (SMT Envoy interface card included)

## Printers/Scanners

HP DeskWriter w/Harmony GS ..\$809  
 ImageWriter II w/cable .....\$459  
 Olympia NP-80 w/cable .....\$389  
 Olympia NP-60 w/cable .....\$269  
 ThunderScan (Apple II) .....\$159  
 Quickie Scanner w/Inwords .....\$279

## Surge Protection

Kensington System Saver (GS) ....\$65  
 Conserver (GS) .....\$75  
 6 Outlet Surge Protector .....\$29  
 Heavy Duty Power Supply (GS) ...\$79

## Sound & Music

AE Audio Animator .....\$174  
 Apple MIDI Interface 1x1 .....\$79  
 Bose Apple Video Roomates .....\$299  
 Opcode MIDI Translator 1x3 .....\$49  
 Opcode EZ-Vision (Mac) .....\$99  
 Passport MasterTracks Pro GS ..\$245  
 Pyware MusicWriter Ltd GS .....\$89

## Accelerators

TransWarp GS .....\$269  
 Zip Chip Iie, Iic (8 Mhz) .....\$145  
 Zip 1600 GSX Board .....\$249

## Input Devices

Mach IV Plus Joystick/Mouse .....\$52  
 Mach III Joystick .....\$31  
 Kensington Turbo Mouse .....\$108  
 Koala Pad Plus Tablet .....\$89  
 Kurta 8.5 x 11 Tablet (GS) .....\$319

## Modems

AE DataLink 2400 .....\$169  
 DataLink Express w/cable .....\$197  
 DataLink LC w/9600 SendFax ....\$229  
 Zoom 2400 w/cable .....\$109

## Free Freight!

Stock items under 15 lbs. will be shipped free to any destination in the continental US via UPS Ground (order must be \$100 or more). For Hawaii, Alaska, APO/FPO, foreign orders, systems and items over 15 lbs, please call for rates.

Fax# (908) 832-9740

Hours: Mon-Fri 8-10, Sat 9-6 EST  
 1 CDA Plaza, P.O. Box 533  
 Califon, New Jersey 07830

All prices subject to change. CDA is not an authorized Apple dealer. Apple & Macintosh are registered trademarks of Apple Computer, Inc. \*Some items may be subject to restocking fees.

Ad #16-05

US/Canada  
 800-526-5313

The Magic of Mac, The Power of People  
**CDA Computer Sales**

NJ/Outside US  
 908-832-9004

Circle 9 on Reader Service Card.

# REVIEWS

This program will get your data noticed, too: TimeLiner lets you create large-print, banner-sized time lines up to 99 pages long. How's that for a bulletin-board display?

Even novices will find generating a perfect chronological chart easy. First-time users, though, must specify information about printer setup before constructing a time line. Once you've completed your printer configuration and saved your setup data to disk, TimeLiner's *Main Menu* appears on screen. You'll see options to build, load, merge, or erase your time line, change printer setup, or quit to ProDOS.

Using the program is simply a matter of following on-screen prompts. To create a new time line, select *New* from the *Main Menu* and pick a time interval, such as a day, a week, a year, or many years. A menu bar appears at the bottom of the screen with options that include *Add*, *Delete*, *Edit*, *Expand*, *Compress*, *Save*, and *Print*.

To enter a new event, select *Add*; a *When* prompt comes into view, requesting information about the date and time of the event. If you enter the wrong data, such as typing 1949 on a weekly time line, the program responds with 1949?. Type 1949 in a one-year time line and the program prompts you for more information about the month, day, and time. It couldn't be easier!

After completing the date and time, TimeLiner asks you to describe the event in entries up to 37 characters long. When you press Return, TimeLiner enters the information in the correct spot on screen. Add as many entries as you need. Move the cursor to a specific entry and press *E* to edit information. Choose *Xpand* from the menu to increase the distance between entries. Select *Cmpress* to eliminate unnecessary white space. A number in the lower-right-hand corner of the screen tells you the length of your printed time line. When you're ready to output hardcopy, choose *Print* and TimeLiner generates a printed version automatically.

You can merge two time lines of the same time interval, or modify time lines you save to disk by loading them into memory. Although TimeLiner for the Apple II doesn't offer much in the way of bells and whistles (you can't print single-page time lines, for example, or change fonts, type sizes, and type styles), the application generates proportionally correct

time lines without requiring you to read the accompanying manual.

## CHARTING COMPARISONS THE MACINTOSH WAY

Mac TimeLiner is a much more powerful application compared to its Apple II cousin. In addition to daily, weekly, annual, and multiyear time lines, the Macintosh edition lets you work with time lines that are as long as ten billion years. This option is especially useful if your class or child is learning about geology, evolution, or dinosaurs.

You can also spruce up a Macintosh time line with one or more bit-mapped graphics images imported from the *Scrapbook*. All you need do is position the artwork in the *Preview Window* by holding down the command key and dragging the graphics image to a desired location.

You can even generate three different time lines in a variety of fonts, type sizes, and type styles. If you want to grab attention with your chart's size, though, use the *Banner* option to print multipage time lines that are perfect for wall or bulletin-board displays. (Be sure to select the sideways orientation from the *Page Setup* dialog when you print, though.)

To generate single-page time lines, choose *Span* from the *Print* menu. If you prefer to print a time-line outline (with events in chronological order but without dates), choose *List* from the *Print* menu and you're on your way.

Mac TimeLiner isn't as easy to use as its Apple II counterpart, but if you work through the manual's tutorial, you'll be up and running with a minimum of effort. Unfortunately, the manual for the Mac edition lacks an index, so locating information on a particular program feature can be tedious. In addition, this manual doesn't include reproducible student worksheets, but it does contain several detailed suggestions for using the program in different curriculum areas.

Despite its documentation deficiencies, Mac TimeLiner lets you take advantage of the machine's desktop-publishing and graphics capabilities, and produce a number of time-line types and styles. If you have access to both a Mac and an Apple II, use the II version with young children so they can generate their own time lines. Older

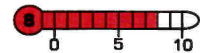
children (grades 5 and up) and adults will prefer the added power and flexibility of the Macintosh application.

**Carol S. Holzberg, Ph.D.**  
Shutesbury, MA

## SALVATION-BAKKUP

VITESSE, INC., 13909 AMAR ROAD, SUITE 2,  
LA PUENTE, CA 91746, (818) 813-1270

Hard-disk backup program; 1-megabyte  
Apple IIgs; 3.5-inch floppy drive;  
hard-disk drive; \$49.95



In a perfect world there wouldn't be any need for nuclear weapons, the Red Sox wouldn't have choked in the '86 series, the *Police Squad* TV series would still be running, all computers would be compatible, and hard drives would never crash. Welcome to the real world.

Although you can't change the fact that your hard drive will crash someday, you can make sure you're prepared for this disaster. If you want to get ready for the inevitable, add Vitesse's Salvation-Bakkup to your software library. With this product by your side, you'll take a hard-drive crash in stride.

Backing up a hard disk consists of writing the disk's contents to another storage medium. The most common media for hard-drive backups are floppy disks and tape drives.

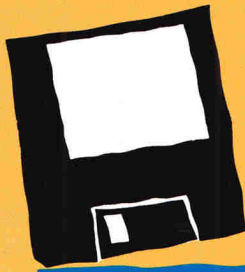
If your hard disk's capacity is less than 60 megabytes, you can use floppies as your backup. (For a 60-megabyte drive you'll need roughly 75 800K floppies.) For drives over 60 megabytes that you back up regularly, a tape drive becomes a necessity.

You back up a hard disk by writing consecutive blocks, not files, to a series of floppies. This procedure lets the backup program fill each floppy completely, so that you can avoid the problems caused by odd file lengths and complex directory structures, which can leave gaps in the disk record. The last floppy you write should be a catalog disk containing an index of all floppies written, so that you can restore files selectively.

Just as Vitesse's motto promises, Salvation-Bakkup is fast, smooth and uncomplicated. With a fast hard disk and an 800K 3.5-inch

Continued on p. 84

**INTRODUCING**



# APPLEWORKS 3.0 PRODUCTIVITY PAK II

**10 ALL NEW READY-TO-USE TEMPLATES TO GET  
THE POWER OF APPLEWORKS 3.0 WORKING FOR YOU!**

The AppleWorks 3.0 Productivity Pak series was created by Cynthia Field, *inCider/A+*'s "Press Room" columnist, exclusively for *inCider/A+*. These outstanding collections will improve your personal productivity while helping you become an AppleWorks 3.0 pro!

**JUST \$29.95!  
LESS THAN \$3  
PER TEMPLATE!**

With each Productivity Pak you get ten ready-to-use templates to make easy work of your home, business, and school projects! Each project includes a blank template and a completed sample to use as a model. Plus, you get an extensive manual to guide you step-by-step through each project.

**SPECIAL OFFER!  
SAVE \$10 WHEN  
YOU BUY BOTH!**

**Look at these exciting, new applications:**

## APPLEWORKS 3.0 PRODUCTIVITY PAK II\*

- Prepare a LIVING WILL to document your wishes.
- Compare housing options with HOME BUYER'S GUIDE.
- Build your desktop-publishing skills with BOOKLET.
- Print an attractive FAMILY TREE.
- Catalog and label your tapes with VIDEOTAPE LIBRARY.
- Select an affordable car with CAR-COST COMPARISON.
- Create CUSTOM CALENDARS for personal schedules.
- Compare schools with a personal COLLEGE GUIDE.
- Collect your recipes in an electronic COOKBOOK.
- Plan ahead for April 15th with INCOME TAXES.

**ORDER TODAY!  
1-800-343-0728  
(NH 924-0100)**

STILL AVAILABLE . . .

## APPLEWORKS 3.0 PRODUCTIVITY PAK I\*

- Balance your bank account with CHECKBOOK MANAGER.
- Create your own memo paper with DESKTOP PUBLISHER.
- Manage members records with MEMBERSHIP ORGANIZER.
- Keep track of valuables with INVENTORY ORGANIZER.
- Send messages in a jiffy with MAIL-MERGE POSTCARD.
- Generate invoice statements quickly with STATEMENTS.
- Collect nutritional information with NUTRIDATA.
- Analyze the meals you eat with NUTRICALC.
- Record tax-deductible mileage with AUTO-MILEAGE LOG.
- Estimate renovation costs with HOME CONSTRUCTION.

\*Requires AppleWorks 3.0. AppleWorks is a registered trademark of Apple Computer, Inc., licensed to Claris Corporation.

Please send me the following *inCider/A+* Special Products:

- AppleWorks 3.0 Productivity Pak I\* at \$29.95
- AppleWorks 3.0 Productivity Pak II\* at \$29.95

**SPECIAL OFFER! Save \$10**

- Both AppleWorks 3.0 Productivity Pak I\* and AppleWorks 3.0 Productivity Pak II\* for just \$49.90!

Name \_\_\_\_\_

Address \_\_\_\_\_

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

Check enclosed (payable to *inCider/A+*)

Charge my:  MasterCard  Visa  American Express

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Foreign air mail: Add \$3.95. Foreign orders must be paid in U.S. funds drawn on a U.S. bank.

\*Requires AppleWorks 3.0

Mail to: *inCider/A+* Special Products  
80 Elm Street, Peterborough, NH 03458

151A

## HYPERCLASS

# INTERACTIVE MULTIMEDIA

**C**omputers that talk and sing. Computers that flash maps and detailed databases on screen for kids to pore over the way Columbus pored over his charts. Computers that show kids how to learn on their own, then how to teach others. And computers that make it easy to talk to other computers.

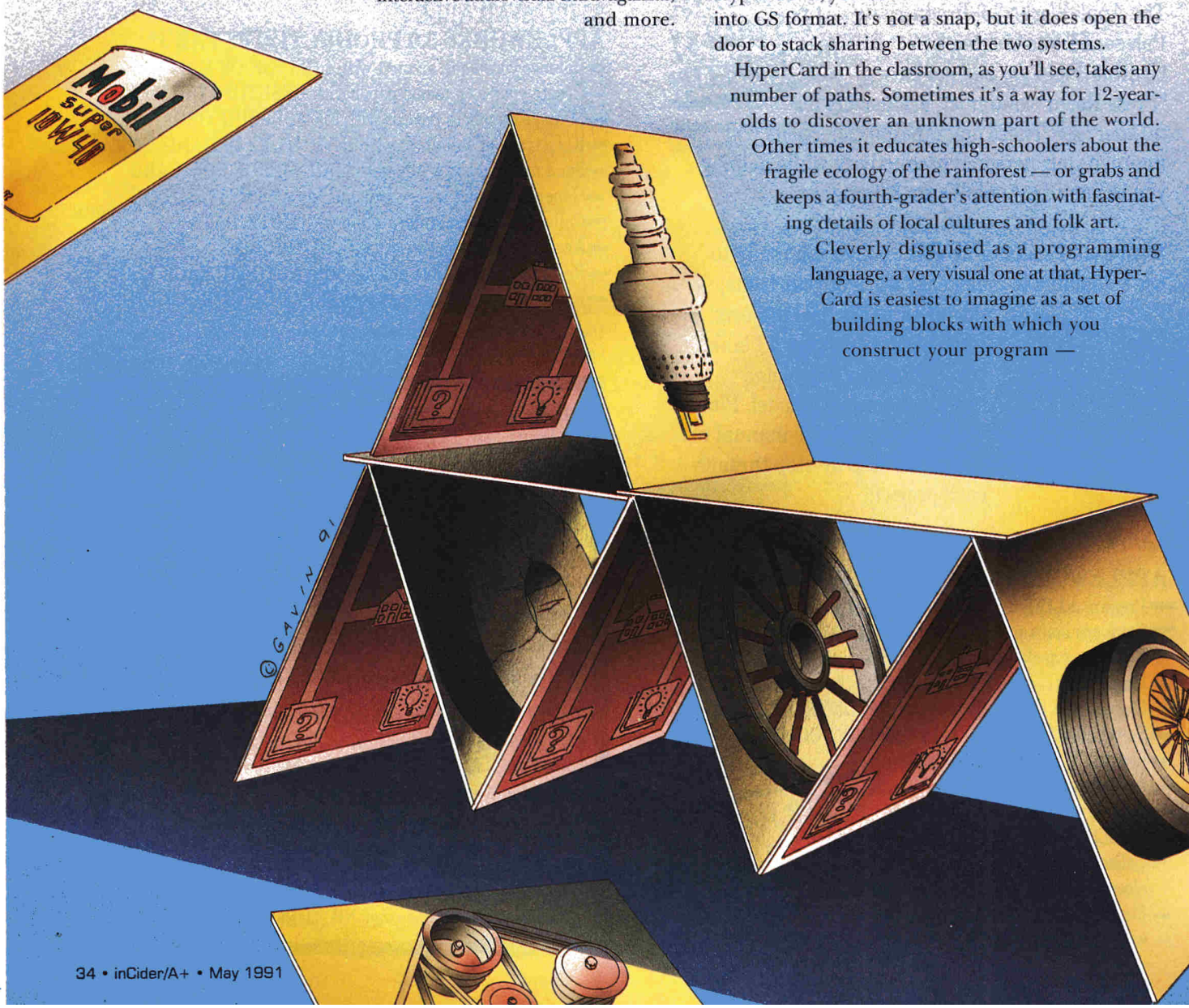
One piece of software lets your computer do all this. **HyperCard**, Apple's multimedia construction set, lets teachers and students produce dazzling reports, in-depth research projects, full-fledged curricula, interactive audiovisual extravaganzas, and more.

It may sound like science fiction, but classrooms have been using HyperCard for years to crank out some impressive, sophisticated courseware on the Macintosh. Now, with the recent introduction of **HyperCard IIGS**, the same potential is available to GS users.

Hypermedia may not be new to the GS (see the accompanying sidebar, "Been There — Done That"), but HyperCard IIGS is. The distinction is important, if not crucial. Although the Mac and GS versions of HyperCard differ in several areas, the programs are more alike than different. With a special stack called HyperMover, you can even translate Macintosh stacks into GS format. It's not a snap, but it does open the door to stack sharing between the two systems.

HyperCard in the classroom, as you'll see, takes any number of paths. Sometimes it's a way for 12-year-olds to discover an unknown part of the world. Other times it educates high-schoolers about the fragile ecology of the rainforest — or grabs and keeps a fourth-grader's attention with fascinating details of local cultures and folk art.

Cleverly disguised as a programming language, a very visual one at that, HyperCard is easiest to imagine as a set of building blocks with which you construct your program —



# REVOLUTIONIZES EDUCATION

a *script* in HyperCard parlance. Part data manager and information organizer, part programming language, part paint program, HyperCard hands you those blocks, called *cards*, *buttons*, *backgrounds*, and *fields*. You drag them together, putting buttons and fields on a background to build a card, then assemble collections of cards into stacks. And you've just written a script. This program tells the Macintosh or GS what graphics image to display, what sound to play, and what input — whether text or mouse clicks — to accept. (For more information and a detailed look at HyperCard IIGs and its object-oriented programming abilities, see "The Apple II Culture Reborn," February 1991, p. 37.)

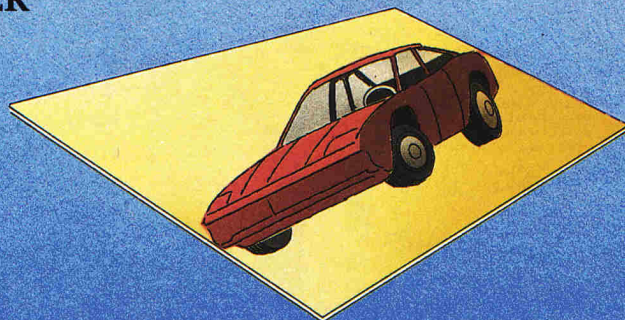
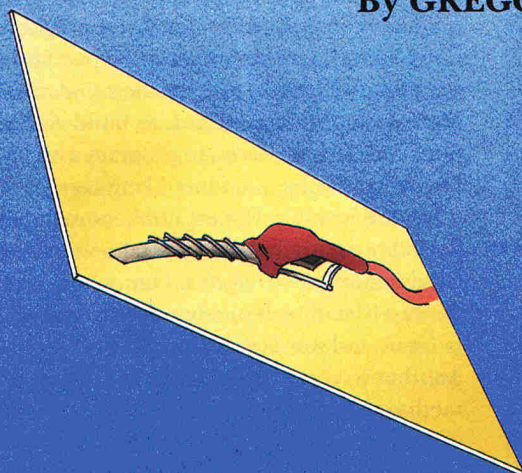
HyperCard 2.0 is the newest version for the Mac. Like all versions, 2.0 requires a "substantial" Mac to run smoothly. A Classic will do, but an LC

**Remember when  
"stacks" referred to  
wood? "Buttons"  
held your shirt  
together? And  
"cards" were  
something you bet  
on? Well, forget it —  
those words belong  
to HyperCard now.**

with its faster microprocessor speeds up HyperCard's card flipping, especially if you're running animated stacks. Most important, though, is a hard-disk drive. You can get by without one, but the ensuing disk shuffling stretches your endurance. HyperCard itself takes up nearly three megabytes of hard-disk space, and stacks can eat up even more room (some commercial stacks run as large as 5 megabytes), so consider at least a 40-megabyte hard-disk drive. Of course, you can also install HyperCard on an AppleTalk/AppleShare network — probably the best way to share expensive speed and hard-disk resources.

HyperCard for the Mac has some definite advantages over the GS edition. The most important is the Mac version's longtime presence on thousands of hard-disk drives. Hundreds of public-

**By GREGG KEIZER**



# HYPERCLASS

domain and shareware stacks exist for Macintosh HyperCard, while only a handful are available for

HyperCard IIGs. Teachers and students have put time into HyperCard on the Mac, and in some cases have several years' experience working with the program. The result is a group of sophisticated classroom HyperCard users and programmers.

But HyperCard 2.0 doesn't have it all. Even 2.0 doesn't offer color, a nagging omission for anyone who's spent the money for an LC or a IISi. And network use is still limited to one person per stack, unless you're only viewing it, in which case several people can browse through it simultaneously.

## LIVING COLOR

HyperCard IIGs demands even more from the computer's basic hardware. You'll need a GS with at least 1.5 megabytes of RAM, preferably a full 2 megabytes (although you can run HyperCard and some small stacks with only 1.25 megabytes). If you're not using HyperCard IIGs on a network, you'll also need a hard-disk drive. And because HyperCard IIGs and most stacks put a strain on the computer's modest processing power, you'll get much better results if you accelerate it with something like Trans-Warp GS or Zip GS.

Color comes to Apple-brand classroom hypermedia with HyperCard

IIGs. The program's other strengths are its association with its Macintosh cousin and its ability to bring scripting (something not found in Roger Wagner's **HyperStudio**, for all its graces) to the GS. You can also use the well-stocked Mac HyperCard library with the GS version of the program once you've translated your

applications with HyperMover, the translation stack Apple plans to make available to developers and user groups (but not, alas, to end users or educators).

The biggest drawback to HyperCard IIGs is Apple's selfish attitude toward Mac stacks. Ideally, you'd be able to save a stack created on a Macintosh to an AppleShare file server, then call it from a GS and run it as is. Without the ability to share Mac stacks this way, HyperCard IIGs is stack-poor, at least for the moment. And though the GS excels at sound and music, HyperCard IIGs' sound abilities are no stronger than the Mac version's. Apple has stated that it wanted to maintain compatibility between the two versions, and so decided against powerful GS sound functions, a strange case to make when stacks now move only in the Mac-to-GS direction.

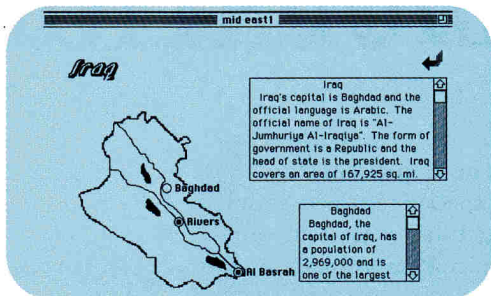
Together, HyperCard for the Mac and HyperCard IIGs bring hypermedia abilities to most classrooms and schools with Apple hardware. The Apple IIe and IIc families are left outside the hyperclass (Techware's Tutor-Tech and Scholastic's HyperScreen, both 8-bit programs, can help fill that gap), but the two most powerful desktop computers in Apple's educational inventory are covered. A limited compatibility exists between HyperCard and HyperCard IIGs, but it's far from perfect. (See the accompanying sidebar, "Move That Stack!") Still, HyperCard IIGs and HyperCard for the Mac can accomplish the same tasks. Both can turn the modern classroom into a learning laboratory where the real limits are kids' imaginations and teachers' enthusiasm.

## HYPERCLASS IN ACTION

Some schools have invested stunning amounts of time, energy, and resources in HyperCard. They've gone to great lengths to teach their students to use the Macintosh and HyperCard, to build stacks of their own, and, in some cases, to program with HyperTalk, HyperCard's object-oriented language.

Schools invest in HyperCard because it pays off. Its flexibility means that different schools can use HyperCard for different reasons. One school may want to create a friendly software interface to insulate students from an awkward telecommunications procedure. Another may want to replace textbooks with multimedia curriculum materials.

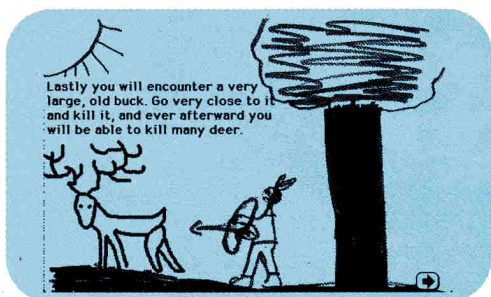
By virtue of its time in the classroom, Mac HyperCard is education's most proven hypermedia tool. Existing hypermedia applications — hundreds of them — run on the Mac. But because HyperCard IIGs is so much like the Mac version — from its scripting language to the way graphics, text, and sound are integrated into stacks — you can expect that many of the same applications will come to the GS. If you can do something with HyperCard on the Macintosh, you should be able to do it with HyperCard IIGs on the GS, too.



At Meigs Middle Magnet School, HyperCard is used both to teach HyperTalk programming and to produce social-studies research projects, such as this stack on the Middle East.



Produced by a teacher and student at Forest Hills CHS, this stack makes extensive use of scanned images. Here, "before" and "after" maps illustrate the extensive deforestation that's taken place in Costa Rica over the last 40 years.



At Abita Springs Elementary, HyperCard is used to collect folk tales, traditions, and customs of the many cultures in Louisiana. HyperCard's paint tools make it easy for children to draw pictures and integrate them into stacks.

To give you an idea of the kinds of things you can do with HyperCard IIGs, take a look at what these four schools are doing with HyperCard on the Macintosh. Take notes. There won't be a quiz — but you can apply these lessons to your own forays into HyperCard IIGs and HyperCard for the Mac.

## HYPERECOLOGY

In one Grand Rapids, Michigan, school, HyperCard is an integral part of how teachers teach. At Forest Hills Central High, technology, hypermedia, and multimedia combine to replace traditional textbooks in social studies and, to a lesser degree, in science, math, and language arts. HyperCard is a vital part of Forest Hills' move to 21st-century teaching tools.

Implementing HyperCard in nearly every subject area in the school, teachers and students use the software to produce projects in everything from U.S. history to biology. Even more impressive, teachers and student/teacher teams have created in-depth stacks on topics ranging from the world's rainforests to Chinese culture; they've even authored videodiscs.

Steve Williams, the school's coordinator of technology, cites examples. "All seniors take world studies," he explains. "They're required to do a multimedia project. Many of them are opting to use HyperCard; they're able to get it done faster with HyperCard than any other way."

Some of the stacks these high-school students build are striking. One that steps through the U-2 shoot-down of 1960 offers digitized speech, scanned photographs, and a detailed account of the international incident. Another uses music of the decade to back up a blow-by-blow outline of the 1968 Democratic Convention, complete with factual tidbits ("What was the most-watched TV show of the year?"), photos from the period, and even some political analysis.

But it's the rainforest and China stacks that demonstrate HyperCard's power and ease of use. Marcie Beck, a social-studies teacher at Forest Hills, authored the rainforest stack (in conjunction with Dan Ledrick, a student) within a month of first turning on the Mac. Within six months she was creating her first HyperCard stack/videodisc combo, using slides she took while in China on a scholarship — proof positive of HyperCard's gentle learning curve.

"We're looking at those same kinds of projects in the middle schools," where GSeS dominate, says Williams. "Our ultimate vision is to have teachers and students redesign their curricula every year."

## DOWN ON THE BAYOU

Fifty miles north of New Orleans, at Abita Springs Elementary School in St. Tammany Parish, young children are using HyperCard to compile an electronic

## Move That Stack!

Translating a HyperCard stack from its original Mac format to something HyperCard IIGs can use is a magic trick worthy of Penn & Teller — and about as complicated.

HyperMover, a two-stack combo, is Apple's stack-translation workhorse. You won't find HyperMover included with HyperCard IIGs — it's to go to developers and user groups only — but it's too valuable a resource to keep under wraps for long.

Here's how HyperMover works: From the Mac, you run HyperMover, then select the stack to disassemble. A slew of options let you export graphics, backgrounds (as either gray-scale images or line art), icons, and sounds selectively. HyperMover then pulls apart the stack, saving its script as a text file and the graphics and icons in separate files.

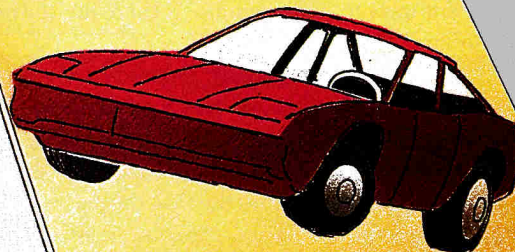
The best way to move these files to a GS is via an AppleTalk network, where you simply save the files to the server, then retrieve them from a GS workstation. The second-best solution is to compress the files, then send this smaller archived file to the GS via an on-line service. At the GS end, you run HyperMover to rebuild the stack. Again, you can choose to import graphics, backgrounds, sounds, and icons selectively, as well as watch the stack as it's converted. Stack to stack, from Mac to GS, not only takes several steps, but takes time as well. A moderate-sized stack can take hours to translate and transfer.

In one test, I used a Mac LC and an unaccelerated GS to convert a small (13K) HyperCard 1.2.5 stack with 30 cards. The LC took 18 minutes to dismantle the stack. Another 18 minutes were eaten up in using America Online to up- and download a compressed file (37K) from the Mac to the GS. The GS spent another 19 minutes re-creating the stack. Even then, it was far from perfect. Some icons didn't transfer, the cards' opaque graphics images hid the background, and I never got the sound to work. Expect to put in some cleanup time whenever you move a stack. HyperTalk scripting expertise is mandatory in all but the simplest cases.

HyperMover is only a partial solution to the connectivity problem. What's needed is a transparent translation, something similar to Claris' XTND technology that works so well in saving and retrieving word-processing files. (See "Swap 'Til You Drop,"

Bridging the Gap, March 1991, p. 100, for more information.) Until then, GS owners will be strapped for stacks.

— G.K.



# HYPERCLASS

folk encyclopedia that highlights the many diverse cultures that cross and intermingle in Louisiana. "HyperCard's a great way to see how connections are made," says Kathleen Duplantier, the Abita Springs teacher who guides her small charges through multi-

media stack creation on the Macintosh.

Each month, the children at the Abita Springs school study another culture from their local area in Louisiana.

For instance, last October they spent time with a Choctaw artist in residence, who showed them how his people had once built dwellings from palmetto leaves and wood.

Not only did the children actually re-create a Native American dwelling on school grounds, but they took notes and photos as well, then incorporated those images and impressions into a 20-card HyperCard stack.

"Within what I call the mega-stack, there's information about cooking, hunting, basket weaving, and animated folk tales," explains Duplantier. "By next year we'll have enough stacks to set up a computer in the library for the kids to view the stacks."

Fourth-graders at Abita Springs have built Macintosh HyperCard stacks on alligators; kindergartners' artwork and writing has found its way into a King Cake stack (a traditional cake baked during Mardi Gras); and Duplantier is planning to introduce HyperCard's database capabilities to her school through a gumbo stack. "There are as many different ways to make gumbo as there are towns in Louisiana," she says.

Duplantier is evaluating HyperCard IIGs; students already use the GS to do much of the writing that ends up in their Mac stacks. She notes that only the teachers with Macs in their classrooms have built stacks on their own. Getting HyperCard on the IIGs, the machine most common in Abita Springs' classrooms, may be just what's needed to convince other educators of the computer's power. "HyperCard is a wonderful tool,"

Duplantier adds. "If you put it in the classroom, they're going to use it."

## OBJECT LESSONS

HyperCard is a programming language at heart, so it's no surprise that many schools teach the intricacies of HyperTalk, HyperCard's language. Object-oriented HyperTalk differs dramatically from more traditional languages such as BASIC, Logo, and Pascal.

Says Mike Smith, computer coordinator at Nashville's Meigs Middle Magnet School, "So much of it [programming] is done for them in HyperCard. They don't get bogged down in the mundane details. [HyperTalk's object-oriented approach] frees kids to turn up their creative juices."

Smith teaches a 12-week HyperCard programming course at Meigs, a school wired with enough Macintosh, Apple IIGs, and AppleTalk hardware to make a mid-sized business envious. Each of the school's 125 seventh-graders takes the class, which integrates HyperCard programming techniques with a social-studies research project. This year's spotlighted the Middle East.

"The first six weeks I show them how to program in HyperCard," says Smith. "They start with the fundamentals: buttons, linking buttons, grabbing icons, creating fields. Then they go through the process of some simple scripting: fades, venetian-blind effects, that sort of thing. I try to do things that create excitement in the kids."

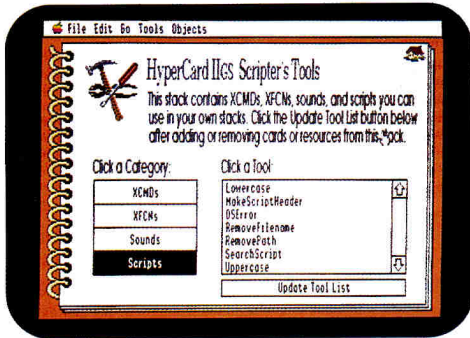
During the second half of the course, the 12-year-olds produce a stack based on their out-of-class research. Digitized photos, hand-drawn maps, and pop-up text fields are mandatory, as are animation and sound. The results range from crude to creative. One boy's stack displays the American flag and plays *The Star Spangled Banner* when you click on the Saudi/Iraqi border. Another stack tosses out facts on rivers, cities, and counties with an almost-expert air. "One girl was actually capturing information from CompuServe each night as she did her research," says Smith, then integrating it into her stack creation the next day at school.

"I'm not turning out programmers," admits Smith. "Far from it. But the kids get very, very excited about HyperCard. They really enjoy it. In fact, it's sort of a letdown for them when we move to Pascal."

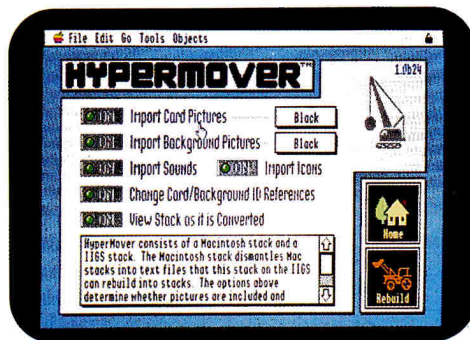
## THE FRONT

At Jenks High School near Tulsa, Oklahoma, students can hit the books courtesy of HyperCard. That's because the school library features networked computers offering links to the card catalogs of both the Tulsa city library and the University of Tulsa library. HyperCard helps the kids get on line.

"We take advantage of a dial-up capability at the public and university libraries," says Linda Gann, Jenks' own library director. "We've made a HyperCard



**Apple's release of HyperCard IIGs shows there are still signs of Apple II life within the company. While it demands a rather elite hardware configuration, HyperCard IIGs is a programming coup.**



**HyperMover is the bridge on which Mac HyperCard stacks cross over to your Apple IIGs. It's a difficult bridge to navigate — but you won't have to worry about it, as the software is available only to developers and user groups.**



front end so that when they turn on the machine, it takes them to a screen that highlights their options." One cluster of options relates to the card catalogs. "Click the right button and the computer logs you onto the card catalog." Once in the card catalog, though, the student must use its commands. "The libraries don't use HyperCard," Gann notes wistfully.

HyperCard also fronts as a program launcher, letting kids get right to work, without forcing them to learn the Macintosh's Finder and folder structure. "They click on a button in HyperCard to use Microsoft Works, to use SuperPaint, that sort of thing," says Gann. "HyperCard makes it very easy for any student to start up any application. The button approach, with groupings of similar functions, lets them easily see what they want to run. And it lets kids who aren't computer literate operate the machines without much help from the library staff."

Gann would like to integrate her GSeS into the system with HyperCard IIGs. "Kids who come from the middle school use the GS the first year they're here. They're just more used to them," she explains. "Maybe we could set up the same HyperCard front end on the GSeS with HyperCard."

## LESSONS TO LEARN

HyperCard IIGs may be brand new, but its HyperCard ancestry and the GS' prevalence in the classroom make it instantly appealing to educators. The lessons learned, and the lessons created, with HyperCard translate to HyperCard IIGs intact, or nearly so. With minor exceptions, any of the HyperCard applications at Abita Springs Elementary, Meigs Middle School, and Forest Hills and Jenks High Schools can be duplicated on the GS. The teachers involved with HyperCard now, and who include Apple IIGs computers in their inventories, think it's inevitable.

HyperCard IIGs isn't perfect. On an unaccelerated GS it's slow. HyperMover isn't the ideal way to transport stacks from the Mac to the GS. And there's currently no way to share GS stacks with the Macintosh. But HyperCard IIGs extends the reach of hypermedia into more classrooms, and gives more students the tools they need to create exciting presentations and to start programming. For that reason alone it's a significant product. It's one piece of software that should be available to every GS user in every school. □

GREGG KEIZER WAS THE FOUNDER AND EDITOR OF *COMPUTE!'S APPLE APPLICATIONS*, A BIMONTHLY PUBLICATION, AND IS CURRENTLY THE AUTHOR OF BRIDGING THE GAP, *INCIDER/A++'S* COLUMN ON MAC/APPLE II CONNECTIVITY. WRITE TO HIM AT 614 LINDEN STREET, SHREVEPORT, LA 71104. PLEASE ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

## Been There — Done That

HyperStudio beat HyperCard to the Apple IIGs by more than two years, so it's no surprise that HyperStudio stacks far outnumber those for HyperCard IIGs. (For details, see "Hypertext for Your GS," Editors' Choice, August 1989, p. 108; "Does HyperStudio Stack Up?" September 1989, p. 44; "Exploring HyperStudio," March 1990, p. 56; "Exploring Hypermedia," November 1990, p. 36; and "Shareware Solutions," What's New, February 1991, p. 20.)

HyperStudio makes less-expensive demands on your hardware budget — it runs on a 512K Apple IIGs equipped with only a 3.5-inch disk drive. A hard drive isn't required. Other HyperStudio advantages let you easily import sound into stacks (the bundled microphone helps) and share stacks with GS users who don't have a copy of HyperStudio themselves.

But HyperStudio doesn't build stacks with a language, as HyperTalk does for HyperCard IIGs. It relies completely on the construction-set metaphor: You build Studio stacks by pointing and clicking, assembling objects, and typing in text — no scripting involved.

Depending on your purpose, Studio is either more than enough or sorely lacking. "I'd actually like to have both [HyperStudio and HyperCard IIGs]," says Mike Smith of Meigs Middle Magnet School. "Each program has its strengths. For teachers producing reports and presentations, HyperStudio is wonderful." HyperCard IIGs may have the Apple name, and blessing, but unless Mac stacks get easier to use, it presents no immediate danger to HyperStudio's livelihood. — G.K.



**Roger Wagner's HyperStudio has momentum, quality, and ease of use going for it. It also benefits from a generous pool of shareware and public-domain stacks. The stack above covers the Space Shuttle and space exploration.**

## PRODUCT INFORMATION

**HyperCard IIGs**  
Apple Computer  
20525 Mariani Ave.  
Cupertino, CA 95014  
(408) 974-1010  
requires 1.5M  
and hard disk  
\$99

**HyperCard 2.0**  
Claris Corp.  
P.O. Box 58168  
5201 Patrick Henry Drive  
Santa Clara, CA 95052  
(408) 727-8227  
\$199 development kit  
\$49 upgrade to 2.0

**HyperStudio 2.1**  
Roger Wagner Publishing  
1050 Pioneer Way  
Suite P  
El Cajon, CA 92020  
(619) 442-0524  
\$149.95  
\$10 demo disks

# HYPERSTACKS DONE DIRT CHEAP

## HYPERSTUDIO/APPLE IIgs

BEAM ME UP, JEAN-LUC

Is there anyone with a personal computer at home who hasn't loved at least a few *Star Trek* episodes on TV? Those who follow the exploits of the U.S.S. *Enterprise* and her crew in the show's latest incarnation, *Star Trek: The Next Generation*, have a special treat in store for them when they discover Scott Evert's special stack.

Evert arranged to offer the information contained in Jim Lyon's materials for the Enterprise America club in this new format.

This special GS HyperStudio version includes, among other useful items, descriptions of each TV episode, an encyclopedia of terms and names, and a guide to the allies and enemies of the *Star Trek* universe — not only great reference material for fans, but an interesting and exciting way to check out HyperStudio's IIgs text windows and the various graphics effects that make text in this terrific stack simple to find and easy to understand.

Additions are planned for future versions, including demonstration sounds and complete biographies of all the numerous *Star Trek* characters.

### NOT JUST MICKEY MOUSE

Fans of Mickey Mouse and his animated pals and anyone who's been enchanted by one of Walt Disney's Magic Kingdom theme parks should enjoy the **Once Upon a Time** stack from the Mouse Ears BBS group. It's a history of Disney, it's a guide to Disneyana, it's a Disney trivia storehouse.

The history of Disneyland is introduced by Walt Disney's own digitized voice; the accompanying graphics illustration is divided into four timelines you can explore individually. The *Who's Who in Disneyland* section features great background music (including the original tunes from old Mickey Mouse cartoons) and lets you choose to read "biographies" of many of the various Disney characters — from widely known folks like Mickey and Donald to lesser lights such as Foulfellow (from *Pinocchio*) and Perla (the seamstress mouse in *Cinderella*).

The only features lacking in this stack are actual images of the cartoon characters. Because Disney's licensing department is world-famous for protecting those images, though, we'll just have to rely on fond memories.

### MANIFEST DESTINY

When it's well designed, computer-assisted instruction can present factual information in new ways that make learning fun. Mike O'Donnell's **Expansion of the United States of America** stack is a prime example.

Mike has used a series of colorful maps that detail how the various states were admitted to the Union, and how the USA grew into the major power it is today. HyperStudio layers the maps so that you can view this representation of our country's growth as an animated sequence. Each map has an accompanying text window as well, explaining the material shown and associated historical events. The concept of "Manifest Destiny" has never been so well presented.

If memorizing names, dates, and places bored you in high school, this stack will give you a new perspective — and show you why history can be a living, exciting area of study — both in school and at home.

### HECK, THIS ONE'S PRETTY GOOD, TOO!

Clive Barker is a world-renowned author of horror fiction — second only to Stephen King in bookstore popularity these days. If Barker's world of libidinous monsters and psychologically twisted "heroes" can keep even the most stalwart fan awake nights, imagine what fully illustrated versions of his works can do to you! That's what Epic Comics did, and the result is

The hypermedia revolution

puts the power

of programming

into the hands

of Apple users at

all levels of experience.

Explore an exciting

new dimension

in teaching, learning,

and entertainment.

By NEIL SHAPIRO

Clive Barker's *Hellraiser* horror anthology in graphics-novel format. To publicize it, the company created a HyperStudio stack like no other.

The *Hellraiser* stack uses professional artists such as Ted McKeever, whose graphics talent meshes nicely with Barker's literary vision, to explain the concept behind the anthology. It's one of the best examples of using HyperStudio to publicize an offering in another medium (in this case, print). Many of the graphics format's most haunting and wrenching imagery is captured and presented here. When you explore this stack, you'll want to leave the room lights on!

#### BLAST OFF!

Jim Hirsch's *HyperShuttle* stack examines the mission of Space Shuttle *Atlantis STS-34*, which launched the *Galileo* unmanned spacecraft to Jupiter. Beautiful, artistic renditions of the planets and outer space combine with lucid explanations of the mission and its goals. The *Galileo* space-probe mission and its associated experiments are examined in critical depth. For anyone interested in space exploration, this stack is a magic-carpet ride. You don't have to be an astronomer or a physicist — thanks to HyperStudio, the information is presented in a structured framework.

#### CRYSTAL CLEAR

Dave Trapp's *Crystal Lattice* stack uses HyperStudio to explain brilliantly one of the most difficult concepts of molecular physics — how crystals are formed by stacking molecules in layers. For years teachers and students have fumbled with awkward models and ill-designed textbook graphics while the simple beauty of this physical phenomenon remained elusive. But Trapp's stack uses full animation to show how molecules unite in three-dimensional patterns and how one crystal form can build on the shapes of others. Rotating crystals on screen is so much fun you don't even care that you've managed to learn one of the hardest concepts of basic physics, to boot.

At press time, Trapp had sold exclusive rights to *Crystal Lattice* to the *Journal of Chemical Education* (University of

Wisconsin, 1101 University Avenue, Madison, WI 53706). Look for the product to be offered by the *Journal's* software department as one of a number of programs (possibly non-shareware) on disk later this year.

#### AFTER THE RED BARON

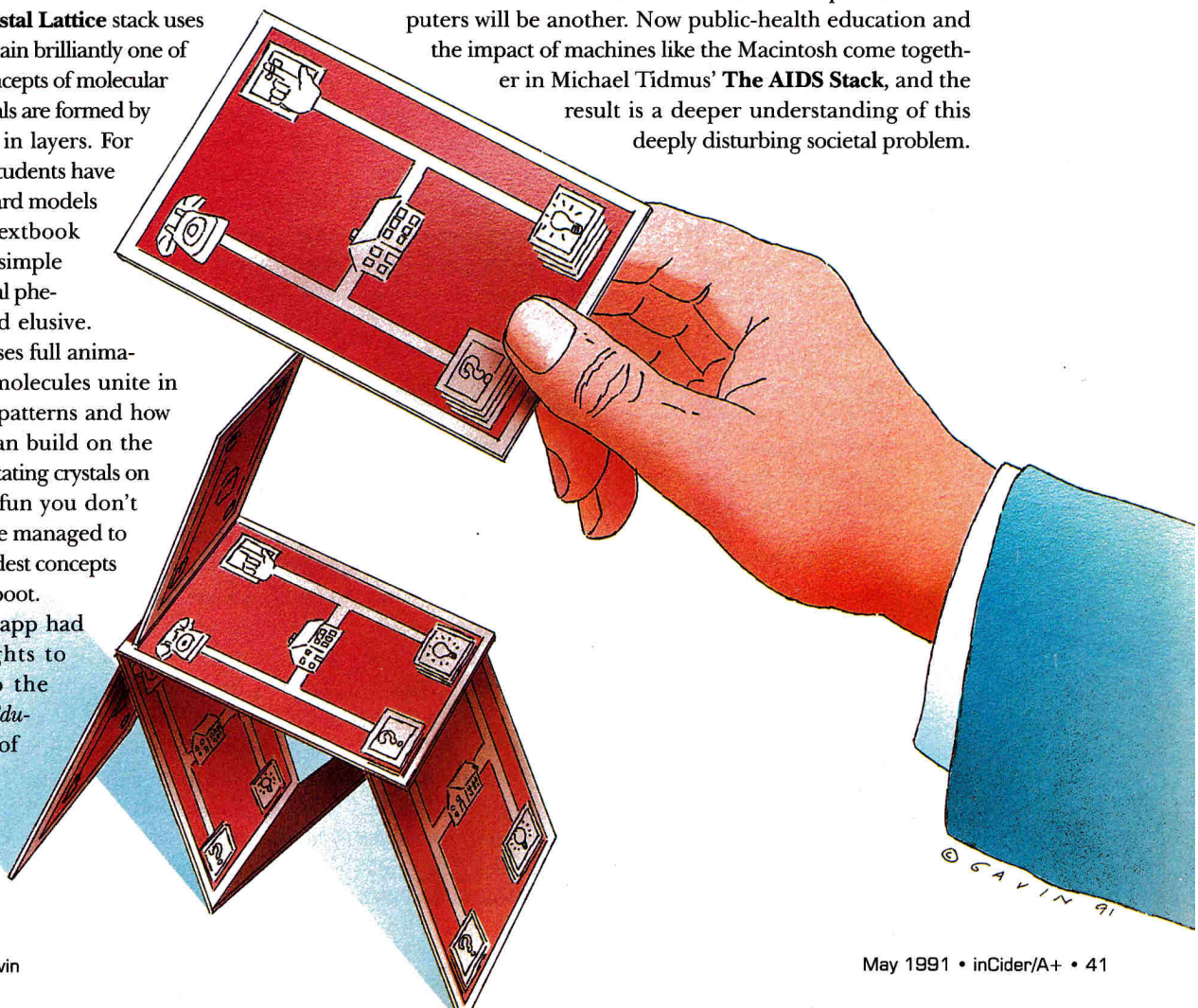
Everything you always wanted to know about Messerschmidt aircraft in World War II — but didn't know enough to ask — is packed into Rock Roszak's first in a projected series of stacks on *Classic Aircraft*. This HyperStudio tour is a flying buff's dream.

Every variation of the Messerschmidt from every theater of the war is shown in detail. Stack format makes it simple and easy to browse through the various markings that indicate the areas where the plane served, as well as to study the specifications of the machinery. The Messerschmidt was one of the things that made the Luftwaffe so feared, but this stack is one of the reasons HyperStudio is so admired.

#### HYPERCARD/MACINTOSH KNOWLEDGE IS EMPOWERING

When the history books of the next century are written, there's no doubt that the AIDS epidemic will be seen as one of the most critical factors of this age we live in.

There's also no doubt that the advent of personal computers will be another. Now public-health education and the impact of machines like the Macintosh come together in Michael Tidmus' *The AIDS Stack*, and the result is a deeper understanding of this deeply disturbing societal problem.



# HYPERSTACKS

The AIDS Stack uses HyperCard's formidable management capabilities to index data intuitively and to present a variety of information about this terrible viral syndrome. One section, for example, answers some of the most commonly asked questions in a professional, forthright manner. Still another offers statistical tables and charts in easy-to-understand format. But few presentations are as powerful as the AIDS Clock section, which demonstrates statistically and in real time

that the number of deaths is rising dramatically: The AIDS Stack is a perfect tool for anyone — young people and adults alike — who is trying to study and understand this disease.

## TAKING THE CURE

People aren't the only beings who get ill — sometimes even your computer can catch a virus. While nowhere near as tragic, of course, the results can still be devastating to your work. The national media have exaggerated the computer-virus scare to some extent, but it's true that viruses are out there, and sooner or later you might have to know how to combat them.

The **Eduvirus 2.0** stack runs the gamut — from understanding what viruses are and how they work and spread, to fighting them with antiviral programs —

and along the way offers a number of clues and techniques for avoiding them in the first place. The stack covers viruses such as "Scores," "Nvir," "ANTI," "Macmag," "INIT 29," "Dukakis," "ZUC," "WDEF," "MDEF," "Frankie," "CDEF," and others in depth.

You never may get a virus — in fact, you can expect not to, statistically speaking. But this stack is a good way to prepare for any problems, and studying these little monsters is interesting in itself.

## WHAT'S UP, DOC?

Guess what you can buy for \$32,500? Give up? An old comic book! That's the latest price on *Action* number 1. Of course, a number 1 *Batman* will set you back only \$14,500 — and you could latch onto a number 1 *Donald Duck* for a trifling \$2300. There's gold in them thar' pulp magazines, and the best way to track them is Mike Ashley's **Comic Collector's Inventory Stack**.

You can locate comics by title, by story, or both. And if a story is continued in a comic of a different title (usually as a marketing ploy for the weaker title), this stack will track the story's continuity for you. One of the

nicest features is that you can also get an instant read-out on the current worth of your collection (based on figures you input for each book). Now that's something even Uncle Scrooge would be proud to own!

## STARS IN YOUR EYES

Astronomy buffs won't want to miss Jeremy Haile's stack **Our Galaxy, The Milky Way**. This one features some of the best astronomy artwork you've ever seen, plus interesting charts and text files.

More advanced amateur astronomers will appreciate such items as *H&R Diagram* charts, which provide information on types of stars in the Milky Way. But even a novice will enjoy using HyperCard's find feature to type in the name of a constellation and then read all about it and where to find it. There's even an automatic-formula area wherein calculation of the moon's age is fully explained and carried out in a flash.

This professionally produced, mind-stretching stack won first place at the 1989 *Dallas Morning News* Regional Science Fair for its author — who was just 14 years old at the time.

## DATABASE RECORDS

If your record or compact-disc collection is like most people's, it probably drives you nuts when you want to hear a favorite selection. What album is it on? Who's the performer? Where is it anyway?

Dean Wette's **The Albums Stack** comes to your rescue with the best way yet invented to track your collection. Each card in the stack is cross-filed by composer or performer and allows searching — on the title of the album itself and on the publisher's label as well as the catalog number. Complete comment fields let you fill in titles of selections and details on individual performances. While this stack isn't as graphics-oriented as certain others of the same type, it's the easiest to use and is among the more powerful ones. With this stack at your fingertips, you won't be singing the blues next time you're looking for a hot platter.

## WHO SAID THAT?

Do you invite your Mac to your parties? Pick up **Computer Mad Libs** and it may prove to be a very popular guest and a lot of fun besides.

This stack lets you compose stories in which you leave out key phrases or words. When your reader runs the stack, it prompts him or her for a word to fit the type the story demands. The reader doesn't get to see the complete story until after he or she has input all the words, however. With a little imagination on your part, Mad Libs can result in some hilarious party games and jokes. Of course, with too much imagination you might find yourself missing a few friends, but, hey, no one ever said computing was going to be easy!

Mad Libs doesn't provide the name of its author, but

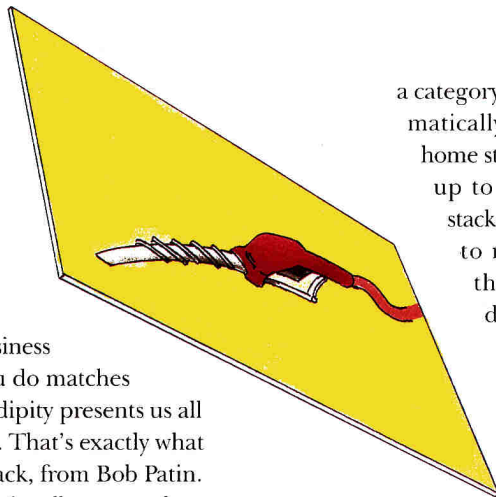
Share the wealth —  
*inCider/A+* presents  
a sampling of  
shareware applications  
for Mac HyperCard  
and the Apple IIGS  
program HyperStudio,  
available from  
user groups, BBSes,  
on-line services,  
and disk houses.

the stack is available from most on-line services and many user groups. (See the accompanying "Sources" box.)

### DIALING FOR \$

One of the great advantages of HyperCard is that it lets you computerize various aspects of your business yourself. And when something you do matches what many other people do, serendipity presents us all with a wonderful piece of software. That's exactly what we have in the **Business Phone** stack, from Bob Patin.

With Business Phone you can organize all your numbers by category and search either by category or by inputting the name of the contact. You can view all numbers within



a category, and you can even dial automatically (if you have a HyperCard home stack and your equipment is set up to support this feature). The stack even lets you schedule alarms to remind you when to make those important calls. If you depend on the telephone, investigate this Mac stack before you waste another minute searching through those piles of business cards. Get organized! ☐

NEIL SHAPIRO IS A FREE-LANCE COMPUTER JOURNALIST. WRITE TO HIM AT P.O. BOX 520, BETHPAGE, NY 11714. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

## SOURCES

Stacks mentioned in the accompanying article are available from a number of user groups; many are also available on line from bulletin-board systems and commercial information services, some of which are among the sources listed below. On CompuServe, for instance, try the Macintosh HyperCard Forum (GO MACHYPER) and the HyperStudio section of the Apple Programmers Forum (GO APPRO). To find the computer club closest to you, call Apple's User Group Locator at (800) 538-9696.

Some stacks are also available directly from their authors; those names are listed below. Note that you must forward a disk and either return postage or a self-addressed, stamped envelope. In addition, a number of specialized companies distribute shareware through the mail. Remember that shareware is still copyrighted; after trying the application for a specified period of time, please remit payment of the requested fee (usually \$5 to \$30), or delete the program from disk.

#### The AIDS Stack

Being Alive  
P.O. Box 69523  
West Hollywood, CA 90069

#### The Albums Stack, \$25

Dean H. Wette  
921 DeMun Ave. 2N  
Clayton, MO 63105

#### America Online

8619 Westwood Center Drive  
Vienna, VA 22182  
(800) 227-6364  
\$5.95/month membership  
\$5-\$10/hour connect time

#### Big Red Computer Club

423 Norfolk Ave.  
Norfolk, NE 68701  
(402) 379-4680  
\$19.95/year membership

#### Business Phone

Bob Patin  
Summit Software  
112 Hickory Park Lane  
Antioch, TN 37013

#### Classic Aircraft, \$5

Rock Roszak  
3731 Camelot Drive  
Annandale, VA 22003

#### Comic Collector's Inventory Stack, \$5

Mike Ashley  
12934-124 St.  
Edmonton, Alberta, Canada T5L 0P5

#### CompuServe

5000 Arlington Center Blvd.  
Columbus, OH 43220  
(800) 848-8199  
\$39.95 membership  
\$6-\$12.50/hour connect time

#### Computer Budget Shopper

2203 Park Ave.  
Suite 17  
Cheyenne, WY 82007

#### Crystal Lattice

Dave Trapp  
159 Holland Road  
Sequim, WA 98382

#### Delphi

General Videotex Corp.  
3 Blackstone St.  
Cambridge, MA 02139-9998  
(617) 491-3393  
\$49.95 membership  
\$4.80-\$17.40/hour connect time

#### EduVirus 2.0

CVIA BBS  
(408) 988-4004 modem

#### Florida PC Library

P.O. Box 1070  
Leesburg, FL 34749  
(904) 787-1741

#### GEIE

GE Information Services  
401 North Washington St.  
Rockville, MD 20850  
(800) 638-9636  
\$29.95 membership  
\$5-\$18/hour connect time

#### Once Upon a Time

Mouse Ears BBS  
(714) 992-5341  
300, 1200, 2400 baud

#### Our Galaxy, The Milky Way

Jeremy Haile  
2801 North Britain  
Irving, TX 75062

#### Public Domain Exchange

2078C Walsh Ave. #668  
Santa Clara, CA 95050  
(408) 496-6439  
\$20/year membership

#### Star Trek: The Next Generation

Scott Everts  
P.O. Box 227  
Placentia, CA 92670

# C comes of Age

Is it time to take CD-ROM seriously? Drives are plentiful and affordable. A wide variety of software is also available, offering hundreds of megabytes of information on everything from Beethoven to world history.

By CAROL S. HOLZBERG, Ph.D.



CD-ROM, like local-area networking and on-line services before it, has long endured the tag of "technology with great potential." From the mid-'80s until now, CD-ROM offered great promise, but little punch in terms of products. CD-ROM has finally grown up, however, and is now coming into its own on the Apple desktop. Lower drive prices, more computers in schools and homes, and software

authoring systems such as HyperCard have led to the emergence of CD-ROM as something more than a curiosity.

## WHERE WERE YOU IN '88?

Most Apple II and Macintosh owners were excited when Apple introduced its CD-ROM (compact-disc read-only memory) player, the **AppleCD SC**, in March 1988. Who wouldn't be excited by the possibility of a drive that could read more than 550 megabytes — the

equivalent of about 14 40-megabyte hard-disk drives, or about 270,000 pages of information — of sound, graphics, animation, and text from a single disc? At last, there was a relatively low-cost alternative for space-intensive multimedia presentations, interactive training tutorials, and massive on-line reference works.

The initial excitement was dampened, though, by the "read-only" part of CD-ROM. You can neither write to

CD-ROM discs nor modify their data. And while the storage capabilities of CD-ROM discs are impressive, the speed at which your computer accesses that information isn't. CD-ROM drive access speeds vary from 350 milliseconds to 1500 milliseconds. By contrast, a typical hard-disk drive boasts an access speed of 18 to 26 milliseconds. And while the initial price of \$1199 may have been affordable for large libraries and Fortune 1000 companies, it was a little steep for parents and teachers.

Then, too, perhaps the biggest reason CD-ROM drives failed to capture Apple users' hearts in 1988 was lack of software. In short, you didn't have a lot of incentive to buy CD-ROM. Today, however, that's changed.

The CD SC now sells for the lower, if not quite bargain-basement, price of \$899. Also, the Apple-brand drive is no longer the only player in town. (See the accompanying "Hardware Product Information" box, p. 46.) In fact, you now have plenty of CD hardware options from which to choose.

## HARDWARE CONSIDERATIONS

Before you begin surveying our sample of CD-ROM discs, you need to decide which player to buy. CD-ROM drives vary in appearance; they all operate generally the same way, however. The typical player is a SCSI (*small-computer-systems interface*) device that connects to a Macintosh through the SCSI port at the back of the computer, or to an Apple II via a SCSI card you install in an unused slot. (See "The SCSI Side of Life," February 1991, p. 47, for more information on SCSI technology.)

While drive prices differ widely, cost may not be as important as versatility. If you want to use your CD-ROM drive on both a Macintosh and an Apple II, then the AppleCD SC is currently your only choice. The player ships with software for both Macintosh and Apple IIe/IIgs computers. With an appropriate SCSI adapter card (try Trantor Systems Ltd., 5415 Randall Place, Fremont, CA 94538, 415-770-1400) you can even connect an AppleCD SC to an MS-DOS computer.

For the flexibility of using one drive on all three systems, you may be willing to overlook the AppleCD SC's price and relatively slow 500-millisecond random-access speed.

If you decide to shop around, keep the following factors in mind:

- First, does the retail price include cables and software? Some CD-ROM drives may appear to cost less than others, but after you add a SCSI cable, a SCSI terminator, and software drivers, you may find it's not such a bargain after all.

- Most CD-ROM drives include software that plays conventional audio CDs. But can you listen to the music as you work on another application? Desk-accessory audio-playback utilities are more convenient than stand-alone programs, because you don't have to quit your current application to enjoy the sound of CD music.

- The physical size of the drive and its panel options are also important. Is the unit large (or small) enough to sit under (or on top of) your computer? CD-ROM drives with external power supplies usually have smaller footprints than units with built-in power supplies. The smaller size usually means that you'll have to contend with a bulky external "brick" of a power supply.

- Does the drive have two SCSI ports? If your CD-ROM unit has only one SCSI port, you must position it last in your SCSI-device chain. Remember, if you have more than one SCSI device attached to your computer, the SCSI I.D. number must match its place in the chain. For example, if your CD-ROM drive is last, its SCSI I.D. number must be 7 — so you should also consider how easy it is to change a drive's SCSI I.D. number if you run into a conflict.

- Check to see whether the unit comes with two RCA audio jacks, which let you connect left and right amplified stereo speakers easily. Is there a power-on light indicator, so that you can tell at a glance whether the unit is turned on?

- Lastly, make sure you know how long the warranty lasts.

Knowing the answers to these questions won't guarantee that you'll find the

perfect CD-ROM drive. But at least you'll keep surprises to a minimum.

## ON THE SOFTWARE SIDE

The CD-ROM software story is a good news/bad news situation. If you own an Apple II, the bad news is that there are only two products available for your computer. (If you know of other CD-ROM products that work with the Apple II, let us know.) The good news is that if you own or have access to a Mac, discs abound. In fact, it would be impossible to list every CD-ROM on the market. What follows is a sampling of products that are available for Apple owners.

### THE STRING QUARTET

**Warner New Media**  
3500 Olive Avenue  
Burbank, CA 91505  
(818) 955-9999

Macintosh Plus or later,  
1M of RAM,  
System 6.0.2 or higher,  
hard disk with at least 6.5M of free space,  
HyperCard 1.2.2 or higher  
installed on hard disk,  
Macintosh-compatible CD-ROM drive,  
audio-playback equipment  
(such as earphones or desktop speakers)  
Age Level: junior high school and up  
\$66

Warner New Media's Audio Notes presentation of Beethoven's *String Quartet No. 14* (Opus 131) offers a variety of entertaining ways to investigate this magnificent work. Pictures, supplemental audio examples, historical commentaries, and text annotations all richly enhance the musical presentation. The CD builds on a 1987 Teldec recording of Beethoven's work by the Vermeer Quartet.

If you're a Beethoven aficionado, you'll appreciate how easy it is to navigate, using HyperCard to access the disc's contents. Clicking on the *Index* calls up an alphabetized list of topics, any one of which you can select with the point-and-click of a mouse. There's even a glossary of musical terms, many with audio illustrations.

You can *Explore the Music* through the disc's full-length introduction. *Structural Analysis* offers real-time commentary on

## CD-ROM

musical forms as the quartet plays in the background. If you're interested in a detailed harmonic analysis, investigate the section on tonal elements.

The *Quartet Map* provides an in-depth look at the composition's seven movements. You can select *Timeline* for a brief examination of eight famous composers and the musical eras in which they lived. A section devoted to Beethoven himself provides details about the composer and his music. In an interesting option along educational lines, the CD concludes with a *Final Exam* to see how well you've mastered the material.

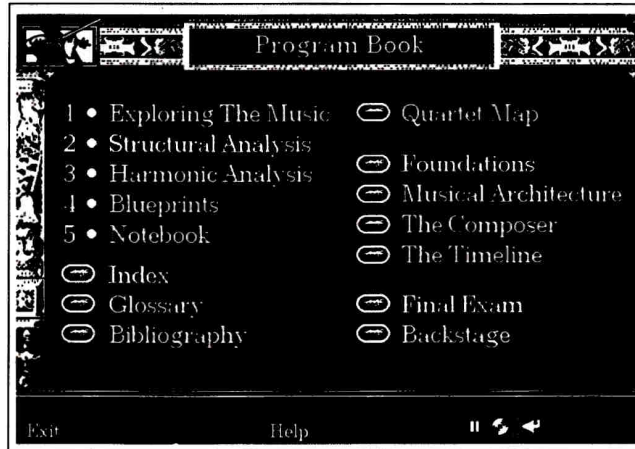
Warner New Media's latest *Audio Notes* offers something for everyone. This is one CD that's guaranteed to enrich your appreciation of Beethoven's genius.

### CD FUN HOUSE

**Wayzata Technology Inc.**  
P.O. Box 87  
16221 Main Ave. S.E.  
Prior Lake, MN 55372  
(800) 735-7321  
(612) 447-7321  
Macintosh with SCSI port,  
Macintosh-compatible  
CD-ROM drive  
Age Level: grade 4 to adult  
\$59

**CD Fun House** features more than 50 megabytes of public-domain, shareware, and freeware entertainment.

Each program on the disc is rated on a five-star scale. The disc also includes a copy of Disinfectant 2.2 (for virus



**Beethoven's String Quartet No. 14: disc table of contents.**

detection and cure) and a copy of HyperCard 2.0 for the Mac.

Programs are organized by topic into 11 categories for quick access. You'll find board games (*Games Parlour*), adventure programs (*AdventureLand*), simulations (*The Simulator*), educational titles (*The School House*), sports themes (*Sports Palace*), classic *Star Trek* offerings (*Star Fleet HQ*), and arcade-style shoot-'em-up games (*The Arcade*), plus games of skill and chance in *The Casino*, *Word Games*, and *Interesting Stuff*.

Operation is simple: Retrieve a program by clicking on its icon, or find out more about the game by searching the disc index.

Every title has a dedicated index card, listing game type, rating, shareware fee (if applicable), location on disc, contact information, and a brief description.

CD Fun House is a great product, guaranteed to stave off boredom during rainy days and television-rerun season.

### CIA WORLD FACTBOOK 1990

**Wayzata Technology Inc.**  
P.O. Box 87  
16221 Main Ave. S.E.  
Prior Lake, MN 55372  
(800) 735-7321  
(612) 447-7321  
Macintosh Plus or later, 1M of RAM,  
Macintosh-compatible CD-ROM drive  
Age Level: junior high school and up  
\$129

**The CIA World Factbook** contains details on 249 countries and territories around the world, compiled by the United States Central Intelligence Agency. Search for data by country, topic, word, or Boolean logical operators (such as *and*, *or*, *or not*, and *not*). Major categories include geography, people, government, economy, communications, and defense forces. The disc also contains several maps.

## Hardware Product Information

**AppleCD 8C**  
(500 msec)  
Apple Computer Inc.  
20525 Mariani Ave.  
Cupertino, CA 95014  
(408) 996-1010  
Macintosh or Apple II  
with SCSI card  
\$899  
cable \$50  
terminator \$30

**CD Porta-Drive T3201**  
(350 msec)  
CD Technology  
780 Montague  
Expressway #407  
San Jose, CA 95131  
(408) 432-8698  
Macintosh  
with SCSI port  
\$895  
cable included  
optional terminator \$20

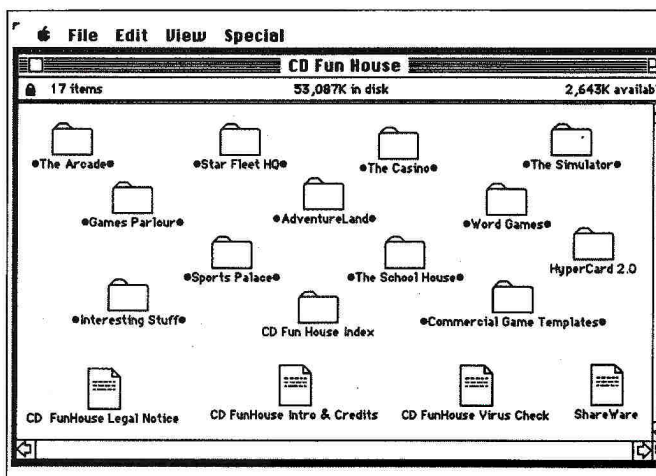
**CDA-431**  
(350 msec)  
Chinon America, Inc.  
660 Maple Ave.  
Torrance, CA 90503  
(213) 533-0274  
(800) 441-0222  
Macintosh  
with SCSI port  
\$795  
cable and terminator  
included

**DRD-253M**  
(400 msec)  
Denon America, Inc.  
222 New Road  
Parsippany, NJ 07054  
(201) 575-7810  
(800) 446-0062  
Macintosh  
with SCSI port  
\$940  
cable \$29

**CDR-10**  
(350 msec)  
Mirror Technologies  
2644 Tattton Road  
Roseville, MN 55113  
(612) 633-4450  
Macintosh  
with SCSI port  
\$697  
cable and terminator  
included



**CD Fun House:**  
disc contents  
showing major  
software  
categories.



You experience Osmo's animated galaxy by pointing and clicking on interesting objects on screen. Pilot a spaceship through an unfamiliar universe filled with endearing characters, amazing special effects, and terrific animations. You'll explore seven strange new interconnected worlds. Even young children will find it entertaining.

Cosmic Osmo is what interactive multimedia is all about. You play challenging games and delight your ears with more than 40 minutes of CD-quality music and 20 original songs. The original Cosmic Osmo floppy-disk version (1989) contained just 5 megabytes of code and music. The CD-ROM version tips the scales at more than 100 megabytes.

Treat yourself to an electronic extravaganza of whimsical sights and sounds — you'll be entertained for hours. Cosmic Osmo is the perfect excuse to buy a CD-ROM drive.

Each major data area is further divided into detailed subcategories. For example, *Economy* usually consists of a general economic overview, plus facts and figures on gross national product, inflation, unemployment, budget, exports, imports, external debt, and industrial production.

The *Government* category yields information on each country's capital city, administrative divisions, legal system, national holidays, leaders, and political parties. In *People*, you'll find population statistics as well as birth, death, and literacy rates, and data on ethnic divisions and national religions.

You can print both images and text. On-line help describes program features and assists with information search and retrieval. The CIA World Factbook is a great program for anyone who needs instant "encyclopedic" access to world information.

## COSMIC OSMO

**Cosmic Osmo**  
Activision  
P.O. Box 3048  
3885 Bohannon Drive  
Menlo Park, CA 94025  
(800) 227-6900  
(415) 329-0800

Macintosh Plus or later, 1M of RAM,  
Macintosh-compatible CD-ROM drive  
(1000 msec or faster recommended),  
HyperCard 1.2.5 (included on CD),  
System 6.0.4, 6.0.5, or higher  
Age Level: 7 to adult  
\$79.95

Welcome to Activision's CD-ROM solar system, "the worlds beyond the mackerel." Meet Osmo, the coolest shade-sporting alien ever to grace a Macintosh screen. Journey into hyperspace and boldly go where no CD-ROM has gone before. Exciting audiovisual surprises greet you every step of the way.

Don't worry about reading directions or memorizing command-key sequences.

## GEM/PUBLIC DOMAIN

**Wayzata Technology Inc.**  
P.O. Box 87  
16221 Main Ave. S.E.  
Prior Lake, MN 55372  
(800) 735-7321  
(612) 447-7321

Apple IIe/IIs, AppleCD SC (SCSI Revision C or later), amplifier, speaker or headset  
Age Level: grade 4 to adult  
\$119

**GEM** (for *Generous Efforts of Many*) contains megabytes of Apple II and IIGS software collected from user groups and on-line service libraries. It features share-

**CDR-35**  
(1500 msec)  
NEC Home Electronics  
1255 Michael Drive  
Wood Dale, IL 60191  
(312) 860-9500  
Macintosh  
with SCSI port  
\$599  
software driver \$99

**CDP-2A (Toshiba drive mechanism, 380 msec)**  
**CDP-1B (Sony drive mechanism, 380 msec)**  
Optical Media International  
485 Alberto Way  
Los Gatos, CA 95032  
(800) 347-2664  
(408) 395-4332  
Macintosh  
with SCSI port  
\$795 each  
cable, terminator extra  
\$39 software driver  
\$10 audio playback software

**DRM-600 CD-ROM Changer**  
(600 msec)  
Pioneer Communications of America  
600 East Crescent Ave.  
Upper Saddle River, NJ 07458  
(201) 327-6400  
Macintosh  
with SCSI port  
\$1295  
cable \$45  
software drivers \$100

**CDU-6211 (380 msec)**  
Sony Computer Peripheral Products Co.  
655 River Oaks Parkway  
San Jose, CA 95134  
(408) 432-0190  
Macintosh  
with SCSI port  
\$600-\$700, includes  
cable and terminator;  
purchase Macintosh  
software drivers  
elsewhere  
(Trantor Systems, Ltd.)

**XM-3201A1-MAC**  
(350 msec)  
Disk Products Division  
Toshiba America Information Systems  
9740 Irvine Blvd.  
Irvine, CA 92718  
(800) 456-3475  
(714) 583-3000  
Macintosh  
with SCSI port  
\$850  
cable and terminator included

## CD-ROM

ware and freeware, as well as demonstration versions of several favorite IIfx/IIgs applications.

For instance, you'll find demos of HyperStudio, Beagle Bros classics, DB Master Professional (a relational database manager), Circulation Plus (for keeping tabs on library books), TIC (telecommunications), and Davidson educational software, to name just a few.

You'll also find files you can use with AppleWorks and AppleWorks GS, HyperStudio stacks, *Just Add Water* (Apple's guide to starting a user group), and *Technical Notes* (the complete collection of *Apple II Technical Notes* from November 1988 to January 1990). There's even a shareware CAD program for the Apple II.

Programs are organized into categories for easy access; separate folders are devoted to games, education, communications, fonts (TimeOut SuperFonts compatible), disk utilities (such as virus detection and elimination software, program selectors, and file-type changers), music, and development (programming utilities).

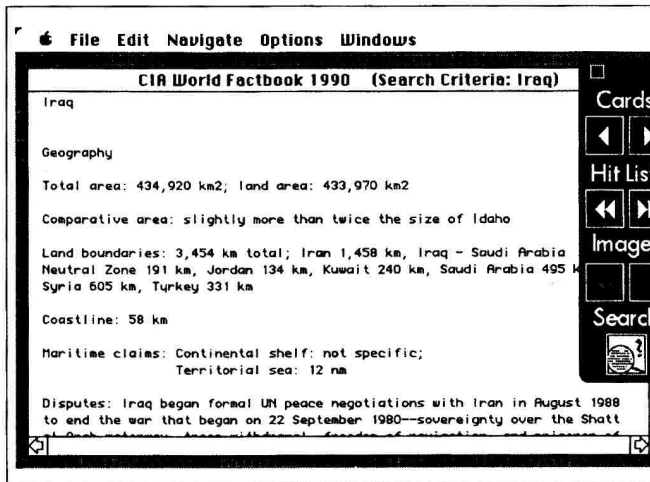
You'll also find NDAs (new desk accessories) and CDAs (classic desk accessories) for the GS, as well as digitized files of voices and sound effects.

The graphics directory contains a variety of images you can use with The Print Shop and GS paint programs, plus a shareware paint application called CheapPaint, a number of animation files, GS graphics application viewers, and a wide array of MacPaint files you can transfer to super-high-resolution format with the utility SuperConvert (also included on disc).

The project team responsible for this collection recommends that you copy a program from the CD to a ProDOS floppy disk before using it.

Note that several applications have been stored in compressed form to conserve space. You can unpack them with Andy Nicholas' ShrinkIt utility, which is also provided.

GEM represents an eclectic software collection for any Apple II library.



**CIA World Factbook:** portion of Iraq file data. Navigation controls visible on screen.

## IGOR STRAVINSKY: THE RITE OF SPRING

**The Voyager Company**  
1351 Pacific Coast Highway  
Santa Monica, CA 90401  
(213) 451-1383  
(800) 446-2001

Macintosh Plus or later, System 6.0.5 or higher, hard-disk drive, Macintosh-compatible CD-ROM drive, HyperCard 2.0 or higher, audio-playback equipment (such as earphones or desktop speakers)  
Age Level: junior high school and up  
\$99.95

Voyager's second release in its musical CD Companion Series presents Stravinsky's *Rite of Spring*, and should be available by the time this article appears in print. The package includes three floppy disks with HyperCard stacks, plus a high-quality recording of Stravinsky's score, performed by the Symphonique de Montréal, with Charles Dutoit conducting. HyperCard makes it easy to explore and learn more about the music.

The Rite of Spring CD is as entertaining as it is educational. The disc includes a glossary of musical terms, real-time commentary on the music (as it plays), biographical sketches of Stravinsky and the time period in which he lived, an exploration of a ballet production of the score, plus a challenging quiz that tests listeners with audio-based questions. In addition, you'll hear commentary and supplemental audio recordings of orchestral instruments. Voyager offers serious music lovers an entirely new way to appreciate Stravinsky's famous score.

## LEARN TO SPEAK FRENCH

**The HyperGlot Software Company**  
505 Forest Hills Blvd.  
Knoxville, TN 37919  
(800) 726-5087  
(615) 558-8270

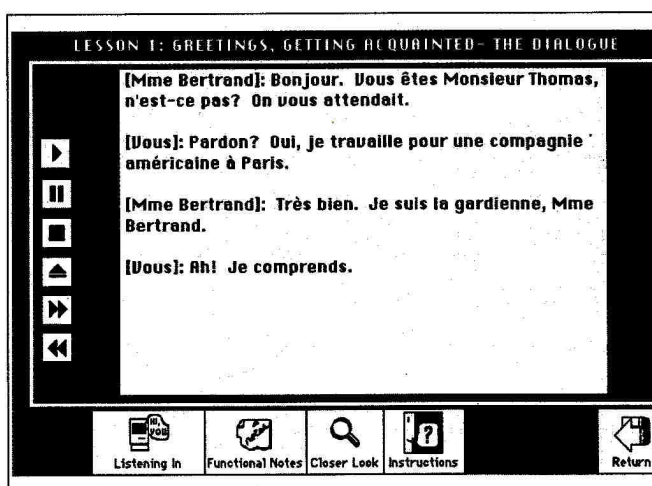
Macintosh Plus or later,  
Macintosh-compatible CD-ROM drive,  
hard-disk drive, HyperCard version 1.2  
Age Level: junior high school and up  
\$249.95 each

Brush up on your "parlez-vous français" — learn to speak like a native with this two-CD French course from HyperGlot Software. Disc 1 contains 36 HyperCard stacks designed to teach (or review) a wide range of expressions and prepare you for everyday situations, including greetings, directions, checking in at a hotel, taking the Paris metro, ordering a meal, and making purchases at a deli, bakery, grocery, or butcher shop. HyperCard lets you jump easily to any topic and move in any direction within a lesson.

Lesson stacks consist of eight parts (or cards). Each one begins with a *Setting*, which briefly summarizes the story or situation that follows. You can listen to or read settings in French (beginning with lesson 11) if you insert the second Learn to Speak CD.

From the *Setting* card, you move to the *Dialogue* card, which contains French vocabulary for the lesson. Clicking on the card calls up an English translation automatically. A *Functional Notes* button offers cultural commentary on contem-

**Learn to Speak French: dialogue card showing lesson vocabulary. Clicking on French text calls up English translation. Click on player controls to hear native speakers pronounce selected words.**



porary French lifestyles. Clicking on the *Play* button lets you listen to digitized pronunciations from the second CD automatically.

A *Listening In* card follows the *Dialogue* card. It tests your knowledge of French by asking you to type in missing words. You can click on the card's CD-player controls for an instant replay of spoken dialogue. A *Check* button calls up answers whenever you're ready.

The next three cards emphasize vocabulary and expressions, grammatical details, and language drills. The final two cards are reserved for testing. If you're planning a trip to France (or another French-speaking country), HyperGlot's CD will help you travel with confidence.

## THE NEW GROLIER ELECTRONIC ENCYCLOPEDIA

**Grolier Electronic Publishing, Inc.**  
**Sherman Turnpike**  
**Danbury, CT 06816**  
**(203) 797-3500**  
**(800) 356-5590**

Macintosh Plus or later,  
 1M RAM,  
 Macintosh-compatible CD-ROM drive  
 Age Level: grades 4 to 12  
 \$395  
 \$495 teacher's edition  
 with guide and student-activity materials

**G**rolier Electronic Publishing has released all 21 volumes of its *Academic American Encyclopedia* on a single CD-ROM disc, collapsing about 10,000 pages and two feet of shelf space into one

4.75-inch optical disc. More than 30,000 articles are available at the point-and-click of a mouse. The latest version adds thousands of detailed illustrations to the thoroughly researched text, as well.

You can search through The New Grolier Electronic Encyclopedia (NGEE) in any one of four distinct ways:

\* A *Title Index* provides an alphabetical listing of all articles. To find an article, just type the title's first letter(s) and press Return. NGEE then highlights the closest alphabetical match. You can call up as many as ten articles to the desktop simultaneously.

\* The *Word Index* contains an alphabetical listing of all discrete words in the encyclopedia. A fraction appears beside each word entry. The numerator represents the total number of times the word appears; the denominator refers to the total number of articles where the word can be found. Clicking on an *Index* word directs NGEE to display all article titles. You then can call up a title of interest.

\* NGEE supports *Boolean* word-search techniques using partial words and word combinations, as well as complete word forms. You can hunt for synonyms and specify whether to search article titles, text entries, picture captions, bibliographies, or special fact boxes.

\* Lastly, with the *Picture Index*, you can locate specific graphics images.

NGEE simplifies the task of library research by making articles and facts

instantly available. You can take notes in an electronic *NotePad*, place bookmarks in an article for quick and easy reference, save notepads to disk, and print them.

If you have children, Grolier's New Electronic Encyclopedia is a research tool that can't be beat.

## VIETNAM REMEMBERED

**Wayzata Technology Inc.**  
**P.O. Box 87**  
**16221 Main Ave. S.E.**  
**Prior Lake, MN 55372**  
**(800) 735-7321**  
**(612) 447-7321**

Macintosh Plus or later,  
 1M RAM,  
 Macintosh-compatible  
 CD-ROM drive  
 Age Level: junior high school and up  
 \$129

**V**ietnam Remembered focuses on the long, complex involvement of the United States government in the Southeast Asian conflict, from 1946 to 1976.

Compiled from both public and private information sources, this Wayzata compact disc offers a wealth of historical data and more than 200 graphics images to accompany it. Its database contains 119,597 words organized on 61,654 cards.

You'll find information on battles, equipment and missions, a detailed chronology of events, biographies of significant military and political personalities, a complete list of all names inscribed on the Vietnam Memorial Wall in Washington, D.C., and a glossary of pertinent terms.

There's also a notable section on the controversial defoliant chemical Agent Orange and its effects, plus a chronicle of the war's early years, a list of Medal of Honor recipients, and descriptions of certain postwar events.

You can search for particular words with Boolean operators or scroll through cards individually by clicking on the program's navigation arrows; you can also print documents for quick reference.

Wayzata's disc is a must for students and adults of any age interested in learning about the Vietnam War and our country's role in the conflict.

## CD-ROM

### SCARY POEMS FOR ROTTEN KIDS

Discis Knowledge Research Inc.  
5150 Yonge Street  
North York, Ontario, Canada M2N 6N2  
(416) 250-6537  
(800) 567-4321  
Macintosh Plus or later, 1M of RAM,  
Macintosh-compatible CD-ROM drive,  
8-bit color board  
Age Level: 4 to 8  
\$84.95

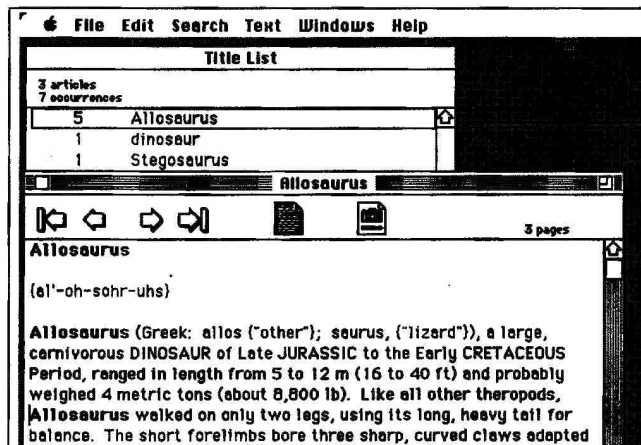
In this collection, Discis provides all the text and pictures of Sean O'Huigin's original *Scary Poems for Rotten Kids*, plus digitized speech, spoken help and instructions, upbeat musical accompaniment, and eerie sound effects.

The best part is that you don't even have to know how to read to enjoy a Discis book, so even preschoolers can enjoy it; youngsters can listen to portions read aloud when they click on the sentence speaker. Navigation's simple, too: Clicking on the dog-eared book corners advances the text forward (or backward) one page at a time.

Scary Poems offers several exciting features that aren't found in the conventional print version of O'Huigin's text. Children can learn more about any illustration, for instance, by pointing-and-clicking on the picture. The program identifies an illustration by speaking its name and placing its written form on screen.

It's similar with text: If kids point-and-click on a word in the text, Scary Poems reads it aloud. Double-clicking on a word directs the program to speak it and offer a definition. Pulling down the *Recall* menu shows all words selected since the child last opened the book.

O'Huigin's fun-filled, comic anthology contains 14 ghoulish poems, each one eerier than the next. One favorite is "The Day the Mosquitoes Ate Angela Jane." Several others are just as enjoyable. So the next stormy night (barring lightning, of course), cuddle up with your child in front of your Macintosh. The Scary Poems CD is an electronic experience not to be missed.



Entering "allosaurus" in word-search dialog calls up Title List, showing seven listings in three articles. Clicking on word in Title List calls up article. Camera icon indicates picture available.

### THE USA FACTBOOK 1990

Wayzata Technology Inc.  
P.O. Box 87  
16221 Main Ave. S.E.  
Prior Lake, MN 55372  
(800) 735-7321  
(612) 447-7321  
Macintosh Plus or later,  
1M of RAM,  
Macintosh-compatible CD-ROM drive  
Age Level: junior high school and up  
\$139

The USA Factbook from Wayzata Technology, updated annually, contains an abundance of information on the United States and its territories, with facts and figures on a wide variety of topics, as well as state maps, state seals, and important phone numbers.

It's organization at your fingertips: Calling up a particular state yields data on categories such as geography, people, government, economy, communications, and national monuments. Each topic is, of course, further divided into detailed subcategories.

Disc navigation is a breeze, but on-line help is instantly available if you need it. You can search the database by browsing through individual cards or issue a *Find* command and use Boolean operators to locate specific information. An array of extras help students and adults alike keep their research organized. For instance, you can print text, maps, and seals or copy them to the clipboard for use with other applications. If your kids or students need a better knowledge of the USA, this disc is a great place to start.

### TIME TABLE OF HISTORY: SCIENCE & INNOVATION 1990 EDITION

Xiphias  
8758 Venice Blvd.  
Los Angeles, CA 90034  
(213) 841-2790  
Mac Plus or later,  
Macintosh-compatible CD-ROM drive,  
1M of RAM  
(2 recommended),  
HyperCard 1.2.2 or higher  
Age Level: junior high school and up  
\$185

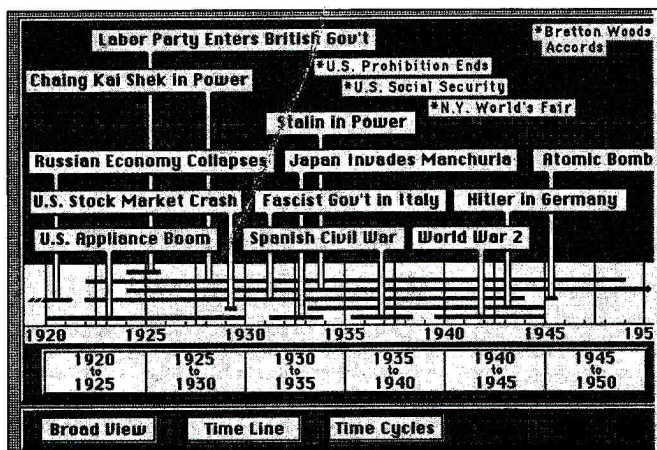
Time Table of History features more than 6000 stories detailing major technological and scientific achievements from 5000 B.C. to the present.

This Mac HyperCard-based CD uses digitized human voice, text compiled from several research sources, and illustrations to describe events in historical context. Story screens contain multimedia buttons that link text descriptions to special audiovisual effects.

You can explore historical events two ways: by *Time Line* or by *Time Table*:

\* Clicking on *Time Line* calls up a menu bar of eight historical periods (5000 B.C. to 600 B.C., 600 B.C. to 1800 A.D., 1800 to 1860, 1860 to 1900, and so on). Clicking on a particular time period initiates a search for all stories occurring during those years. In addition, every *Time Line* screen contains a *Time Cycles* button that brings up an image of Schumpeter's Theory of Economic Cycles. The accompanying illustration shows how scientific

**Time Table: Time Line screen showing context and time-period buttons. Context buttons initiate voice-over descriptions of events; time-period buttons direct program to search for all stories falling between years indicated.**



developments and technological innovations influence business trends.

\* Clicking on the *Time Table* button calls up a screen consisting of several windows. Each one is "hot-linked" to follow a hypertext path through history. For example, the title window briefly describes the subject of the article in the story window. Clicking on any of the title words directs the software to search for all other occurrences of that word. Similarly, the story window contains an article about the topic under investigation. Clicking on any word in the story window initiates a cross-search for all occurrences of that word in the Time Table database.

You can search for related stories by clicking on keywords in that window, or initiating a customized search by typing in look-up parameters in the *Xearch* window. You can consult bibliographies and view maps and animations.

Time Table also includes a periodic table of the elements, an electromagnetic spectrum, a powers-of-ten button illustrating distance from the earth, and a geological timeline showing the evolution of life on earth.

Xiphias' Time Table of History represents an exciting new way to look at science and technology. You can explore significant historical events in a nonlinear fashion, while digitized speech, sound effects, and animation make the presentation come alive. According to a company spokesperson, a Time Table of Business, Politics, and the Media is in the works.

## WEBSTER'S NINTH NEW COLLEGIATE DICTIONARY

**Highlighted Data**  
4350 North Fairfax Drive  
Suite 450  
Arlington, VA 22203-1620  
(703) 516-9211  
Mac Plus or later,  
2M of RAM  
and hard-disk drive recommended,  
Macintosh-compatible CD-ROM drive  
Age Level: kindergarten to adult  
\$199.95

**A**t last — an on-line dictionary that literally speaks for itself. Webster's Ninth New Collegiate contains the full text of the print version, plus optional 18-point (large text) display, point-and-click access to cross-references, and digitized speech. You can hear a word pronounced simply by calling it up with the *Find* command or clicking on it in the *Word* window. You can copy definitions, as well as illustrations, to the clipboard and paste them into other applications.

The CD dictionary is a stand-alone application that contains almost 160,000 entries and 200,000 definitions. Unfortunately, you can't access it while working in another program unless you're running under MultiFinder. Nevertheless, it's a useful electronic reference tool.

In addition to word definitions and etymologies (showing the history of a word by tracing its development from the earliest recorded occurrence), Webster's contains a *Handbook of Style* with pertinent information about punctuation, italicization, capitalization, and pluraliza-

tion, as well as several tables and a dictionary of abbreviations.

You can call up a list of colleges and universities (with addresses), plus a list of foreign words and phrases, complete with definitions.

You'll also find interesting essays on language usage, the history of the English language, spelling, pronunciation, and more.

If you're in the market for a dictionary to help your children or students with spoken English, the electronic Webster's has something to say to you.

## YOURWORDBOX!

**The WordBox! Company**  
P.O. Box 1115  
Belmont, CA 94002  
(415) 592-5447

Apple IIGS,  
1.5M of RAM,  
color monitor (RGB preferred),  
AppleCD SC  
(SCSI Revision C or later),  
amplifier, speaker or headset  
Age Level: 4 to 7  
\$169

**Y**ourWordBox! teaches preschoolers how to use language — how to read and understand the rules of grammar. It teaches the way kids learn naturally, by hearing a large number of different kinds of sentences. (The company calls it "learning in context.") The computer focuses the learning (by repeating grammatically related sentences — not a random sampling, as TV or a parent might use); the CD-ROM disc broadens it.

CD-ROM makes this method reasonable because it can store thousands of sentences, pictures, and digitized recordings. A 3.5-inch disk accompanying the CD includes software lessons you can use with the program's thousands of words and graphics. Lessons include animated stories that will enhance the magic as much as hearing them. The graphics images are clear and designed to appeal to young children. The female voice sounds natural — it is, after all, a digital recording.

Volume I includes 701 lessons on the parts of speech. Future volumes may include different lessons or new words and pictures. WordBox! says that a Mac version is also under consideration. □

# Programs, Peripherals



**HOME DESIGNER'S DREAM**  
**Design Your Own Home Architecture, Landscape or Interiors by Abracadata.** Now you can have a designer home with a most prestigious name: yours. Draw floor plans, elevations, structural details the way you want them. Build interior and landscape designs with separate packages. All packages come with pre-drawn shapes.  
 Suggested Retail GS .....\$89.95  
**Programs Plus Price.....\$47.**  
 Suggested Retail .....\$69.95  
**Programs Plus Price.....\$37.**

## ACCELERATORS / RAMCARDS

<b>American Micro Research (Micro Sci)</b>	
80/64E 80 Column 64K Card (Ile only) .....	49.
<b>Apple Computer</b>	
Apple Ile Enhancement Kit .....	58.
Apple Ile Extended 80 Col. Card. ....	89.
<b>Applied Engineering</b>	
GS-Ram Plus 1MG .....	199.
GS-Ram Plus 2MG .....	293.
GS-Ram Plus 3MG .....	379.
GS-Ram II 1MG .....	142.
GS-Ram II 2MG .....	219.
GS-Ram II 4MG .....	369.
GS-Ultra 1MG .....	212.
GS-Ultra 2MG .....	279.
GS-Ultra 512K .....	159.
PC Transporter (768K) .....	255.
PC Transporter Installation Kit GS .....	37.
PC Transporter Installation Kit IIE .....	29.
Ram Express II 1024K .....	174.
Ram Express II 256K .....	141.
Ram Express II 512K .....	156.
RamFactor 1MG .....	229.
RamFactor 512K .....	189.
RamWorks III 1MG .....	220.
RamWorks III 256K .....	133.
RamWorks III 512K .....	160.
TransWarp Accelerator (GS) .....	260.
TransWarp Original Accelerator .....	88.
ViewMaster 80 (II+) .....	124.
Z-Ram Ultra 2 1MG .....	277.
Z-Ram Ultra 2 256K .....	191.

Z-Ram Ultra 2 512K .....	220.
Z-Ram Ultra 3 1 MG .....	292.
<b>Chips</b>	
Chips Set 256K 120 or 150 NS .....	19.
<b>CV Technologies</b>	
GS Memory Board .....	89.
<b>Harris Labs</b>	
GS Load 256K (3 pack) .....	69.
GS Sauce 1MG .....	132.
GS Sauce 2MG .....	169.
GS Sauce 4MG .....	307.
GS Sauce Card "0" K (GS) .....	75.
<b>Zip Technology</b>	
Zip Chip 4 MHZ .....	98.
Zip Chip 8 MHZ .....	139.
Zip Chip Model 1600 (GS) <b>SPECIAL</b> .....	249.

## ACCESSORIES

<b>Advanced Gravis</b>	
Advanced Gravis' Joystick (AP & GS) .....	39.
MouseStick ADB (GS) .....	59.
<b>Apple Computer</b>	
Apple Mouse Ile .....	118.
Disk Controller Card .....	68.
Extended Keyboard ADB .....	175.
Video Overlay Card .....	428.
<b>Applied Engineering</b>	
Audio Animator (GS) .....	155.
Conserver (GS) .....	73.
High Output Power Supply .....	59.
IIGS Heavy Duty Power Supply .....	77.
Sonic Blaster (GS) .....	94.
TimeMaster .....	77.
Transporter Keyboard .....	100.
<b>CH Products</b>	
Flight Stick .....	46.
Mach III Joystick .....	29.
Mach IV Joystick .....	62.
Roller Mouse ADB (GS) .....	83.
<b>I/O Design</b>	
Imageware II Case Black, Navy, Platinum .....	45.
<b>ICMS, Inc.</b> MousePen ADB .....	89.
<b>Kalmar</b>	
Kalmar Roll Top 3.5 (holds 135) .....	26.
Kalmar Roll Top 3.5 (holds 45) .....	14.
Kalmar Roll Top 3.5 (holds 90) .....	21.
<b>Kensington, Inc.</b>	
A/B Box .....	63.
AntiGlare Filter GS .....	34.
Apple Security System .....	33.
Mouse Pocket (Reg. or ADB) .....	8.
Mouseway (MousePad) .....	8.
Turbo Mouse (Reg. or ADB) .....	108.
Printer Muffler 80 .....	47.
Printer Muffler 80 Stand .....	22.
Space Saver Printer Stand .....	19.
System Saver (Platinum or Beige) .....	58.
System Saver GS .....	68.
Universal Copy Stand .....	22.
Universal Printer Stand .....	19.
<b>Koala Technologies</b>	
Koala Pad Plus w/Graphics Exhibitor .....	79.

**Check our low prices. Most of our prices are the lowest in this magazine. If we don't already have the lowest price, WE WILL TRY TO MATCH AND BEAT ANY ADVERTISED PRICE\***

\* "Advertised price" does not include typographical errors on the part of other vendors or prices that do not reflect higher shipping costs, credit card charges, or membership fees. Final judgement remains with the manager on duty.

### Kraft

Floppy Disk Notcher .....	4.
Kraft Universal 3 Button Joystick (Ile, IIC) .....	29.

### Laser Computer Inc.

Laser 128 2 Slot Expansion Box .....	55.
Lynn Products Cables (Specify) .....	13.
Lynx Computer Turbo Trackball (GS) .....	59.

### Maxell

Maxell 3.5 DS, DD (10) .....	14.
Maxell 5.25 DS/DD .....	9.

### Mouse Systems

Littlemouse APlus .....	78.
Littlemouse ADB .....	78.

### Moustrak

MousePad 7"x9" Size .....	8.
MousePad 9"x11" Size .....	9.

### Northgate Computer Systems

OmniMac Ultra Keyboard (IIGS) .....	94.
-------------------------------------	-----

### Orange County Speaker

OCS 2-40 (Stereo Amplifier) .....	125.
-----------------------------------	------

### RC Systems Double Talk

.....	183.
-------	------

### Ribbons

ImageWriter Ribbons available in orange, purple, black, blue, brown, green, red, yellow or silver .....	4.
ImageWriter II-4 Color Ribbon .....	9.
ImageWriter Rainbow Pack (6 Colors) .....	19.
ImageWriter Ribbon-Black (6 pack) .....	19.
<b>Sony</b> Sony 3.5 DS, DD (10) .....	12.

### Sopris

Imagewriter II Case Navy, Platinum .....	42.
--	-----

### Street Electronics

Echo II (AP & GS) .....	99.
-------------------------	-----

<b>Targus</b> Imagewriter II Case Black .....	44.
---	-----

## APPLE COMPATIBLE COMPUTERS

### Apple Computer

IIGS Computer 1MG CPU .....	799.
-----------------------------	------

### Laser Computer Inc.

Laser 128 800K 3.5" Drive w/Controller .....	199.
Laser 128 Cables (Parallel, Serial, RGB or Modem) ..	13.
Laser 128 Computer .....	325.
Laser 128 Mouse .....	44.
Laser 128 System w/Amber Monitor .....	380.
Laser 128 System w/Color Monitor .....	490.
Laser 128EX Computer .....	369.
Laser 128EX II Computer (3.5) .....	429.
Laser 128EX II Computer (5.25) .....	399.
Laser RGB Monitor .....	215.

## BACKUP UTILITIES

<b>Alpha Logic</b> LockSmith v6.0 .....	33.
<b>Apple Computer</b> GS/OS v5.0.2 (GS) .....	39.
<b>Central Point Software</b> Copy II Plus v9.0 .....	24.
<b>Glen Bredon</b> Dos.Master .....	23.
Pro Command .....	23.
ProSel 16 (3.5) .....	53.
ProSel 8 (5.25) .....	36.

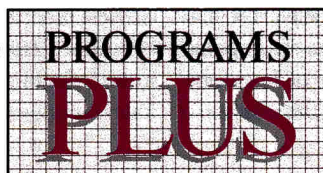
**INDEPENDENCE™**

**Seven Hills**

Software

Now you can produce stunning 300 dot-per-inch text and graphics at a fraction of the cost of expensive laser printers. Independence supports Hewlett-Packard DeskJet and LaserJet printers plus fully-compatibles. Works with AppleWorks GS, GraphicWriter III, Platinum Paint, SuperConvert, and most other GS/OS software. Includes an extra font disk. Printers connect to the IIGS serial port (cable required.)  
 Suggested Retail .....\$39.95  
**Programs Plus Price .....\$23**

**Programs Plus**  
**1-800-832-3201**



Fax: 203-381-9043  
 Inquires: 203-378-3662  
 Canada: 1-800-344-7753  
 75 RESEARCH DRIVE  
 STRATFORD, CT 06497

# & Phenomenal Prices

**Vitesse, Inc.**

Salvation: Deliverance (GS)	29.
Salvation: Exorcisor (GS)	24.
Salvation: Backup (GS)	29.
Salvation: Renaissance (GS)	29.
Salvation: Supreme Pack	125.
Salvation: Wings (GS)	49.

## BUSINESS SOFTWARE

**Abracadata** Everybody's Planner... 49.

**Actsoft**

Alpha Check Plus	34.
Alpha Check v3.1	26.

**Beagle Brothers**

AW v3.0 Companion	23.
Beagle Bros. Clip Art 1 (GS)	26.
Beagle Bros. Desk Accessories (GS)	36.
Beagle Write	45.
Beagle Write Desk Accessories	
or Font Pack 1 or 2	26.
Beagle Write Font Lib. 1 (GS)	31.
Beagle Write Picture Manager	25.
Beagle Write (GS)	57.
GS Font Editor or Program Writer	29.
Outliner for Appleworks 3.0	41.
Superfonts Activity Guide	29.
Timeout Decision Pak (Graph, SpreadTools & SideSpread)	85.
Timeout Graph	49.
Timeout MacroEase	23.
Timeout Performance Pak (DeskTools I, II & PowerPack)	65.

Timeout QuickSpell	40.
Timeout ReportWriter	42.
Timeout SideSpread, FileMaster, or DeskTools	30.
Timeout Style Pak (SuperFonts, Thesaurus & FileMaster)	79.
Timeout SuperForms	40.
Timeout SuperForms	39.
Timeout TextTools	29.
Timeout Thesaurus, DeskTools II or PowerPack	29.
Timeout UltraMacros or SpreadTools	34.

**Big Red Software**

Labels, Labels, Labels	22.
------------------------	-----

**Broderbund**

Bank Street Writer Plus (AP or C+)	47.
------------------------------------	-----

**Claris**

Apple Works v3.0	168.
Apple Works (GS) v1.1	192.

**Intuit** Quicken v1.0 ..... 37.

**Manzanita**

BusinessWorks Bundle AP & GS (Sys. Manager, G/L, A/P, A/R, Inventory)	248.
BusinessWorks Payroll (AP & GS)	98.

**Meca Software**

Managing Your Money v4.0 (AP & GS)	88.
------------------------------------	-----

**Micca Soft**

Invoicer w/A/R & Sales Tracking/Inventory	125.
---	------

**Milliken Publishing** Medley (GS) ..... 74.

**Nolo Press** Will Maker v3.0 ..... 33.

**Seven Hills Software**

Graphicwriter III (GS)	72.
------------------------	-----

**Sierra On-Line** Smart Money (GS) ..... 45.

**Stone Edge**

DB Master Professional (AP & GS)	179.
----------------------------------	------

**Timeworks, Inc.**

Art Portfolio 4 in 1	69.
Graph It!	43.
People, Places and Things, Design Ideas	25.
Publish-It v3.0 (AP & GS)	73.
Swiftax	45.
Symbols and Slogans, Education Graphics, Font Pack 1 or 2 (AP & GS)	25.

**WordPerfect Corp.**

WordPerfect (AP or GS)	104.
------------------------	------

## COMMUNICATION SOFTWARE

**Applied Engineering** ReadyLink ..... 57.

**Beagle Brothers**

Point-to-Point	58.
TimeOut TeleComm	41.

**Compuserv**

Compuserve Membership Kit	23.
---------------------------	-----

**InSync** ProTerm ..... 77.

**Morgan Davis Group**

ModernWorks	29.
-------------	-----

ProLine	95.	AE 5.25" Drive	121
Softspoken Crossworks	67.	Controller Card for 3.5" Drive (IIe or II+)	62
		Disk II Style Controller Card	49
		Transdrive 360K Dual-Drive	289
		Transdrive 360K Single-Drive	185
		Transdrive Additional-Drive (for TD single)	130
		Vulcan 100 Meg (AP or GS)	1279
		Vulcan 20 Meg (AP or GS)	498
		Vulcan 40 Meg (AP or GS)	639
		<b>CMS Enhancements</b>	
		20 MB w/SCSI II card	459
		30 MB w/SCSI II card	492
		60 MB w/SCSI II card	569
		CMS 45 Removable w/A2S	799
		Cartridge for 45 Removable	99
		SCSI Rom Upgrade	23
		MC20-Classie, IIsi	280
		MC40-Classie, IIsi	370
		MC100-Classie, IIsi	610
		<b>CV Technologies</b>	
		Ramfast SCSI Card w/256K Ram	178
		<b>Laser Computer Inc.</b>	
		Laser 128 5.25 Disk Drive	88
		Laser 800KB Drive	175
		Laser 800KB Drive w/controller	205

**DISCOUNTS BY MAIL.** Circle the items in our ad you want, send the ad in with the coupon below and receive \$.50 off each item! (subject to the conditions below)

**If Ordering At The Last Minute, Our Air Express Service Can Rush Your Software/Hardware To You.**

Send Coupon and List of Items Desired To:

**Discounts By Mail Department**  
**Programs Plus, 75 Research Drive, Stratford, CT 06497**

TO BE ELIGIBLE FOR THE \$.50 PER ITEM DISCOUNT YOU MUST:

1. Fill out all items.
2. Send in our ad with the items you desire circled.

Name \_\_\_\_\_

Address (include company name) \_\_\_\_\_

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

Phone No. at above address \_\_\_\_\_

Check form of payment:

- VISA    MasterCard    DISCOVER    C.O.D.  
 Personal Check    Certified Check    Money Order

Card No. \_\_\_\_\_

Exp. Date \_\_\_\_\_

Personal and company checks allow 3 weeks to clear. For faster delivery, send cashier's check, certified check, or money order. Shipping - Software (\$5.00 minimum). Shipping - Hardware (please call 203-378-3662 or 800-832-3201). COD - Add an additional \$3.50. Alaska, Hawaii, Canada, PO, APO, and FPO \$6.00 minimum. Foreign orders - \$15.00 minimum and 15% of all orders over \$100. MasterCard, VISA and DISCOVER (please include card no. and expiration date). Connecticut residents add 8% sales tax. Prices subject to change without notice. All returns must have a return authorization number. Call 203-378-3662 to obtain one before returning goods for replacement. Defective merchandise replaced with same item only. We do not guarantee compatibility. All sales are final.

## DISK DRIVES & HARD DISK SUB-SYSTEMS

**American Micro Research (Micro Sci)**

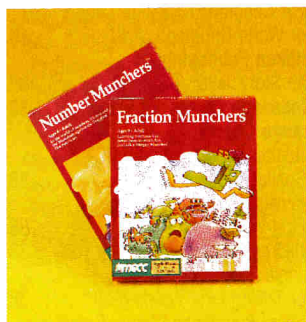
A.5 Half Height (II+ & IIE)	129.
A.5C Half Height (IIC)	129.
A5 D Half Height 5.25" Drive (IIIS Daisychain)	135.
AMR 800K Drive w/Controller	215.
AS800K 3.5 Ext. Drive	168.
GS Partner: Quick 20MB	515.
GS Partner: Quick 40MB	585.
GS Partner: Quick 60MB	665.

**Apple Computer**

Apple 3.5 Drive (GS & C+)	309.
Apple 3.5 Unidisk	315.
Apple 5.25 Drive (IIE, GS, C+)	248.
High Speed DMA SCSI Card	105.
Unidisk 3.5 Controller	58.

**Applied Engineering**

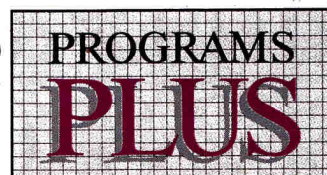
AE 3.5" Drive	199.
AE High Density Drive (GS)	152.



**JOIN THE MUNCHERS FOR A MATH ADVENTURE**  
 With MECC's *Number Munchers* and *Fraction Munchers*, hungry Munchers are out to make a meal of tricky math challenges before they become a meal for the mischief-making Troggles. They're counting on your quick thinking and math skills to reach the Muncher Hall of Fame safely. No matter what your age or skill level, *Number Munchers* and *Fraction Munchers* are gobbling-good fun for the entire family.  
 Suggested Retail ..... \$39.95  
**Programs Plus Price ..... \$24**

# Programs Plus

# 1-800-832-3201



**Free Freight - Ask Operators For Details**

# We Carry A Full Line of

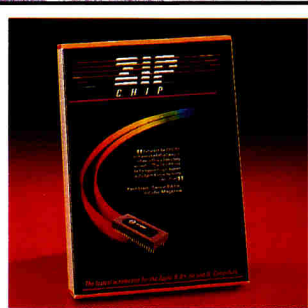
**We sell more Apple II  
Software than anyone else!**

**Mac LC (has Series II card)**

**MacClassic 240**

**Mac II SI • Mac II CI • Mac II FX**

**CALL**



**SUPER SPEED UP YOUR  
IIGs FOR LESS!**

**Patented model 1600 GSX Board by Zip Technology** has super deluxe features for less. *Safe* and *easy* to install, it will speed up all major hardware and software to 8 MHz Plus. Comes standard with 16K memory and is DMA compatible. The GSX is fully upgradeable to 64K of cache memory and 10 MHz with up-grade kit. Suggested Retail .....\$350.00  
**Programs Plus Price .....\$249**

Also available:  
4 MHz .....\$98.  
8 MHz .....\$139.

Universal Disk Controller .....44.  
**Omnishore**  
Sider D2 20MB HD .....419.  
Sider D4/T 40MB HD .....789.

## EDUCATIONAL SOFTWARE

**A.E.C.**  
Spanish Vocabulary  
or Spanish Grammar .....16.

### SPECIAL EDITION PRODUCTS WITH TEACHER'S GUIDES

Return of the Dinosaurs:  
Teacher's Edition .....39.  
Lab Pack .....68.  
Super Lab Pack .....105.  
Excel-A-Read:  
Teacher's Edition .....39.  
Lab Packs .....89.  
Spanish or French Vocabulary  
& Grammar:  
Teacher's Pack .....39.  
Lab Packs .....74.

### AEC Management Systems

Phonics .....31.  
U.S. History .....16.  
World History .....16.

### Activision

Music Studio v2.0 (GS) .....43.

### Advanced Idea

Audubon Wildlife Adventures:  
Grizzly Bears (5.25) .....32.  
Audubon Wildlife Adventures:  
Whales (5.25) .....32.  
Audubon Wildlife Adventures:  
Grizzly Bears(GS) .....38.  
Audubon Wildlife Adventures:  
Whales GS) .....38.  
Stars & Planets (GS) .....27.  
Wizards of Words .....25.

### Barron's

Computer SAT Revised Version .....31.

### Britannica

Algebra 1: 1st & 2nd Semester .....46.  
Algebra 1: 1st or 2nd Semester .....27.  
Designasaurus or Revolution (3.5) .....27.  
Spellicopter .....22.

### Broderbund

Geometry (3.5) .....49.  
McGee or Katie's Farm (3.5) .....25.  
Playroom .....24.  
Playroom (MAC) .....29.

cepted, based on credit approval. To submit purchase orders, call our business office at 203-378-1926 or 800-832-3201, 9am-5:30pm EST. Shipping on corporate and school orders billed at cost.

### SHIPPING

- **Continental U.S.** Add \$7.00 minimum per order to cover DHL Overnight Service, unless UPS ground delivers next day. Some areas require an additional day. (UPS ground service available at reduced rate per customer request.) Saturday delivery available to many areas upon request.
- **Order by 5:30pm EST Monday-Friday** and all (in-stock items) will ship that evening for overnight delivery, barring system failure, etc.
- **Alaska, Hawaii, outside Continental U.S., APO and FPO:** call (203) 378-3662 or write for shipping information.
- **Mail-in orders** (especially from foreign countries), please furnish telephone or fax number.

Science Tool Kit Module I or II .....25.  
Science Tool Kit Master Module .....49.  
Type! .....17.  
Where in Europe  
is Carmen Sandiego? (AP or C+) .....27.  
Where in the USA  
is Carmen Sandiego? .....27.  
Where in the USA  
is Carmen Sandiego? (GS) .....29.  
Where in the World  
is Carmen Sandiego? .....25.  
Where in the World  
is Carmen Sandiego? (GS) .....29.  
Where in Time  
is Carmen Sandiego? (AP or C+) .....27.

### Computeach

Stepping Stones 1 & 2 .....29.  
Studymate-The Grade  
Booster (3.5 or 5.25) .....26.

### Davidson & Associates

Alge-Blaster Plus (AP or GS) .....28.  
Math Blaster Plus (AP or GS)  
or Grammer Gremlins .....28.  
Math Blaster Plus (GS) .....28.  
Read 'N' Roll .....29.  
Reading & Me .....25.  
Speed Reader II  
(Consumer Version) .....25.  
Speed Reader II (School Version) .....42.

Spell-It Plus (AP or GS) or  
Math Blaster Mystery (AP or C+) .....29.  
Talking Math & Me (GS)  
or Talking Reading & Me (GS) .....28.  
Word Attack Plus (AP or GS) .....29.  
Word Attack Plus  
Spanish or French .....29.

### Fisher Price

I Can Remember  
or Firehouse Rescue .....9.  
Little People Bowling .....9.

### Gametek

School Bus Driver or  
Chutes & Ladders .....9.

### Grade Busters Corp.

Grade Busters 1, 2, 3 .....69.

### Great Waves Software

Kidstime II (GS) .....22.

### Learning Company

Magic Spells (3.5 or 5.25)  
or Gertrudes Secrets (3.5) .....22.  
Math Rabbit (3.5 or 5.25) .....22.  
Reader Rabbit (5.25) .....22.

Talking Reader Rabbit (3.5) .....32.  
Think Quick (3.5 or 5.25)  
or Writer Rabbit (3.5 or 5.25) .....29.  
Writing and Publishing  
Center (3.5 or 5.25) .....31.

### MECC

Arithmetic Critters (3.5 or 5.25) .....22.  
Calendar Crafter  
Home Edition (3.5) .....29.  
Calendar Crafter  
School Edition (3.5) .....38.  
Counting Critters (3.5 or 5.25) .....22.  
First Letter Fun (3.5 or 5.25) .....24.  
Fraction Munchers (3.5 or 5.25) .....24.  
Fun from A to Z (3.5 or 5.25) .....24.  
Number Munchers or Word Munchers  
(3.5 or 5.25) .....SPECIAL 24.  
Oregon Trail or Patterns  
(3.5 or 5.25) .....22.  
Paint with Words (5.25) .....24.  
Spellevator (3.5 or 5.25) .....24.  
USA Geograph (3.5)  
or World Geograph (3.5) .....49.

### Milliken Publishing

The Story Teller (GS only) .....32.  
**Mindscape** Crossword Magic .....33.

### Orange Cherry

Addition & Subtraction, ABC's,  
Speller, Clock or Money .....38.  
Animals, Dinosaurs, Numbers,  
First Writer, First Reader .....38.  
Childrens Newspaper Maker (GS) .....38.  
Jungle Safari  
or Talking First Words (GS) .....38.  
School Bus, Alpha Chimp, Colors &  
Shapes, Reading Railroad .....38.  
Talking Multiplication &  
Division (GS) .....38.  
Talking Speller II (GS) .....38.

### Quebe

Dinosaur Days .....21.  
Facemaker Gold Edition .....31.  
Kidwriter (5.25) .....25.  
Kidwriter Gold Edition (3.5) .....39.

### Sensible Software

Report Card II (AP & GS) .....37.  
Sensible Grammar (AP & GS) .....52.

### Simon & Schuster

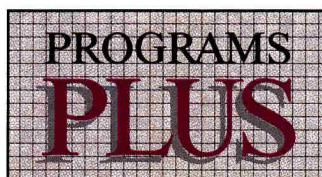
Typing Tutor IV (AP or GS) .....26.

### Software Toolworks

Mavis Beacon Typing (5.25) .....25.  
Mavis Beacon Typing (3.5) .....31.

# Programs Plus

# 1-800-832-3201

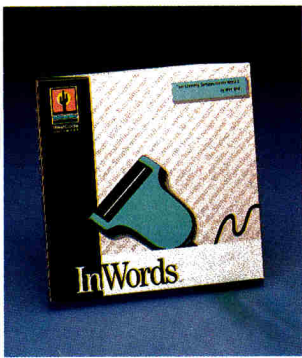


Fax: 203-381-9043  
Inquires: 203-378-3662  
Canada: 1-800-344-7753  
75 RESEARCH DRIVE  
STRATFORD, CT 06497

Circle 128 on Reader Service Card.



# Software for Apple & Mac



**TEXT SCANNING SOFTWARE**  
**InWords** by WestCode is OCR software for the Apple IIe and IIgs. With InWords and a hand-held scanner, you can scan in virtually any printed information - articles, books, contracts, lesson plans, and more - into a file for your word processor, data base, spreadsheet or desktop publishing program. Scans up to 500 words per minute. Requires 512K and Quickie.  
 Suggested Retail .....\$129  
**Programs Plus Price .....\$77**

- Mavis Beacon Typing (MAC) .....32.
- Terrapin Logo Plus** .....75.
- TimeWorks, Inc.**
- Evelyn Wood: Dynamic Reader.....25.
- Weekly Reader**
- New Talking Alphabet (3.5) .....27.
- New Talking Opposites (3.5)  
or Sentence Fun (3.5) .....27.
- New Talking Shapes (3.5)  
or Spelling Rules (3.5) .....27.
- StickyBear Punctuation (5.25).....27.
- StickyBear Vocabulary (5.25) .....27.
- StickyBear Series:  
Full Line Available .....CALL

## ENTERTAINMENT SOFTWARE

- Accolade**
- 4th & Inches (GS) or Fastbreak .....27.
- Bubble Ghost (GS) .....21.
- California
- or European Challenge (GS) .....15.
- Cycles (MAC) .....31.
- Grand Prix Circuit (GS).....27.
- Ishido (MAC) .....34.
- Jack Nicklaus 1990 Courses (GS) ..15.
- Jack Nicklaus Course Disk  
Vol. 1 or 2 (GS) .....15.
- Jack Nicklaus Golf (GS) .....CALL
- Jack Nicklaus Golf (MAC) .....CALL
- Jack Nicklaus Course  
Vol. IV (GS) .....15.
- Jack Nicklaus Course  
Vol. IV (MAC) .....15.
- Mean 18 (GS), Hardball (GS), .....27.

- Muscle Cars or Supercars (GS) .....15.
- Serve and Volley (GS) .....25.
- Stratego (MAC).....31.
- Test Drive II (GS) .....28.
- Test Drive II (MAC) .....29.
- Third Courier (GS) .....30.
- Sky Travel (AP & GS) .....30.

### Artworx

- Bridge 6.0 (AP or GS)  
or Strip Poker II (GS) .....25.
- Kaleidokubes (GS) .....14.

### BlueLion

- Ticket to Hollywood or London .....25.
- Ticket to Spain.....25.
- Ticket to Washington D.C.....28.

### Britannica

- Gnarly Golf (GS).....17.
- Great Western Shoot-Out (GS) .....17.
- JigSaw (GS) .....23.
- Laser Force (GS).....17.
- Task Force (GS) .....23.

### Broderbund

- Ancient Art of War .....28.
- Ancient Art of War at Sea .....28.
- Centauri Alliance  
or Jam Sessions (GS) .....30.
- The Dark Heart of Uukrul .....30.
- VCR Companion .....30.
- Wings of Fury (AP & GS)  
or Prince of Persia .....22.

- ByteWorks** Ugly Duckling (GS) .....25.

### California Dreams

- Block Out (GS).....26.
- Tunnels of Armageddon (GS).....26.
- Vegas Gambler (GS) .....26.

### Casady & Greene

- Crystal Quest (GS).....29.

### Cinemaware

- Star Saga 1 (AP or GS)  
or Star Saga 2 (GS) .....32.

### Compu-Teach

- Once Upon a Time .....26.
- Once Upon A Time (GS)  
or Once Upon A Time II (GS).....33.
- Puppet Playhouse (AP, C+ or MAC).....28.
- See the U.S.A. .....26.

### Datasoft

- Hunt for Red October (AP or GS) .....21.

### Electronic Arts

- Bards Tale (GS) .....14.
- Bards Tale II .....14.
- Bards Tale III  
or John Madden Football .....31.
- Cartooners (GS), Bards Tale II (GS) 20.
- Earl Weaver Baseball .....14.
- Instant Synthesizer (GS) .....32.
- Marble Madness (GS) .....14.
- Skate or Die (GS) .....14.
- The Immortal (GS) .....32.
- Zany Golf (GS).....26.

### FTL

- Dungeon Master (GS).....23.
- ODS! (MAC) .....25.

### GameTek

- Double Dare or Press Your Luck .....9.

### Infocom

- Battle Tech .....19.

■ **24-Hour Fax Line 203-381-9043**  
 ■ **DHL Overnight Delivery**  
 ■ **Packing Materials**  
**100% Safe for the Environment**

- Journey .....19.
- ShoGun or Zork Zero .....12.

### Interplay

- Battle Chess .....27.
- Battle Chess (GS)  
or DragonWars (AP & GS).....29.
- Neuromancer (GS) .....14.

### Interstel Empire

- .....26.

### Leisure Genius

- Clue, Risk, or Scrabble .....26.

### Lucasfilm Games

- Maniac Mansion .....15.
- Pipe Dream .....17.

### Melbourne

- Quarterback (AP or GS).....14.
- War in Middle Earth (GS) .....27.

### Micro League Sports

- Micro League Baseball  
w/General Manager & Stats .....24.

### Micro Revelations Xenocide (GS)

- .....28.

### MicroIllusions Firepower (GS)

- .....21.

### Microprose

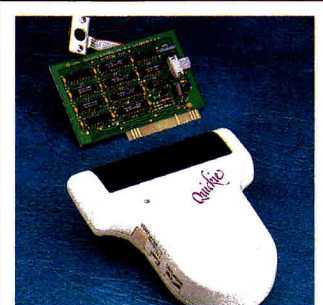
- F-15 Strike Eagle .....12.
- Pirates (GS).....28.

### Miles Computing, Inc.

- Questmaster .....22.
- Questmaster (GS).....26.

### Mindscape

- Balance of Power 1990 (GS).....32.
- Gauntlet (GS).....12.



### QUICKIE - FIRST HAND SCANNER FOR YOUR APPLE II COMPUTER BY VITESSE, INC.

Allows you to scan in true grey or B&W, 320/640 mode. Features include Landscape/Portrait Scan, cut/paste, open multiple windows, fat bits edit, resize, rotate, flip, direct print, save to six formats, NDA and MORE! **ONLY** scanner that's Inwords OCR Software compatible.  
 Suggested Retail .....\$299.  
**Programs Plus Price .....\$191**

- Hostage (GS)  
or Captain Blood (GS) .....26.

### New World Computing

- Kings Bounty .....26.
- Might & Magic .....18.
- Might & Magic II .....32.

### Origin Systems

- Space Rogue, Knights of Legend  
or Omega (AP or GS) .....30.
- Times of Lore (AP & GS)  
or WindWalker .....25.
- Ultima IV, Ultima V .....37.
- Ultima Trilogy (I, II & III) .....37.
- WindWalker (GS) .....25.

### Polarware Transylvania 3 (GS)

- .....15.

### Ready Soft Space Ace (GS)

- .....33.

### Sierra On-Line

- Gold Rush (AP or GS)  
or Black Cauldron (GS) .....25.
- Kings Quest I, II, III or IV .....29.
- Kings Quest I, II, III or IV (GS) .....29.
- Leisure Suit Larry (AP or GS) .....25.

### ManHunter New York (AP or GS)

- or Police Quest (AP or GS) .....29.

### Mother Goose (AP or GS)

- .....19.

### Space Quest

- or Space Quest II (GS) .....29.

### Thexder (AP or GS)

- or Silpheed (GS) .....22.

### Sir-Tech Software

- Wizardry Trilogy (includes I, II, III) .....29.

### Software Toolworks

- Chessmaster 2100 .....26.
- Chessmaster 2100 (GS) .....31.
- Cribbage/Gin King (GS) .....25.
- Keef the Thief (GS) .....14.
- Life and Death (GS) .....33.

### Spectrum Holobyte

- Solitaire Royale (GS) .....20.
- Tetris (AP & GS) .....23.

### Strategic Simulations

- AD&D Champions Krynn  
or Overrun .....32.
- AD&D Pool of Radiance .....30.
- Curse of the Azure Bond (GS) .....33.
- War of Lance .....27.

### SSG

- Gold of the Americas (GS) .....28.
- Gold of the Americas (MAC) .....32.
- Halls of Montezuma (GS) .....29.
- Halls of Montezuma (MAC) .....26.

### Panzer Battles (GS)

- .....32.

### Panzer Battles (MAC)

- .....32.

### Reach for the Stars (GS)

- .....28.

### Reach for the Stars (MAC)

- .....32.

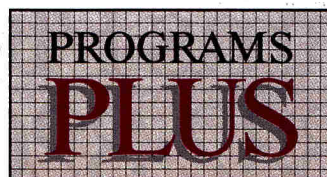
### Rommel (MAC)

- .....32.

### Victory Software

- 2088: The Crylan Mission  
The Second Scenario .....33.

**Programs Plus**  
**1-800-832-3201**



Fax: 203-381-9043  
 Inquires: 203-378-3662  
 Canada: 1-800-344-7753  
 75 RESEARCH DRIVE  
 STRATFORD, CT 06497

# Programs Plus is the best value for all your Apple & GS needs!



## LIGHTNINGSCAN GS MAKES STRAIGHT SCANNING EASY

**LightningScan® GS by Thunderware.** Scan photos, drawings and text instantly! Only LightningScan GS lets you change contrast and brightness, colorize images and view a histogram. The only hand-held scanner with SnapGuide, the guide that makes straight scanning easy. Runs on any Apple IIGs with 512K. Can be upgraded to work on the Macintosh. Includes new NDA to scan and paste images into GS/OS programs.  
Suggested Retail .....\$295.  
Programs Plus Price .....\$194.

- 2088: The Cryllan Mission (GS) ..... 32.
- Secrets of Bharas ..... 36.
- Walt Disney**
- Mickey's Crossword Puzzle Maker .. 24.

## GRAPHICS PACKAGES

- Abracadabra**
- Architecture Library 1, 2, 3 or 4 (AP or GS) ..... 19.
- Design Your Own Home:
- Architecture (3.5) ..... **SPECIAL** 47.
- Interiors (3.5) ..... **SPECIAL** 47.
- Landscape (3.5) ..... **SPECIAL** 47.
- Architecture (5.25) ..... **SPECIAL** 37.
- Interiors (5.25) ..... **SPECIAL** 37.
- Landscape (5.25) ..... **SPECIAL** 37.
- Design Your Own Home: (MAC)
- Architecture, Interiors, Landscape ..... 59.
- Design Your Own Railroad ..... 32.
- Design Your Own Train ..... 32.
- Electronic Drawing ..... 32.
- Interiors Library 1, 2 (AP or GS) ..... 19.
- Landscape Library 1 ..... 19.
- Baudville**
- 816/Paint ..... 42.
- Award Maker Plus (AP & GS) ..... 28.
- Beagle Brothers**
- Beagle Draw (GS) ..... 53.
- Platinum Paint (GS) ..... 58.
- Berkeley Geoworks**
- GEO Publish ..... 58.
- GEOS V2.1, GEOCalc or GEOFile ..... 43.

- Big Red Software**
- PS Lover's Utility Set (3.5) ..... 26.
- PS Lover's Utility Set (5.25) ..... 26.
- Broderbund**
- Bannermania (AP or GS) ..... 22.
- Dazzle Draw ..... 33.
- New Print Shop (AP or C+) ..... 29.
- New Printshop Graphics Party (AP) .. 22.
- New Printshop Graphics Party (C+) .. 18.
- New Printshop Graphics
- Sampler Ed. (AP) ..... 19.
- New Printshop Graphics
- Sampler Ed. (C+) ..... 19.
- New Printshop School & Business Ed. (AP or GS) ..... 19.
- Print Shop Companion (GS Specific) ..... 29.
- Print Shop Graphics Library
- Party Edition (GS) ..... 19.
- Print Shop Graphics Library
- Sampler Edition (GS) ..... 19.
- PrintShop(GS) ..... 30.
- Creative Pursuits**
- Clip-Art for Writing & Publishing Center
- Combo Pack (AP) ..... 48.
- Holiday Disk (AP) ..... 20.
- Nature Disk (AP) ..... 20.
- People, Places Disk (AP) ..... 20.
- Eclat Fractal Explorer (AP or GS) .. 26.**
- Electronic Arts**
- DeluxeWrite w/DeluxePaint II (GS) .. 26.
- El Kassir Software**
- COLOR+ (GS) ..... 42.
- Supergraphix II (GS) ..... 52.
- Hitech Super Mario Print Kit ..... 13.**
- Orange Cherry**
- Super GS Award Maker ..... 49.
- Roger Wagner**
- Graphic Exchange (GS) ..... 29.
- Hyper Studio (GS) ..... 82.
- Saddleback My Paint (GS) ..... 32.**
- Seven Hills Software**
- Font Factory (GS) ..... 22.
- SuperConvert (GS) ..... 22.
- So What Software Iconix (GS) ..... 26.**
- Spinnaker**
- Certificate Maker ..... 24.
- Certificate Maker Library #1 ..... 19.
- Newsroom ..... 19.
- Newsroom Clip Art Collection
- Vol. 1, 2 or 3 ..... 14.
- Triad Venture**
- GDL Graphic Disk Labeler (GS v2.0) ..... 24.
- The HYPERSTUFF Collection:
- Cliptunes ..... 25.
- Clipart Plus ..... 25.
- VersaCAD Corp. CADapple (3.5) .. 199.**

## MODEMS & MONITORS

- Anchor Automation** 2400E ..... 129.
- Apple Computer**
- Apple Color Composite Monitor ... 325.

- Apple GS Color Monitor ..... 454.
- Applied Engineering**
- DataLink Express (ext. 2400) .... CALL.
- DataLink Express w/MNP 5 ..... CALL.
- DL-X W/MNP-5 & Send FAX Option (GS) ..... 230.
- DataLink Modem 2400B (Int AP & GS) ..... 158.
- Datalink LC Modem w/Send FAX .. 260.
- Hayes MicroComputing**
- Hayes 2400 SmartModem ..... 335.
- Practical Peripherals**
- Practical Modem 1200 SA Mini ..... 80.
- Practical Modem 2400 MNP ..... 219.
- Practical Modem 2400 SA ..... 185.
- Prometheus**
- Pro Modem 2400A Internal w/Software ..... 122.
- Supra Corporation**
- SupraModem 2400 (Hayes Compatible) ..... 99.
- U.S. Robotics**
- Courier HST 9600 ..... 599.

## PRINTER INTERFACES

- Apple Computer**
- Apple Super Serial Card ..... 105.
- Applied Engineering**
- Parallel Pro ..... 74.
- Serial Pro ..... 97.
- Orange Micro**
- Grappler 9 pin ..... 79.
- Grappler Plus (AP & GS) ..... 69.
- Seven Hills Software**
- Independence (GS) ..... **SPECIAL** 23.
- SMT**
- Envoy ..... 53.
- No Slot Clock ..... 29.
- Print Tech II ..... 29.
- Thirdware**
- Finger Print GSi verIII (Includes Desktop Accessories-GS) ..... 83.
- Finger Print Plus (Parallel, Serial, or ImageWriter II) ..... 83.
- Upgrade Kit (FingerPrint I & II) ..... 29.
- Vitesse, Inc.** Harmonie V2.0 (GS) ... 29.
- Xetec Inc.**
- Superwriter 924 (GS, C+, C) ..... 44.

## PRINTERS

- Apple Computer** ImageWriter II .... 455.
- Brother** M1109-AP Printer ..... 179.

## SCANNERS AND SOFTWARE

- Digital Vision**
- ComputerEyes (GS) ..... 193.
- ComputerEyes (IIE) ..... 99.
- ComputerEyes (MAC II) ..... 348.
- Thunderware**
- Lightningscan (GS) ..... **SPECIAL** 194.
- Thunderscan (AP & GS) ..... 139.
- Thunderscan 5.0 (MAC) ..... 169.
- Vitesse, Inc.**
- Quickie (AP & GS) ..... **SPECIAL** 191.
- Quickie Update ..... 80.
- WestCode** Inwords ..... **SPECIAL** 77.

## UTILITIES AND LANGUAGES

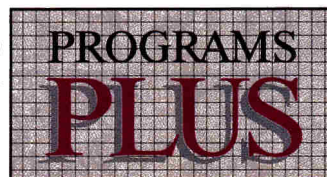
- Absoft** AC/BASIC (GS) ..... 79.
- ByteWorks**
- ORCA C w/Learn to Program ..... 119.
- ORCA/DeskTop (GS) ..... 34.
- ORCA/C (GS) ..... 79.
- ORCA/Design Master (GS) ..... 49.
- ORCA/Disassembler (GS) ..... 32.
- ORCA/M Assembler (GS) ..... 39.
- ORCA/Pascal (GS) ..... 80.
- ORCA/Pascal w/Learn to Program .. 119.
- Micol Systems**
- Micol Advanced Basic IIE ..... 59.
- Micol Advanced Basic (GS) v3.0 ... 89.
- Morgan Davis Group** MD-Basic .... 25.
- Roger Wagner**
- Macro Mate (GS) ..... 35.
- Merlin 8/16 (AP & GS) ..... 75.
- SoftSwitch (GS) ..... 34.
- Seven Hills Software**
- Disk Access (GS only) ..... 32.
- So What Software**
- Call-Box (GS) ..... 69.
- Disc Commander (GS) ..... 29.
- Hyper Launch (GS) v3.0 ..... 35.
- Sonix (GS) ..... 34.
- Zedcor** ZBasic v4.21 ..... 39.

## 100% Applied Engineering Memory Board with Factory Installed Chips

Some mail-order companies buy AE memory boards and install their own RAM chips. Programs Plus sells only genuine AE memory boards with factory installed RAM. Sure we might be able to sell our boards less expensive than our already low price but we don't want our customers to go through any hassles should an unlikely failure occur within AE's 5 year warranty period. With Programs Plus, you won't have to remove all of your chips before sending your memory board to AE for service. Your entire AE board (including RAM chips) will be backed with AE's 5 year warranty for parts & labor!

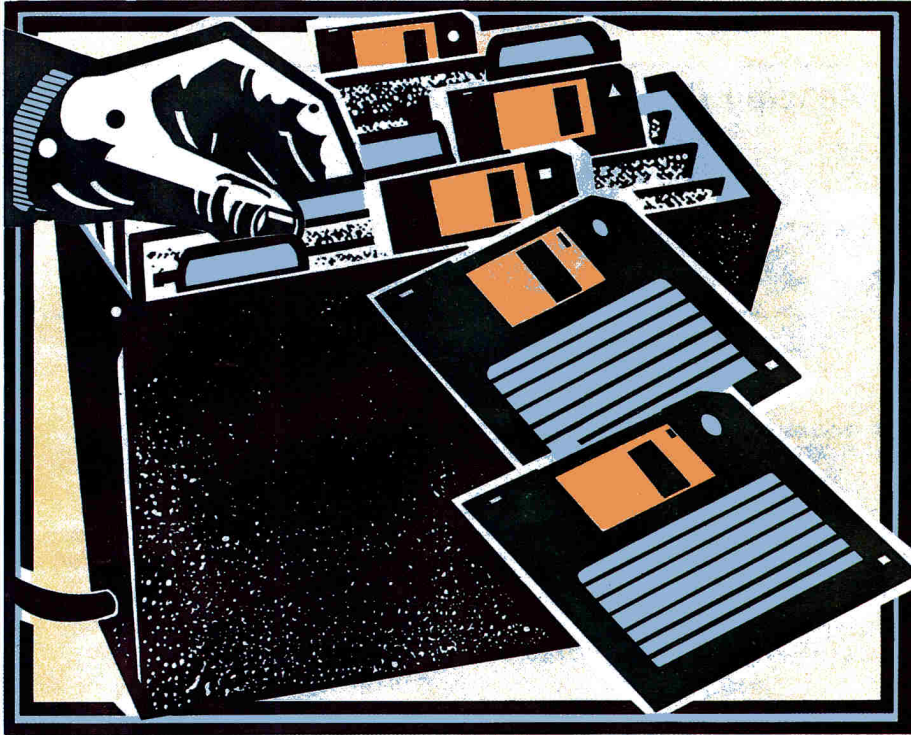
# Programs Plus

# 1-800-832-3201



Fax: 203-381-9043  
Inquires: 203-378-3662  
Canada: 1-800-344-7753  
75 RESEARCH DRIVE  
STRATFORD, CT 06497

# IT PAYS TO BE ORGANIZED



Don't let your hard drive's speed and convenience go to waste — follow your operating system's own file structure to manage your data effectively and efficiently.

By Gary R. Morrison and Walker Archer

**N**o doubt about it — a hard-disk drive represents no small investment of your hard-earned cash. Getting more for your money isn't just a matter of careful bargain hunting, though. Once you take that hard drive home, making your venture pay off may depend on how well you understand the way ProDOS or GS/OS — your computer's *operating system*, or *system software* — organizes your program and data files on disk. If you ignore the system software's *hierarchical file structure* (HFS), you'll use only a fraction of your hard disk's storage capacity.

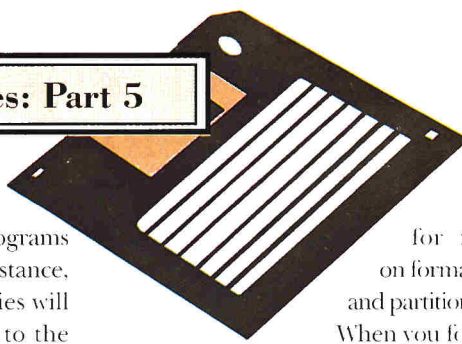
If you've installed GS/OS on your hard drive (see "The Wizard of OS," April 1991, p. 53, for details) and used the Finder to examine the contents of your disk, you've probably noticed a number of file-folder icons on screen. (Or if you're familiar with the Macintosh, you know that machine's operating system is similar in form and function. See "Family Ties: A Striking Resemblance in System Software," February

1991, p. 52.) So the HFS concept isn't new, really — it's analogous to an older method of organization that's quite familiar to all of us. After all, you wouldn't stuff papers randomly into a file drawer. You'd sort them first — alphabetically, or by topic — in separate folders so that you could find them easily again. GS/OS uses this metaphor to illustrate its organizational system. (ProDOS' system is similar; ProDOS files are grouped under subdirectory names instead of file-folder icons.) Just as a file cabinet can contain several folders organized by topic, a hard drive can store information in subdirectories (ProDOS) or folders (GS/OS) containing similar files grouped together.

### A PATH TO YOUR DOOR

GS/OS and ProDOS disks, both floppy and hard, are also known as *volumes*. If you've subdivided your hard drive, each partition is a separate volume, as well. When you format a disk, you give it a name. Each volume is identified by a beginning slash — /APPLEWORKS, /DICT, /PAINT, for example. If you don't choose ◊

## Hard-Disk Drives: Part 5



a name, most drive-formatting programs will assign one as a default. For instance, the GS/OS Advanced Disk Utilities will assign the name /UNTITLED1 to the first partition of any drive for which you neglect to specify a name. (See part 3, "Off the Beaten Track," March 1991, p. 88.

for more on formatting and partitioning.) When you format a disk, the operating system also sets aside an area on the disk for the volume's *directory* — a listing of names and

sizes of files stored on disk. GS/OS and ProDOS store data on any disk according to a filename that is at least one letter long and can have as many as 15 letters, numbers, or periods (just as long as it starts with a letter). If you've ever created a new file with AppleWorks, for instance,

## Getting Around in GS/OS

### /SYSTEM.DISK

#### PRODOS

Similar to 8-bit ProDOS (P8 below) only in that it's the first file executed when you boot GS/OS. Unlike ProDOS 8, this file is only a small part of the operating system — it merely starts things off.

#### BASIC.LAUNCHER

Used by the Finder to launch ProDOS 8 BAS or BIN files from GS/OS.

#### BASIC.SYSTEM

Run to access the Applesoft BASIC interpreter. Contains only a small part of the language; the rest resides in ROM (read-only memory). Primary function is to provide a file I/O (input/output) interface between ProDOS and BASIC. Without this file in memory you can't use file I/O commands such as CATALOG and OPEN.

### /SYSTEM.DISK/SYSTEM

#### START.GS.OS GS.OS GS.OS.DEV

Contain the primary routines GS/OS uses. START.GS.OS is second part of GS/OS bootstrap process; called directly by PRODOS file. You can launch START.GS.OS directly from ProDOS 8 to get into GS/OS (not recommended). When GS/OS boots it assumes the computer is either being reset or powered on; if any interrupt processes are still installed when GS/OS starts up, the result could be a crash with dire consequences.

#### ERROR.MSG

Contains GS/OS error messages.

#### EXPRESSLOAD

Contains additional routines for fast loading of disk files.

#### START

Finder program. When GS/OS starts up, it looks for any S16-type (GS/OS system file) program named START in this subdirectory. If it finds one it will automatically launch it at boot time.

#### P8

ProDOS 8 PRODOS file; launches ProDOS 8 applications.

**/SYSTEM.DISK/SYSTEM/FSTS/** Contains file system translators. GS/OS can't perform lower-level operating-system tasks, such as reading from and writing to disks itself. Instead it looks for driver and FST programs to do the work for it. GS/OS includes an FST that can read and write ProDOS disks, as well as one that can input from and output to any device that deals with data character by character, such as a printer or modem. A GS running GS/OS could write to or read disks for any operating system, if someone would write a Mac or MS-DOS FST, or send to and receive information from any kind of device. An FST that retrieves data from a CD-ROM disc in standard High Sierra format is already available.

#### PRO.FST

ProDOS file system translator.

#### CHAR.FST

File system translator for character devices, such as modems and printers.

**/SYSTEM.DISK/SYSTEM/DRIVERS/** Contains drivers for specific devices; takes care of the low-level requests from GS/OS, such as reading and writing blocks to and from disk. Drivers describe to GS/OS exactly how to use the particular device for which they were written. Modular driver design lets you connect many different kinds of computer equipment to GS; any software that makes standard GS/OS calls can use it.

#### APPLEDISK3.5

Apple 3.5-inch disk driver.

#### APPLEDISK5.25

Apple 5.25-inch disk driver.

#### CONSOLE.DRIVER

Text screen and keyboard driver.

#### IMAGewriter

ImageWriter printer driver.

#### MODEM

GS modem-port driver.

#### PRINTER

GS printer-port driver.

#### PRINTER.SETUP

Default settings for GS/OS print manager.

### /SYSTEM.DISK/SYSTEM/SYSTEM.SETUP/

Contains files for initialization (preparing computer for GS/OS) at boot time.

#### TOOL.SETUP

Loads tools that patch ROM for different GS computers.

#### TS2

Tool patches for ROM 01 computers.

#### TS3

Tool patches for ROM 03 computers.

# Hard-Disk Drives: Part 5

you'll recall typing in a filename, which ProDOS then used to identify the file when storing it on the disk drive and finding it later when you wanted to load it again.

A *pathname* is a complete listing of the volume name and subdirectories that

lead to a particular file. Pathnames are similar to the directions you might give for finding the local post office — left on Main Street, two blocks to Second Street, then left on Lincoln. If you're using a ProDOS-based application such as AppleWorks, you may need to type path-

names during operations such as printing files to disk or creating a word-processor (or spreadsheet or database) file from an ASCII file. If you're running 16-bit programs on your GS, you're somewhat more insulated from subdirectory names and pathnames because of

**RESOURCE.MGR**

Contains GS/OS routines for handling new forked file resource format. Must be located here or GS/OS will fail to boot.

**SYS.RESOURCES**

Contains resources used by GS/OS tools and desktop-based Control Panel.

**CDEV.INIT**

Installs the CDEVs used by desktop control panel (utilities for desktop accessed via Control Panel).

**/SYSTEM.DISK/SYSTEM/DESK.ACCS/** Contains desk-accessory utilities you access within applications: CDAs (classic desk accessories), text-based utilities accessed from any program via Open apple/Control/Escape key sequence; and NDAs (new desk accessories), graphics-based utilities accessed only within programs adhering to desktop interface via Apple menu.

**CTLPANEL.NDA**

Allows access to Control Panel CDEVs.

**/SYSTEM.DISK/SYSTEM/TOOLS/** Contains disk-based tool sets in addition to GS ROM tool sets; used to program pull-down menus and windows. With code to produce windows and menus provided by Apple, developers can utilize a standard user interface without writing it themselves.

- TOOL014** Window-manager tool.
- TOOL016** Control-manager tool.
- TOOL019** Print-manager tool.
- TOOL021** Dialog-manager tool.
- TOOL023** Standard-file tool.
- TOOL026** Note-sequencer tool.
- TOOL028** List-manager tool.

- TOOL015** Menu-manager tool.
- TOOL018** QuickDraw auxiliary tool.
- TOOL020** Line-edit tool.
- TOOL022** Scrap-manager tool.
- TOOL025** Note-synthesizer tool.
- TOOL027** Font-manager tool.
- TOOL034** Text-edit tool.

**/SYSTEM.DISK/SYSTEM/CDEVs/** Contains Control Panel devices for standard GS features; used by CTLPANEL.NDA to provide graphics interface to Control Panel.

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li><b>ALPHABET</b> Sets language for display.</li> <li><b>GENERAL</b> Sets general system features.</li> <li><b>MODEM</b> Sets modem-port parameters.</li> <li><b>MOUSE</b> Sets mouse parameters.</li> <li><b>RAM</b> Sets RAM-disk and disk-cache sizes.</li> <li><b>SOUND</b> Sets volume and pitch parameters.</li> <li><b>CDEV.DATA</b> List of Control Panel parameters.</li> </ul> | <ul style="list-style-type: none"> <li><b>DIRECTCONNECT</b> Selects direct-connect printers.</li> <li><b>KEYBOARD</b> Sets keyboard parameters.</li> <li><b>MONITOR</b> Sets monitor parameters such as colors.</li> <li><b>PRINTER</b> Sets printer-port parameters.</li> <li><b>SLOTS</b> Sets slot parameters.</li> <li><b>TIME</b> Sets internal clock.</li> </ul> |
|---|--|

**/SYSTEM.DISK/SYSTEM/FONTS/** Contains all system fonts available when using desktop-based programs.

- NNN.10** Example: NNN is name of font family; number is point size.
- FASTFONT** Contains routines to speed up normal text drawing on machines with more than 512K of RAM.
- FONT.LISTS** List maintained by GS/OS at boot time; lets fonts load into memory fast.

**/SYSTEM.DISK/ICONS/** Contains all icons used by Finder.

- FINDER.ICONS** Minimum set of Finder icons.
- FINDER.ICONS.X** Additional Finder icons when system has more than 512K of RAM.
- FTYPE.MAIN** Minimum set of filetype names used by Finder.
- FTYPE.MAIN.AUX** Additional filetype names used by Finder when system has more than 512K of RAM.

**/SYSTEM.DISK/APPLETALK/** Contains no files currently; can contain files to let GS/OS use AppleTalk network.

## Hard-Disk Drives: Part 5

the system's simple mouse-controlled iconic interface — with much more pointing-and-clicking than typing — but you may still need to be aware of pathnames when using a disk-management program such as EasyDrive or ProSel.

Let's look at the GS/OS system disk itself, or your hard drive if you've already installed GS/OS, to see a good example of hierarchical file structure in action. (If you compare the GS/OS files with the ProDOS system disk, you'll be amazed at the difference: ProDOS consists simply of the files ProDOS and BASIC.SYSTEM.)

Figure 1 shows the GS/OS system disk's main volume directory and subdirectories. (See the accompanying side-

bar, "Getting Around in GS/OS.") Apple could have designed

the operating system with all files in the System subdirectory. Imagine how confusing your drive would be with all the font files and desk-accessory files, for instance, grouped together. By placing all fonts in one subdirectory and desk accessories in another, you can easily add or delete files of each kind without searching through a long listing of all types of system files.

Note that the full pathname for the Start file on the system disk is /System.Disk/System/Start. Because /System.Disk

is the first name in the path and begins with a slash, you can identify it as the name of the volume directory. From the volume directory, you enter the System subdirectory; lastly you see the name of a particular file, Start. Similarly, the full pathname for the 10-point Times font is /System.Disk/System/Fonts/Times.10. Each pair of names (remember, subdirectories follow all filename rules) is separated by a slash. Each time you open a folder with the Finder, you add a subdirectory's name to the pathname.

As you can see, those "directions" can get pretty lengthy. A *prefix* is a way of getting around typing in a file's full pathname. It's similar to a prefix in the phone system. In New Hampshire, for example, the area code is set to 603, so that you don't need to enter 603 before dialing another New Hampshire number.

Similarly, you can set a prefix to represent a partial pathname, such as /System.Disk/System/, making it easier to access files on disk. How so? When you use a hierarchical file system such as ProDOS or GS/OS, you use only one group of files at a time. That is, you may be working currently on the files in the /System.Disk subdirectory, perhaps in the /System.Disk/System subdirectory, or even in the /System.Disk/System/Drivers subdirectory. The active pathname is called a prefix because the operating system assumes automatically that part of the pathname is at the beginning of any filename you type.

Under ProDOS, you can tell what the active prefix is by typing PREFIX at the BASIC prompt, or you can set the prefix yourself — to /Pathname, say — by typing PREFIX /PATHNAME. When you boot your Apple II under GS/OS or ProDOS, the operating system uses the pathname of the boot disk as the current prefix.

If you're using a GS and type CATALOG at the BASIC prompt after you boot from the system disk, you'll see this short listing:

```
BASIC.LAUNCHER
PRODOS
APPLETALK
ICONS
SYSTEM
BASIC.SYSTEM
```

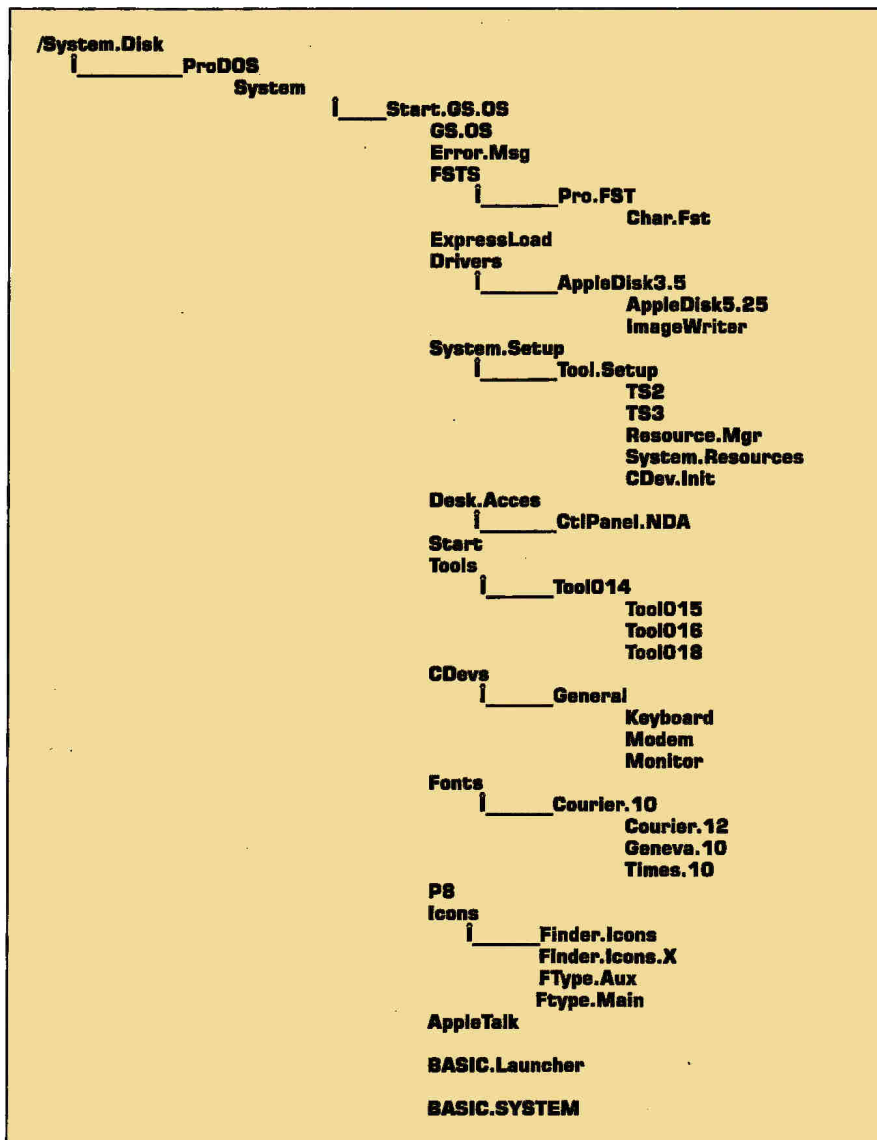


Figure 1. GS/OS system-disk file structure (partial listing).

```

/System.Disk/System
  Start.GS.OS
  GS.OS
  Error.Msg
  FSTS
  ExpressLoad
  System.Setup
  Start
  Tools
  CDevs
  Fonts
  PB

```

Figure 2. Files in System directory.

To see the longer listing in **Figure 2**, for example, first type PREFIX /SYSTEM.DISK/SYSTEM to set your active prefix to that subdirectory. To see a list of fonts, make the path to the Fonts file your active prefix by typing PREFIX /SYSTEM.DISK/SYSTEM/FONTS, then CATALOG.

You can use the prefix more liberally in GS/OS, compared with its limited role in ProDOS, but you can't control prefixes from BASIC as you can in ProDOS. GS/OS refers to as many as 33 different pathnames by a numeric shorthand: Each is tagged with a number from zero to 32, or the asterisk character. The asterisk always refers to the pathname of the boot disk: /System.Disk/System if you boot from a floppy, perhaps /Harddisk /System if you boot from your hard drive. Prefix /0 is the default prefix, like the single active pathname prefix in ProDOS. Prefixes /1 and /9 identify the pathname of the current application, and certain others are reserved, as well. So it's best not to mess with prefix numbers, which you can't do from BASIC anyway. (You'd have to use the GS/OS machine-language interface.)

You can't follow it from BASIC, but GS/OS also keeps track of the various devices available — such as hard, floppy, and CD-ROM drives — by assigning each a number when GS/OS is booted. You can find the device number of any drive on the *Where* page of the *Icon Info* window in GS/OS: Just highlight a disk or file in the Finder and press Open apple-I. You can also see the full pathname of any file, with subdirectory names separated by colons.

## THE OUTER LIMITS

So just how does HFS protect your investment in mass storage?

Initially, your system software sets aside

enough space to store information for only 51 filenames or subdirectory names. This area, a subdirectory in itself, is usually called the *volume directory*, or *root directory*. As a result, if you have a 20-megabyte hard drive and store 51 AppleWorks word-processing files, you'll "fill" the drive (even if each file is only one page long) — but not because all the space on the hard drive is gone. Your hard disk is full only because you've taken up all the space the operating system has allowed for filenames.

Fortunately, HFS and its subdirectory scheme provide a way to use all the space on your drive. Unlike a volume, a subdirectory can hold an unlimited number of filenames or additional subdirectories, subject only to the maximum total storage capacity of your hard disk. (And you can even create one or more subdirectories in the volume directory to go beyond its 51-file limit.) You'll then be storing your files in subdirectories (ProDOS) or folders (GS/OS) instead of the volume directory.

For example, you might use subdirectories to separate different kinds of programs on your hard drive: One might be GAMES, while another might be named BUSINESS. You might also use separate subdirectories to organize data files produced by different programs. It might be a good idea to keep correspondence created in AppleWorks in a subdirectory named AW.LETTERS; within it you might have additional subdirectories for business, home, and Christmas letters.

Subdirectories are easy to set up for your own program and data files. If you're using a ProDOS-based program, it probably includes an option like AppleWorks' *Create Subdirectory* under the *Other Activities* menu; in 16-bit GS programs, look for an option to create a new folder from the Finder.

Apple's innovative hierarchical file structure gives you the means to stay organized with very little effort — and helps ensure that in terms of speed, convenience, and storage capacity, your well-considered purchase will soon pay for itself. □

WRITE TO GARY MORRISON AND WALKER ARCHER  
C/O INCIDER/A+, PETERBOROUGH, NH 03458.

TO YOU IT'S  
GEOGRAPHY. TO THEM,  
IT'S A TOTALLY "RAD"  
ALTERNATIVE.

Getting kids to learn about the world is no simple task. The future is what happens a moment from now. Geography is what lies between home and school. The world seems relatively small.

### APPLE® II SERIES SOFTWARE, TO COVER MORE GROUND.

Introducing easy-to-use geography programs that help stimulate learning, while still entertaining.



### GEOPUZZLE USA, \$39.95.

Questions, puzzles and data make the entire country and its history as familiar as your own backyard.

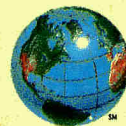
### GEOQUIZ, \$49.95.

An absorbing game, dynamic educational tool and global travelogue all in one. For the Apple® IIs only.

### DESKTOP GEOGRAPHY FOR AN EVER-CHANGING WORLD.

Simple-to-use products for global understanding. Because knowing what's where is just as important as knowing what's what.

AT YOUR LOCAL RETAILER,  
OR CALL 1-800-255-2789.



PC Globe, Inc.

4700 South McClintock Drive, Tempe, Arizona 85282  
(602) 730-9000 Facsimile (602) 968-7196

SOFTWARE FOR EVERYWHERE.™

© 1991 PC Globe, Inc. All rights reserved. "GeoPuzzle USA" and "GeoQuiz" are trademarks of PC Globe, Inc. PC Globe, Inc. software, patent pending.

Circle 30 on Reader Service Card.

# VIVE LA DIFFÉRENCE

**Fear of the blank screen is often the most difficult hurdle for computer artists to overcome — but seeing things in a different light is the key to getting started.**

**By DEBORAH GREH, Ed.D.**

THERE ARE VERY FEW GENIUSES IN this world — artistic or otherwise. Like all new techniques, using the computer as a graphics tool requires practice. But the most difficult task facing you may simply be overcoming your fear of creating an image that fails.

Do you know what it is you want to do? Or is the problem more that you don't have a clue as to how to do it? As we discussed in the December and January Graphics Gallery columns ("Play's the Thing," p. 78, and "Artist, Inspire Thyself," p. 70, respectively), the first step is to visit a museum or look at art books, photos, and even advertisements for inspiration and ideas. Then sit down at your computer and start drawing — sketch freehand or experiment with your geometric-shape tools to "build" an image. (See the accompanying box for one such

exercise.) Try some contour drawing, too — by hand and at the computer — as described in the "Hands On" sidebar in January (p. 72) to learn how to study an object's outlines and "inlines" and sketch what you see, not what you think you know.

If you're stuck, we'll give you a couple of ideas, plus instructions on how to get started. One piece of advice: Wherever you decide to begin, don't take yourself or your artwork too seriously at first. One of the the most important aspects of drawing and painting, with or without a computer, is simply that you see things differently.

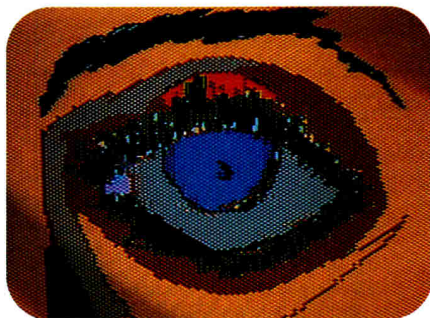
## THE EYES HAVE IT

People are fascinated by eyes; William Blake called them "the windows of the soul." When beginning artists first attempt

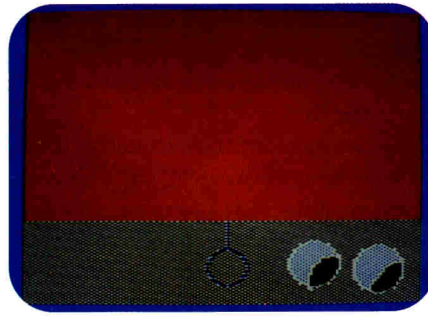
sketching the face they often focus on the eyes. Is that bad? Not always, but it can present a number of problems.

For instance, although the eyes are the most dominant part of the face — what we look into when we talk to each other and the feature we remember most clearly — you have to consider them within the context of the head. When students draw the eyes first, disregarding the rest of the head, the proportions of the face are usually "off." The eyes will often seem too high on the face, too large, or drawn from the wrong angle.

So what's an aspiring artist to do? Do a rough sketch of the entire face, getting the nose, mouth, and eyes in correct relation to one another. It's not easy. Again, the real key to drawing is seeing; that's where the



D. Polhemus, Union Catholic High, Scotch Plains, NJ. KoalaPad, MicroIllustrator.



J. Rizzolo, Brunner School, Scotch Plains, NJ. KoalaPad, MicroIllustrator.



Cut, paste, and flip options created a forest for Advanced Ideas' Grizzly Bears.



contour-drawing exercise mentioned above comes in handy — for developing control and enhancing your visual skills. When you study something inside out, upside down, backwards and forwards, even the most mundane object begins to take on a new life.

Another approach is to focus on the eyes and disregard the rest of the face entirely, with an emphasis on a “cartoon” look. Cartooning loosens you up: The images are supposed to be funny, and you can make any “mistake” work for you.

Look at some of your favorite comics and see how the artist has made simple lines work; details are limited to the bare essentials.

And who says art has to look exactly like the object represented, anyway? Picasso, for example, had a great feel for interpretation and simple lines — look at *Les Femmes d'Alger* and *Guernica*.

So start by drawing one eye and then try using your program's cut and paste options to do a second one. Just for fun, you might also try “flipping” the eyes so they look in different directions. Now incorporate what you're doing into a head if you like. Want to go on? Capture the

head (if your graphics program supports this feature), shrink it, and add a body.

### CAN'T SEE THE FOREST?

Most of us enjoy landscapes; they're inviting and restful. Try drawing your own. For inspiration, check out the impressionists and postimpressionists, including Monet, Van Gogh, and Cezanne.

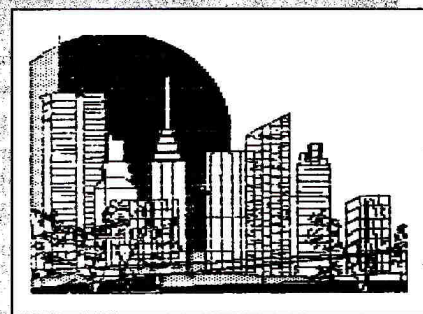
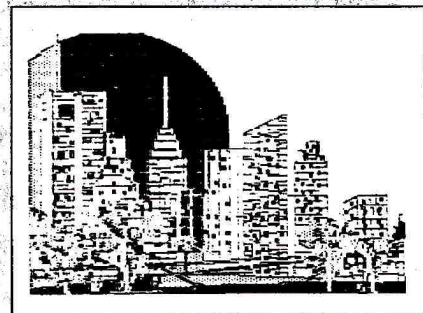
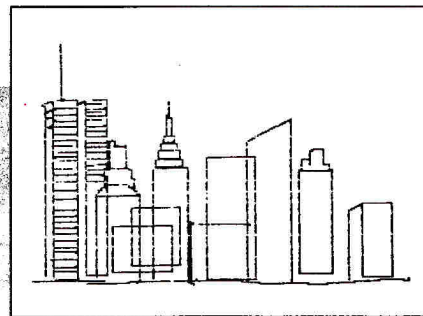
Start by drawing a simple tree — trunk and branches first, then up and out to add the foliage. Note that from a distance we don't see individual leaves, but rather masses of leaves, with only a few leaves delineated against the sky.

Alternate your tools, media, and background color. Try creating a tree with the spray-paint command, or select a wide brush stroke or a different brush shape — a slanted or vertical line perhaps. Draw or paint with a texture rather than a solid color to open the tree up and make it look airy. Every tool has its own unique characteristics. Part of the fun of working with a computer is exploring its potential (and limitations).

Now cut and paste to create a forest. If you can create one tree, why not use it like a stamp? Flipping the tree left to right will also add variety. Go back and make some trees fuller, others thinner. Don't be afraid to make a mistake. You can always use the undo command if you don't like something; and if you save your image in stages, you can return to an earlier incarnation of your work. And if you don't have a color printer, use an old ribbon and fill in with crayons, colored pencils, or markers.

Be patient — an important part of any art form is practice in developing and perfecting skill, and that takes time. But the only way you'll enjoy the time you spend is to do something you want to do — so look for ideas, and when you find some, see each image's contours, shapes, colors, and textures. Draw — practice — and have fun. □

WRITE TO DEBORAH GREH AT 516 FARLEY AVE., SCOTCH PLAINS, NJ 07076. ENCLOSE AN SASE IF YOU'D LIKE A REPLY.



**Step-by-step sample of New York skyline. Screen dumps show progression of preliminary drawings; KoalaPad input, with Microllustrator software. Various textures and patterns fill in buildings. Freehand tool suggests trees in foreground.**

## LOOKING FOR IDEAS?

**Ancient Art of War** series, Broderbund  
**Art Gallery** forum, CompuServe  
**Carmen Sandiego** series, Broderbund  
**Computer Art** forum, CompuServe  
 Edwards, Betty. **Drawing on the Right Side of the Brain.** J.P. Tarcher Inc.  
 Edwards, Betty. **Drawing on the Artist Within.** Simon & Schuster  
 Gardner, H. **Art Through the Ages: 6th edition.** Harcourt Brace Jovanovich  
 Greh, D. **Computers in the Artroom.** Davis Publications  
 Janson, H.W. **The History of Art: 3rd edition.** Prentice Hall  
**King's Quest** series, Sierra Online  
**The New Print Shop,** Broderbund  
**School Arts** magazine, Davis Publications  
**Space Quest** series, Sierra Online  
**Stickybear** series, Weekly Reader/Optimum Resource  
 Truckenbrod, J. **Creative Computer Imaging.** Prentice Hall



# CRYSTAL GAZING

With proper retirement planning  
and an AppleWorks spreadsheet,

your vision of the future can come true.

By RUTH K. WITKIN

IF I HANDED YOU A CRYSTAL BALL and said you could gaze into your retirement future, would you do it? You bet you would! Like many of us, you probably look ahead with uncertainty and apprehension to the years when, in all likelihood, your income will be less than it is now. Because the independence of your life tomorrow will be affected by your actions today, using every means available to assess your financial future makes good sense.

The spreadsheet in **Figure 1** is a crystal ball of sorts. You need enter only an amount already invested for retirement, average annual interest rate, number of compound periods per year, regular monthly contribution until retirement, years until retirement, regular monthly withdrawal after retirement, and assumed annual rate of inflation. The formulas then produce effective annual yield, regular annual contribution, and regular annual withdrawal based on your numbers.

But that's not all. You also get a year-by-year accounting of the starting amount, interest earned, contribution, total before withdrawal, withdrawal that keeps pace with the assumed rate of inflation, and even amount remaining after each annual withdrawal.

There's even more. One formula (called

"what-if look-see") copies the calculation of another formula further down the spreadsheet, so that you don't have to scroll up and down over and over to see the result as you enter new numbers.

## A SPREADSHEET FROM SCRATCH

Create a new AppleWorks spreadsheet file named **EARNCONDRAW**. You should now see the spreadsheet *Review/Add/Change* screen with the cursor in cell A1. Use the following instructions to start the spreadsheet.

**Long lines.** Enter a double line across row 2 in columns A through G: Place the cursor on A2 and type quotation marks. Hold down the equal-sign key until the sign reaches the right edge of G2 and then hit Return.

Leave the cursor on A2 and copy the row to the clipboard: Press Open apple-C (OA-C) to start the *copy* command, type T to select *To clipboard*, press Return to confirm *Rows*, and hit Return again. You need the same line in rows 10 and 15, so copy from the clipboard: Place the cursor on A10, press OA-C, and type F to select *From clipboard*. Do the same in row 15.

Next, enter a single line across row 18 in columns A through G: With the cursor on A18, type quotation marks, hold down the minus-sign key until the sign reaches the right edge of G18, and hit Return.

**Column width.** Each column is now nine characters wide. Use the *Layout* command (OA-L) to change the widths: Move the cursor to the column you want to change, press OA-L, press C for *Columns*, hit Return at the prompt to highlight columns, and press C for *Column width*. Then use OA-Right Arrow or OA-Left Arrow to expand or contract the width, and hit Return. You need to reduce column A by five characters (to four characters); increase columns B, C, E, and F by three characters (to 12 characters); and increase columns D and G by two characters (to 11 characters).

You can widen columns B and C in the same step. From column B, press Right Arrow once at the prompt to highlight columns; from column C, press Left Arrow. The same applies to columns E and F.

**Labels and numbers.** **Figure 2** shows the labels and practice numbers in the spreadsheet. Before you start typing, read the following instructions.

Indent the spreadsheet title, *INTEREST EARNED/CONTRIB/WITHDRAW CALCULATOR*, by placing the cursor on B1, typing quotation marks, and pressing the spacebar ten times. Then type the title. Several labels have what I call "outdents," which push the labels to the left (instead of to the right as indents do). By outdenting, you can align labels and numbers on the right with those above and below. To create an outdent, type the label, then press the spacebar the specified number of times. Give a one-character outdent to these labels in rows 16 and 17: B16, C16, D16, G16, G17, E17, and D17. Give a two-character outdent to labels in B17 and C17. You'll see the effect when you right-justify them later.

In F17, type quotation marks before the

label +*Inflation* (short for “plus inflation”), so AppleWorks knows the plus sign is a label, not an arithmetic operator.

Now go back through the instructions and type the labels. Don't bother to press Return after typing each entry; moving the cursor to the next cell serves the same purpose. When you're finished, press Return. Next, type the numbers (and remember the lonely *I* in A19).

**Formats.** Most of the numbers are dollar amounts, but dollar signs will only crowd the columns. Instead, use the *Value* command (OA-V) to set a standard *Value* format of *Commas* with no decimal places. Next, use the *Layout* command to reformat the following cells for *Dollars* with no decimal places: F3 (*amount already invested*), F6 (*regular monthly contribution*), F8 (*regular monthly withdrawal*), and F12 through F14 (*regular annual contribution*, *regular annual withdrawal*, *what-if look-see*).

For the individual cells, press OA-L, Return to confirm *Entry*, and Return to confirm *Value* format; then specify *Dollars* and no commas. For block F12 through F14, place the cursor on F12, press OA-L, type **B** for *Block*, press Down Arrow twice to highlight the block, and press Return for *Value* format. Then specify *Dollars* and no commas.

Reformat F4 (*assumed annual interest rate*) for *Commas* with 2 decimal places, and F11 (*effective annual yield*) for *Percent* with 2 decimal places. And finally, use OA-L, *Block*, and *Label* format to right-justify the headings from B16 through G17. Now press OA-S to store all your work on disk.

In the next step, you'll enter the spreadsheet's formulas. AppleWorks routinely calculates formulas by column — from top to bottom of the first column, then from top to bottom of the second column, and so on. Because of the way the formulas are laid out in this spreadsheet, have AppleWorks calculate by rows: Leave the cursor where it is and press OA-V to bring up the *Standard Values* screen. Type **R** to select *Recalculate*, hit Return to confirm *Order*, and hit it again to confirm *Rows*.

## ENTERING FORMULAS

Next, enter the formulas that perform the calculations. You can see their locations in the unshaded areas in **Figure 1**. First, read how the formula works, then place

the cursor on the cell receiving it. Move the cursor to the cell locations shown in the formula and type everything else. When the formula is complete, compare each character on your screen with the way it appears here. If everything agrees, press the return key. If something's amiss, press the escape key and start again.

**FORMULA 1: Effective Annual Yield.** Formula 1 divides the interest earned in the first year (C19) by the amount already invested (F3) to produce the effective annual yield in F11, assuming the money is invested for one full year.

Cell location: F11

Formula: +C19/F3

Cell C19 is empty right now, so AppleWorks will produce 0.00% in F11.

**FORMULA 2: Regular Annual Contribution.** Formula 2 multiplies the regular monthly contribution until retirement (F6) by 12 to produce the regular annual contribution in F12.

Cell location: F12

Formula: +F6\*12

**FORMULA 3: Regular Annual Withdrawal.** Formula 3 multiplies the regular monthly withdrawal after retirement (F8) by 12 to produce the regular annual withdrawal in F13.

Cell location: F13

Formula: +F8\*12

**FORMULA 4: What-If Look-See.** Formula 4 lets you see the effect of your what-if assumptions (trial inputs) on the amount in the ending cell (G43) without having to scroll down the spreadsheet. If you want to keep the contents of another cell visible, you can change the formula later.

Cell location: F14

Formula: +G43

**FORMULA 5: Year Numbers.** Formula 5 adds 1 to the number in the cell above (A19) to start the sequence of year numbers in A20.

Cell location: A20

Formula: 1+A19

You'll copy Formula 5 down its column after you enter the rest of the formulas.

**FORMULA 6: Starting Amount (Year 1).** Formula 6 copies the amount already invested for retirement (F3) to B19, the starting-amount cell for Year 1.

Cell location: B19

Formula: +F3

**FORMULA 7: Starting Amount (Year 2).** Formula 7 copies the amount at the end of

Year 1 (G19) to B20, the starting-amount cell for Year 2.

Cell location: B20

Formula: +G19

**FORMULA 8: Interest Earned.** Formula 8 calculates interest earned on the starting amount in B19. It converts the annual interest rate (F4) to a percentage, divides the result by the number of compound periods (F5), raises that result to the power of the number of compound periods multiplied by the starting amount (B19), then reduces that result by the starting amount.

Cell location: C19

Formula: +B19\*(1+(F4/100/F5)  
^ F5)-B19

**FORMULA 9: Regular Annual Contribution.** Formula 9 either copies the regular annual contribution (F12) to D19 or enters a zero, depending on the year number. The *Test* statement checks the year number in A19. If it's less than or equal to the number of years until retirement (F7), the *Then* statement copies the contribution. If the year number is greater than the number of years until retirement, meaning no more contributions, the *Else* statement enters a zero.

Cell location: D19

Formula: @IF(A19<=F7,F12,0)

**FORMULA 10: Total Before Withdrawal.** Formula 10 adds the starting amount (B19), interest earned (C19), and regular contribution (D19) to produce the total amount before withdrawal in E19.

Cell location: E19

Formula: @SUM(B19.D19)

**FORMULA 11: Withdrawal Plus Inflation.** Formula 11 enters one of four answers: regular annual withdrawal (F13), annual withdrawal including assumed rate of inflation (F9), total before withdrawal (E19), or zero. It's truly a powerhouse.

The *Test* statement checks to see if the number of years until retirement (F7) plus one year equals the year number (A19). If they match — meaning the first year of retirement has arrived — the *Then* statement enters the lesser of the regular annual withdrawal (F13) or the total before withdrawal (E19). Because you can't take out more than you have, the MIN function prevents a negative number exceeding the total before withdrawal from appearing on the spreadsheet.

If there's no match — meaning the year number is before or after retirement —

17 Year	Starting Amount	Interest Earned	Regular Contrib	Total Before Withdrawal	Withdrawal +Inflation	Ending Amount
19  1	215,000	20,245	10,900	246,145	0	246,145
20  2	246,145	23,178	10,900	280,222	0	280,222
21  3	280,222	26,386	10,900	317,509	0	317,509
22  4	317,509	29,897	10,900	358,306	0	358,306
23  5	358,306	33,739	10,900	402,945	0	402,945
24  6	402,945	37,942	10,900	451,787	0	451,787
25  7	451,787	42,541	10,900	505,228	0	505,228
26  8	505,228	47,573	10,900	563,701	0	563,701
27  9	563,701	53,079	10,900	627,681	0	627,681
28  10	627,681	59,104	10,900	697,684	0	697,684
29  11	697,684	65,695	0	763,380	45,600	717,780
30  12	717,780	67,588	0	785,367	47,424	737,943
31  13	737,943	69,486	0	807,430	49,321	758,109
32  14	758,109	71,385	0	829,494	51,294	778,200
33  15	778,200	73,277	0	851,477	53,346	798,131
34  16	798,131	75,154	0	873,285	55,479	817,806
35  17	817,806	77,006	0	894,812	57,699	837,114
36  18	837,114	78,824	0	915,938	60,006	855,932
37  19	855,932	80,596	0	936,528	62,407	874,121
38  20	874,121	82,309	0	956,430	64,903	891,527
39  21	891,527	83,948	0	975,475	67,499	907,976
40  22	907,976	85,497	0	993,473	70,199	923,274
41  23	923,274	86,937	0	1,010,212	73,007	937,205
42  24	937,205	88,249	0	1,025,454	75,927	949,526
43  25	949,526	89,409	0	1,038,936	78,964	959,971

Figure 1. AppleWorks retirement-planning spreadsheet, showing how money grows and goes.

17 Year	Starting Amount	Interest Earned	Regular Contrib	Total Before Withdrawal	Withdrawal +Inflation	Ending Amount
19  1						

Figure 2. Labels and practice numbers in retirement-planning spreadsheet.

the *Else* statement enters a zero in each year before retirement and, in each year after retirement, the lesser of the total before withdrawal (E19) or the prior withdrawal (F18, the dashed line) plus

assumed inflation (F9). Again, the MIN function prevents a negative number from appearing if the withdrawal amount plus inflation exceeds the total before withdrawal. Whew!

Cell location: F19

Formula: @IF(F7+1=A19,  
@MIN(F13,E19),  
@MIN(E19,F18\*(F9/100+1)))

**FORMULA 12: Ending Amount.** Formula 12 subtracts the withdrawal-plus-inflation amount (F19) from the total before withdrawal (E19) to produce the ending amount in G19.

Cell location: G19

Formula: +E19-F19

Now copy Formulas 8 through 12 (C19 through G19) down one cell: Place the cursor on C19, press OA-C, and hit Return. Press OA-Right Arrow to highlight the other formulas in row 19, and hit Return again. Press Down Arrow to highlight C20, and hit Return once more. Then you'll see Formula 8 on the edit line with a highlight on cell reference B19. You're about to tell AppleWorks which cell references in each formula are *No change* (press Return) and which are *Relative* (type R or press OA-R) by hitting the following keystrokes in this exact sequence:

**Formula 8:** Type R, press Return three times, type R.

**Formula 9:** Type R, press Return twice.

**Formula 10:** Type R twice.

**Formula 11:** Press Return, type R, press Return, type R three times, press Return.

**Formula 12:** Press OA-R.

## PROTECTING FORMULAS

You'll soon copy these formulas down their respective columns, but protect them first, so AppleWorks can copy both the formula and the protection and save you time: Place the cursor on A19 (the number 1 — clearly not a formula, but no matter). Press OA-L and type B (for *Block*). Press OA-Right Arrow, then Down Arrow to highlight both rows, and press Return. Type PN (for *Protection Nothing*).

Now place the cursor on A20 and copy the formulas in row 20: Press OA-C and hit Return. Press OA-Right Arrow to identify row 20 as the source, and hit Return again. Press Down Arrow, type a period, and press OA-Down Arrow. Use Down Arrow to move the highlight to row 43 and hit Return again.

Tell AppleWorks which cells are *No change* and which are *Relative* with the following sequence of keystrokes: Type R three times, hit Return three times, type R

twice, hit Return twice, type **R** twice, hit Return once, type **R** once, hit Return once again, type **R** three times, hit Return, and type **R** twice more.

When calculation stops, your spreadsheet should look like the one in **Figure 1**. Press OA-S to store it on disk.

Now protect the formulas in F11 through F14: Place the cursor on F11 and press OA-L. Type **B**, move the cursor to F14, hit Return, and type **PN**.

**PRINTING YOUR SPREADSHEET**

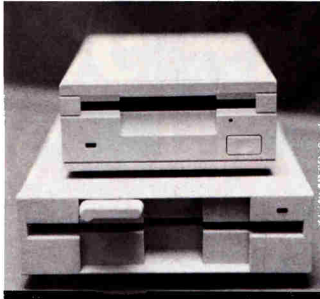
This spreadsheet is 74 characters wide and prints at 10 characters to the inch. To position it well on the printed page, change the margin settings: Leave the cursor where it is and press OA-O to bring up the *Printer Options* screen. Type **LM** (for *Left Margin*) and press Return, then type **.3** and hit Return again. Now type **RM** (for *Right Margin*), press Return, type **.3**, and hit Return again. Finally, type **TM** (for *Top Margin*), press Return, type **.5** and hit Return again. All other print settings remain at AppleWorks standards. Press OA-S to store this final version on disk and return the spreadsheet to the screen.

Now turn on your printer and run out your spreadsheet: Leave the cursor where it is, and press OA-P to bring up the *Print* screen. Hit Return to confirm *All*. Press Return to select the printer (or type a printer number, then Return), type today's date (or, if you have a computer clock, type @, the *at* sign, to have AppleWorks enter the date for you), and hit Return twice to confirm one copy. The printer will click away and there's your spreadsheet.

**NEXT MONTH**

With summer soon upon us, next month we'll create a spreadsheet to calculate your vacation travel expenses. See you then. □

CONTRIBUTING EDITOR RUTH K. WITKIN IS THE CREATOR OF THE *SUCCESS WITH APPLEWORKS* TEMPLATE SERIES (INCIDER/A+, IDG COMMUNICATIONS) AND *RUTH WITKIN'S BEST NEW APPLEWORKS TEMPLATES* (QUALITY COMPUTERS). SHE'S ALSO THE AUTHOR OF *THE BEST BOOK OF APPLEWORKS* (MACMILLAN PUBLISHING COMPANY) AND *PERSONAL MONEY MANAGEMENT WITH APPLEWORKS* (JOHN WILEY & SONS). WRITE TO HER AT 5 PATRICIA STREET, PLAINVIEW, NY 11803. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A REPLY.



**MPD 5 1/4" DISK DRIVES FOR:**

- 1 Year Warranty Parts & Labor **\$79.00** Apple II, II+, IIe Franklin Ace 1000
- 100% Compatible **\$79.00** Apple IIc, IIc+, IIGS Apple IIe UniDisk Laser 128
- Super Quiet
- Cable Included **\$99.00** Apple IIc+, IIGS Daisy Chain

**AMR 3 1/2" Disk Drive For Apple IIc+ & IIGS \$199.00**

<b>ZIP CHIP 8 Mhz</b> . . . . . \$158.00	<b>UNIVERSAL DISK CONTROLLER</b> Run 800K Disk Drives on your II+ and IIe <b>\$64.95</b>	
<b>PRO TERM</b> <b>\$78.50</b>	<b>800K DISK DRIVE 3 1/2</b> for II+, IIe, MAC, LASER 128 <b>\$179.00</b>	
<b>GS Power Supply</b> . . . . . \$69.00	<b>Disk Controller Card For Apple II, II+ &amp; IIe</b> <b>\$34.95</b> 5 Year Warranty	
<b>Memory Chips</b> . . . . . Call	<b>CPM Card</b> . . . . . \$34.95 <b>IIe Numeric Keypad</b> . . . . . \$34.95 <b>II+ &amp; IIe RF Modulator</b> . . . . . \$15.95	
<b>MPD 4 Meg GS Card 0 Meg to 4 Meg from</b> <b>\$59.00</b>	<b>Cooling Fan for Apple II+ &amp; IIe With Surge Suppressor</b> . . . . . \$26.95	
<b>SUPER EXPANDER</b> IIe 0K to 1 Meg . . . . . from \$52.50 IIc 0K to 1 Meg . . . . . from \$65.50	<b>Cooling Fan For Apple IIGS</b> <b>\$19.95</b> No Noise Interference	
<b>GS MOUSE</b> <b>\$59.00</b>	<b>ACCESSORIES</b> Mouse Pad . . . . . \$4.95 Disk Notcher . . . . . \$4.50 Disk Clean 5 1/4 . . . . . \$4.00 Disk Clean 3 1/2 . . . . . \$4.00 Mouse IIc, c+ . . . . . \$49.00 Amber Monitor . . . . . \$99.00	
<b>SWITCH BOXES</b> DIN 8 A/B . . . . . \$24.95 DIN 8 A/B/C/D . . . . . \$29.95 DB 25 A/B . . . . . \$24.95 DB 25 A/B/C/D . . . . . \$34.95 Parallel A/B . . . . . \$24.95 Parallel A/B/C/D . . . . . \$34.95	<b>Replacement Keyboard</b> \$55.00 <b>5 Amp. Pwr. Supply II, II+ &amp; IIe</b> \$49.00	
<b>Extended 80 Column Card With 64K for Apple IIe</b> 100% Appleworks Compatible <b>\$38.95</b> 5 Year Warranty	<b>Joystick for Apple IIe, IIc, IIc+ &amp; IIGS</b> <b>\$24.95</b> With Fire Button Same as Mach III	
<b>SUPER SERIAL CARD</b> 100% Apple Compatible 5 Year Warranty . . . . . \$48.95	<b>LASER 128 Computer</b> Three Times the Speed of a IIe Built in Memory Expansion Board 128EX . . . . . \$399.00 128EX2/5.25 . . . . . \$445.00 128EX2/3.50 . . . . . \$495.00	
<b>Graphics Printer Card w/Cable For Apple II+ &amp; IIe</b> <b>\$44.95</b> 5 Year Warranty	<b>Do you have an IBM System? Want to run Apple Software . . . You need TRACKSTAR . . \$399.00</b>	
<b>DISKETTE STORAGE W/Lock</b> 5 1/4 Holds 70 Disks . . . . . \$6.95 5 1/4 Holds 100 Disks . . . . . \$8.95 5 1/4 Holds 120 Disks . . . . . \$10.95 3 1/2 Holds 100 Disks . . . . . \$8.95	<b>MOUSE POCKET</b> \$4.95	
<b>II+ OWNERS</b> 16K Card . . . . . \$34.95 128K Card . . . . . \$64.95 80 Column Card . . . . . \$48.95 Plus Works . . . . . \$49.00 5 Year Warranty	<b>Prices subject to change without notice.</b>	

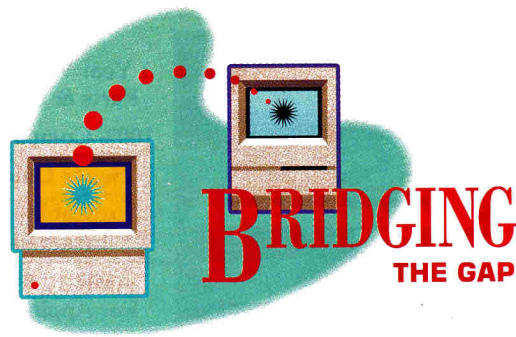
**MEMORY PLUS DISTRIBUTORS, INC.**  
505 South 48th Street, Suite #104  
Tempe, Arizona 85281  
(602) 820-8819  
(602) 830-6457  
FAX# (602) 968-3211  
Serving Apple Users Since 1983

VISA & MASTERCARD — NO EXTRA CHARGE  
Shipping Most Items \$6.00 / Drives \$8.00 / Computers Call / C.O.D. + \$4.00

DEALER PRICING  
10 a.m. to 5 p.m. M.S.T. Mon - Fri.  
University & School P.O. Accepted  
20% Restocking charge on returned items

We Ship 2nd Day Air Continental US Only

We carry only the Highest Quality products for your Apple. That's why we are the LARGEST and the BEST!



# PRINTER POLYGAMY

**You don't have to cut corners to cut costs. Share a laser printer among your Macs and Apple IIs and you'll produce high-quality printouts with half the hassle.**

By **GREGG KEIZER**

IF PRINTERS DON'T TRY OUR SOULS, they at least try our patience. Getting a printer to work with your software, even getting it to work at all, often seems like a task worthy of Job. I've unpacked, unwrapped, installed, and insulted more printers than I care to remember. Each time I naively believe that the installation will go smoothly, and that the 15 minutes I've allotted will be more than enough. Call me an optimist.

When you start mixing machines — an Apple IIGs here, a Macintosh IIsi there, a Mac LC around the corner — things get even trickier. Computers and printers mate

for life in a monogamous relationship — one printer to one computer. That means a different printer for each computer and even more chances for things to go wrong. Well, put your wallet away. Why not share one printer among several computers? That may be printer polygamy, but it can save you the frustration of managing multiple printers *and* save you money.

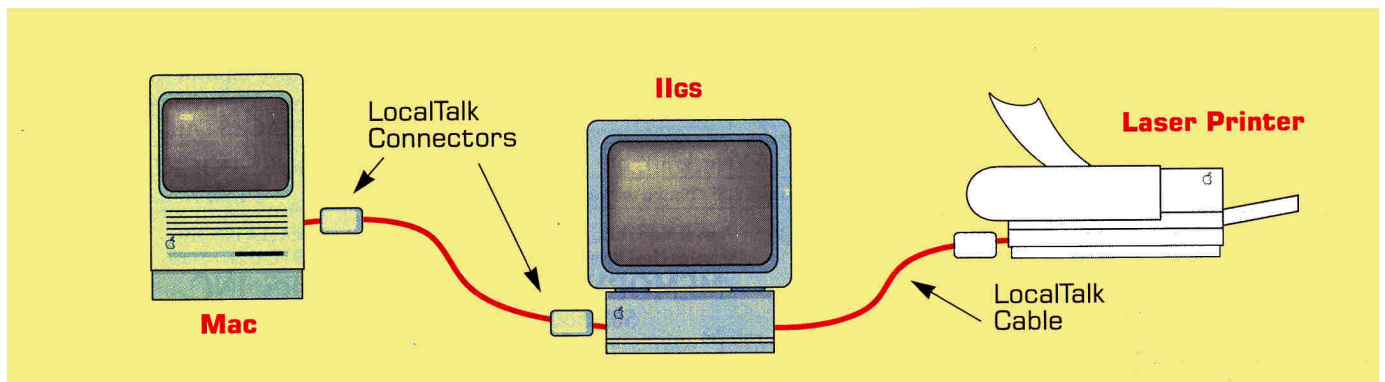
Besides, if your computers share, you can spend more on a printer and still come out ahead. If you're splitting the high cost of a printer among several machines, you can afford to pay for high-quality print. Sharing an expensive laser printer makes perfect sense in a mixed-up Apple II-and-Macintosh environment.

Without a printer beside every computer, you've got to take a few more steps to retrieve your documents. If you're willing to put up with this minor irritation (among a few others), you're a candidate for printer polygamy.

## APPLES SHARE WITH (AND WITHOUT) APPLETALK

Apple II and Macintosh machines have a built-in printer-sharing capability that other computers — even those that cost thousands of dollars more — lack. That capability is *AppleTalk*, the network specifications that link Apple IIs, Macs, and their peripherals. All Apple IIGs and Macintosh computers come equipped to handle this protocol.

Don't let the word *network* scare you. An AppleTalk network doesn't demand that you set up a file server (a computer/software combination that lets you share files and programs on a hard disk) and multiple workstations. You can create a simple kind of network just by linking an Apple IIGs and Macintosh to a printer via a **LocalTalk Connector Kit**. Just plug connector boxes into the two computers'



**Figure 1.** Snap together a simple two-computer/one-printer AppleTalk network in 15 minutes.

# We Know Mac Modems...



## Inside and Out

**DataLink Modems from Applied Engineering** were designed specifically for the Macintosh from the ground up, not "ported over" from MS-DOS designs.

**DataLink/Mac Portable™** (left) incorporates an ultra-low power design to extend the Mac Portable's battery life and includes Send-Fax and MNP-5 as standard features. **DataLink/Mac™**, our internal modem for the Mac II series, includes an extra serial port for another peripheral, and MNP-5 (optional). **DataLink LC™** also includes an extra serial port as well as a Math coprocessor socket, and V.42bis option (giving you an effective transfer rate of up to 9600 baud and error free transfers). **DataLink Express™**, our Mac-platinum colored external modem for all Macs, has both mini-8 and DB-25 connectors and features 12 status lights including our exclusive "Line Engaged" indicator to show a shared line in use.

**Packed with features** like complete communications software, free online time with several online services including America Online, Prodigy, GENie, NewsNet, Delphi, and the Official Airline Guide. All DataLink modems are FCC certified and fully Hayes AT compatible. Five-year warranty and free technical support from a company that's been

in the Apple peripheral business for more than 10 years. And, best of all...

**AE Send-Fax** is available with whichever DataLink you choose.

**Don't waste your time** printing a hard copy and then waiting around the fax machine to see if your faxes get through. Go right back to what you are doing while Send-Fax does the calling for you in the background. Send-Fax can send an entire distribution list from your phonebook entries while you're at your computer or away.

**Fax pages from different applications simultaneously** from your Mac's screen as simply as printing. Create your own fax-number phonebook for instantaneous dialing and include a customized cover sheet to ad your own creative edge. Save money by telling DataLink to send your faxes late at night, when phone rates are lowest and you're least likely to encounter busy signals.

**Open your Mac** to the innovation of Applied Engineering and experience a DataLink modem for yourself!

**Order today!** To order or for more information, see your dealer or call (214) 241-6060 today,

9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome.

DataLink/Mac Portable.....	\$299
DataLink/Mac (DL/M) .....	\$299
DL/M w/ MNP-5 <b>or</b> Send-Fax.....	\$349
DL/M w/ MNP-5 <b>and</b> Send-Fax.....	\$399
DataLink LC (DL/LC) .....	\$349
DL/LC w/V.42bis .....	\$379
DataLink Express (DL-X) .....	\$249
DL-X w/ MNP-5 <b>and</b> Send-Fax.....	\$349

**AE**  
**Applied Engineering®**  
*The enhancement experts.*

A Division of AE Research Corporation

(214) 241-6060

P.O. Box 5100  
 Carrollton, TX 75011

Made  
 IN THE  
 USA

©1991, AE Research, Inc. All rights reserved. Brand and product names are registered trademarks of their respective holders.

LocalTalk ports and trail cable from computer to computer. Then run another cable to the printer's LocalTalk port. Depending on the distance between the machines, a simple two-computer/one-printer AppleTalk network might snap together in under 15 minutes. (See **Figure 1.**) If you just share a printer, you don't need to mess with **AppleShare**, the file-sharing software you run on a dedicated Mac to send files from Apple IIs to Macs.

When several computers use one laser printer, there's a chance that more than one will send a document to the printer simultaneously. AppleTalk handles this potential jam-up adequately, if not elegantly, by simply stacking the print requests as they come in. If you're trying to print from your Apple IIGs, for instance, and a Macintosh LC is hogging the printer, you'll have to wait. An on-screen message keeps you informed about print progress.

What if you have a IIE? Most laser printers come equipped with a LocalTalk port and also include parallel and serial ports. An Apple IIE typically prints via a serial card. You can attach a IIE to the printer's serial port if the printer offers emulation that your 8-bit Apple II software supports — your laser printer must be compatible with serial transmission from 8-bit Apple IIE software and the 8-bit software must support the laser printer.

To share a printer such as the Okilaser 840, which has three ports — LocalTalk, serial, and parallel — with both a Macintosh Classic and an Apple IIE, for example, you'd use appropriate cable to connect the Mac to the printer's LocalTalk port, and the IIE to the printer's serial port. (You don't connect the two computers.) To print, you'd simply use front-panel LED controls to switch the printer's active port and its emulation from serial (IIE) to AppleTalk (Mac) and back — from Diablo 630 (IIE) to PostScript (Mac) and back.

## POSTSCRIPT GETS PERSONAL

Until recently, PostScript laser printers were simply too expensive for most homes, home offices, and classrooms — even if

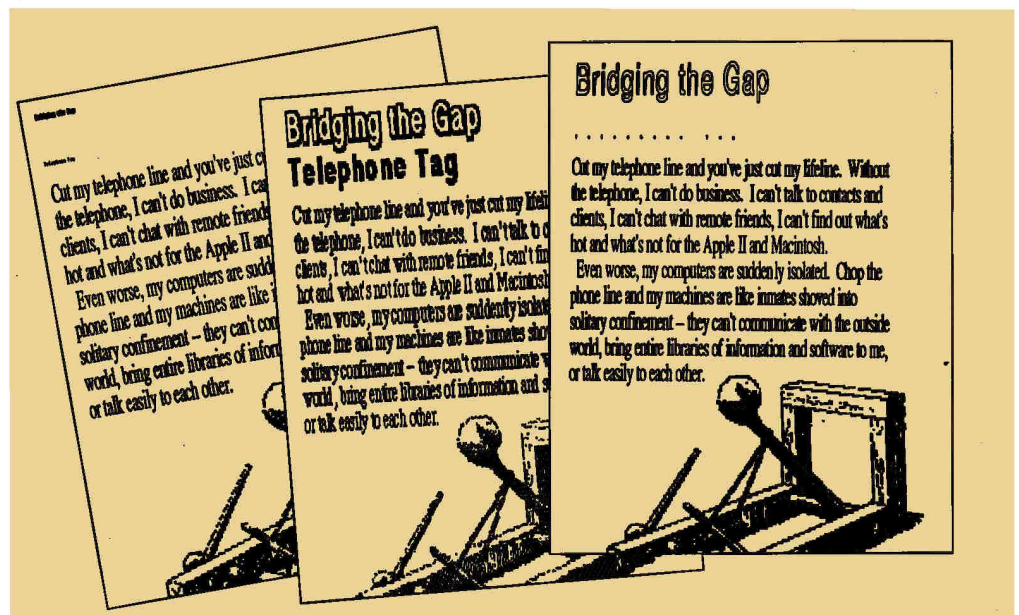
you shared them between machines. With the appearance of several affordable, but still capable, personal printers, nearly any multiple-machine scene justifies a PostScript laser printer.

PostScript, the page-description language used extensively by Macintosh and Apple IIGs applications, translates a program's print instructions to build a page's text and graphics images inside a laser printer. Most Apple LaserWriter printers include PostScript. Fortunately for your budget, many non-Apple laser printers do, too.

Two PostScript laser printers — neither from Apple — stand out when it comes to

automatically. In other words, data coming into any of the three ports is received, examined, and then sent through the correct page-description language, all on the fly. Because of this outstanding feature (all printers should include this automatic switching capability) the QMS 410 is a terrific network printer for a small office or classroom, especially if you're mixing Macintosh and Apple IIGs (and even MS-DOS) computers.

Texas Instruments' Microlaser PS35 is a compact PostScript printer that offers the same 35 PostScript fonts you'll find in the Apple LaserWriter NT — for less money. This printer features the same three ports



**Figure 2.** Left to right, compare copy and graphics images created with Independence at 300 dots per inch, and Harmonie at 75 and 300 dots per inch.

splitting time between computers. The **QMS 410** and Texas Instruments' **Microlaser PS35** both excel at providing good print at a good price. Each works out well as a shared printer, but for quite different reasons.

The QMS 410 is a relatively slow (four pages per minute) laser printer based on the same Canon print engine that's inside the **Apple LaserWriter NT**. At the side of the printer you'll find serial, parallel, and LocalTalk ports, so you won't have trouble connecting it to almost any computer in your inventory. What makes the QMS 410 special is its capability to keep all those ports "live" at the same time. The printer also switches emulation (from PostScript to Hewlett-Packard LaserJet II and back)

as the QMS, but doesn't offer automatic emulation switching. You do that yourself by pressing keys on the front control panel. It's inconvenient, but if you're sharing the printer among several computers in an office, den, or classroom, it's just irksome, not impossible. The PS35 is considerably faster than the QMS 410, spitting out six pages of text in a minute. Its paper tray holds five times more than the 410's, and its *footprint*, the desktop space it occupies, is only half the size.

Plan on spending less than \$2000 for either of these printers. Although their list prices are considerably higher, you won't have much trouble finding the QMS 410 for around \$1950 and the Microlaser for around \$1700 if you shop in a computer



superstore such as CompuAdd or Software Warehouse, or if you buy from a mail-order dealer. The QMS is my pick for the home, home office, or classroom in which Macintosh, Apple IIGs, and MS-DOS computers hang out. In a busy classroom or office, though, you'll need to spend yet another \$150 or so for the optional 250-page paper tray. The Microlaser PS35 fits in the tiniest space, and provides printer punch with a little less convenience. If your home or home-office setup is tight for room, choose the PS35.

Connect four computers to either of these printers and you've lowered the per-computer cost to around \$450. That's less than what you'd pay for an Apple ImageWriter II dot-matrix printer. The difference? Type that makes you look good.

#### BARGAIN-BASEMENT TYPE

Even at these prices, a PostScript printer may be beyond your means. Apple II and Mac owners who look for bargain-basement prices, but want better quality than the 9-pin ImageWriter II can deliver, need to steal a glance at the MS-DOS world.

The *de facto* standard for PC laser-model printers carries the Hewlett-Packard name. Capitalizing on a reputation for good (if not exceptional) quality at a reasonable (if not rock-bottom) price, Hewlett-Packard printers sit on more desktops than any other brand. If a piece of PC software supports only one laser printer, it's the LaserJet II.

Especially attractive is Hewlett-Packard's LaserJet IIP, a compact personal laser printer that sells for as little as \$900. This four-page-per-minute printer may be slow, a bit noisy, and hold a puny amount of paper, but it pumps out quality type. With three resident fonts (Courier 10, Courier 12, and Lineprinter 8.5) and the capability to use Hewlett-Packard font cartridges, the IIP is a good choice for the budget conscious.

But what can a Macintosh or Apple II owner do with a IIP? How can you share this printer with your Mac and IIGs when older versions of the IIP don't come equipped with PostScript? (Hewlett-Packard's newest printer sports PostScript and a LocalTalk port, and may be available by press time.) Hire an interpreter, that's

## APPLE IIe-IIc-IIGs-II plus OWNERS!

## SAVE \$\$\$ ON YOUR PERIPHERALS!

## UNIV & SCHOOL P.O.'S WELCOME!

### GS RAM UPGRADES

**4 MEG GS RAM BOARD.** DMA compatible. Expands IIGs to 4.25 Meg. w/1 MEG .. \$119  
**AE GS-RAM Plus 6 MEG RAM board.** DMA comp. Expands GS to 6.25 Meg. w/1 MEG \$189  
 Above w/2 to 6 Megabytes ..... Call  
**256K RAM Set (8pc) 120ns 5 Yr Wty** ..... \$25  
**1 MEG RAM Set (8pc) 100ns 5 Yr Wty** ..... \$65  
**TRANSWARP GS** by Applied Engineering . \$285

### SOUNDSYSTEM 2 For IIGs

**New 2-Way Stereo Amplified Speaker Pair!**  
 These thunder pods put the S in your GS operations, at one third the cost of Bose ... \$89

### AE RAM BOARDS

**RAMWORKS III w/256K** ..... \$129  
**RAMFACTOR w/256K** ..... \$166  
 Above w/512K or 1 Megabyte ..... Call

### IIG/IIc MEGABYTE RAM

**Super Expander E** for U.S. & European IIG. Licensed by Applied Engineering. A 100% replacement for Extended 80 Card. Expands Appleworks desktop to 998K and allows instant switching between modules. w/ØK .. \$69  
 Above w/256K ..... \$98  
 Above w/512K or 1 Megabyte ..... Call  
**Super Expander C** Expands IIG to 1152K. Appleworks desktop to 1052K & allows instant module switching. w/ØK ..... \$79  
 Above w/256K ..... \$108  
 Above w/512K or 1 Megabyte ..... Call

### QUIET COOLING FANS

**SUPERFAN II** for II+/IIGe. Kensington Style w/surge protect & twin rear AC outlets. .... \$27  
**Super Cooler GS** for your IIGs. No audio line interference. Internal Mount ..... \$24

### PRO-KEYPAD for IIG/IIc/IIc+

Numeric data entry made simple. Includes mathematic, decimal & RETURN keys.  
**PRO KEYPAD for U.S. & European IIG** .... \$34  
**PRO KEYPAD for U.S. & European IIGc** .... \$39

### APPLE II Plus OWNERS!

**Run Appleworks on your II+ or Franklin Acet**  
 Plusworks will configure you A.W. startup & program diskette to run on your computer. One time configure package. Not a preboot! (Req. 80 Columns, 64K, and Shift key Mod)  
**Plusworks II** (A.W. ver 1.0 thru 2.1) ..... \$35  
**Plusworks III** (A.W. 3.0 only/128K req) .... \$35  
**16K RAM BD.** Expands II+ from 48K to 64K \$34  
**128K RAM BD.** Legend/Titan Compatible . \$64  
**DOS/ProDOS Emulator** for above 128K BD \$24  
**80 Column II+ Board** Videx compatible ... \$48  
**Shift Key Modification** ..... \$7  
**Lower Case Adapter.** Rev. 7 & up ..... \$12

### NO SLOT CLOCK IIG/IIc

Fits underneath your CD or CFROM. Appleworks compatible. Free software ..... \$39

### FALL SPECIALS

**PBC EXTENDED 80 COLUMN CARD** for Apple IIGe. Expands IIGe to 128K (Appleworks desktop to 56K). Super sharp 80 column display, soft switch select 40/80 columns, & Double Hi-res graphics, all built-in! ..... \$35  
**PBC 256K/80 COLUMN BOARD IIGe.** All above features, plus expands your Appleworks 3.0 desktop to 137K ..... **INTRO \$79**  
**Super Serial Board** 100% replacement for Apple Super Serial Card, this versatile RS232 board can be used for all modems and serial printers. For II+/IIGe/IIGs ..... \$48  
**SSB to Imagewriter I cable 10'** ..... \$11  
**SSB to Imagewriter II cable 10'** ..... \$11  
**SSB to Modem (Standard RS232) 10'** ..... \$11

### MORE SUPER SPECIALS!

**Graphic Parallel Board w/6ft cable.** Text & graphic screen prints. Versatile graphics including inverse/normal, enhanced, 90 degree rotate & double size print. II+/e/g.s. \$44  
**Parallel Printer Board w/cable.** Text print only. Used where graphics is not required. \$35  
**Z80 CP/M Board** Opens the CP/M world for II+/e/g.s. Microsoft & Turbo Pscal Comp .. \$34  
**Joystick III** Similar to the Hayes Mach III, with large fire button on stick ..... \$24  
**5 AMP Power Supply.** Drop in replacement for II+/IIGe supply. Double the amp power! . \$49  
**TV Modulator** Connects your Apple II+/IIGe to any color or black/white TV ..... \$15  
**Serial/Parallel Converter.** Connects your IIGc to any parallel printer ..... \$49  
**AE Transwarp 3.6Mhz accelerator.** II+/e ..... \$99  
**ZIPCHIP 8Mhz** by Zip Tech. IIG/IIc ..... \$169

### DISK DRIVES

**Disk Drive H/H** for Apple II+/IIGe ..... \$119  
**Disk Drive H/H** for Apple IIGc/IIc/IIGs ..... \$119  
**Disk Drive H/H Dsy** Chainable IIGc/IIGs ..... \$139  
**Disk Controller BD 5.25" II+/IIGe/IIGs** ..... \$34  
**AMR 3.5" Drive** ..... \$194  
**A.E. 3.5" Drive** ..... \$199  
**Disk Controller BD 3.5" II+/IIGe** ..... \$49  
**AE VULCAN HARD DRIVES** ..... Call  
**CMS20MEG EXT. W/SCSI CARD** ..... \$399

### APPLETALK TO PHONE NET

Localtalk Replacement kit w/balanced RS422 transformer & 25 foot cable ..... \$25

### COPY II PLUS

The ultimate copy program. For 5.25"-3.5"-Hard drives.  
 8.4 w/5/4 diskette ..... \$15  
 9.0 w/5/4 & 3/2 diskettes ..... \$25

### APPLEWORKS CLOSEOUTS!

**COMPLETE PACKAGE:**  
 Startup/program diskette, tutorial diskette, sample templates, & A.W. manual.  
**Appleworks Version 1.2 Package** ..... \$59  
**Appleworks Version 1.3 Package** ..... \$79

5 YEAR NO HASSLE WARRANTY ON ALL PC BOARDS!

CALL or WRITE FOR OUR COMPLETE PRICE LIST!  
 ADD \$4 SHIP-C.O.D. OKAY-VISA/MC NO EXTRA FEE!



**PRICE BUSTERS (619) 589-0081**

4233 Spring St., Ste. 402, La Mesa, CA 92041  
 Monday-Friday 10 a.m.-6 p.m. Pacific Time

how. You need a tool to translate the Mac's or Apple IIGs' printing instructions into something that the IIP can understand. Not an easy task, but several companies provide such decoders.

On the Mac side, Orange Micro has been helping users connect to non-Apple printers for years. The company's **Grappler LX** printer-interface box (the Grappler name should be familiar to long-time Apple II owners) links a Mac's printer port with the parallel port on the IIP. You don't print with Apple's fonts; instead you use the five fonts Orange Micro bundles with the interface. If you desktop publish, though, this limited number of fonts may cripple you, but if most of your printer time is spent cranking out word-processing documents, you shouldn't need more fonts.

Insight's **MacPrint** takes a different approach. It hands you screen fonts for every Hewlett-Packard-resident and cartridge-based font, so that you can use the IIP's internal fonts (or those available on any font cartridge plugged into the printer). Printing is fast, but to retain that speed you're limited to the printer's Courier fonts or forced to spend money on additional cartridges.

Two printer-driver products arm the Apple IIGs with IIP compatibility. Vitesse's **Harmonie** and Seven Hills' **Independence** both let you print to the IIP from an Apple

IIGs. Installation is straightforward for both: Apple's Installer copies the required files to the system folder, you select the proper printer from the Control Panel, and then select *Print* from the Apple menu of almost any IIGs application.

Harmonie and Independence share several traits, ranging from selectable resolution (75-300 dots per inch) and printer support (LaserJet IIP and III, DeskJet, DeskJet Plus, and DeskJet 500) to the ability to print using true GS fonts. Harmonie, which Vitesse will upgrade soon to version 2.0, has the edge in features. You can compress the data sent to the printer for faster results, choose the number of shades of gray, and even change the contrast and brightness of the graphics images. Most important to IIP users, though, is Harmonie's capability to utilize the printer's internal fonts (but it can't use any from an installed font card). If you print with the IIP's internal Courier fonts you may not get dazzling pages, but you'll get them fast.

Neither Harmonie nor Independence wins points for speed. With Harmonie's IIP driver, an AppleWorks GS page-layout document showing 12-point Times text, several draw objects, and two 640-mode graphics images took over 15 minutes to print at 300 dots per inch (dpi). Independence fared better: The same page rolled out of the printer two minutes faster. With-

out question, the results were stunning. (See **Figure 2**.) But the thought of tying up the IIGs for hours printing an eight-page document isn't pretty.

At 75 dpi, both Harmonie and Independence popped pages from the IIP every 90 seconds. Print quality is comparable to ImageWriter II output, except that blacks are full black, not the washed-out shade you see from even a slightly used ribbon.

The LaserJet IIP isn't the perfect polygamous printer, even with interpreters such as Grappler LX, MacPrint, Harmonie, and Independence. But at a price about half that of the least expensive PostScript printer, it makes some sense in home and home-office setups in which Macs and Apple IIGs congregate.

### SPEND SOME, GET SOME

Apple preaches a philosophy of shared peripherals — printers, keyboards, mice, and hard-disk drives that can flip from Macintosh to Apple and back. Making your system work with a printer can be a snap or a slugfest, depending on how much money you spend.

If you can afford one, a PostScript printer should be your first choice. Connecting this laser printer to several IIGs and Macintosh machines takes but a few minutes. Pages fly out of the printer and type looks sharp.

If money is no object, pick the QMS 410 laser printer and plug an AppleTalk network into its LocalTalk port. You may want to attach a PC to the parallel port while you're at it.

Money is the object for many of us, though, so the LaserJet IIP, tortoise-like printer drivers and all, gets the nod. As slow as it is, it still prints cleaner text and sharper graphics images than any dot-matrix printer.

Bridging the gap may be the best way to avoid printer envy, the best way to keep quality up and costs down. And maybe, just maybe, it'll mean I've unpacked and installed my last printer. □

GREGG KEIZER HAS BEEN USING APPLE IIS SINCE 1983 AND WAS THE FOUNDER AND EDITOR OF *COMPUTE!'S APPLE APPLICATIONS*, A BIMONTHLY PUBLICATION. WRITE TO HIM AT 614 LINDEN STREET, SHREVEPORT, LA 71104. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A REPLY.

## PRODUCT INFORMATION

### Grappler LX

Orange Micro Inc.  
1400 N.Lakeview Avenue  
Anaheim, CA 92807  
(800) 223-8029  
(714) 779-2772  
\$199

### Harmonie

Vitesse, Inc  
13909 Amar Road  
Suite 2  
La Puente, CA 91746  
(818) 813-1270  
\$49.95 each  
\$29.97 each for 5  
\$27.47 each for 6-24  
\$24.98 each for 25 or more

**ImageWriter II**, \$595  
**LaserWriter II NT**, \$4499  
**LocalTalk Connector Kit**, \$75  
Apple Computer, Inc.  
20525 Mariani Avenue  
Cupertino, CA 95014  
(800) 776-2333

### Independence

Seven Hills Software Corp.  
2310 Oxford Road  
Tallahassee FL 32304-3930  
(800) 627-3836  
(904) 575-0566  
\$3995

### LaserJet IIP

Hewlett-Packard  
Hewlett-Packard Inquiries  
19310 Pruneridge Avenue  
Cupertino, CA 95014  
(800) 752-0900  
\$1295

### MacPrint

Insight Development. Corp.  
2200 Powell #500  
Emeryville, CA 94608  
(800) 825-4115  
(415) 652-4115  
\$149

### Microlaser PS35

Texas Instruments  
P.O. Box 202230  
Austin, TX 78720-2230  
(800) 527-3500  
\$2499  
\$2644 with AppleTalk

### Okilaser 840

Okidata  
532 Fellowship Road  
Mount Laurel, NJ 08054  
(609) 235-2600  
\$29.99

### QMS 410

QMS Inc.  
One Magnum Pass  
Mobile, AL 36618  
(800) 523-2696  
(205) 633-4300  
\$2795

# GOLEM COMPUTERS

If You Don't See It Call Us

P.O. BOX 6698  
WESTLAKE VILLAGE, CA 91360

## Special of the Month!

TELINK  
w/ Point to Point & Cable  
**\$136.00**  
GOLEM



**QUICKIE SCANNER**  
**VITESSE \$191.**  
Now you can integrate crisp, clean line art, text & halftones into your newsletters, reports & flyers. The Quickie hand-held image scanner scans images at up to 400DPI within seconds!

### MEMORY & INTERFACE

APPLIED ENGINEERING Transwrap GS	255.
Audio Animator	160.
Ram Works III 1MB (Ile)	172.
GS-Ram PLUS 2MB	229.
GS-Ram II 1MB	137.
Z Ram Ultra 2 - 1MB (Ile)	240.
Ram Express II 1MB (Ile+)	180.
PC Transporter 768K	255.
MAC Ram Classic	Call
<b>CHINOOK</b>	
Ram 4000 1MB	129.
Ram 4000 2MB	162.
DIGITAL VISION Computer Eyes (IIGS)	195.
HARRIS LABORATORIES SE Max (MAC)	Call
Velocities (Ile, IIGS)	259.
MC Meg CI (1MB MAC Classic)	135.
GS Sauce 1MB	132.
GS Sauce 2MB	169.
<b>MEMORY Dram</b>	Call
THUNDERWARE Lightningscan (IIGS)	196.
ZIP TECHNOLOGY Zip Chip	Call

### HARD/FLOPPY DISK DRIVES

APPLIED ENGINEERING	
Vulcan Hard Drive 20MB	499.
Vulcan Hard Drive 40MB	649.
5 1/4 Drive (Ile/Ile, IIGS)	125.
3 1/2 Daisychainable Drive (Ile/IIGS/Ile+)	199.
3 1/2 Daisychainable High Density	250.
CMS Hard Drive 20MB w/Apples SCSI	499.
Hard Drive 40MB w/Apples SCSI	575.
Hard Drive 80MB w/Apples SCSI	680.
<b>LASER COMPUTER</b>	
External Disk Drive (5 1/4")	90.
Universal Disk Controller	45.

### MODEMS

APPLIED ENGINEERING Datalink 2400	160.
Datalink Express Ext. w/soft	160.

### COMPUTERS

LASER COMPUTER Laser 128E	325.
Laser 128EX	370.
Laser 128EX/2 (5 1/4" Drive)	400.

Laser 128EX/2 (3 1/2 Drive)	430.
Laser 128 Color System	495.
Laser 128 Amber System	385.
Laser 128EX Color System	585.
Laser 128EX/2 (5 1/4) Color System	610.
Laser 128EX/2 (3 1/2) Color System	635.

### MONITORS

MAGNOVOX Color Monitor (Analog, TTL)	299.
--------------------------------------	------

### ACCESSORIES

APPLIED ENGINEERING Conservor	73.
GS Power Supply	87.
CH PRODUCTS Mach III	31.
KENSINGTON System Saver (IIGS)	69.
Anti-Glare Filter (IIGS)	34.
LASER COMPUTER Mouse	45.
RIBBONS	Call

### PRINTERS

LASER COMPUTER	
190A (ImageWriter I Compatible Serial)	223.
PANASONIC KX-P 1180	180.

### UTILITY/LANGUAGE

APPLE Hypercard	Call
-----------------	------

### BEST MATCH FOR APPLE'S HYPERCARD

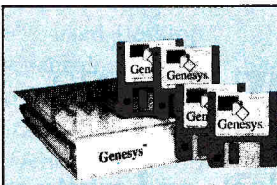


The RAM 4000

1 MB \$129.  
2 MB \$162.  
CHINOOK

DAM Compatible, 100% compatible with the Apple II High-Speed SCSI card and the RAMFast SCSI Card. Supports 1, 2 and 4MB conf. Supports ROM1 & ROM3 IIGS Multi-layer printed circuit board 5 year warranty.

BEAGLE BROS. Timeout Graph	52.
Performance Pack	73.
Style Pack	86.
Decision Pack	99.
Textools	31.
Superforms, Superfonts	ea. 42.
BYTE WORKS ORCA/C, Pascal (IIGS)	ea. 80.
ORCA/Desktop (IIGS), ORCAM 1.1	ea. 39.
CENTRAL POINT Copy Two Plus	25.
GLEN BREDDON ProSel 16	79.
INSYNC Proterm V2.2	78.
ROGER WAGNER Hyper Studio (IIGS)	82.
WESTCODE Inwords	79.
VITESSE Exorciser (IIGS)	27.
Renaissance (IIGS), Guardian (IIGS)	ea. 29.
Wings (IIGS)	49.
Harmonie, Deliverance	ea. 29.
Salvation Supreme	132.



GENESYS \$89.00

**SSSi, INC.**  
Allows the creation, editing & maintenance of program resources using a truly WYSIWYG. Menu bars, menus, menu items, windows, dialogs, strings, icons, cursors, alerts, controls and much more can easily be created or edited without compiling or linking a single line of code.

### HOME/PERSONAL

ABRACADATA Landscape (IIGS)	52.
Architecture (IIGS), Interior (IIGS)	ea. 52.
BEAGLE BROS. Platinum Paint (IIGS)	58.
BRODERBUND The New Print Shop	30.
The Print Shop (IIGS)	37.
The Print Shop Libraries (IIGS)	ea. 23.
The New Print Shop Libraries	ea. 17.
Bannermania	23.
INTUIT Quickten	38.
MECA Managing Your Money	210.
MECC Calendar Crafter	33.
MOUSE SYSTEM ADB Track Ball	72.

### BUSINESS

BEAGLE BROS. BeagleWrite GS	59.
AppleWorks 3.0 Companion	23.
Outliner (Appleworks 3.0)	41.
BRODERBUND Bank Street Writer Plus	47.
CLARIS Appleworks GS V1.1	192.
Appleworks V3.0	168.
SENSIBLE SOFTWARE Sensible Speller	68.
Sensible Grammar Checker	52.
SEVEN HILLS Graphics Writer III GS.	75.
TIMEWORKS Publish It 3	74.
WORDPERFECT Wordperfect (IIGS)	104.

### EDUCATION

BARRON'S Study Program For SAT V2.0	32.
BRITANNICA Jigsaw (IIGS)	25.
Algebra 1st Sem., 2nd Sem. (Bundle)	ea. 47.
BRODERBUND Science Tool Kit	49.
Where in USA (IIGS), VCR Companion	ea. 30.
Where in Europe, Where in USA	ea. 27.
Where in World (IIGS), Where in Time	ea. 29.
Geometry (IIGS)	53.
The Play Room (Ile, 3 1/2)	27.
McGee, Kates Farm (IIGS Bundle)	50.
DAVIDSON & ASSOCIATES	
Math & Me (IIGS), Reading & Me (IIGS)	ea. 32.
Word Attack Plus, Math Blaster Mystery	ea. 29.
Math Blaster Plus, Alge Blaster Plus	ea. 29.
<b>ELECTRONIC ARTS</b>	
Mavis Beacon Teaches Typing (IIGS)	32.

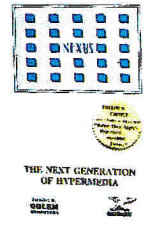
Mavis Beacon Teaches Typing (Ile/Ile)	25.
MECC World Geograph (IIGS)	56.
U.S. Geograph (IIGS)	56.
Oregon Trail	27.
PYWARE Music Writer Level 1 (IIGS)	79.
Music Writer Level 2 (IIGS)	199.
STUDYWARE Computer Prep SAT	33.
<b>THE LEARNING COMPANY</b>	
Reader Rabbit (IIGS)	36.
Children's Writing Publishing Center	ea. 36.
<b>WEEKLY READER</b>	
Shapes, Opposites, ABC's (IIGS)	ea. 30.

### ENTERTAINMENT

ACCOLADE Grand Prix Circuit (IIGS)	27.
Test Drive II (IIGS), Hardball (IIGS)	ea. 28.
CALIFORNIA DREAMS Blockout (IIGS)	27.
Tunnels of Armageddon (IIGS)	27.
COMPUKEX Solitaire/Cribbage (IIGS)	ea. 25.
Solitaire Vol. II (IIGS)	ea. 27.
Gin Rummy/Cribbage/Solitaire	ea. 14.
<b>ELECTRONIC ARTS</b> Bard's Tale	Call
Immortal (IIGS), Chessmaster 2100	ea. 32.
Pipe Dream, Hunt for Red October	ea. 22.
MEDIAGENIC Battletech (IIGS)	32.
MINDSCAPE Balance of Power (IIGS)	32.
Captain Blood (IIGS), Hostage (IIGS)	ea. 30.
SPECTRUM Trains (Ile, IIGS)	ea. 24.
VICTORY 2088 Cryllian Mission	33.

**NEXUS**

for  
**IIGS**



### The Next Generation of Hypermedia

Link Text, Graphics & Sound

### DATASmith \$80.

NEXUS ("noun, a linked list") is revolutionary new software from the folks at dataSmith. It lets you quickly link your standard text and graphics files without changing those files! Click on a word, then click on the file you want it linked to. Linking graphic files is just as simple. Link text & graphics created with your word processor and paint program. You never need to re-enter data. NEXUS never changes your original files. The uses in home, education, business, and recreation are limited only by your imagination!

GOLEM CARRIES AN EXTENSIVE LINE OF MAC PRODUCTS—CALL FOR PRICING

\* To order call toll free or send check or money order to the P.O. Box only. VISA/MC, American Express and C.O.D. welcome. \* California residents add 6.25% sales tax. \* Defective items will be replaced or repaired at our discretion; call for Return Authorization number. \* Restocking fee of 15% will apply on return items. \* Shipping and handling: Continental U.S.—Software: \$5.00. Hardware: 5% (\$6.00 min.). APO, FPO Alaska, Hawaii, Puerto Rico and Canada: \* Software: \$8.00 min. Hardware: 10% (\$10.00 min.). \* Foreign - Call or FAX. All items subject to availability. Prices/Stipulations subject to change without notice.

CALL FOR FRIENDLY  
AND KNOWLEDGABLE  
SERVICE AND ADVICE

**800-248-0363**

INTERNATIONAL ORDERS  
AND SCHOOL PO'S  
WELCOME

Mon.-Fri. 7am-6pm / Sat. 9am-4pm Pacific Time FAX: (805) 498-7689 1111 Rancho Conejo Blvd., #407 • Newbury Park, CA 91320



## SHOW-OFFS

**Don't settle for drab black-and-white publications.**

**With a splash of color you can turn on your audience and turn up your circulation.**

By **CYNTHIA E. FIELD, Ph.D.**

DAY AND NIGHT. DAZZLING AND dull. That's the difference between a colorful desktop-published project and a black-and-white one. Adding colorful touches to desktop publications is neither difficult nor expensive. Thanks to a slew of low-cost color-enhancing techniques, it doesn't matter whether you're using **The New Print Shop** (or **The Print Shop IIcs**), **Publish It!**, **GraphicWriter III**, **AppleWorks GS**, or even **AppleWorks 3.0** to create your newsletter, announcement, or promotional piece.

For small press runs consider generating color printouts on an ImageWriter II. After all, you can get a lot of mileage out of a \$6 four-color ribbon. If drawbacks inherent in this method — pokey speed and distracting noise levels — turn you off, use your desktop-publishing (DTP) program's best-quality printing method to create a full-color master. Then take the master to a quick-print shop offering color photocopying services.

### STATE OF THE ARTIST

At a dollar or so apiece, color photocopies aren't cheap, but the excellent quality copies we've gotten from a local shop's Kodak color unit should please all but the most finicky recipients. We wouldn't

hesitate to pay for a couple dozen full-color photocopies of a poster or a one-page production, but if you're publishing a multipage newsletter, this method could become pricey. You may want to restrict color to the cover and use ordinary black toner to photocopy other pages.

You also could generate photocopies with single-color toner other than black. Many quick printers can make photocopies in blue, red, green, or brown. One shop in our area promotes color copying on selected days: blue on Monday, green on Wednesday, and so on. Each copy made with single-color toner costs just a couple cents more than one that's printed in black.

Another colorful method that's suitable for small press runs is manual foil stamping, a technique that fuses the color from a sheet of film to a black-

and-white photocopy. (See "Living Color," August 1990, p. 48, for our description of three do-it-yourself products.) Based on price and performance, we prefer Letraset's **Color-Tag** system. Begin with a laser-printed original or a black photocopy, then overlay selected text or graphics areas with a piece of colored film — it's available in nearly four dozen hues in matte, metallic, and glossy finishes.

Now rub the heated hand-held applicator over the film the same way you'd run a flatiron over a piece of clothing. The heat and pressure fuse the film's color with the underlying toner particles.

Adding color with film can be fussy work and the procedure requires a bit of patience, but the results are well worth the effort. Business-report covers, especially, look attractive when you enhance them this way.

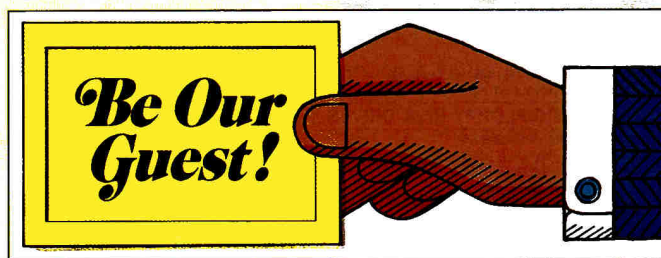


Figure 1. Idea Art stationery.



Figure 2. Print Shop letterhead for Show Window document.

Truth is, though, you may have purchased your Apple II to speed up the publishing process — not slow it down with manual enhancements such as ColorTag. If you want to mass-produce a publication, but still offer some color, simply photocopy or offset-print the original onto any of the hundreds of colored papers available.

#### PAPER CHASE

And where can you find special stock? For in-house use, we buy from PaperDirect, a mail-order firm specializing in a unique variety of paper sold in reasonably small quantities. The company sells a **PaperKit** that includes samples of its paper and envelopes; the \$20 price tag is refundable with your first order. If you're convinced that neon orange paper would help your publication draw attention, fear not: PaperDirect has it.

Besides ordinary colors and an assortment of parchments, PaperDirect sells classy paper that looks like granite or marble. We've also created a host of great-looking desktop publications with the company's *Gradations* stock. Perhaps unequaled in attractiveness is the company's **Desktop Design** line. This stock — including *Ambassador*, *Deco*, *Bouquet*, *Hole in One*, *Dollars and Sense*, and *Red, White and Blue* — sports striking preprinted full-color borders. We've used Desktop Design papers to print genealogy charts we framed and gave to friends and relatives in lieu of birthday cards. In January's Press Room ("Desktop Genealogy," p. 78) we describe the templates we designed to create these charts.

PaperDirect isn't the sole source of illustrated papers, though. Alvin and Company markets a **DECAdry Print** line of papers, with preprinted background designs rang-

ing from a bombs-bursting fireworks display to a placid tropical-island scene. A third company, **Idea Art**, sells a complete line of handsomely illustrated papers. The company's full-color catalogue provides a storehouse of ideas you can implement at home, in school, or at work. Whether you want to promote a special sale or get an early start on your 1991 Christmas greetings, the Idea Art catalogue is an excellent place to begin.

Just last fall we used one of the company's preprinted letterhead papers with AppleWorks 3.0 to create a promotional letter for a Cape Cod motel. (See the heading design in **Figure 1.**) We typed the letter with the AppleWorks 3.0 word processor. At the top of the page we reserved space for the stationery's preprinted *Be Our Guest* illustration by pressing Open apple-O (OA-O) to access the *Printer Options* menu. We set the top margin (TM) to 3.7 inches. ⇨

#### PRODUCT INFORMATION

**AppleWorks 3.0**, \$249  
**AppleWorks GS**, \$299  
 Claris Corporation  
 5201 Patrick Henry Drive  
 P.O. Box 58168  
 Santa Clara, CA 95052-8168  
 (415) 987-7000

**ColorTag**  
 Letraset USA  
 40 Eisenhower Drive  
 Paramus, NJ 07653  
 (201) 845-6100  
 \$89.95

**DECAdry Print Paper**  
 Alvin and Company  
 P.O. Box 188 TD  
 Windsor, CT 06095  
 (203) 243-8991  
 designs  
 \$4.50/10-sheet pack  
 \$39.95/100-sheet pack  
 graduated color  
 \$3.75/10-sheet pack  
 \$33.75/100-sheet pack

**Desktop Design Paper**  
 \$16.75 to \$22.50/  
 100-sheet pack  
**PaperKit** and **PaperSelector**  
 \$19.95 plus \$2.50 shipping  
 (refundable with first order)  
 PaperDirect  
 57 Romanelli Avenue  
 South Hackensack, NJ  
 07606-9904  
 (800) A-PAPERS

**GraphicWriter III**  
 Seven Hills Software  
 2310 Oxford Road  
 Tallahassee, FL 32304-3930  
 (800) 627-3836  
 \$149.95

**Idea Art Letter Paper**  
 \$2.95/25-sheet pack  
 (quantity pricing available)  
**Show Window Envelopes**  
 \$3.90/25-envelope pack  
 (quantity pricing available)  
 IdeaArt  
 P.O. Box 291505  
 Nashville, TN 37229-1505  
 (800) IDEA-ART  
 (615) 889-6731

**The New Print Shop**  
 \$49.95  
**The Print Shop IIos**  
 \$59.95  
 Broderbund Software, Inc.  
 17 Paul Drive  
 San Rafael, CA 94903-2101  
 (800) 521-6263  
 (415) 492-3200

**Publish It! 3**  
 Timeworks Inc.  
 444 Lake Cook Road  
 Deerfield, IL 60015  
 (800) 535-9497  
 (708) 948-7626  
 \$129.95

**TimeOut FileMaster**  
 Beagle Bros  
 6215 Ferris Square  
 Suite 100  
 San Diego, CA 92121  
 (800) 345-1750  
 (800) 992-4022 (CA)  
 (619) 452-5500  
 \$49.95

#### QUICK TIPS FROM PRESS ROOM READERS

- Sam B. Hughey, a member of the Tarrant Apple Group in Hurst, Texas, needed to incorporate a long quotation from one issue of his **Publish It!**-designed newsletter into another. That wouldn't have been a problem — except that Hughey's original **AppleWorks 3.0** word-processing file had somehow self-destructed! As you know, you can import AppleWorks 3.0 word-processing files into Publish It! via the File menu, but the DTP program offers no reciprocal **exporting feature**. Hughey's solution? Use **TimeOut FileMaster** to convert the Publish It! newsletter file to ASCII format. Hughey also points out that Publish It! 2 fans can expand their typeface repertoire by employing TimeOut FileMaster to **convert public-domain fonts** to Publish It! 2-compatible format.

- Speaking of fonts, reader Jim Meece has this bit of advice for **Publish It!** users with **single 5.25-inch disk drives**. On a backup copy of the original program disk, delete the file DTP.HELP. Then copy the fonts you commonly use from the **Fonts** disk to the modified program disk to alleviate the constant disk swapping required during printing. According to Meece, you should be able to fit about nine selected font files into the space taken up originally by the on-line help file. On-line help will no longer be available, but you can refer to the program's manual or reference card instead. If you're involved in a variety of projects, Meece suggests that you create a number of program disks, each with a different font mix.

Idea Art's illustrated letterhead papers, which cost about ten cents per sheet, work especially well with the company's line of **Show Window** envelopes. Available in white, tan, blue, green, yellow, and red, these envelopes sport panoramic windows through which the letterhead graphics illustrations appear. At about 14 cents apiece, the envelopes are fairly expensive, but offer considerable benefit. According to Alicia Orr in the August 1990 issue of *Target Marketing*, "The cold-hearted truth is you have about three seconds to make recipients open your envelope and get to your offer."

**PICTURE WINDOWS**

If you use a full-featured DTP program, you can enjoy the best of all worlds: Just combine your custom illustrated piece with a Show Window envelope. Designing your own stationery not only saves money, but helps you exercise your creativity as well. Whether you use Publish It!, AppleWorks

GS, or another DTP program, all you have to do is reserve the top 3.75 inches or so of the layout page for the graphics image or message that will later show through the envelope's panoramic window. For best results, also leave a .5-inch margin on the left- and right-hand sides of the page.

With earlier versions of Publish It!, use the program's text tool and *Show Specifications* feature (OA-M) to create a dummy text box delineating this top work area. With Publish It! 3, you can specify *Custom Guides* from the *Special* menu instead. Cordoning off the top section of a page is a snap with either GraphicWriter III or AppleWorks GS. Simply drag custom guides into place on the program's vertical and horizontal screen rulers.

With this top area of the page reserved, you're ready to create the graphic and text that will appear in the Show Window envelope. Use the rest of the page to incorporate additional text and graphics elements

to help communicate your message. Also, full-panel letterhead graphics (**Figure 2**) provided with The Print Shop IIgs and The New Print Shop work well with Show Window envelopes.

**DIFFERENT STROKES**

Whether you prefer to prepare a publication with a traditional word-processing program or a full-fledged DTP program, illustrated papers such as those offered by Idea Art are a perfect way to add impact to your message. No matter the program, just insert the finished piece into a matching Show Window envelope. When seconds count, you can be confident that recipients will put your publication into the "must read" pile — not the circular file. □

CONTRIBUTING EDITOR CYNTHIA E. FIELD IS A FREE-LANCE JOURNALIST SPECIALIZING IN COMPUTER-RELATED TOPICS. WRITE TO HER AT 60 BORDER DRIVE, WAKEFIELD, RI 02879. ENCLOSE AN SASE IF YOU'D LIKE A PERSONAL REPLY.

# Video In.

**Video  
Digitizers  
For Apple II  
And  
Macintosh  
From Under  
\$ 250.**

Capture color or b/w images into your computer from any standard video camera or VCR. Create personalized newsletters, computer T-shirts or printouts. Images are compatible with all popular programs. Fun, affordable, and a real tool for the computer imaging enthusiast.

Color and b/w versions available for Apple IIe/IIgs and all Macintosh models. Call today for more information and free demo disk.

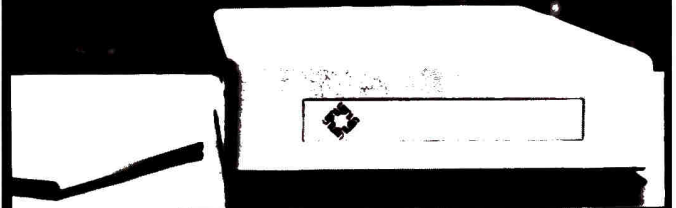
Digital Vision, Inc.  
270 Bridge St., Dedham, MA 02026  
(617) 329-5400  
To order call (800) 346-0090

**Digital Vision**

**C O M P U T E R E Y E S™**

## Hard Disk for IIgs, IIe, Mac 30% Smaller than the Floppy Drive

- **Half Shell** 40MB-\$489 120MB(19ms)-\$789
- **A-Hive Jr**-hard disk(small) 7.1"x7.1"x2.2"
- **A-Hive**-hard disk(expandable) 9.9"x9.6"x4.3"  
40MB-\$489 65MB-\$549 100MB-\$625 200MB-\$1039



complete w/ Apple Hi Speed SCSI Card  
add \$79 for RamFast Card

- **Cartridge Drive** --44MB per cartridge \$619
- **Tape Subsystem** for Apple IIgs, IIe, Mac  
**Mac LC--Half Shell Hard Drive**  
120MB \$689 external small size 1.4"x5.5"x7.5"
- **A-Hive (5.25") & A-Hive Jr. (3.5")**  
∞∞disk enclosure--30watts- \$119 65watts- \$169

**TULIN CORPORATION**

2156H O'Toole Avenue Tel: 408-432-9025  
San Jose, CA 95131 Fax: 408-943-0782  
Apple is a registered trademark of Apple Computer, Inc.

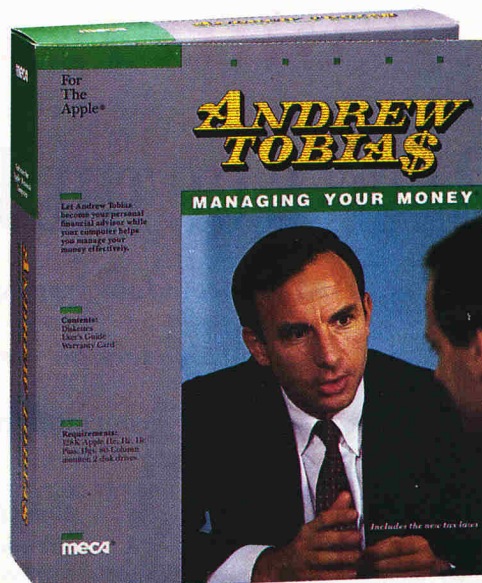
# INTRODUCING

## NEW Managing Your Money® Version 5.0!

**The most powerful financial software Apple owners can buy.**

*"At least one company thinks Apple users have an interest in sophisticated software. That company is MECA, developer of Andrew Tobias' Managing Your Money."*

**-Creative Computing**



Creative Computing was right on the mark when they printed this quote in 1986. And it's still true today. As proof, we're introducing the 5th generation of the only financial software that does it all — Managing Your Money for the Apple.

To quote its author, financial expert Andrew Tobias, "I designed Managing Your Money to be everything I need. The idea is to make Managing Your Money your financial control center... to have everything you're ever likely to need in one place, working as one."

Managing Your Money contains all the financial tools you'll ever need to handle budgets... checks... credit cards... cash forecasts... portfolio analysis... small business finance... balance sheets... loans... loan amortization schedules... tax estimates and plans... reports... insurance planning... even a CMA, Your To Do list, electronic rolodex, appointment schedule and project plans.

What's more, the program's many features constantly communicate with one another. So you never have to enter the same information more than once, and all your financial data is constantly up-to-date. This year, you'll be completely organized at tax time!

Order Managing Your Money today and we'll prove to you that powerful software doesn't have to mean "hard to use." It's packed with help at every turn. First, there's a User's Guide written in Tobias' make-it-simple style. Then you'll find an on-screen tutorial, sample data built-in, and FREE technical support to all registered users.

If the NEW Managing Your Money Version 5.0 interests you today, we'd like to offer it at a SPECIAL INTRODUCTORY PRICE OF JUST \$99. That's a \$50 SAVINGS off list price!

(If you're already a Managing Your Money user and would like to purchase this Version 5.0 update for just \$39.95, please call 1-203-222-9150.)

Call Toll-Free 24 Hours a Day to Order

**1-800-223-7200**

Item # MAR5

or simply return the coupon below

**Yes!** Please send Managing Your Money for the Apple at \$99.00, complete with a 30-day money back guarantee & FREE shipping. Regularly \$149.95, I SAVE \$50!

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

( \_\_\_\_\_ )

Daytime Phone (in case we need to call about your order.)

MC  Visa  Amex Expires \_\_\_\_\_

# \_\_\_\_\_

Signature \_\_\_\_\_

Source Code A00003

Checks made payable and mailed to:  
MECA Software  
P.O. Box 907 • Westport, CT 06881

Requires: 128K Apple IIe, IIc, IIc Plus, IIgs. 80-column monitor. 2 disk drives. Contains both 5.25" and 3.5" disks.

Offer expires 6/30/91.

© 1990 MECA Software, Inc.

**meqa**



# BATTLE OF THE LANGUAGES

Find out from four leading developers  
which languages do what best for  
your next programming project.

By **RON LICHTY**

EVER WONDER WHICH LANGUAGE to choose for your next programming project? Or which language you should learn first — or next? In May 1989, and again in September, four preeminent language developers came together at two consecutive AppleFests to debate the merits of the four leading languages on the Apple IIGs.

Apple II programming pioneer and Merlin assembler publisher Roger Wagner argued the merits of assembly language. ORCA languages publisher Mike Westerfield supported Pascal. APW languages product manager Tim Swihart made the case for C. And BASIC book author and *A2-Central* newsletter publisher Tom Weishaar defended BASIC.

Mike Westerfield, in organizing the panel, chose the participants for their senses of humor and their technical expertise. He asked me to moderate — specifically, to keep the commercials infrequent, the jargon low, and the repartée snappy.

As I pointed out to our audiences, if you consider that programmers become very religious about their choice of language, these panelists represent four of the leading religious leaders of our time. Here's our dialogue.

**Ron Lichty:** First, let's have our panelists introduce their languages.

**Roger Wagner:** Before we begin talking about assembly language, you must realize that assembly-language programmers help maintain the myth that it's difficult to learn. On the Apple IIe, though, you only need to learn roughly 50 assembly-language commands — half as many commands as in BASIC. (If word got around that you need so few commands, we assembly-language programmers would be out of our jobs!)

So, you're asking yourself, why should I program in assembly language? Well, there are a couple of key reasons. One is that assembly language will give you the best conceptual understanding of the machine. You have direct contact with the concept of memory, for example, when you have to grab a byte from one memory location and put it in another. If you type PRINT HELLO in BASIC and the word HELLO appears on screen, you've accomplished your job, but you've no concept of how it happened.

Inevitably, all languages run in assembly language. What they create is machine-language code that the computer's microprocessor executes. All high-level languages have provisions for incorporating machine language, real-

izing that's really where the action is at.

In assembly language it's also easier to extrapolate into those areas where you don't have the information you need. If your reference books aren't 100 percent complete, assembly language lets you see every single thing that the processor is doing at the most fundamental level.

Assembly language isn't the same as machine language. With machine language, you literally poke little numbers into memory manually, which, deservedly, has a bad reputation. Assembly language merely uses an *assembler* — a word processor of programming — to let you order the instructions before they get stuck in memory.

**Mike Westerfield:** I've written commercial programs in every language represented here, and I can tell you flat out that the language I pick most often to write high-level programs is Pascal. I even write our C compiler in Pascal with assembly-language subroutines.

After Nicholas Wirth introduced Pascal as an educational language, almost every university-level textbook on algorithms switched over from ALGOL to Pascal. The only time you find the other languages is when someone is trying to teach them to you. Pascal is that good.

Roger's right — you should learn assembly language eventually if you're going to be a professional programmer. But I compare using assembly language to write big programs to a cook deciding to create a meal by going in after the individual atoms — he'd finish the meal more quickly if he started off with a few canned preparations or maybe a plant or two.

Pascal had a bad reputation in the 8-bit world of the Apple II because it was slow. BASIC had the same rap, and it was justi-



**inCider/A+ magazine brings you everything you need to know to unlock the power of your Apple!**

# Get the Most from your Apple II and Macintosh!

Written by top experts, in plain English not "computerese," inCider/A+ magazine delivers the best coverage of the Apple II/Macintosh field with:

- Software and hardware evaluations that help you make smart, money saving buying decisions.
- New product announcements to keep you abreast of what's happening in the field.
- Desktop-publishing projects that utilize your Apple's power and programs to produce first-rate printed materials.
- In-depth articles to increase your productivity and knowledge.
- Educational information about programs and products that make learning fun at home and in the classroom.
- Monthly columns include Apple Clinic, Bridging the Gap, and Learning Curve to name a few!
- Hints and Techniques .....and much, much more!



For the best in software and hardware reviews, education, desktop productivity and answers to your most pressing questions — turn to *inCider/A+*!

**SAVE  
54%!**

Order now and get a two-year subscription (24 great monthly issues) to *inCider/A+* for only \$43.00. That's a big 54% off the newsstand price! Or order a one-year subscription for \$27.97 and save 40% off the newsstand price!

**CALL TOLL-FREE 1-800-289-0619**  
To Order *inCider/A+* Magazine



....or simply fill out this coupon and mail it TODAY!

**Yes!**

Please enter my subscription to *inCider/A+*:

2 years (24 issues)  
\$43.00 Save 54%!

1 year (12 issues)  
\$27.97 Save 40%!

Payment enclosed  
 Bill me

Name \_\_\_\_\_

Address \_\_\_\_\_

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

**Mail to:**  
**inCider/A+**  
**P.O. Box 58618**  
**Boulder, CO**  
**80322-8618**

Please make checks payable to *inCider/A+*. All foreign orders must be prepaid in U.S. funds drawn on a U.S. bank. One-year rates: Canada and Mexico \$37.97 (price includes GST), Foreign Surface \$47.97, Foreign Airmail \$82.97. Please allow 6-8 weeks for delivery. Basic two-year U.S. subscription price is \$43.00; savings based on annual single-copy price of \$47.40.

fied on the Apple II. Assembly language was the only language that would run quickly on the Apple II, making an entire generation of programmers come over to the Apple IIgs with the idea that they could write a good program only in assembly language.

I'd like to give you some brief numbers to try to convince you that this idea is hogwash. According to *Byte* benchmarks, if you use an Apple II in assembly language you could do the *Sieve of Eratosthenes* (a method of obtaining all the primes in a segment of natural numbers) in about 13.5 seconds. In BASIC, it took several minutes to run. Even in Pascal it was up around three minutes. Those who cared about speed would perform this mathematical operation in assembly language. If you program on the Apple IIgs, a machine that represents all these languages fairly well, you'll find that Pascal will do the *Sieve* in about seven seconds. Assembly language can do it in about half that time, but most often, that time difference isn't long enough to matter; therefore, you should use Pascal instead of assembly language.

Unfortunately, I don't know what Tim's going to say, so it's kind of hard to get after him. But I'd point out that I've never understood the reason people use a language as dangerous as C to write commercial code. Although this language is flexible, when you work with C you work without a safety net. If you pass it two integers and the subroutine expects three integers, the compiler can't tell you about your mistake. Even its results are unpredictable.

I'm not going to tell you not to use C. You can use it as a tool when Pascal's type-checking gets in the way and you're trying to get a job done without having to go to assembly language. But C shouldn't be your first language; understanding it is difficult because it's a write-only language. (You write it and you can't read it later.) C is Pascal with the meaning removed. I'd recommend learning assembly language before you learn C. In fact, I've never met a good C programmer who didn't know assembly language.

I guess the best comment I have on BASIC is that it's free on the Apple II — and you get what you pay for.

**Tim Swihart:** Most programmers learn to program on their Apple IIs in BASIC because, like Mike said, it's free, and they don't have to worry about syntax because BASIC almost doesn't have one. BASIC is interpreted so that you can enter commands one at a time until you get them right, then put them in your program. It's a great place to start — until you're ready to show it to your friend who'll kind of snicker and go away laughing.

So your next step is usually assembly language, because everybody says, "Gee, that's where the speed's at." Assembly is really nice, Roger — instead of typing two characters at a time in machine language, you get to type three characters at a time with such descriptive, word processor-like readability as *MVP* and *MVN*. That's not *Most Valuable Player* and *Most Valuable Number* — that's

## THE PEOPLE BEHIND THE IDEAS

**Roger Wagner** was teaching school when he bought his first Apple II in 1978. Since then, he's been a regular columnist for one or another of the Apple II magazines for almost a decade (currently he appears in *Nibble*), and he wrote *Assembly Lines* and *Apple IIgs Machine Language for Beginners*. His company, Roger Wagner Publishing, Inc., has published BASIC language add-ons, the popular Merlin assembler, the MouseWrite word processor, and the runaway best-seller *HyperStudio*.

**Mike Westerfield** learned BASIC in high school and ALGOL in college, but didn't intend a career in programming until the Air Force ignored his master's degree in physics and sent him to mainframe assembly-language school in Denver. Not long after, he sold his car to buy an Apple II. When Apple needed a development system for the IIgs, it called on Mike and his company, The Byte Works, to turn his ORCA development environment into APW, the Apple IIgs programmer's workshop that supports assembly, C, and Pascal. The Byte Works produces ORCA-environment assembly, C, and Pascal language translators. Mike was a regular columnist for the late *Call-A.P.P.L.E.* and *8/16* magazines, and has developed beginning programming classes for America Online. He also writes talking children's software books.

**Tim Swihart** first learned FORTRAN on a mainframe, which he describes as "kind of like hacking pebbles with a very large bulldozer." He then learned BASIC, but says, "I was able to recover through the therapy of assembly language and later C." Tim was working for a Texas defense contractor when Apple Computer wooed him away to product-manage APW, as well as Apple's own Macintosh-to-IIgs (MPW IIgs) cross-development system. He had already made a name for himself

in the Apple IIgs world as Apple II Languages Forum sysop for GENie, as a writer for *Call-A.P.P.L.E.*, and as a developer of the shareware and freeware programs *Two Apples* and the C cross-reference utility. He has since written extensive desk-accessory programming tutorials for magazines and on-line services.

**Tom Weishaar** first learned BASIC on an Apple II in 1980, and followed that with assembly language. But, he says, "I've never been smart enough to learn how to program in C or Pascal, which is why they let me talk about BASIC." He founded the major Apple II newsletter *A2-Central* (originally *Open-Apple*), after writing a magazine column and several computer books, including *Your Best Interest: A Money Book for the Computer Age*, *The DOSTalk Scrapbook*, and *ProDOS Inside and Out*. He also runs the Apple II areas on GENie. *A2-Central* sponsors the *A2-Central Summer Conference for Apple II developers* (nicknamed *KansasFest*), "where developers come and actually duke it out in shorts in Kansas in the summertime!"

**Ron Lichty**, the panel's moderator, started programming in 1980 for fun, and taught himself BASIC, then assembly language from books. He spent the next seven years writing programs to run electronic door locks; word-process and spell-check on the Apple II, IBM PC, and Macintosh; and for the Apple IIgs Sales Demo Program. In his free time, he co-authored *Programming the 65816* and *Programming the Apple IIgs in Assembly Language*. (For copies visit your local bookstore or send \$32 to Ron Lichty, P.O. Box 27262, San Francisco, CA 94127.) Three years ago, he moved to Apple to manage the Apple II development-tools product group, then the Macintosh object-oriented tools product-marketing group, before becoming lead engineer on the Apple IIgs Finder in December 1989.

# Free Product Info

Want to Know More About Products Or Services Advertised In This Issue?

## Here's How.



- ◆ Print your name and address where indicated.
- ◆ Tell us about yourself by answering the questions.
- ◆ Circle the numbers on the card corresponding to the reader service number for products or services that interest you.

◆ Tear out and mail the card – the postage is on us.

◆ Subscribe to *inCider/A+* by checking off the  where indicated. We'll bill you \$27.97 for 12 issues of *inCider/A+*. \* That's 40% off the cover price. Look for your subscription in 6-8 weeks.

**NO OBLIGATION.** Literature on products and services will be sent to you directly from advertisers, free of charge.

\* This rate is limited to the U.S. and its possessions.

## DIRECT TO YOU AT NO COST OR OBLIGATION



### Reader Service Card

May issue  
Valid until  
July 15, 1991

Name \_\_\_\_\_

Title \_\_\_\_\_

Address \_\_\_\_\_

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

Phone ( ) \_\_\_\_\_

Check here to start your subscription to *inCider/A+*. You will be billed \$27.97 for 1 year (12 issues).\*

#### I What computer do you use and/or plan to buy in the next 3 months?

	Use	Plan to buy
Apple II	<input type="checkbox"/> 1	<input type="checkbox"/> 4
Macintosh	<input type="checkbox"/> 2	<input type="checkbox"/> 5
IBM/MS-DOS	<input type="checkbox"/> 3	<input type="checkbox"/> 6

#### Which model?

Apple IIes	<input type="checkbox"/> a	<input type="checkbox"/> i
Apple IIe/c/c Plus	<input type="checkbox"/> b	<input type="checkbox"/> j
Mac SE/Mac Plus	<input type="checkbox"/> c	<input type="checkbox"/> k
Mac Classic	<input type="checkbox"/> d	<input type="checkbox"/> l
Mac LC	<input type="checkbox"/> e	<input type="checkbox"/> m
Mac SE/30	<input type="checkbox"/> f	<input type="checkbox"/> n
Mac II series	<input type="checkbox"/> g	<input type="checkbox"/> o
Other computer	<input type="checkbox"/> h	<input type="checkbox"/> p

II Are you an educator? Yes  q

1	26	51	76	101	126	151	176	201	226	251	276	301	326	351
2	27	52	77	102	127	152	177	202	227	252	277	302	327	352
3	28	53	78	103	128	153	178	203	228	253	278	303	328	353
4	29	54	79	104	129	154	179	204	229	254	279	304	329	354
5	30	55	80	105	130	155	180	205	230	255	280	305	330	355
6	31	56	81	106	131	156	181	206	231	256	281	306	331	356
7	32	57	82	107	132	157	182	207	232	257	282	307	332	357
8	33	58	83	108	133	158	183	208	233	258	283	308	333	358
9	34	59	84	109	134	159	184	209	234	259	284	309	334	359
10	35	60	85	110	135	160	185	210	235	260	285	310	335	360
11	36	61	86	111	136	161	186	211	236	261	286	311	336	361
12	37	62	87	112	137	162	187	212	237	262	287	312	337	362
13	38	63	88	113	138	163	188	213	238	263	288	313	338	363
14	39	64	89	114	139	164	189	214	239	264	289	314	339	364
15	40	65	90	115	140	165	190	215	240	265	290	315	340	365
16	41	66	91	116	141	166	191	216	241	266	291	316	341	366
17	42	67	92	117	142	167	192	217	242	267	292	317	342	367
18	43	68	93	118	143	168	193	218	243	268	293	318	343	368
19	44	69	94	119	144	169	194	219	244	269	294	319	344	369
20	45	70	95	120	145	170	195	220	245	270	295	320	345	370
21	46	71	96	121	146	171	196	221	246	271	296	321	346	371
22	47	72	97	122	147	172	197	222	247	272	297	322	347	372
23	48	73	98	123	148	173	198	223	248	273	298	323	348	373
24	49	74	99	124	149	174	199	224	249	274	299	324	349	374
25	50	75	100	125	150	175	200	225	250	275	300	325	350	375



### Reader Service Card

May issue  
Valid until  
July 15, 1991

Name \_\_\_\_\_

Title \_\_\_\_\_

Address \_\_\_\_\_

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

Phone ( ) \_\_\_\_\_

Check here to start your subscription to *inCider/A+*. You will be billed \$27.97 for 1 year (12 issues).\*

#### I What computer do you use and/or plan to buy in the next 3 months?

	Use	Plan to buy
Apple II	<input type="checkbox"/> 1	<input type="checkbox"/> 4
Macintosh	<input type="checkbox"/> 2	<input type="checkbox"/> 5
IBM/MS-DOS	<input type="checkbox"/> 3	<input type="checkbox"/> 6

#### Which model?

Apple IIes	<input type="checkbox"/> a	<input type="checkbox"/> i
Apple IIe/c/c Plus	<input type="checkbox"/> b	<input type="checkbox"/> j
Mac SE/Mac Plus	<input type="checkbox"/> c	<input type="checkbox"/> k
Mac Classic	<input type="checkbox"/> d	<input type="checkbox"/> l
Mac LC	<input type="checkbox"/> e	<input type="checkbox"/> m
Mac SE/30	<input type="checkbox"/> f	<input type="checkbox"/> n
Mac II series	<input type="checkbox"/> g	<input type="checkbox"/> o
Other computer	<input type="checkbox"/> h	<input type="checkbox"/> p

II Are you an educator? Yes  q

1	26	51	76	101	126	151	176	201	226	251	276	301	326	351
2	27	52	77	102	127	152	177	202	227	252	277	302	327	352
3	28	53	78	103	128	153	178	203	228	253	278	303	328	353
4	29	54	79	104	129	154	179	204	229	254	279	304	329	354
5	30	55	80	105	130	155	180	205	230	255	280	305	330	355
6	31	56	81	106	131	156	181	206	231	256	281	306	331	356
7	32	57	82	107	132	157	182	207	232	257	282	307	332	357
8	33	58	83	108	133	158	183	208	233	258	283	308	333	358
9	34	59	84	109	134	159	184	209	234	259	284	309	334	359
10	35	60	85	110	135	160	185	210	235	260	285	310	335	360
11	36	61	86	111	136	161	186	211	236	261	286	311	336	361
12	37	62	87	112	137	162	187	212	237	262	287	312	337	362
13	38	63	88	113	138	163	188	213	238	263	288	313	338	363
14	39	64	89	114	139	164	189	214	239	264	289	314	339	364
15	40	65	90	115	140	165	190	215	240	265	290	315	340	365
16	41	66	91	116	141	166	191	216	241	266	291	316	341	366
17	42	67	92	117	142	167	192	217	242	267	292	317	342	367
18	43	68	93	118	143	168	193	218	243	268	293	318	343	368
19	44	69	94	119	144	169	194	219	244	269	294	319	344	369
20	45	70	95	120	145	170	195	220	245	270	295	320	345	370
21	46	71	96	121	146	171	196	221	246	271	296	321	346	371
22	47	72	97	122	147	172	197	222	247	272	297	322	347	372
23	48	73	98	123	148	173	198	223	248	273	298	323	348	373
24	49	74	99	124	149	174	199	224	249	274	299	324	349	374
25	50	75	100	125	150	175	200	225	250	275	300	325	350	375

# Free Product Info

## DIRECT TO YOU AT NO COST OR OBLIGATION

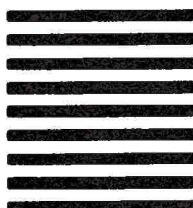


NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED  
STATES

**BUSINESS REPLY MAIL**

FIRST-CLASS MAIL PERMIT NO. 1217 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE



**inCider/A+**  
**ATTN: Reader Service Dept.**  
**P.O. Box 8987**  
**Boulder, CO 80328-8987**



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED  
STATES

**BUSINESS REPLY MAIL**

FIRST-CLASS MAIL PERMIT NO. 1217 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE



**inCider/A+**  
**ATTN: Reader Service Dept.**  
**P.O. Box 8987**  
**Boulder, CO 80328-8987**



**Want to  
Know More  
About Products Or  
Services Advertised  
In This Issue?**

**Here's How.**



- ◆ Print your name and address where indicated.
- ◆ Tell us about yourself by answering the questions.
- ◆ Circle the numbers on the card corresponding to the reader service number for products or services that interest you.
- ◆ Tear out and mail the card – the postage is on us.
- ◆ Subscribe to *inCider/A+* by checking off the  where indicated. We'll bill you \$27.97 for 12 issues of *inCider/A+*. **That's 40% off the cover price.** Look for your subscription in 6-8 weeks.

**NO OBLIGATION.** Literature on products and services will be sent to you directly from advertisers, free of charge.

# READER SERVICE INDEX

Reader Service	Page
40 Abracadata .....	14
103 Alltech Electronics Co.Inc .....	86
* Applied Engineering...19, 23, 26, 27, 69, 82, 83, CV4	
87 Bible Research Systems .....	91
151 Big Red Apple .....	29
34 BIX.....	93
8 CDA Computer Sales .....	31
21 Co-Du-Co .....	91
288 Computer Friends .....	81
80 Dandam Software .....	92
134 Dayton Computer Supply .....	93
184 Digital Vision.....	76
220 Educational Resources .....	15
85 Fas-Track Computer Prods .....	11
84 Golem Computers.....	73
* inCider	
Productivity Pak II.....	33
* Get the Most.....	79
44 LRO Computer Sales .....	6
186 Mecca Ventures.....	77
150 Mando Prods LTD.....	13
248 Memory Plus Distribution .....	67
55 National AW User Group.....	91
173 New Science Prospects.....	91
71 Nite Owl Productions .....	91
35 PC Globe .....	61
59 Perfect Solutions .....	93
* Preferred Computing.....	21
105 Price Busters.....	71
128 Programs Plus.....52, 53, 54, 55, 56.	
269 Public Domain Exchange.....	12

Reader Service	Page
136 Quality Computers.....	2,3
165 Quality Computers.....	5
155 Quality Computers.....	4
7 Ramco Computer Supplies .....	92
* Remarkable Products .....	89
90 Roger Coats.....	9
29 Shreve Systems .....	92
291 Softdisk.....	1
127 Softspoken, Inc.....	92
23 Software of the Month Club .....	92
18 Sports Software Assoc.....	91

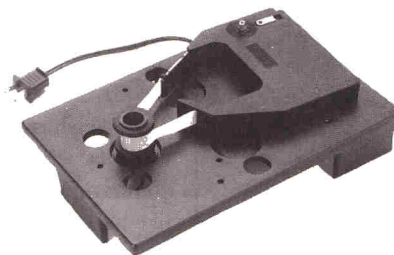
Reader Service	Page
60/3 Springbranch Software, Inc.....	92
30 The Next Classic .....	92
56 TMS Peripherals, inc.....	84
231 Tulin Corp.....	76
289 US Mathermatical Labs.....	93
297 USA Micro.....	87
* Ulilico.....	91
99 Westcode Software .....	85
189 Zip Technology.....	CV2

This index is provided as an additional service. The publisher does not assume liability for errors or omissions.

## Never buy another ribbon!

**MacInker**

Over 175,000 sold since 1982



Free bottle of ink, reservoir cover, ink meter, and dispenser.

**\$45.00**

Imagewriter I/II MacInker (mod 234im)...**45.00**  
 Multicolor Adaptor (mod M422).....**40.00**  
 Epson MacInker (mod 271ep).....**42.00**  
 Universal MacInker (specify printer) .....75.00

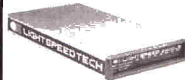
MacInker™, the automatic ribbon re-inker. The Imagewriter MacInker (mod 234im) re-inks Imagewr. I/II black & single color cartridges. The Universal MacInker also re-inks hundreds of different cartridge types (including the Imagewriter LQ) with suitable adaptors. Extra dark, dot matrix, lubricated ink yields a truly better than new print quality and extends print-head life. Average number of re-inkings/cartridge is 60-100. With the Multicolor Adaptor (mod M422, \$40.00) your MacInker can re-ink the multi-color Imagewriter II cartridges. We have a full range of optional accessories, inks & cartridges: indelible ink, heat transfer etc. Colors: red, green, blue, yellow, purple, brown, orange, silver, gold. **Free catalog.**

Extra ink bottle .....**3.00**  
 Pint .....**18.50**  
 Imagewr. I/II cartridges.....**3.15/ea**  
 4-color cartridges .....**10.00/ea**  
 Heat Transfer cartridges .....**call**

### Apple Autoswitch - Data Switches - Modems

4 port 8 pin .....**50.00**  
 4 port 9 pin .....**50.00**

Apple Autoswitch (4 to 1) .....**145.00**  
 cables any type.....**call**



Best Buy among 2400 baud modems (MacUser, Dec. 90), MNP class 5 error correction, 2 yr warranty. 100% Hayes comp. LightSpeed 2400LE ....**159.00**



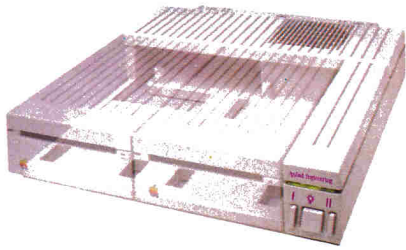
All the power of a high quality 2400 b modem in your pocket. AC & battery. 100% Hayes compatible. Micromodem 2400 ..**149.00**

**Order Toll Free (800)547-3303**

Satisfaction or 30 day money back on all products. Major credit cards accepted. Shipping \$5.50 on most products

**Computer Friends, Inc.,**  
**14250 NW Science Park Dr. Portland OR 97229**  
**tel. (503)626-2291 - fax (503)643-5379**

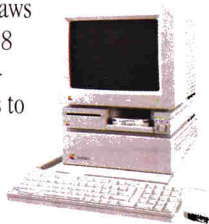
Circle 288 on Reader Service Card.



## Beat the heat

**Heat.** The computer user's most insidious enemy. Peripheral cards unavoidably produce heat inside your cpu. Heat that can devastate your whole system. Conserver™ effectively cools your IIGS while it protects against power surges and helps organize your workspace.

**A quiet but powerful** cooling fan draws air from the top of the IIGS at a rate of 18 cubic feet per minute, lowering the temperature inside by more than 20 degrees to offset the heat produced by expansion cards. The difference can be critical to the life of your computer.



**Power surges** also invisibly threaten your computer's well-being. They occur when voltage spikes surge through your wiring seeking a place to dissipate. If that place is inside your computer, you'll very quickly gain a greater understanding of the laws of electricity. It's not a pretty sight.

**Special line conditioning filters** and dual surge suppression circuitry protect against surges, reduce noise and provide "clean" power. Six switched AC power outlets line the rear of Conserver to accommodate your computer, monitor and four other peripherals. Thus protecting your computer *and* your peripherals from surges. The outlets are conveniently controlled by three front-mounted LED switches.

**For beauty,** we gave Conserver the same sleek lines of the IIGS and a perfectly matched platinum color. To reduce desktop clutter, the unit was cleverly designed to house two 3.5" disk drives, or one drive and the special diskette holder we include.

**Conserver** ..... \$99

### Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am, to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 8 1/4% sales tax. Shipping not included.

  
**Applied Engineering®**  
*The Apple enhancement experts.*  
A Division of AE Research Corporation

(214) 241-6060  
P. O. Box 5100  
Carrollton, TX 75011

Made  
\*IN THE\*  
USA

© 1990. AE Research, Inc. All rights reserved. Prices subject to change without notice.  
Brand and product names are registered trademarks of their respective holders

## APPLE IIgs BASICS

*Move Memory Positive* and *Move Memory Negative* — figure that one out. Assembly language is for bit bangers who like to have fun typing incredible amounts of source code just to get a few bytes of executable image.

From assembly, most people move on to Pascal because they want something that's more like English. Programming in Pascal is a lot like programming in C — only with your mother-in-law looking over your shoulder. Yes, the compiler catches everything you could possibly do wrong. It also makes you eat your peas.

**Mike Westerfield:** But your mother was right.

**Tim Swihart:** The programmers who designed C took the best of both worlds. They grabbed an assembler, gave it a high-level pseudo interface, macro support, and loops and floating point, and they called it C, because they didn't even want a long name on their language.

C is a little on the dangerous side. It's not for the meek, timid, or light of heart. It's for programmers who want the speed, power, and flexibility of assembly without the cryptic op codes and syntax. Try doing floating point in assembly. Better yet, just try adding two numbers in assembly in one line of code. Assembly is pretty darn verbose. So let's pass it on. C people like to keep it brief.

**Roger Wagner:** Modern-day assemblers typically have a fairly advanced macro ability that lets you add numbers in a single statement. A good assembler lets you create macros that look like high-level language, make a floating-point calculation, do a disk access, and so on. Some languages, though, let you code assembly language in the middle of the high-level language. The point is that the languages start blending together at some point.

**Tom Weishaar:** The great advantage of BASIC, of course, is that it comes with the computer and it's free. I mean, what more do you want? The other big advantage, of course, is that dummies like me can learn how to program in it. You can write programs that are nice, short, capable of running — and that you don't have to compile. *BASIC* stands for *Beginners' All-purpose Symbolic Instruction Code*. The word "beginners" is important. That's what BASIC is all about.

One of the big raps that BASIC gets is that once students have learned how to program in BASIC, they're "ruined" for any other language. But according to *Classroom Computer Learning*, March 1989, in "But What Does the Research Say?" which summarizes some educational research, this theory isn't valid. [See the box on p. 83 for an excerpt from this article.]

Applesoft is a nifty, programmable, calculator-type language. I don't recommend it for writing 3000-line programs because it has some limitations (It doesn't have a program editor, for example.) But in an earlier conference I actually heard someone say that he keeps an Apple II over in the corner and whenever he wants to test an algorithm or do a table, he goes over and writes a ten-line program in Applesoft.

I even recently watched Roger Wagner write a program in Applesoft for the HyperStudio kiosk to calibrate its touch screen.

## Programming in BASIC: Bad News or Good News?

Although BASIC is the language most often taught in K-12 programming classes, some college computer-science faculty have attacked the language. Among them is Edsger Dijkstra of the University of Texas, who feels that "it is practically impossible to teach good programming to students who have had prior exposure to BASIC; as potential programmers, they are mentally mutilated beyond hope of regeneration." Those are strong words particularly when his is an opinion rather than a conclusion based on solid research.

To understand better the implications of teaching BASIC as a first computer language, researchers Janet McDonald and Phyllis Yudikaitis examined the performance of students at the University of New York at Albany in an introductory Pascal course. Interestingly, they found a significant positive correlation between knowledge of BASIC and grades in the Pascal course. Apparently prior BASIC experience actually helped instead of hindering student performance. In addition, 45% of students without training in BASIC dropped the course, while only 24% of those with BASIC training dropped. And finally, interviews with a random sample of students indicated that those with BASIC experience felt it helped them in the Pascal course.

There are a number of ways these results could be interpreted. None, however, involves a conclusion that learning to program in BASIC is "mentally mutilating."

— "But What Does the Research Say?"  
*Classroom Computer Learning*,  
March 1989

It was a two-line program and it was wonderful. And he didn't use assembly language! Our own Roger Wagner!

The advantage and the beauty of Applesoft in particular is that it's always handy and it's easy to write short programs that really do things.

Applesoft does have its limitations, and there are other, more advanced versions of BASIC that run on the GS that solve some of them. If you already know Applesoft, the other versions are quite easy to learn. There's no reason to ever have to learn anything else.

That's it: BASIC is for beginners. Let's go for it. □



## Power to spare

**With today's advanced peripherals** and applications Apple didn't dream of a few years ago, it's easy to overload the standard Apple power supply. That's why Applied Engineering now offers a heavy duty power supply for the IIcs, IIe and II+. AE's Heavy Duty Power Supply more than doubles your Apple's power output.

**Expansion cards, disk drives,** accelerators, clock cards, modems, printer interfaces and the base computer itself all compete for the same power output. Expect to crank all of them up at once, and you can find yourself on the short end of the stick.

**Apple's standard power supply** provides only 2.5 amps, compared to our 6 amp output. AE's input voltage is 90 to 135 VAC/60 Hz or switchable to 180 to 270 VAC/50 Hz. Output is: +5V @ 6A, +12V @ 2A, -5V @ 5A, -12V @ 5A. Ripple is: 10mV typ. and full load operating temperature is: 32° to 122°F (0° to 50°C).

**The AE Power Supply installs in minutes** using the same four mounting holes and occupying the same space as Apple's power supply. Comes complete with a full one year warranty.

**IIcs Power Supply** .....\$119  
**IIe, II+ Power Supply** .....\$99

**Order today!** To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 7 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 8 1/4% sales tax. Shipping not included.

**AE Applied Engineering®**  
*The enhancement experts.*

A Division of AE Research Corporation

(214) 241-6060

P.O. Box 5100  
Carrollton, TX 75011

Made  
in  
USA

©1990. AE Research, Inc. All rights reserved. Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders.

drive, the program claims a maximum 1-megabyte-per-minute backup speed. It took me 36 minutes to back up 2460 files totaling about 17,400K to 22 data disks and one catalog disk. This works out to just under half a megabyte per minute, but I imagine one of the newer, faster SCSI cards would improve performance. You control the product through a standard Apple desktop interface, and you'll need the manual only occasionally as a reference.

Salvation-Bakkup offers several different settings such as *Verify* and *Interleave* that can affect the speed and reliability of your backups. Verification will slow the process by about 15 percent, and a 2:1 interleave will increase the speed of a GS/OS floppy backup. The program also gives you control over the files and/or drives you want to back up. For instance, the *Group Select* command lets you stipulate file types, dates, and/or unarchived files. Once you've selected your devices (including

RAM or ROM drives) and files, it tells you the number of disks the backup will require. You can then write to a 3.5- or 5.25-inch drive, or a GS/OS pathname. Writing to a 5.25-inch drive isn't recommended — unless you're protecting a small volume and have a lot of patience.

Small touches, such as a progress thermometer during the backup operation and the option to abort and resume later, make Salvation-Bakkup a friendly program. You can print a list of your completed backup files for reference, or even save your file and device selections as a macro for future use. Vitesse also includes most file/device selection features, such as the option to save your choices as a macro with the *Restore* command.

One weak point is that the product doesn't include a file-compression option, which many backup packages for other hardware platforms offer. It'd be nice to see this feature included in the next update.

Salvation-Bakkup is one of only two

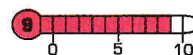
major commercial products capable of backing up a resource fork, the file structure used by GS/OS 5.0.2 and later. For this reason alone, Salvation-Backup is a welcome addition to any software library.

**Garry Howard**  
Calgary, Alberta, Canada

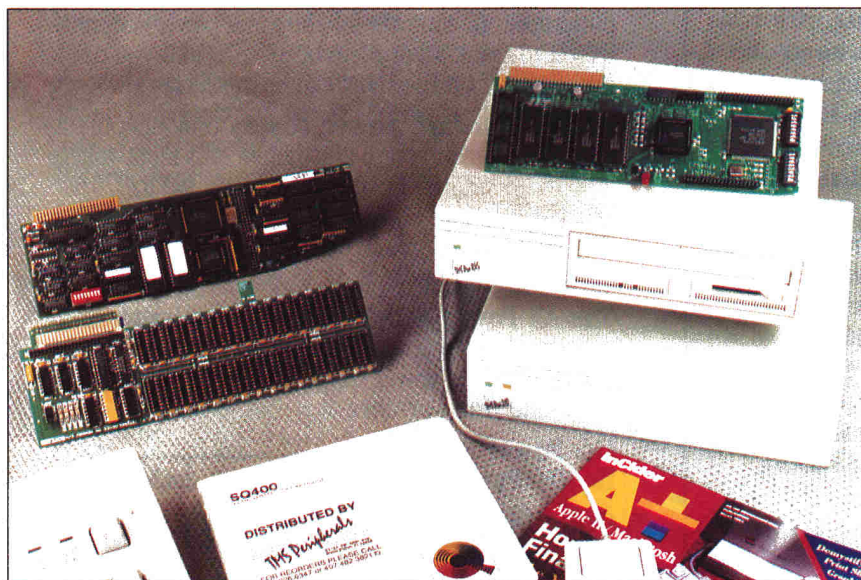
**THE IMMORTAL**

**ELECTRONIC ARTS, P.O. Box 7578, SAN MATEO, CA 94403-7578, (415) 572-2787**

Arcade-adventure game; 1-megabyte Apple IIgs; 3.5-inch drive; joystick required; copy protection; \$49.95



**Y**ou're no longer young, but along with age comes wisdom, and your intellect lets your magic flourish. Your tutor was the powerful wizard Mordamir, and he helped you unleash magical powers that now, in your old age, more than replace



TMS Peripherals offers a complete line of SCSI hard drives for Apple II and Macintosh computers, from 40MB's to 210MB's, at incredible savings. But we're not just about great prices, we're about excellent service too! Each TMS drive is completely tested and verified by our technicians before it is shipped. Nevertheless, should you experience a problem with your drive (within the first 30 days) TMS will ship you a replacement and pick up your drive—at no cost to you, leaving you with virtually no down time! After this grace period, your TMS Peripherals 2 Year Warranty becomes effective. In the unlikely event that you experience problems, call our Toll-Free Tech Support Line. If your problem persists after thorough troubleshooting by our technical staff—just ship us your drive and we will send you a replacement unit within 48 hours! Standard features include an International Auto-Switching Power Supply, Selectable Pushbutton SCSI ID Switch, 2 SCSI Ports (allowing Daisy Chaining), Shielded Power Supply, VCA Mechanism and all necessary hardware. Of course, each drive also comes with TMS Toll-Free Tech Support and our enthusiasm for each of our products!

For your convenience, we're open 8am-10pm (EDT) 7 days a week and all products ship Federal Express. Visa, Master Card, American Express, Optima, C.O.D.'s and P.O.'s accepted. \*All prices subject to change.

**CV Technologies\***  
CV Technologies 0, 1, 2, 3, & 4 MB  
GS-Memory Boards \$89, 142, 194, 246, & 299  
RAM Chips: 256k 100ns (set of 8), \$25  
1MB 100ns (set of 8), \$69  
CV Technologies RamFAST/SCSI with 256k RAM, \$179 (only \$169 when purchased with a drive!)

**Zip™ Technology\***  
ZIPChipGS, Model 1500, 8 MHz  
8k Cache memory, \$189  
ZIPChipGS Plus, Model 1525, 8 MHz  
16k Cache memory, DMA Compatible, \$239  
ZIPGSX, Model 1600, 8 MHz/16k Cache memory, DMA Compatible, User Upgradeable, \$269

**TMS Pro R45 Removable, \$519\***  
(For a limited time only!)  
20ms seek time, extra carts \$70 each

**TMS Pro Series Drives\***  
Pro 40 \$349 12ms  
Pro 105 499 12ms  
Pro 120 759 10ms  
Pro 170 829 10ms  
Pro 210 899 10ms

**TMS Pro R80 Removable**  
**TMS CD ROM**  
(Please, call for prices!)



*TMS Peripherals*

**1.800.626.MEGS**

23123 SW 58th Avenue  
Boca Raton, Florida 33428-2036  
407.482.3821 • FAX: 407.451.9635





**The Immortal: fantasy and adventure.**

which your beloved master calls for help telepathically. Your task awaits: You're his last and best hope.

#### NEW CLASSIC

The Immortal, released by Electronic Arts for the Apple IIGs, is a sophisticated arcade-adventure game that surpasses similar entries with its graphics images, variety, animation, and challenge. Avid gamers will agree that The Immortal contains the ingredients of a classic; its programmers didn't forget the importance of balancing arcade-like challenges with adventure.

Quick reflexes are a must as you fight off trolls, spiders, and goblins, dodge poisonous arrows and flaming balls of fire, and evade deadly pits and flying bats. The Immortal places a wide variety of deadly obstacles in your path as you travel throughout the 50-plus chambers that make up the eight levels leading to the cavern that holds Mordamir prisoner.

#### THE INTELLECTUAL ELEMENT

The game isn't just a matter of fighting and jumping out of harm's way, though. You must solve puzzles, find allies, and discover magical objects.

Every level has its own twists and turns, as well as at least one major challenge. By varying the emphasis from combat to conundrum, the game keeps your interest from level to level.

The Immortal handles magic nicely, too. You encounter the necessary but somewhat mundane fireballs, as well as the more exotic magic spells that make you change shape, shrink, and fly. The program doesn't spell out the function of the various items you find in the chambers: You need to experiment with them to discover their special powers. This element of the unknown sets the stage for mystery and suspense.

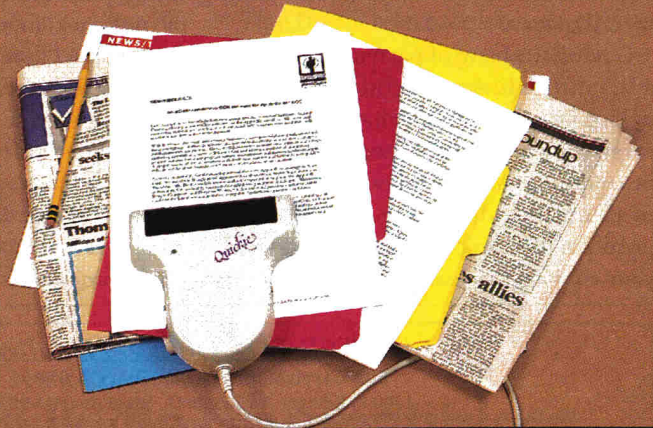
#### INTO THE FRAY

This product's graphics images rival the best found in the arcade-game market. The characters and monsters beneath the ruined city are large and well defined. Some full-screen shots in The Immortal are worth capturing and sending to the printer. Animation is impressively smooth and produces an almost cinematic effect that heightens both the vicarious dangers and triumphs within the adventure.

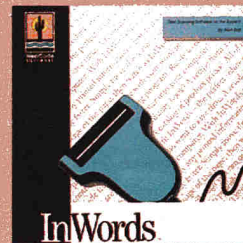
The game mechanics are simple, consisting of joystick movement and button pressing. (The software doesn't support the keyboard or mouse, though.) Combat, for example, comes in two forms of attack — the jab and the slash — and one form of

the strength of your youth. As you stare at the ruins of the ancient city of Erinoch, you realize the importance of your powers. You stand there before the entrance to the underground labyrinth, beneath

# WHY TYPE? InWords!



InWords™ provides a revolutionary new way to enter text into your Apple II. Instead of slow tedious typing, InWords will input information at up to 500 words per minute. By simply passing your Quickie™ scanner over the page, you can create a word processor, data base, or spreadsheet file without typing a single word.



*“I highly recommend InWords. It's easy, versatile and extremely useful.”*

*Bruce Shanker  
National AppleWorks Users Group*

Think of the possibilities. Input lesson plans, contracts, reports, mailing lists, recipes, research materials, newspaper clippings, magazine articles, and books. All of these and more are just a scan away with InWords, a powerful tool to increase your productivity and save time at home, school and work.

InWords and Quickie are so easy to use, there's no reason to wait - stop typing and start scanning. Give your Apple II a powerful upgrade. Get InWords. To order or for more information see your dealer or call (619) 679-9200.



#### **InWords \$129.00**

Requires Quickie or compatible scanner and IIGS or enhanced IIG with 512K

11835 Carmel Mountain Rd., Suite 1304  
San Diego, California 92128  
(619) 679-9200 Fax (619) 451-0276

# REVIEWS

defense — the parry. To jab, you push the joystick forward; to slash, you pull the joystick back, then move it forward. To parry, you move the joystick right and left, depending on the way you want your wizard to lean.

Getting the hang of parrying is actually a bit difficult, because at times your wizard faces you and the movements are reversed. This different perspective may be confusing. As noted above, a good rule of thumb for defense is to move the joystick in the direction in which you want your character to lean.

As you battle your way toward your imprisoned master, you pick up a wide variety of useful items. You access and use these items via the joystick. Pressing the right joystick button brings up the contents of your pack; moving the cursor over the item desired and pressing either joystick button selects the item for use.

You can't save a game in the middle of a level's adventure. When your wizard masters a level successfully, he's rewarded with a certificate. If you've quit a game, but want to return to the same level, type the certificate number when you reboot and

you'll pick up at the last level you completed. The accompanying manual is complete and well written; it contains specific instructions for dealing with common situations and hints for figuring out the tough ones.

For the fantasy gamers who enjoy using dexterity as well as his or her mind to win a game, *The Immortal* may well be the game you're waiting for. Its splendid graphics, constant action, and fantasy flavor will satisfy players for a long, long time — perhaps forever!

Jim Trunzo  
Leechburg, PA

## ALLTECH ELECTRONICS CO., INC.

602 Garrison St., Oceanside, CA 92054  
1300 E. Edinger Ave., Suite D., Santa Ana, CA 92705  
2018 Lomita Blvd., Lomita, CA 90717

We Buy  
Old/Broken Items,  
call for details

Visa  
& MasterCard  
No Surcharge!

PHONE ORDERS: 619/721-7733 FAX 619/721-2823

Apple® Service Parts • Apple® Chips & ROMs • RAM Chips & SIMM Modules • SCSI Hard Disks

• School Purchase Orders Accepted! •

### Disk Drives & Hard Disks

5.25" FH (20 Pin).....	\$65.00
5.25" FH (DB-19).....	\$75.00
5.25" IIc Internal.....	\$95.00
Apple Disk II (Refurb).....	\$85.00
800 K Drive Assy*(Exch Only).....	\$135.00
SCSI 20/80 Meg w/card.....	\$345.00/\$395.00
SCSI 40 Meg w/card.....	\$445.00
SCSI Case and Power Supply.....	\$85.00
Other SCSI Hard Disk Options.....	CALL

### Keyboards

Apple II+, III.....	\$45.00
Apple IIe, IIc w/exch. only.....	\$65.00
Numeric Keypad II+, MAC.....	\$35.00

### RAM Chips

4164 -15/-20.....ea.	\$75.50
41256 -10/-12.....ea.	\$2.75/\$2.50
41256 -15.....ea.	\$2.00
41000 -10 (1Meg) ea.	\$7.00 Bank.....\$56.00
44256-80 (256x4) each	\$7.00/Bank.....\$56.00
256X8 SIMM.....	\$19.00
1024X8 SIMM.....	\$54.00
EPROMs IC's & Other RAM Chips	Avail.

### RAM Expansion

<i>Super Expander boards</i>	
SE IIe (Zero K/1024K).....	\$59.00/\$109.00
SE II+ (Zero K/1024K).....	\$69.00/\$119.00
SE IIc (Zero K/1024K).....	\$79.00/\$129.00
GS Juice Plus 4Meg w/1024K.....	\$139.00
Extended 80 (Makes 128K IIe).....	\$35.00
16K Language Card II+.....	\$29.00

### Black Media

5.25" DSDD Disks.....	100 for \$19.00
3.5" DSDD Disks.....	50 for \$20.00

### Peripheral cards

80 Col. card (II+).....	\$45.00
5.25" Cont. Card (DB19/20 Pin).....	\$45.00
3.5" Apple UniDisk Cont. Card.....	\$65.00
Graphic Parallel Printer Card.....	\$45.00
Super Serial Card.....	\$52.00
Z80 CP/M.....	\$29.00
Mountain CPS (Clock, Par, Ser).....	\$45.00
RGB 80Col/64K IIc.....	\$79.00
Hayes Micromodem 300.....	\$29.00
System Saver IIe.....	\$35.00

### Monitors

Apple Monitor IIc.(Small).....	\$79.00
Apple Monitor III.(Refurb).....	\$65.00
Amdek Color-I Composite 14".....	\$125.00

Refurbished Composite Monitor.....\$45.00

### Cables/Switch Boxes

8 Pin MinidIn 6 ft. Ext.....	\$12.00
IIc-> Imagewriter I/II.....	\$12.00
II+, IIe->Imagewriter I/II.....	\$12.00
Hgs. IIc-> Imagewriter I/II.....	\$12.00
Apple MiniDin8 (Both Ends).....	\$12.00
Laser 128 Parallel Cable.....	\$15.00
20 to 19 Pin Disk II Adapter.....	\$14.00
Switch boxes.....	From \$25-\$50.00
Serial/Parallel/Din.....2 Ports.....	\$12.00

We Have Cables for Many Apple  
Products

### Accessories

AntiStatic Comp. Covers (Clear).....	\$12.95
IIe, Monitor, Duodisk Cover.....	\$12.95
IIc, Monitor (Specify Monitor).....	\$12.95
ImageWriter I/II, LaserWriter +.....	\$12.95
Other Covers, Mac, Keyboards, Etc.....	\$12.95
No Slot Clock.....	\$29.00
ImageWriter I Accs Kit; IIe.....	\$29.00
Comrex Joystick.(16Pin only).....	\$9.95

### Apple IIgs Specific Chips

ROM 01.....	\$44-0077B.....\$29.00
VCC.....	\$44S0046.....\$29.00

### Printers & Accessories

Citizen GSX 140/200.....	\$299.00/195.00
Color Kit for Citizen Printer.....	\$55.00
Used 9 Pin (90 Day Warranty).....	\$95.00

### Printheads

ImageWriter I Printhead w/exch.....	\$75.00
ImageWriter II Printhead, exch.....	\$89.95
Okidata Print Head w/exch.....	\$59.00
Some Epsom Heads Available.....	Call

### Apple IIe Specific Chips

6502 (CPU).....	\$70-6502.....\$3.00
65C02 (CPU/Enhanced).....	\$9.00
MMU.....	\$44-0010.....\$95.00
IOU.....	\$44-0020.....\$29.00
CD ROM.....	\$42-0135.....\$19.00
EF ROM.....	\$42-0134.....\$19.00
AY3600-PRO (Keyboard Encoder).....	\$29.00
Video ROM.....	\$42-0133.....\$19.00
Video ROM (Enh).....	\$42-0265.....\$19.00
HAL.....	\$41-0170.....\$9.00
Keyboard ROM 341-0132.....	\$19.00

### Manuals & Software

AppleWorks 1.2 w/disks.....	\$35.00
ProDOS Users Disk & Manual.....	\$15.00
AppleWriter IIe 2.0 Manual.....	\$12.00
ImageWriter I/Color Plotter.....	\$12.00
LaserWriter Plus.....	\$12.00

Call us for other manuals

### Apple Service Parts & Chips

#### Power Supplies

Apple IIc Internal Power Supply.....	\$29.00
Apple IIc External Power Supply.....	\$39.00
Apple II+, IIe P/S Exchange*.....	\$49.00
Apple II+, IIe, P/S No exchange.....	\$59.00
Apple IIgs P/S Exchange.....	\$79.00
SCSI Case & P/S for 3.5" HD.....	\$85.00

Call for avail. on other Apple P/S's

### Apple II+ Specific Chips

ROMs DO, D8, E0, E8, F0, F8.....ea.	\$14.95
6502 (CPU).....	\$3.00
ROM SPL 341-0036 (Char ROM).....	\$9.00
Keyboard Encoder KB-431.....	\$19.00

### Apple IIc Specific Chips

65C02 (CPU).....	\$9.00
MMU.....	\$44-0011.....\$29.00
IOU.....	\$44-0021.....\$29.00
Character Gen.....	\$42-0265.....\$19.00
IWM (Smart Port) 344-0041.....	\$39.00
Serial Chip 6551.....	\$4.00
Keyboard Map.....	\$42-0132.....\$19.00
AY-3600-PRO (Keyboard Encoder).....	\$29.00
TMG.....	\$41-0170.....\$9.00
GLU.....	\$41-0243.....\$9.00

### Mother Boards

Apple II+.....	\$100.00
Apple IIe, or Apple IIc.....	\$179.00

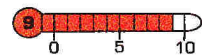
### Macintosh

HyperCard v1.2. w/disks.....	\$29.00
Mac 128/512 Main board,.....	\$95.00/145.00
Mac 512/Plus SE CRT.....	\$95.00
Mac 512/Plus Power Supply*.....	\$175.00
Mac 400 K Drive Assy.....	\$39.00
68881 co-processor.....	\$75.00
68882 co-processor.....	\$175.00
Mac 64K(128/512) Rom Chip Set.....	\$29.00
800 K Drive Assy.....	\$135.00
68020.....	\$30.00
Scanman for Mac+, SE, II.....	\$149.00

## PIPE DREAM

LUCASFILM GAMES, DISTRIBUTED BY ELECTRONIC  
ARTS, 1820 GATEWAY DRIVE, SAN MATEO, CA  
94404, (415) 571-7171

Puzzle/strategy game; 128K Apple IIe, IIc, 5.25-inch disk drive, keyboard or mouse, \$24.95; 512K IIs, 3.5-inch disk drive, keyboard, joystick, or mouse, \$24.95; 512K Macintosh Plus, SE, II, double-sided drive required, color or monochrome monitor, keyboard or mouse, \$24.95



Pipe Dream might be more aptly named "Pipe Nightmare." Anyone who's ever had a pipe burst or tried a little do-it-yourself home repair can relive the anxiety of gushing water and emergency plumbing in this wacky strategy-puzzle game from LucasFilm.

You're the Plumber in Chief of the



Can you control the floop?

Acme Chemical Company, the inventor of the miracle sewer cleaner dubbed floop! The factory is making floop faster than it can pump it into tank cars. Your task is to do an emergency plumbing job, using spare pieces of pipe, to keep the floop from flooding the company grounds.

Minimum Shipping & Handling Charge \$5.00. Some Products may be used/refurbished but still carry a 90 day warranty, inquire at time of purchase for more info on specific products. Above Prices are subject to change without notice. Refunds subject to 20% restocking fee. We are not responsible for products purchased in error. Our liability is limited to purchase price only.  
Ile& Iic Keyboards, Apple II and Mac P/S, other products are subject to exchange, some credit available for other bad parts.

Circle 103 on Reader Service Card.

The game is played in a series of rounds. Each round requires you to build as long a pipeline as you can before the flooz catches up with you. By placing and connecting pieces of pipe on an otherwise blank playing field while the flooz flows through the pipe already in place, you try to stay ahead of the mess.

This game isn't nearly as easy as it sounds. Only one piece of pipe is available to you at a time, and there's no guarantee that it's the one that will connect cleanly to the section already on the playing field. You'll have to think ahead and anticipate connections several moves in advance.

Once you place a piece you can't move it, so your task becomes even more complicated. Also you can't rotate, skip, or alter the pieces in any way. You can "bomb" a pipe by placing another on top of it, but you'll receive a penalty. Besides, there's a time delay for replacing pipes, and a points penalty for using the bombing tactic.

You complete a round when you've placed all the pieces you can on the playing field or when you're overtaken by the flooz. You advance to the next level by making the flooz flow through a requisite number of pipes. You gain points by getting flooz to flow through pipes, advancing to new levels, making the flooz cross itself (by placing "cross" pieces of pipe in strategic locations), and using special pipe pieces.

#### ENDLESS FUN

Pipe Dream possesses that frustrating addictiveness that's the mark of all good puzzle games. Perhaps it's the fact that the game looks so easy and the premise seems so simple that you stubbornly play "just one more game."

Whatever the case, Pipe Dream continues to challenge. Thirty-six levels of play, changing flooz rates, obstacles on the playing field at higher levels, special pieces (one-way pipe, bonus pieces, end pieces), and special sections of the playing field that let the flooz exit one side of the screen and reappear on the other side guarantee variety every time you play.

In addition to the regular mode of play, you can enjoy Pipe Dream in expert one-plumber and competitive two-plumber modes. Furthermore, you can set any of the formats to training mode, which forces

the flooz to flow at a slower rate while you get the hang of the game.

Pipe Dream is available for the entire Apple family, including the Macintosh. The game's mechanics are identical, regardless of the machine you're using. All versions employ the same code-wheel off-disk copy-protection scheme, too.

Differences are basically of a cosmetic nature, having to do with the graphics images and color capabilities of each machine. The Macintosh version, however, lets you install Pipe Dream as a desk acces-

sory by simply using the Font/DA program that comes with your Macintosh. Also, the Macintosh's two-player mode requires that one of the gamers use the mouse and the other the keyboard.

Pipe Dream is an excellent hair-pulling strategy game that teaches spatial relations and logic subtly. Its elegantly simple design makes play fast and furious. But you'd better keep looking behind you — the flooz is on your tail. □

**Jim Trunzo**  
**Leechburg, PA**

# The Sensational Lasers

## Apple IIe/IIc Compatible

# \$299



The Laser 128® features full Apple® II compatibility with an internal disk drive, serial, parallel, modem, and mouse ports. When you're ready to expand your system, there's an external drive port and expansion slot. The Laser 128 includes COPY II PLUS software! Take advantage of this exceptional value today . . . . . **\$299**

### Super High Speed Option!

## only \$365

The LASER 128EX has all the features of the LASER 128, plus a triple speed processor and memory expansion to 1MB . . . . . \$365.00

The LASER 128EX/2 has all the features of the LASER 128EX, plus MIDI, Clock and Daisy Chain Drive Controller . . . . . \$405.00

#### DISK DRIVES

- \* 5.25 LASER/Apple 11c . . . . . \$ 99.00
- \* 5.25 Apple 11e . . . . . \$ 99.00
- \* 3.50 Apple 800K . . . . . \$139.00
- \* 5.25 LASER Daisy Chain . . . . . **New!** \$109.00
- \* 3.50 LASER Daisy Chain . . . . . **New!** \$179.00

### Save Money by Buying a Complete Package!

THE STAR a LASER 128 Computer with 12" Monochrome Monitor and the LASER 145E Printer . . . . . \$565.00

THE SUPERSTAR a LASER 128 Computer with 14" RGB Color Monitor and the LASER 145E Printer . . . . . \$675.00

#### ACCESSORIES

- \* 12" Monochrome Monitor . . . . . \$ 89.00
- \* 14" RGB Color Monitor . . . . . \$229.00
- \* LASER 190E Printer . . . . . \$209.00
- \* LASER 145E Printer . . . . . \$179.00
- \* Mouse . . . . . \$ 49.00
- \* Joystick (3) Button . . . . . \$ 29.00
- \* UDC Card . . . . . \$ 49.00

## USA MICRO YOUR DIRECT SOURCE FOR APPLE AND IBM COMPATIBLE COMPUTERS



2888 Bluff Street, Suite 257 • Boulder, CO. 80301  
Add 3% Shipping • Colorado Residents Add 3% Tax

Phone Orders: 1-800-654-5426

8 - 5 Mountain Time • No Surcharge on Visa or MasterCard Orders!  
Customer Service 1-800-537-8596 • In Colorado (303) 938-9089

Your satisfaction is our guarantee!

FAX Orders: 1-303-939-9839

Laser 128 is a registered trademark of Video Technology Computers, Inc. Apple, Apple IIe, Apple IIc and Imagewriter are registered trademarks of Apple Computer, Inc.



**LEARNING**  
L CURVE

# COMPACT DISCOVERY 2

By DAVID D. THORNBURG, Ph.D.

**The concept  
as well as  
the content  
of compact discs  
can create  
an educational  
revolution.**

ALTHOUGH COMPUTERS ARE AS COMMON as desks in many classrooms, some educators fail to tap the power of this technology. With the introduction of CD-ROM (compact-disc read-only memory) to school systems, though, teachers have the ability to transform the role of computers in education. As we noted last month in "Compact Discovery," (p. 80) one disc the size of a standard audio CD can hold over 640 million megabytes of information and simultaneously store computer-readable information, high-quality audio, TV-quality video, and a host of other signals. In short, this medium can deliver a complete multimedia presentation. This month we'll continue our exploration of CD-ROM by examining some commercial software that can serve as a model for a revolution in the design of educational courseware and in teaching itself.

Warner New Media has released two CD-ROM titles, **The String Quartet**, which features Beethoven's *14th String Quartet*, and Mozart's **The Magic Flute**. Both titles are Mac-based explorations of classical music that combine HyperCard stacks with CD audio. You can apply the same ideas to stacks you design yourself on

a Mac or on the IIGs using HyperStudio.

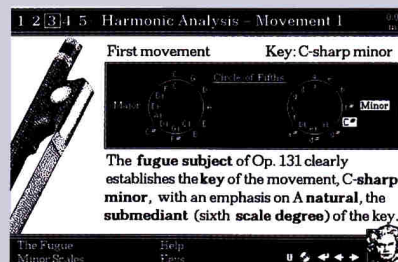
The Beethoven CD contains a folderful of HyperCard stacks and eight tracks of CD audio that include the entire quartet and the additional music used in various parts of the HyperCard applications. (You can play the audio tracks on a conventional CD player, too.)

When you start the program, you have several options. Select one of four visual accompaniments to view while you listen to the quartet. The first of these is a general discussion of the piece, while the remaining choices provide different types of analysis depending on your interest. You can choose a harmonic analysis, for example, or one based on the music's structure. At any time you can switch among the various analyses by clicking your mouse on one of the numbers in the upper-left corner of the screen. (See **Figures 1** and **2**.) Each analysis keeps pace with the music, so you see information that relates directly to what you hear.

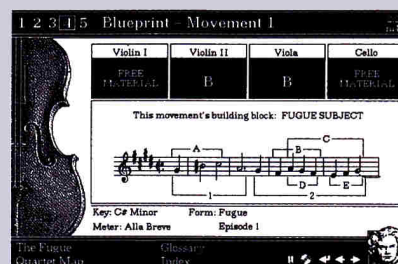
Definitions in small windows are available for words in boldface; just click the mouse on any of these special words, and additional topics for exploration appear in the lower-left corner of

the screen. For example, the first movement of the *14th String Quartet* is a fugue; to learn more about fugues, click the mouse on the word and zoom to a small treatise that includes both a description of the parts of a fugue and musical demonstrations. You can even hear fugues by composers such as Bach and Stravinsky. (See **Figure 3**.)

If your interest runs more to historical context, you can summon a timeline of classical music, see brief biographies of several major composers, and hear samples of



**Figure 1.** Harmonic analysis of the opening movement of the Beethoven quartet.



**Figure 2.** Bar-by-bar view of the same piece of music.

their music. Another branch takes you to a section on Beethoven's deafness, so that you can hear how his music may have sounded to him at various periods in his life. (See Figure 4.)

This particular CD-ROM application is so flexible I can't imagine two people using it in the same manner. Aside from the incredible scholarship represented in the product, the HyperCard stacks are crafted in a way that supports many learning styles.

How can *The String Quartet*, *The Magic Flute*, and other CD-ROMs like them revolutionize your approach to teaching? The experience of listening to a lecture on a particular topic is quite different from exploring that same topic via multimedia tools. Lectures progress in linear fashion, from start to finish, while student interactions with computers can be far more open-ended.

Lectures and books fit well together, because they're both linear media. While humans have adapted to this format (except, perhaps, for the 700,000 students who drop out of school each year), most research on learning styles and the functioning of the brain seems to indicate that we operate naturally in a more holistic fashion. Young children, left to their own devices, become engrossed in one topic, shift to another point of view, change topics altogether, and learn in ways that engage all the senses. Only when they enter school do most children's learning rates decline rapidly.

The logistics of cost-effective classrooms have typically required that one adult try to instruct 30 or more children at a time. The invention of lectures and books made this task possible, but this approach is less than optimal. CD-ROMs support a more natural way of learning — one that specifies a topic, but also supports more than one perspective on its content.

If we view the Beethoven quartet as a region of conceptual space, then Warner's CD-ROM becomes a navigational tool with which students can chart their own course

## PRODUCT INFORMATION

**The String Quartet**  
**The Magic Flute**  
 Warner New Media  
 3500 West Olive Avenue  
 Suite 1050  
 Burbank, CA 91505  
 (818) 955-9999  
 \$66 each

through the space. They have their choice of tour guides and a good body of reference material close at hand, if they want to extend their exploration into unfamiliar territories. By using the students' maps to travel through applications, a teacher can share the youngsters' perspectives and discover whether they've mastered the subject.

For any of this to affect education, though, teachers must be willing to move from the paradigm of lecture-based instruction to one in which they serve as catalysts and facilitators of student-based learning. If you're willing to try this idea in even one subject,

you'll have forever changed the concept of education in the minds of your students. □

WRITE TO DAVID THORNBURG AT 1561 LAUREL, SUITE A, SAN CARLOS, CA 94070. ENCLOSE AN SASE IF YOU'D LIKE A PERSONAL REPLY.

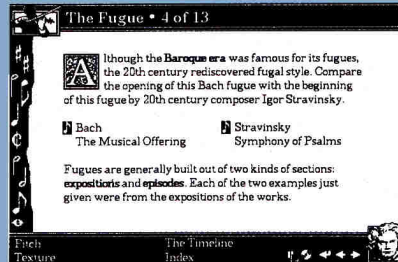


Figure 3. Sample page from the discussion of fugues.

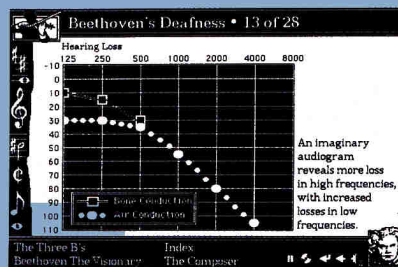


Figure 4. A page from the section on Beethoven's deafness.

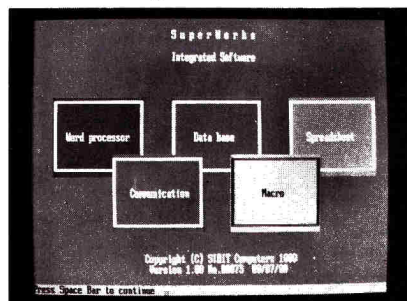
## OFFICIAL ANNOUNCEMENT TO READERS

### Breakthrough For AppleWorks Users!

The best integrated PC package yet!

Northvale, NJ February 15, 1991

Remarkable Technologies announces a breakthrough product which delivers AppleWorks power on an IBM PC or compatible. SuperWorks allows AppleWorks users to step up to a PC along with all their AppleWorks files, utilizing AppleWorks work-alike integrated software.



SuperWorks Features Screen

New features provide complete and full integration of all its capabilities including; spreadsheet (with 3-D capability), database (the easiest to use and one of the most powerful anywhere), word processing (a dynamic and full capability communications package) plus

unlimited keystroke macro capability. It takes only 160K in RAM. In addition, SuperWorks allows you to work with your AppleWorks file on an IBM PC.

As a special introductory offer to inCider readers, SuperWorks will be made available at the special price of \$199.00 (plus \$5.00 for shipping and handling). SuperWorks has a regular retail price of \$400.00. Send your check or credit card information with order form below to Remarkable Technologies, 245 Pegasus Avenue, Dept. SW, Northvale, NJ 07647. Telephone: 201-784-0900. Fax: 201-767-7463

PAYMENT MUST ACCOMPANY THIS ORDER

EXP. DATE \_\_\_\_\_ SWS

CARD NUMBER \_\_\_\_\_

SIGNATURE \_\_\_\_\_

COMPANY \_\_\_\_\_

ATTENTION \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP \_\_\_\_\_

**30 DAY MONEY BACK GUARANTEE**

Circle 33 on Reader Service Card.



# WHILE THE CAT'S AWAY

Apple users know there's always an easier way to get the job done. A shortcut here, an elegant twist there — that's what Hints & Techniques is all about. It's an information swap for readers who want to share their programming pointers, hardware secrets, AppleWorks applications, and all kinds of other insights.

## No MORE MOUSETRAP

By CAMERON CROTTY  
Associate Editor

CALLING ALL PRODOS BASIC programmers! Are you tired of the same old keyboard interface? Are you sick of listening to Mac and GS/OS addicts snicker when you can't point and click on your latest opus? Do you long for the flick of wrist and tap of finger that spell sophistication — perhaps even class? If you remember that the Apple II treats the mouse as though it occupied a slot (just like your printer or disk drives) using the mouse from ProDOS BASIC is easy.

The accompanying **Program listing** is a simple paint program that has only three routines, but demonstrates how to turn the mouse on, read data from it, and turn it off.

The first routine, beginning at line 500,

S	Mouse Button Status
+/- 1	Still being pressed
+/- 2	Just been pressed
+/- 3	Just been released
+/- 4	Not been pressed
If S < 0 then a key on the keyboard has been pressed.	

**Table.** Integers describing status of mouse button.

switches output to the mouse and activates it by sending CHR\$(1). Then it switches output back to the screen where it belongs, and opens the input line from slot 4. In the mouse-read routine, the empty string ("") in line 100 suppresses the question-mark prompt associated normally with INPUT. X and Y will be values ranging from 0 to 1023 and stand for, amazingly enough, movement along the X and Y axes, respectively. S will be an integer

from +/-1 to +/-4 and describes the status of the mouse button. (See the accompanying **Table**.)

The last routine, beginning at line 600, turns off the mouse and resets the keyboard strobe. Once you know how to read the mouse, the rest is up to you! □

SEND YOUR TIP TO HINTS & TECHNIQUES, *inCider/A+*, 80 ELM STREET, PETERBOROUGH, NH 03458.

## CALL FOR SUBMISSIONS

Apple II and Mac users everywhere: Send us your ideas! We want your tips, macros, and shortcuts. Tell us how you fit that graphic into your newsletter. In short, write to us about anything that helps your system run faster or work more efficiently, or just plain makes your life easier. If we print your submission we'll pay you \$25 and make you famous!

**Program listing.** This paint program demonstrates how to use your mouse.

```

10 REM
20 REM DEMO MOUSE PROGRAM
30 REM
40 D$ = CHR$ (4): HGR2 : HCOLOR= 3
50 GOSUB 500: REM INITIALIZE MOUSE
100 INPUT "";X,Y,S
110 XREAL = INT (X / 3.50)
120 YREAL = INT (Y / 3.50)
130 IF XREAL = 0 OR YREAL = 0 THEN GOTO 100
140 IF XREAL > 279 OR YREAL > 191 THEN
    GOTO 100
150 H$PLOT XREAL,YREAL: HCOLOR= 0: H$PLOT
    XREAL,YREAL: HCOLOR= 3
160 IF ABS (S) = .1 THEN GOSUB 1000: REM
    IS THE BUTTON BEING PRESSED?
170 IF S > 0 THEN GOTO 100: REM HAS A KEY
    BEEN PRESSED?
180 GOSUB 600
190 TEXT : HOME : END
200 REM
210 REM
500 REM INITIALIZE MOUSE
510 REM
520 PRINT D$;"PR#4": PRINT CHR$ (1)
530 PRINT D$;"PR#0"
540 PRINT D$;"IN#4"
550 POKE - 16368,0
560 RETURN
600 REM
610 REM
620 PRINT D$;"IN#0"
630 PRINT D$;"PR#4": PRINT CHR$ (0)
640 PRINT D$;"PR#0"
650 POKE - 16368,0
660 RETURN
1000 REM DRAW WHITE LINE
1010 REM
1020 HCOLOR = 3
1030 H$PLOT XREAL,YREAL
1040 RETURN

```

## Sports Scheduler

**THE BEST MOST COMPLETE LEAGUE PLAY SCHEDULING SOFTWARE ON THE MARKET.**

- Schedule any number of leagues, categories or divisions with 4 to 22 teams in each.
- The date, day, time, location, game number, & home & visitor are calculated for every game.
- Equal distribution of; opponents, teams playing in time slots, byes for odd number of teams, home & visitor status, and the number of games.
- Games are listed in chronological order by date & time arranged in sets and round robins.
- Only minutes to create/print/save a schedule.
- Saved schedules can be recalled into APPLEWORKS providing unlimited editing and printing options. You select desired file format— word processor, spreadsheet, or data base.
- Prints mailing labels and league/team contact rosters for each league, category or division.
- Create scheduling organization/setup worksheets.

**Bonus - Referee/Facility Scheduler included free.**  
**APPLE IIe,c,IIgs** (5¼ disk) \$109.95 + \$3.00 S&H  
**IBM PC & Comp.** (3½ or 5¼) \$129.95 + \$3.00 S&H  
 Call or write for Informative brochure:

**SPORTS SOFTWARE ASSOCIATES**  
 P.O. BOX 458, HINGHAM, MA 02043  
 (617) 749-7880

Circle 18 on Reader Service Card.

# MARKET PLACE

Marketplace Ads get results! You can place an ad in this attention-getting section at a very reasonable cost. Call Diane toll-free at **800-441-4403** for helpful advice and reservations. Start seeing your ad here next month.

## AppleWorks 3.0

Now you can learn AppleWorks 3.0 from your own private tutor. This 90-minute audio tape describes and gives practical applications of more than 25 new features in AppleWorks 3.0. An excellent source of information for you and your students.

\$9.95 + \$2 s/h. Satisfaction guaranteed or your money back. NAUG accepts Visa/MC.

National AppleWorks Users Group  
 Box 87453 • Canton, MI 48187  
 (313) 454-1115

Circle 55 on Reader Service Card.

	Computer	MonoSys	ColorSys
LASER 128	\$295	\$381	\$498
LASER 128EX	\$369	\$439	\$559
LASER 128 EXII	\$399	\$469	\$589
LASER 128 EXII+	\$439	\$509	\$619

12" Laser Monochrome.....	89	Laser UDC Card (3.5/5.25)....	46
12" Magnavox Mono/Comp.....	96	Laser 128E Memory Card.....	30
14" Laser RGB Color.....	219	256K Memory.....	25
13" Magnavox 8764 Color.....	259	Monitor Stand.....	28
14" Magnavox 1135 Color.....	289	Laser Safeskin.....	24
Laser 190 (Epson).....	195	Apple Safeskin.....	24
Laser 190 (Apple).....	195	Laser Joystick.....	25
Laser 190 (Mac/IGS).....	255	Laser Mouse.....	46
Laser PC4.....	219	Star NX 1000.....	185
Modem Software.....	120	Star Rainbow.....	255
Apple II Serial Card.....	85	Laser 3.5 Drive (Mac).....	123
Apple II Parallel Card.....	49	Laser/IIe 5.25 Drive.....	92
AppleWorks 3.0.....	185		

All Units 1 year Warranty  
 90 Days Free Pick-up & Return

### NEW SCIENCE PROSPECTS

Your full Laser® Computer Service Center  
 1200 Blalock Ln., Ste. 380, Houston, TX 77055  
 713-464-8303  
 School orders welcome

Circle 173 on Reader Service Card.

## BIBLE RESEARCH SYSTEMS

Thousands of customers use our software and Bible text for KJV or NIV. Create your own concordances by searching for word and phrase combinations. Immediate display or print of any portion of the Bible. Also available: a Greek transliterator and topical concordances. For ProDos, Macintosh & MS-DOS.

### Bible Research Systems

2013 Wells Branch Pkwy. #304  
 Austin, Texas 78728  
 (512) 251-7541 (Tech Support)  
 (800) 423-1228

Circle 87 on Reader Service Card.

## DUST COVERS



### 100% Fabric Dust Covers

- Heat Ventilating. Unlike plastic, and Won't Dry Out, Yellow or Crack with age! • Machine Wash & Dry!
- Highest Quality, Custom-Fit Designs! • For Apple, MAC, IBM, Compaq & many more! • Custom orders!
- Monogramming and Silk-screening Available!
- 100% Satisfaction Guarantee! • Service since 1983!

CO-DU-CO Computer Dust Covers  
 4802 W. Wisconsin Ave., Milwaukee, WI 53208  
 800-735-1584 • 414-476-1584 • 414-476-9329 FAX

Circle 21 on Reader Service Card.

## Slide-On Battery Kit

Thousands of satisfied owners have found our replacement battery kit is the best way to replace the soldered clock battery on early models of IIGs.

### Battery Kit

- Complete Instructions
- No Solder Required
- Heavy Duty Battery
- 10 Year Shelf Life
- Patent Pending

Order Direct from Manufacturer & Save  
**\$14.95 ea.**  
 10 Kits for \$120

### For IIe, IIc, IIGs on 3.5" Disk

Nite Owl Journal 3.5 - \$14.95  
 WRAITH Adventure - \$14.95

GS Super Cooler Fan - \$24.00  
 GS Font Collection - \$39.00

Include \$3 S/H per Order (\$6 overseas)

FAX: 362-5798

Call: (913) 362-9898



**Nite Owl Productions**  
 5734 Lamar Street  
 Mission, KS 66202

Circle 71 on Reader Service Card.

## BACK UP YOUR DISKS

No risk — If unhappy for any reason, return in 30 days for refund.

If you already own EDD, please pass this message to a friend.

When one of your favorite disks "crash" and the software publisher is out of business, all is lost— unless you've made a back up copy. With Essential Data Duplicator 4.9 PLUS you can back up your uncopyable "copy-protected" 5.25 inch disks... before it's too late!

EDD 4.9 PLUS copy system uses a special interface card for accurately backing up more disks than all copy programs together, guaranteed! In addition, we've included several useful utilities.

EDD 4.9 PLUS runs on apple compatibles, II+, IIe, and IIGs; price, \$129.95. Daisy chain type or duodisk drives need \$15 cable adapter. Add \$5 shipping (\$8 foreign).

A software only version, EDD 4.9 standard, runs on apple compatibles, II+, IIe, IIc, IIGs, and III; price, \$29.95. Add \$3 shipping (\$6 foreign).

Phone orders (707) 965-2290 weekday mornings (P.S.T.). M/C, Visa accepted. Or, send orders to: UTILICO, 3377 Solano Ave., Suite 352, Napa, CA 94558. EDD is also available through your favorite software dealer.

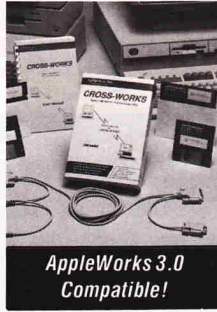
ESSENTIAL DATA DUPLICATOR

# APPLEWORKS ↔ IBM

CROSS-WORKS 2.0 can exchange AppleWorks data files with the most popular MS-DOS programs:

NEW!

**AppleWorks ↔ Microsoft Works**  
**AppleWorks Word Proc. ↔ WordPerfect**  
**AppleWorks Spreadsheet ↔ Lotus 1-2-3**  
**AppleWorks Data Base ↔ dBase III, IV, etc.**



AppleWorks 3.0  
Compatible!

In seconds, **CROSS-WORKS** copies files either way between your Apple II and IBM PC, and translates the file formats. Word Processor files maintain underlining, margins, centering, etc. Spreadsheets transfer data and formulas! Transfers ASCII text files too. **Includes universal 19,200 baud cable to connect IIe (with Super Serial Card), IIc, IIcPlus & IIgs to PC, XT, AT, PS/2 & compatibles.** Also supports modem transfers. Both 5 1/4 and 3 1/2 inch disks included.

“...Look no further. **SoftSpoken's CROSS-WORKS carries the biggest stick in the file translation/transportation business...** Rating: ★★★★★” — *InCider* July, 1989

**CROSS-WORKS™** \$99.95 + Shipping & Hand.  
30 Day money-back guarantee! School P.O.s welcome.

☎ (919) 870-5694 for free information.

**SoftSpoken**

P.O. Box 18343  
Raleigh, NC 27619

Circle 127 on Reader Service Card.

# CANADIAN MAIL ORDER

## DANDAM SOFTWARE

EST. 1987

CALL FOR **FREE** CATALOGUE

AE 3.5 Drive **\$249.95**

DP RamPlus Memory Cards  
1 MG //E... **\$179.95** • 2 MG //GS... **\$199.95**

DP40 Hard Drive with Apple SCSI ... **\$719.95**

Syquest 44MG Removable Drives with Cartridge &  
Apple High Speed SCSI ... **\$949.95**

PC Transporter or Transwarp //GS ... **\$329.95**

LASER 128EX/2 ... **\$499.95**

• **LIMITED TIME OFFER** • CDN\$

• 1-800-265-9576 • (519) 974-3011 •

• Fax: (519) 974-6643 •

8408 Wyandotte St. E.,  
Windsor, Ont. CANADA, N8S 1T6

Circle 80 on Reader Service Card.

## IIgs Blowout!

New-in-the-box  
**ONLY \$699.**

Reconditioned IIgs w/512k...\$589.  
800k external (Apple®).....\$199.

### Parts & Systems

Buy-Sell-Trade

Apple II, Macintosh & IBM PS/2

### Shreve

### Systems

3804 Karen Lane

Bossier City, La. 71112



FAX 318-742-2799

# 800-227-3971

School & Government P.O.'s accepted!

Circle 29 on Reader Service Card.

## FREE -15 DISKS - FREE FULL OF GREAT SOFTWARE

TRY US!

Get 15/5.25" disks or 6/3.5" disks  
for Apple II, Apple GS or Mac.  
Bestselling **VIRUS FREE!** Games,  
Business, Graphics, Education,  
Utilities, Finance, and Desktop pub-  
lishing software. Credit cards only!  
**PAY ONLY \$5.00 FOR SHIPPING**  
satisfaction guaranteed

MACINTOSH • APPLE II • APPLE GS

SMC SOFTWARE PUBLISHERS

ORDER TODAY - CALL

619 931-8111



since 1985



Circle 23 on Reader Service Card.



Attention  
HyperStudio™ Users

Announcing a revolutionary new disk-based Hyper-zine  
just for the users of HyperStudio™ on the Apple IIGS.  
Each Month you'll discover:

- \*Great Stack Ideas
- \*Tried and True Tips & Techniques
- \*Super Ideas & Stacks for Teachers
- \*Hyper-Sound™, Hyper-Clips™ & Hyper-Clips+™
- \*Games-Like Totally Hard Hyper Trivia (THHT)™
- \*IIGS Product Information/Marketplace

U.S. Orders: \$50 (12 issues), \$95 (24 issues)  
Internat. Orders: \$84 (12 issues), \$144 (24 issues)  
Schools/Libraries: \$47 (12 issues), \$90 (24 issues)  
Send check or money order in U.S. funds only to:

The Next Classic/Hyper-Magiczine™, Dept. A-1  
P.O. Box 3416, Idyllwild, CA 92349-3416

Order Now\* & Receive Hyper-Magicalendar™ Free  
Please allow 4 weeks for your first issue to arrive, and you'll start  
receiving Hyper-Magiczine™ on 3.5", HyperStudio™-ready disks.  
You must have HyperStudio™ to run Hyper-Magiczine™.  
HyperStudio™ is a trademark of Roger Wagner Publishing Co., Apple  
IIGS is a registered trademark of Apple Computer Inc.  
\*Offer expires May 1, 1991

Circle 30 on Reader Service Card.

## COLOR RIBBONS & PAPER

Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

Ribbons:	Black	Color	T-Shirt price each	Color Ribbons
Apple Image, I, & II	\$3.75	\$4.50	\$6.50	
Apple Image, II 4-Color		\$5.95	\$10.00	
CitizenGSX140	\$4.00	\$5.00	\$7.50	
CitizenGSX140, 4-Color		☆		
Epson MX-80	\$3.75	\$4.50	\$6.75	
Okidata 182/192	\$5.00	\$7.50		
Panasonic 1180/1124	\$5.00	\$7.50		
Star NX 1000	\$3.50	\$4.50	\$6.75	
Star NX 1000, 4-color		\$6.25	\$10.00	

T-Shirt (Heat Transfer) Ribbons

Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

COLOR PAPER

Color Paper:	200 Shts assorted	
Bright Pack:	9 1/2 x 11	\$10.90/pk
Pastel Pack:	9 1/2 x 11	\$7.90/pk
Color Certificate Paper:	100 sheets	\$9.95/pk
Color Banner Paper:	45 ft/roll	\$8.95/roll

Min. orders: \$25.00. Minimum S&H: \$4.50. Call for other ribbons and supplies. Price and spec. are subject to change w/o notice.

## RAMCO COMPUTER SUPPLIES

P.O. Box 475, Manteno, IL 60950 U.S.A.

USA 800-522-6922 or 815-468-8081

(Canada) 800-621-5444

Circle 7 on Reader Service Card.

## 2 POWERFUL SOFTWARE PROGRAMS from



COMPLETE MATHEMATICAL PROGRAMS for  
HIGH SCHOOL and UNIVERSITY STUDENTS  
or WORKING PROFESSIONALS

## GSNumerics

for the APPLE IIGS COMPUTER

■ SCIENTIFIC CALCULATOR • Atomic Weight & Number. • 196 Unit Conversions. • Automatic Function Parsing. • Complex Math. • 64 Functions.

■ POLYNOMIAL & NON-POLYNOMIAL OPERATIONS • Solve for y. • Slope. • Area. • Roots. • Integrate & Differentiate Polynomials.

■ x-y REGRESSION • Linear. • Log. • Exponential. • Power.

■ SYSTEMS OF LINEAR EQUATIONS • Real or Complex, up to 10 x 10.

■ MATRIX OPERATIONS • Add. • Subtract. • Multiply. • Scalar Multiplication. • Transpose. • Inversion. • Determinant. • Real or Complex up to 10 x 10.

■ COMPLETE FILE OPERATIONS

■ GRAPHICS • Polynomials. • Non-polynomials. • x-y Data. • Regressions. • Graph Magnification. • Overlay Two Functions. • Overlay Function and Derivative. • Overlay Function and Integral.

Circle 60 on Reader Service Card.

## MacNumerics

for the Macintosh Computer

The NEW MacNumerics has all the basic functions and features of GSNumerics PLUS...

■ POLYNOMIAL OPERATIONS • Enter In Polynomial Form. • Enter In Factored Form. • Enter As A Factor Power Expansion. • Factor Polynomials With Real And Complex Factors.

■ GRAPHICS • Compute And Display Real Roots. • Compute And Display Area Between Two Points. • Compute And Display Common Solutions. • Compute And Display Area Between Two Functions.

■ SHOW COMPUTATION STEPS

TWO POWERFUL TOOLS FOR TEACHING AT THE HIGH SCHOOL & UNIVERSITY LEVELS

For complete information contact:

Spring Branch Software, Inc.

P.O. Box 342 • Manchester, IA 52057

Phone: (319) 927-6537

Circle 3 on Reader Service Card.



**Attention  
AppleWorks 3.0 Users!  
Don't miss out on  
inCider/A+'s**

## AppleWorks 3.0 Productivity Pak

This exciting template package is stuffed with interesting projects that help you explore the features of AppleWorks 3.0's word-processor, database and spreadsheet modules.

Just follow the step-by-step instructions in the 125-page guide. After reviewing a project's sample, you'll be ready to complete its corresponding blank template.

Accessory files that perform complementary tasks supplement several templates.

**Word-processor:**  
Desktop Publisher  
Mail-Merge Postcard  
Statements

**Database:**  
Inventory Organizer  
Membership Organizer  
Checkbook Manager  
Nutridata

**Spreadsheet:**  
Nutrical  
Auto-mileage Log  
Home Construction

**A value-packed offer  
at only \$29.97!**

Foreign Airmail, add \$3.95.  
Must be paid in U.S. funds drawn on a U.S. Bank

AppleWorks is a registered trademark of Apple Computer Inc., licensed to Claris Corporation.

**Order Now!**  
Call TOLL-FREE 1-800-343-0728  
(in NH: 924-0100)  
inCider/A+ Special Products  
80 Elm Street  
Peterborough, NH 03458

151E

## RIBBONS

**1-800-331-6841**

1-513-252-1247  
FAX 513-252-4429

Over 350 types

Volume Discounts Available

\*\* Satisfaction Guaranteed \*\*

	BLACK	COLORS
APPLE IMAGEWRITER	2.40	2.95
APPLE 4-COLOR	-	5.50
APPLE SCRIBE	5.95	-
CITIZEN 200GX/GSX-140	3.50	15.95
EPSON LX-80/90	2.10	3.50
EPSON MX-FX 80	2.50	4.50
EPSON MX-FX 100	3.50	4.50
IBM PROPRINTER	3.50	-
OKIDATA 182-192	3.50	4.50
PANASONIC 1080	3.50	4.50
PANASONIC 1124	4.95	4.50
STAR NX-1000	3.25	3.95
NX-1000 4 COLOR	-	7.50

DAYTON COMPUTER SUPPLY

a division of Den-Sys Corp  
1220 Wayne Avenue, Dayton, Ohio 45410

Est:1979 TERMS: C.O.D., MC, VISA, DISCOVER, AMEX.

Circle 134 on Reader Service Card.

**Sixty Days After Ordering  
MacLotto®  
A California Man Strikes  
Gold ... Wins \$195,681.00**

**MacLotto® FREE!**  
All Lottos, All Kenos, All Mac's  
Dramatic Odds Improvements!  
Increases Your Expected Return  
Jackpot Wagering Strategizer™!  
Respects YOUR Budget!!  
On Screen Bet Slip Graphics!  
Fast, Accurate Bet Placement!  
Finds and Pinpoints all Winners!  
Based on OUR Patent #4,712,796 • MacLotto Tour

• Penna. Doctor Wins \$8.2 Million Dollars!  
• Connecticut Teacher Hits 1st Time \$7,300!  
• Canadian Woman Hits BIG in Lotto 6/49!  
• Michigan Judge Hits 5/6 for \$2,500.00!

**\$99 Complete! - US Math Labs,**  
18 Main Street Concord, Ma. 01742 MC/VISA  
FAX 508-653-9193 Direct 617-431-5922

**1 - 800 - PLAY - SIX**

Circle 289 on Reader Service Card.

**How to Contact Your  
Advertising Representative At  
Incider/A+**

**EASTERN SALES OFFICE**  
DALE STRANG  
Associate Publisher/National  
Sales Manager

DIANE MAGUIRE  
Sales Representative

IDGC/Peterborough  
80 Elm Street  
Peterborough, NH 03458  
(800) 441-4403 (603) 924-9471

**WESTERN SALES OFFICE**

JAMES BURNS  
Western Sales Manager  
inCider/A+

2421 Broadway  
Suite 200  
Redwood City, CA 94063  
(415) 363-5230

## LASER 128 Apple Compatibles

	Computer	w/Amber	w/RGB
128	299	378	499
128 EX 	359	438	559
128 EX/2 w/6.25	369	448	569
128 EX/2 w/3.5	429	508	619

Largest LASER Authorized Repair Center & Educational Dealer in Southeast. Mouse for 128 & //c...45  
LASER Expansion Box...49  
Zoom 2400 Modem.....99  
Universal Disk Controller.....49

New - LASER PC-4 Portable for Mac...222  
LASER 3.5 Drive...119 Daisy Chain 3.5...159  
LASER 5.25 Drive...89 Daisy Chain 5.25...95  
LASER 14" RGB color monitor + green + tilt & swivel...219  
Magnavox Composite Color for Ile...289 for Iigs...309  
RAM Card Ile...75 Iigs...70 Ilo, Ilo+...88 Laser 128...25

RAM for Laser & Apple: 256K...20  
RAM for Iigs: 1 meg...68  
T.I. Postscript LaserPrinter w/AppleTalk...1760  
**LASER 190A ImageWriter Compatible Printer**  
for Ile, Ilo, Laser...195 for Iigs, Ilo+, Macintosh...235

**///LASER Experts 1-800-726-7086**

School, PO's, COD & Charge accepted.

Perfect Solutions (407) 790-1070  
12657 Lake Breeze Drive, West Palm Beach, FL 33414

Circle 59 on Reader Service Card.

## Who Helps Apple II Pros...

Get quick answers to  
tough coding questions

Interact with other  
Apple II developers

Download source code,  
utilities and other  
programs

Keep up with the latest  
Apple II developments

Send and receive private  
e-mail with binary  
attachments

Chat with other Apple II  
developers in real time

# BIX

The on-line service for  
people who know the  
Apple II.

Call us to find out how  
you can subscribe!  
800-227-2983 or 603-924-7681

Circle 34 on Reader Service Card.

## Music

### ELECTRONIC MUSIC MIDI SYSTEMS

Laminated MIDI Poster, informative, suitable for framing, for home studio or music classroom, \$19.95 + \$5.50 S/H. New 1991 MIDI Buying Guide Catalog. Turn your Apple into a Multi-Track Recording Studio with the following great products: Apple II+, IIe, MIDI Card 1x2 channels \$69, GS/MAC MIDI 1x3 \$59, with Serial Thru Switch and Diode Lights 1x3 Interface \$89. Sequencing software: MasterTracks Jr, GS \$79, MT PRO GS \$259, Dr.T's KCS V. 2.0 IIe/II+ \$159, GlassTracks \$89, Super Sequencer GS, IIe \$179, Apple II or GS MIDI Music Pack: MIDI Interface & Cables & Software \$169. Music Printing Software \$99. 5' MIDI Cables \$7.95. Books \$2.50 S/H each: A Guide To Computer Music, \$19.95; Electronic Music Dictionary \$16.95; MIDI for Musicians \$17.95; Music and the Mac \$16.95; Audio Animator \$179.00, Transwarp \$299.00 Casio Polyphonic fullsize MIDI Keybrd. with speakers \$389, or Kawai PH50 MIDI Keybrd. \$379. MAC, MIDI, MUSIC SYSTEMS. Band in a Box with song disks \$79, Encore Notation \$359, Al Tech new MIDIFACE EX 1X3 Interface plus software \$69, Practica Musica Education software \$99. MT Pro \$259, Pro 4 \$359, Vision \$339, Trax \$79, Music Data Disks of the 50's, 60's, 70's, 80's, Big Band Sounds \$39, Any Editor/Librarian Mac Software. MIDI Software for any level user; Apple II, Mac, C-64/128, IBM, Atari, Schools and Canadian orders welcomed.

### SOUND MANAGEMENT P.O. Box 3053

Peabody, Ma 01961  
Check, MO, VISA, MC, School P.O.  
Call (800) 548-4907 orders USACall  
(508) 531-6192 MIDI Buying Guide  
catalog and foreign countries

## Entertainment

### WIN THE LOTTERY TODAY!

LOTTO PICKER™ works with your computer to improve your odds of winning million \$ jackpots by exploiting hidden biases in your States lottery games. Increase your win rate in every Lotto game worldwide! For IBM, Apple II, & C64. \$39.95 (+\$2.55 sh). 3.5" disk add \$5. NY res. must add tax.

### GE RIDGE SERVICES, INC.

170 Broadway, Suite 201C  
New York, N.Y. 10038  
ORDERS: 1-800-8352246 x121.  
Info 1-718-317-1961

# CLAS SI FIED

## Public Domain

### BEST VALUE IN APPLE PUBLIC DOMAIN

Over 1000 disks, packed, organized and MENU-DRIVEN with only the best PD and Shareware. Our library is continually updated and now includes many of the latest releases for the Apple IIGS! We emphasize quality and service with NEXT DAY shipping available. Disks as low as \$1.00 each and include all categories (Utilities, Education, Business, Games, PRINTSHOP GRAPHICS, Religion, Appleworks templates, Pascal, Eamon, and more). Programs available in 5.25 and 3.5 format. BLANK DISKS, RIBBONS, and more also available at discount prices. No membership fee! Send \$2.00 for a descriptive catalog and demo disk to:

CHRISTELLA ENTERPRISE  
P.O. Box 483  
St. Clair Shores, Michigan 48080

APPLE PUBLIC DOMAIN DISKS Request free catalog or send \$2 for sample disk & catalog (REFUND- ABLE). Categories include education, utilities, games, business, Print Shop graphics, shareware, EAMON and more. Buy as low as \$1.00 per disk. A \$20 order gets 4 free disks of your choice. NEXT DAY SHIPPING! We have been distributing Public Domain programs since 1986 and will continue to provide timely, courteous responses to all inquiries. Purchase Orders Welcomed!

CALOKE INDUSTRIES (Dept. SK)  
P.O. Box 18477  
Raytown, Mo 64133

### Sale! 20 programs \$1.95

Public Domain & Shareware for Apple II+, E, C, C+, GS Computers. Any disk \$1.95 none higher, no minimum purchase. That's right, we supply the programs and disk for only \$1.95 during our limited Time Sale. Some disks have over 40 programs. Our 10th year distributing Public Domain programs. Thousands of programs. Our Big 48 page catalog gives you descriptions of many of the programs, not just a name. Education & School, Games, EAMON, Art & Graphics, Astronomy, Business & Finance, Ham Radio, Math & Statistics, Music & Sound, Appleworks™ templates and more. Limited time sale, order only on special (supplied) order blank. Send \$3 for Big Descriptive 48 page catalog to:

Computer Budget Shopper (CBS)  
2203 Park Ave Suite 25  
Cheyenne Wy 82007

### FREE APPLE PUBLIC DOMAIN CATALOG

Request free catalog containing complete descriptions of hundreds of programs for the Apple II+, e, c, c+, and GS computers. We carry the very best in all categories including Business, Home, Education, Utilities, Games, Print Shop Graphics, AppleWorks Templates, and more. We use only high-quality colored disks which are completely SELF-BOOTING and MENU-DRIVEN. All orders are shipped the same day they are received. We pay shipping with small minimum order. Money-Back Guarantee! Send for yours today!

MOONLIGHT SOFTWARE  
P.O. BOX 179144  
San Diego, CA 92177

## Insurance

### INSURES YOUR COMPUTER

SAFWARE provides full replacement of hardware, media, and purchased software. As little as \$49 a year provides comprehensive coverage. With blanket coverage, no lists of equipment are needed. One phone call does it all! Call 8am to 10pm ET (Sat 9 to 5).

SAFWARE, THE INSURANCE  
AGENCY INC.  
2929 N. High St.  
P.O. Box 02211  
Columbus, OH 43202  
(800) 848-3469 Nat;  
(614) 262-0559 (OH)

## Software

### FAMILY ROOTS, LINEAGES, TREE CHARTS

From our collection of software to keep track of your family, choose one to fit your needs and pocketbook! Our software handles gobs of data for each of millions of people. Print pedigree and descendants charts, group sheets, person sheets, indices of names, address labels, more. Do screen tracing and searches. Compatible with your word processor. Call for a FREE catalog. Satisfaction guaranteed! Prices start at \$49. All Apples, Macs, PCs, and more.  
MC/VISA/AMEX

### QUINSEPT PO Box 216

Lexington, MA 02173  
617-641-2930 (Mass.)  
800-637-7668 (USA & Canada)

### THE SOURCE OF PLAN-MAKING SOFTWARE

DESIGN YOUR OWN HOME:  
ARCHITECTURE, INTERIORS or  
LANDSCAPE Apple II:  
\$69.95, IIGS: \$89.95, MAC: \$99.95.  
The most useful programs for complete home designing.

DESIGN YOUR OWN RAILROAD:  
Apple II: \$49.95. Design precision, to-scale (HO, N, Z, O, S, G) layouts and run realistic railroad simulations.

DESIGN YOUR OWN TRAIN:  
Apple II: \$49.95. The train and transit system construction set.

RUN YOUR OWN TRAIN:  
Apple II: \$34.95. The flight simulator for down to earth people.

EVERYBODY'S PLANNER:  
Apple II: \$99.95. The only project management tool for Apple IIs, easy on your pocketbook and simple to use.

ADVENTURE OF LEARNING:  
Apple II: \$69.95. Enables you to run our educational and entertainment modules. The program comes with 3 FREE sample modules, and coupons worth \$120 OFF additional modules. Check/Visa/MC.

ABRACADABA  
PO Box 2440 Dept. DD  
Eugene, OR 97402  
Orders: (800) 451-4871  
Information: (503) 342-3030

Use inCider/A+  
Classified Section  
to showcase your  
Products. Contact  
Diane Maguire at  
1-800-441-4403  
for further details.

## Computers & Supplies

**SUPER DEALS ON  
MACS & APPLES!  
BUY\*\* SELL\*\* TRADE  
USED\*\* NEW**

Apple IIc	\$325
Apple IIc+	\$425
Apple IIe	from \$349
Apple IIgs	from \$599
All other Apple Systems	CALL
Imagewriter I(Used)	\$275
Imagewriter II(Used)	from \$349
Apple 3.5" Unidisk 800k	\$269
20 MEG External HD (SCSI extra)	\$269
MAC II	from \$2149
MAC IIcx(New)	from \$2649
MAC II ci	from \$3299

**All other Mac Systems** CALL  
Parts & Peripherals CALL  
Price List \$50 SASE

Also open evenings & weekends

**M.P.-Computer Micro Systems**  
655 W. Evelyn Avenue #2  
Mountain View, CA 94041  
(415) 968-0509 (FAX)  
(415) 968-9026 (VOICE)

### FACTORY FRESH RIBBONS

Ribbon	Black	Color
Apple Imagewriter I,II	\$ 2.25	\$ 2.95
Imagewriter II 4 color		\$ 4.95
Imagewriter II 4 color Heat transfer		\$ 9.95
Imagewriter LQ (Black and 4C)	\$ 8.95	\$13.95
Panasonic 1124	\$ 3.50	
Epson MX/FX/RX80	\$ 2.50	\$ 3.50
Epson MX/FX/RX100	\$ 3.50	\$ 4.00
Star NX1000	\$ 3.25	\$ 3.95

For Orders of less than 6,  
please add .75¢ each.

Hundreds more.

Colors (BLUE, RED, GREEN, PURPLE,)

**-PREMIUM IS ALL WE SELL!**

Shipping/Handling \$3.75 per order  
(over \$75 we pay S/H).

AK, HI, PR., APO/FPO, Canada add  
\$6. S/H to all orders

Free box of 10 diskettes with orders over  
\$100.00 (specify 5.25 or 3.50). New York  
residents please add sales tax.

School, hospital and govt. PO's welcome.

**-MONEY BACK GUARANTEE**

**ISLAND COMPUTER SUPPLY**  
305 Grand Boulevard  
Massapequa Park, New York 11762  
(516) 798-6500

### REPAIRS BY MAIL !!

Two business day turnaround,  
work guaranteed for up to one year.  
Ile MLB Swap: \$110+ \$12 s/h - 1 year  
guarantee.

II, II+, Ile Power Supply Replacement:  
\$75-1 year guarantee.

Iic MLB Swap: \$90 + \$12s/h - 1 year  
guarantee.

Disk Drive II Rehab: \$75 + \$7.50 s/h-  
6 month guarantee.

NJ residents add 6% sales tax.

Hardware supplies also available.

School District orders welcomed.

Write or call us for details.

We also buy dead Apples,  
Franklins, Lasers.

### ARMINIUS PUBLICATIONS & PRODUCTS

P.O. Box 1265/8519

Orchard Ave.

Merchantville, NJ 08109

(609) 662 3420

## Education

### MICROSOFT WORKS

#### APPLEWORKS HYPERCARD

Our FREE 1991 catalog is filled with ev-  
erything you need to get up and running in  
these applications. It offers books, videos,  
student & teacher texts, resource  
corner, complete teaching packages, refer-  
ence books, and software to integrate  
Works and HyperCard into your curricu-  
lum. We also offer special pricing for ed-  
ucators on AppleWorks, Claris Power  
Pack (save 79%!) and Microsoft Works.  
Plus, a FREE mug offer!

### K-12 MICROMEDIA PUBLISHING

6 Arrow Road

Ramsey, N.J.

(800) 292-1997

### GRADE MACHINE

(FOR MAC, APPLE II, IBM)

Saves teachers time!

FAST full-screen editing of grades,  
weighted assignment categories, cus-  
tomized reports. Easy to learn with de-  
tailed tutorial. Money-back guarantee,  
NOT copy-protected. \$59.95 for Apple II  
or IBM. \$74.95 for Mac (has extra fea-  
tures for elementary, secondary & college  
teachers). Please add \$3.50 S/H. WA res-  
idents add 8.2% tax..

Mention this ad and SAVE \$10.00!

Misty City Software  
10921 129th Pl.N.E.  
Kirkland, WA 98033  
(206) 828-3107

Get the most out of your software investment with  
templates and artwork for your Apple IIGs!

## AppleWorks GS Productivity Paks

Each volume of AppleWorks GS Productivity Pak contains ten expertly  
designed templates that explore the many features of AppleWorks GS  
and show unique ways to approach an assortment of projects. Sample  
files and a comprehensive reference booklet guide you through each  
project with confidence.

### Volume I

- MEMO PADS
- MEMBERSHIP
- NAME BADGES
- MERGE DOCUMENT
- AUTO-MILEAGE LOG
- RESUMES
- NUTRIDATA
- CHECKBOOK
- BUDGET
- NEWSLETTER

### Volume II

- FAMILY TREE
- VIDEOTAPE LIBRARY
- CAR COST COMPARISON
- CUSTOM CALENDARS
- HOME BUYER'S GUIDE
- LIVING WILL
- COOKBOOK
- BOOKLET
- COLLEGE GUIDE
- INCOME TAXES

## Art Gallery

This unique collection contains **300 pieces of original artwork**. Now  
you don't have to be a computer artist to add flair to your company  
newsletter, create attractive personal stationery, or perk up a drab  
homework assignment. We've selected a wide variety of topics to brighten  
up all your desktop-publishing projects. Choose from birds and flowers,  
animals, holiday symbols, and much more! All are fully illustrated in a  
reference chart that accompanies the 3.5-inch disk.

Select the format that's best for you: If you'll be using the artwork with  
AppleWorks GS, order the **AppleWorks GS format**. If you plan to  
import the art into an Apple IIGs paint program, choose the **Apple  
Preferred format**.

### Don't hesitate...order now!

AppleWorks GS Productivity Pak I\* or  
AppleWorks GS Productivity Pak II\* ..... \$29.95 each  
Art Gallery ..... \$39.95

### SPECIAL OFFER — Save \$10!

Both AppleWorks GS Productivity Paks\* ..... \$49.90

### SUPER OFFER — Save \$20!!

All three special products ..... just \$79.85

Foreign Airmail: add \$3.95.

Foreign orders must be paid in U.S. funds drawn on a U.S. bank.

\* Require AppleWorks GS v. 1.1  
AppleWorks is a registered trademark of Apple Computer, Inc.,  
licensed to Claris Corporation.

Call TOLL-FREE 1-800-343-0728

(In NH: 924-0100; Fax: 603-924-9384)

*inCider/A+* Special Products  
80 Elm Street - Peterborough, NH 03458

## INWORDS

By THE STAFF OF INCIDER/A+

**A**re you fed up with your spouse ripping out that recipe from the paper before you've had a chance to read the article on the other side? Are you tired of typing someone else's copy into your organization's newsletter? Do you just have plain old data-entry blues? Well, WestCode Software's **INWORDS** might be about to change your life.

Developed by Beagle Bros' Alan Bird, Rob Renstrom, and John Oberrick, InWords is the first product to bring optical-

to teachers, desktop publishers, and home-based users alike. Use this ProDOS-8-based program and Vitesse's Quickie or ThunderWare's LightningScan hand-held scanner and your data-entry days will be numbered. Boot up InWords instead of the software supplied with each scanner, then scan and capture text into the product's built-in AppleWorks-like editor. Then manipulate or edit the text, and save it to disk as either an ASCII text file or as an AppleWorks word-processing document.

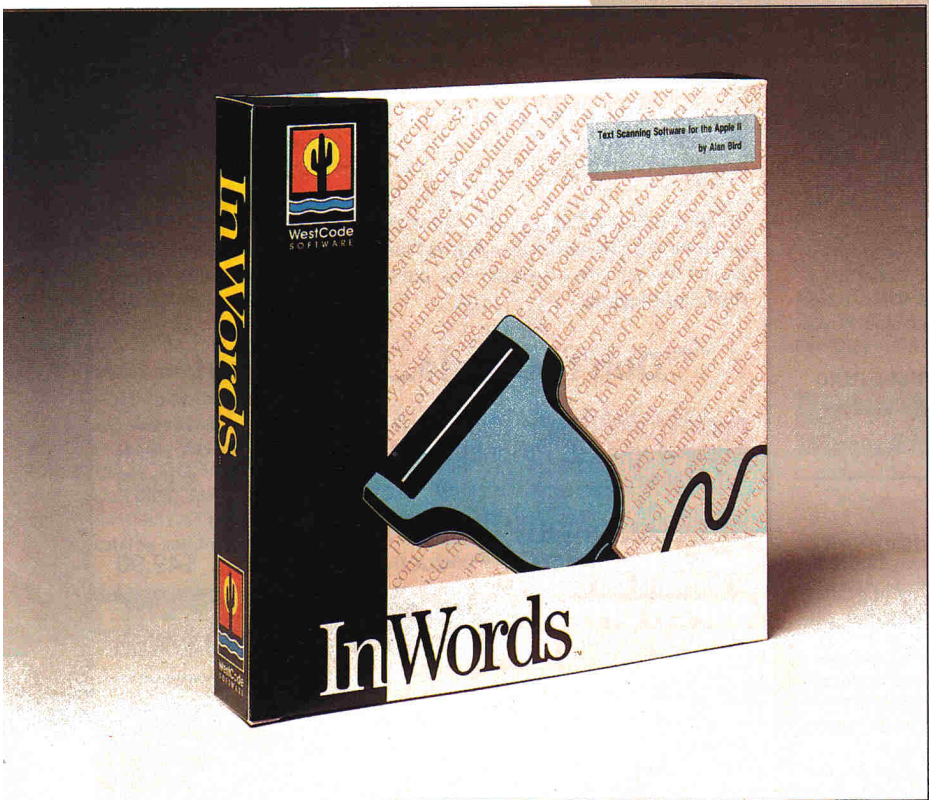
InWords can recognize a number of different fonts such as those found in popular magazines like *Time*, *Newsweek*, *Money*, and *Forbes*. But if these aren't the pages that clutter your coffee table, don't worry. In a little over an hour you can "train" this software to recognize the typefaces in other publications. Simply set InWords to *Font Training* mode and pass the scanner over the new typeface. If InWords doesn't recognize a character it'll enlarge it, cueing you to type the unknown character from the keyboard. Whenever InWords encounters that character again, it'll recognize it.

Whether you want to input text that's a full page wide, or as narrow as one column in a newspaper, InWords can handle it. In *Merge* mode, you can scan one side of a page, then the other; InWords combines the two into a single document. In *Column* mode, the software will ignore all but the text directly under the scanner's center.

And if you're artistically inclined, you can import graphics images into your painting or desktop-publishing program by simply passing the scanner over almost any type of artwork — including paper-based photographs, line art, and half-tones.

Optical character recognition may change the way you use your computer. Whether you want to record recipes, client information, sports statistics, or data from student report cards, InWords can free up your time — and unleash your creativity.

*InWords, priced at \$129, is available for 512K Apple IIGSes and enhanced IIs, and comes with both 3.5- and 5.25-inch disks. For more information, contact WestCode Software, 11835 Carmel Mountain Road, Suite 1304-311, San Diego, CA 92128, (619) 679-9200.*



character-recognition (OCR) software to the Apple II family. (OCR software lets you scan text from printed documents and save it as a standard ASCII text file or AppleWorks word-processing document.) Although giant companies such as Kurzweil and Oberon International developed the technology, it was too expensive for the average computer user. InWords, however, costing a fraction of previous systems, brings this capability

EDITORS' CHOICE SINGLES OUT ONE PRODUCT EACH MONTH THAT THE INCIDER/A+ EDITORS FEEL IS A SIGNIFICANT ADDITION TO THE APPLE FAMILY. PRODUCTS EVALUATED ARE AMONG THE MOST RECENT RELEASES AND MAY NOT BE AVAILABLE YET FOR RETAIL DISTRIBUTION.

# These Terrific Programs All Talk With An ECHO.<sup>®</sup>



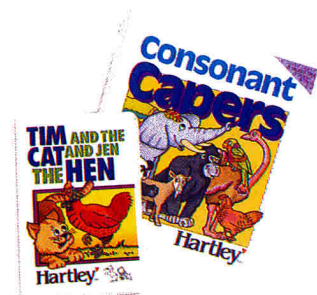
**Houghton Mifflin**

(617) 252-3000



Weekly Reader Software  
from Optimum Resource

(800) 327-1473



**Hartley**

(800) 247-1380

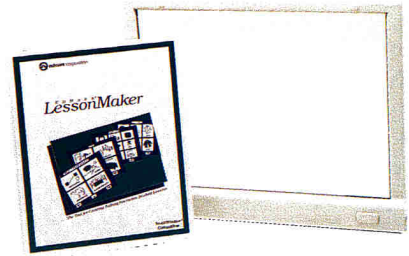


One DLM Park • Allen, Texas 75002

(800) 527-4747



(800) 541-5513



**edmark** corporation

(800) 426-0856

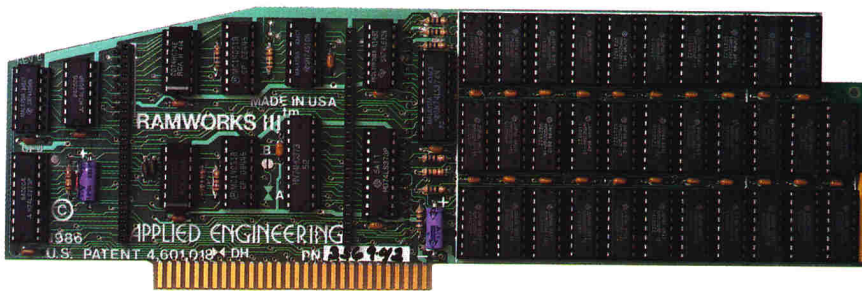
While there are a few programs that use the Apple IIGS<sup>®</sup> built-in voice capability, for most of the Apple II family "talking software" it is still necessary to use an Echo Speech Processor.

These six leading software companies have helped the Echo<sup>®</sup> become the voice standard for educational computing. Call the telephone numbers listed above to find out more about these great programs.



Circle 92 on Reader Service Card.

# RamWorks III™



*The best selling, most compatible, most recommended, most expandable card available.*

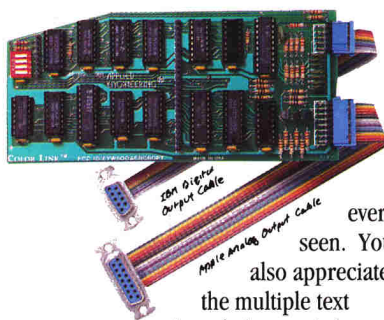
While RamWorks III™ is recognized by all memory intensive programs, NO other expansion card comes close to offering the multitude of enhancements to AppleWorks that RamWorks III does.

**A larger desktop** is just part of the story. Look at all the AppleWorks enhancements that even Apple's own card does not provide and *only* RamWorks III does. All of AppleWorks (including printer routines) will automatically load itself into RAM dramatically increasing speed by eliminating the time required to access the program disk drive. Switch from word processing to spreadsheet to database at the speed of light with no wear on disk drives.

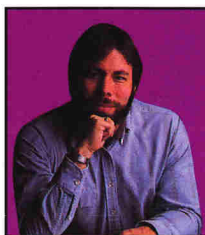
**RamWorks eliminates** AppleWorks' internal memory limits, increasing the maximum number of database records available. *Only* RamWorks increases the number of lines permitted in the word processing mode. And *only* RamWorks offers a built-in printer buffer, so you won't have to wait for your printer to stop before returning to AppleWorks. And RamWorks auto segments large files so they can be saved on two or more disks. You can even have Pinpoint or MacroWorks and your favorite spelling checker in RAM for instant response.

**The most friendly, most compatible card available.** Using RamWorks III couldn't be easier because it's compatible with more off-the-shelf software than any other RAM card. But unlike other cards, RamWorks plugs into the IIe auxiliary slot, providing our super sharp 80-column text (U.S. Patent #4601018) in a completely integrated system.

**The ultimate in RGB color.** RGB color is an option on RamWorks and with good reason. For only \$129, it can be added to RamWorks, giving you razor-sharp vivid brilliance that most claim is the best they've



ever seen. You'll also appreciate the multiple text colors (others only have green) that come standard. But the RamWorks RGB option is more than just the ultimate in color output because unlike others, it's fully compatible with all the Apple standards for RGB output control, making it more compatible with off-the-shelf software. With its FCC certified design, you can use almost any RGB monitor because only the RamWorks RGB option provides both the new Apple standard analog and the IBM standard digital RGB outputs (cables included). The RGB option plugs into the back of RamWorks with no slot 1 interference. And remember you can order the RGB option with your RamWorks or add it on at a later date.



*"I wanted a memory card for my Apple that was fast, easy to use and very compatible; so I bought RamWorks."*

*Steve Wozniak, co-founder of Apple*

#### It's got it all.

- 15 day money back guarantee
- 5 year warranty
- Built-in super sharp 80-column display (U.S. Patent #4601018)
- Expandable to 1 MEG on main card (2

MEG expander available.)

- Automatic AppleWorks expansion up to 3017K desktop
- Accelerates AppleWorks
- Built-in AppleWorks printer buffer
- 100% compatible with all standard IIe software
- Compatible RGB option featuring ultra high resolution color graphics and multiple text colors with cable for both the new Apple and standard IBM-type monitors
- Self diagnostic software included
- Takes only one slot (auxiliary) even when fully expanded
- Socketed and user upgradeable
- Used by Apple Computer, Steve Wozniak and virtually all software companies.

<b>RamWorks III with 256K.....</b>	<b>\$189</b>
<b>RamWorks III with 1 MEG.....</b>	<b>\$309</b>
<b>RamWorks III with 1.5 MEG.....</b>	<b>\$429</b>
<b>RamWorks III with 3 MEG.....</b>	<b>\$629</b>
<b>RamExpander + 1 MEG.....</b>	<b>\$209</b>
<b>RamExpander + 2 MEG.....</b>	<b>\$309</b>
<b>ColorLink RGB Option.....</b>	<b>\$139</b>

**Order today!** To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 8 1/4% sales tax. Shipping not included.



**Applied Engineering®**  
The Apple enhancement experts.

A Division of AE Research Corporation

(214) 241-6060

P. O. Box 5100  
Carrollton, TX 75011



©1990. AE Research, Inc. All rights reserved. Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders.