

inCider

AN IDG COMMUNICATIONS
PUBLICATION
February 1991

**PIPE
DREAMS**
Go Plumb Crazy
Editors' Choice, p. 96

A+

Apple II/Mac

New! HyperCard IIgs

The Next Step
In Multimedia

System Software
For GS and Mac
All in the Apple Family

Hard-Disk Drives
The SCSI Side of Life

Reviews:
BannerMania
LogoExpress
Gold Rush!
EuroWorks 3.0

USA \$3.95
Canada \$4.50



Inside Story

64K Video RAM

Controlled by our own Video Display Generator (VDG) array, this feature off-loads video work from the 128K system RAM, providing both analog and digital (IBM®-type RGB) outputs.

Very Large Scale Integration

We manufacture our own custom gate arrays to improve performance and make our products compact, reliable, and affordable.

Triple Speed Processor

The 65C02 power plant blazes through your applications at 3.6 Mhz - three times faster than the IIe®.

1MB RAM Board

Controlled by our own Memory Management Unit (MMU) array, add an extra 1MB using inexpensive 256 x 1 DRAM's.

Apple® Compatible ROM

Since 1985, we have made a huge investment to develop and maintain the only legal Apple compatible ROM on the market.

Built-In Ports

Video and disk expansion, two serial, a parallel, and a mouse/joystick port are part of our motherboard design. The EX/2 even adds a MIDI port and Real-Time Clock.

Universal Disk Controller

Our unique UDC array allows the use of both 3 1/2" and 5 1/4" drives. The 128EX/2™ even supports the IIGS®-compatible "Daisy Chain" drives.

Having all this performance usually means compromising one thing. Price. But like a good book, this story has a surprise ending. With a one year warranty, the Laser 128EX™ and 128EX/2 cost about half of what you'd pay for a stripped Apple IIe.

Want more inside information? Find out the reason why *inCider* said "Look at today's Laser if you want to see tomorrow's Apple." Call (708) 540-8911 for a free catalog and the name of a Laser dealer near you.

NOW Available for the Apple IIs!

Why do over 25,000* Apple owners like you buy *Softdisk*™ and *Softdisk G-S*™ every month?

See why with a three-month trial subscription for only \$19.95!



SOFTDISK & *SOFTDISK G-S* are monthly software collections created especially for the Apple II family of computers. Each month, users receive from six to ten original, useful programs on their choice of one 3½" 720K, or two 5¼" 360K disks. Here are just eight reasons why Apple II owners look to us for the latest in quality programs.

1. Variety. Each monthly *Softdisk* and *Softdisk G-S* delivers office productivity tools, AppleWorks® templates, educational software, games, utilities, clip art, professional fonts, and more! You've never seen a selection like this anywhere.

2. Demonstrations. We frequently offer demonstrations or limited-use programs so you can "try-before-you-buy". Major software companies from around the world offer our subscribers advanced previews of what's to come in commercial software.

3. Program Integrity and Tech Support. Every issue of *Softdisk* and *Softdisk G-S* passes through dozens of quality checks. If there ever is a problem, our technical staff is eager to help!

4. Create Your Software Library. With so many original programs at your disposal, it won't take long to collect an entire software library. Collect utilities for copying, cataloging, saving time, and more. Enjoy incredible games with challenging electronics and mind-blowing graphics. Choose software for word processing, spreadsheets, financial planning and more!

5. Super Discounts on Commercial Software. Subscribers automatically become members of our *Software Savers Club*. You'll receive regular mailings listing hundreds of commercial software items, many at up to 40% off the retail price. In addition, you can also select from an extensive list of back issues of *Softdisk* and *Softdisk G-S* to fill in the holes of your library.

6. Reasonably Priced. A three-month trial subscription to *Softdisk* is only \$19.95! If you have a Apple IIs and would like a three-month trial subscription to *Softdisk G-S*, it's only \$29.95! Subscribe to both for a combo trial subscription for just \$39.95!

7. Free Bonus When You Act Now. Order your trial subscription to *Softdisk* or *Softdisk G-S* and receive free the *Softdisk Premium Graphics Collections, Vol. 4*. This superb collection contains signs, animals, sports figures, people, plus maps and symbols. Order the *Softdisk* combo and receive both *Softdisk* and *Softdisk G-S* at incredible savings. Or take the software collection of your choice, and still receive the graphics collection absolutely free!

8. Money-Back Guarantee. If for any reason you're not completely satisfied, simply return your first issue for a prompt, cheerful refund. But keep the *Softdisk Premium Graphics Collection, Vol. 4* as our gift!

3-Month Trial Subscription only \$19.95

"Softdisk isn't just for the new owner ... [it's] for the serious user as well—you'll have to go a long way to beat the price."

—inCider Magazine

"In a word where real bargains are hard to find, *Softdisk* is a very pleasant surprise"

—Electronic Learning

Contents of Issue #100
(Available as a back issue)

Calendar Wizard—Create custom calendars with this powerful application.
Birthday Games—Celebrate with a super trilogy of arcade games.
Softdisk Centennial—Browse through a decade of impressive programs.
Job Hunter—An AppleWorks® template that helps track your resumes.
Plus 3 more great programs!

Call Toll Free

1-800-831-2694

ORDER TODAY!

Send in the order form now or call toll free for a trial subscription. Three sample issues are only \$19.95, and you get the free bonus disk. So fill in the coupon or call 1-800-831-2694 for even faster service.

*As of press time, but growing by leaps daily.

SOFTDISK PUBLISHING
monthly software

YES! Rush my free bonus, **The Premium Graphics Collections, Vol. 4**, and start my three-month trial subscription to *Softdisk* and/or *Softdisk G-S*, postage paid. Make check or money order payable to *Softdisk Publishing* in U.S. funds. (Louisiana residents, add 4% sales tax).

Check one: *Softdisk* (for the Apple II) \$19.95
 Softdisk G-S (for the Apple IIs) \$29.95
 COMBO—Softdisk and Softdisk G-S \$39.95

Check Disk format: Two 5¼" 360K disks One 3½" 720K 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

IN021

Softdisk: 64K Required; 128K Recommended.

Softdisk G-S: 768K—One 3.5" drive Required; 1.25 Meg.—Two 3.5" drives Recommended.

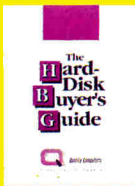
QUALITY COMPUTERS OVER-NIGHT!

1-800-966-1508 or 1-800-443-6697

Hard-Disk Headquarters



Quality Computers was one of the first Apple II companies to sell and support a full line of hard-disk drives, and we're still the leader. Why? We offer more - more service, more support, more hard drive systems, and more innovative products like EasyDrive.



HARD-DISK BUYERS' GUIDE

Base your decision to buy a hard drive on fact, not fiction. The

Hard-Disk Buyers' Guide, exclusively from Quality Computers, is packed with brand name evaluations, performance charts, and informative articles. **\$6.00** (Shipped overnight to most locations)

Circle 136 on Reader Service Card.

HARD DRIVES

QUALITY COMPUTERS (w/Apple SCSI)

20 MEG. (Conner Drive)	549.95
40 MEG. (Conner Drive)	599.95
80 MEG. (Conner Drive)	799.95
100 MEG. (Conner Drive)	999.95

CMS (Apple SCSI)

40 MEG. (Conner Drive)	649.95
60 MEG.	699.95
45 MEG. (Removeable)	849.95
Cartridges	99.95

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	199.95
1 MEG.	249.95

AE Z-RAM ULTRA II

256K	179.95
512K	219.95
1 MEG.	259.95

AE RAM EXPRESS II

256K	159.95
512K	179.95
1 MEG.	219.95

AE GS-RAM PLUS

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

AE GS-RAM ULTRA

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

CV TECH. GS MEMORY BOARD

0 K	89.95
1 MEG.	159.95
2 MEG.	229.95
3 MEG.	299.95
4 MEG.	369.95

CHINOOK 4000 GS

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

MEMORY CHIPS

256K (bank)	24.95
256Kx4 (bank)	25.95
1 MEG. (bank)	69.95

DISK DRIVES

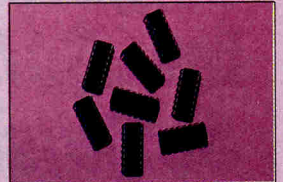
AE 3.5"	from 199.95
AE 5.25"	119.95
AMR 3.5"	179.95
AMR 5.25" (Daisy chainable)	139.95
Laser 3.5"	179.95
Laser 5.25"	99.95
Laser UDC	49.95
Apple 3.5" (Ile, II+)	309.95
Apple 3.5" (IIC Plus, IIGS)	319.95
Apple 5.25"	249.95
Apple Controller	69.95

PRINTERS

ImageWriter II	459.95
Hewlett-Packard DeskWriter	799.95
Panasonic 1180	199.95
Panasonic 1191	249.95
Panasonic 1124	329.95
Panasonic 1624	449.95

PRINTER INTERFACE CARDS

AE Parallel Pro	79.95
AE Serial Pro	109.95
AE Buffer Pro Option	89.95
Fingerprint GSi	94.95
Fingerprint Plus	89.95
Fingerprint G+ or SS w/cable	59.95
Grappler 9 Pin	84.95
Grappler Plus	84.95
SPECIAL! SuperWriter 924	64.95
SMT Printech or Envoy	54.95



MEMORY CHIPS

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

256K	\$19.95/bank
256Kx4	25.95/bank
1 MEG.	69.95/bank

ATTENTION PRICE-HUNTERS

We'll match any advertised price, plus our service can't be beat!

PRICE MATCH POLICY AT MANAGER'S DISCRETION

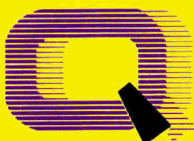
THE DECKED OUT GS



ENHANCE YOUR SYSTEM WITH:

- Memory
- Storage
- Flexibility
- Speed
- Sound & Graphics
- Telecommunications

Make your Apple the best it can be!



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 Point program. No other company offers all this at prices you can live with.

QUALITY COMPUTERS OVER-NIGHT!

1-800-966-1508 or 1-800-443-6697



HYPERSTUDIO

ROGER WAGNER

Hypermedia authoring system for the Apple IIGS that provides

everything you need in one complete package. Integrate text, super Hi-Res graphics, and digitized sound to create your own hypermedia applications or edit existing ones. Includes: Paint Tools, Text Editor, Sound Editor, Sound Digitizing Hardware, and Microphone. Requires 1.25 MEG. **\$86.95**

MODEMS

AE DataLink 2400 (Internal)	159.95
AE DataLink Express	159.95
AE DataLink Express w/MNP5	189.95
SupraModem 2400	109.95

MONITORS

12" Amber or Green Monochrome	99.95
Laser RGB	249.95
Magnavox RGB	299.95
Custom Cable	24.95
Apple RGB	459.95

INPUT DEVICES

AppleMouse IIe	119.95
AppleMouse IIc	89.95
A+ IIGS Mouse	79.95
Laser Mouse	49.95
Kensington Turbo Mouse	109.95
CH Mach III Joystick	34.95
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 or LightningScan Scanner	199.95
ThunderScan	149.95
ComputerEyes IIe	99.95
ComputerEyes IIGS	195.95
Apple Video Overlay Card	429.95
HyperStudio	86.95
AE Sonic Blaster	98.95
AE Audio Animator	189.95
AE Phasor	129.95
Visionary GS	249.95

ACCELERATORS

AE TransWarp GS	259.95
ZipChip 8MHz (IIe)	149.95
ZipChip GS	189.95
ZipChip GSX	224.95
Zip GSX Plus	269.95

COMPUTERS

Apple IIGS CPU (w/1 MEG. RAM)	849.95
Laser 128EX	387.95
Laser 128EX-2 (3.5")	449.95
Laser 128EX-2 (5.25")	409.95

ACCESSORIES

AE Conserver	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
Laser 128 Monitor Stand	25.95
Laser 128 Expansion Box	59.95
SMT No Slot Clock	29.95
Switchboxes	from 32.95

BUSINESS SOFTWARE

Alpha Check	32.95
AppleWorks 3.0	169.95
AppleWorks GS	199.95
AppleWorks 3.0 Companion	27.95
BeagleWrite	48.95
BeagleWrite GS	59.95
BusinessWorks Bundle	249.95
BusinessWorks Payroll	99.95
DB Master Pro	189.95
Managing Your Money 4.0	89.95
Quicken	38.95
Sensible Grammar	52.95
Sensible Speller	79.95
Will Maker	34.95
WordPerfect IIe or IIGS	104.95

COMMUNICATION SOFTWARE

Point to Point	59.95
ProTERM v.2.2	79.95
AE ReadyLink	59.95

EDUCATIONAL SOFTWARE

SAVE \$

Order your classroom software in economic School Editions and Lab Packs. Call for the best prices.

THE LEARNING COMPANY

Reader Rabbit or Math Rabbit	24.95
Talking Reader Rabbit GS	34.95
Magic Spells	24.95
Think Quick	29.95
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	25.95
Geometry GS	54.95
Science ToolKit - Master Module	54.95
Science ToolKit - Modules 1, 2, or 3	27.95
The New PrintShop	29.95
The Print Shop GS	36.95
The Print Shop GS Companion	32.95

WEEKLY READER

Sticky Bear Numbers, ABC's, Opposites, or Shapes	27.95
Talking Sticky Bear ABC's, Opposites, or Shapes	29.95

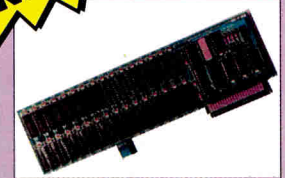
MECC

Calendar Crafter GS	32.95
Fraction Munchers or Number Munchers	27.95
Oregon Trail	27.95
USA GeoGraph GS	59.95
Word Munchers	27.95
World GeoGraph GS	59.95



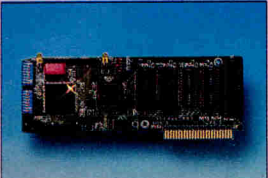
BUSINESSWORKS MANZANITA

Integrated Accounting System for the Apple II. Make your small-to-medium sized business more efficient and productive with four powerful and versatile modules: General Ledger, Accounts Payable, Accounts Receivable, and Inventory Control. **\$249.95**



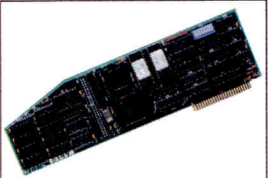
GS MEMORY BOARD CV TECH.

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 Chinook RAM 4000 for added memory. 1 MEG. **\$179.95**



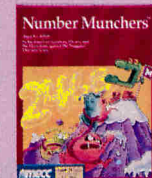
ZIPGSX PLUS ZIP TECHNOLOGY

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**



NUMBER MUNCHERS

MECC
Excitement is in store for students as they help Munchers

hunt for numbers and numerical expressions while watching out for the dreaded Troggles. Teachers options provide a high degree of instructional control. Grades 3-adult.

Home Apple	\$27.95	Home Mac	\$35.95
School Apple	\$9.95	Lab Mac	\$9.95
Lab Apple	\$4.95	Class Mat'l Mac	\$15.95

ASK ABOUT OUR TEACHER BONUS POINT PROGRAM!

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.
- 1.5% interest is charged to all accounts over 30 days.
- 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.



Quality Computers

POWER FOR PERFORMANCE





A DRIVE THAT MAKES SENSE

As 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 (28ms), 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 a ProDOS 8 Mini-Selector. The Q Drive even performs diagnostics, and can install EasyDrive for you, automatically.

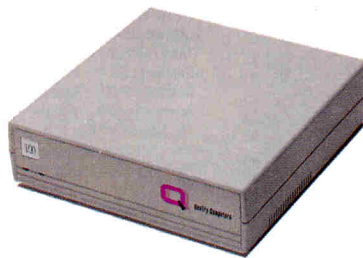
THE BEST SERVICE AND SUPPORT. The Q Drive is backed by the Quality Computers Technical Support staff - the best in the business. It comes with a hassle-free 30-day money back guarantee, and a 1-year limited warranty. Plus, should your Q Drive ever fail, you can count on 72-hour average service time,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

40 MEG.599.95

100 MEG.999.95

Includes the Apple High-Speed SCSI card.
Add \$100 for RamFAST/SCSI card.



30 DAY MONEY-BACK GUARANTEE



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 Boule**
 EDITOR IN CHIEF **Dan Muse**
 MANAGING EDITOR **Eileen T. Terrill**
 SENIOR EDITOR **Paul Statt**
 REVIEW EDITOR **Lafe Low**
 TECHNICAL EDITOR **Cameron Crotty**
 COPY EDITOR **Carla Barker**
 SPECIAL-PRODUCTS MANAGER **Janet Cote**
 WEST COAST EDITOR **Jeff Cable**
 CONTRIBUTING EDITORS **Joe Abernathy,**
Cynthia E. Field, Eric Grevstad,
Owen W. Linzmayer, Ruth K. Witkin
 FIELD EDITOR **Babs Cringely**

DESIGN

ART DIRECTOR **Roger Goode**
 ASSISTANT ART DIRECTOR **Dianne K. Ritson**
 PRODUCTION MANAGER/DESIGNER/
 AD GRAPHICS **Elizabeth Auer**

ADVERTISING

ASSOCIATE PUBLISHER/
 NATIONAL SALES MANAGER **Dale Strang**
 (800) 441-4403
 EASTERN SALES MANAGER **Peter Slingshuff**
 (800) 441-4403
 MARKETPLACE/CLASSIFIEDS **Diane Maguire**
 SALES REPRESENTATIVE **(800) 441-4403**
 ADVERTISING COORDINATOR **Mary Hartwell**
 (800) 441-4403
 ADMINISTRATIVE ASSISTANT **Carmen Bryer**
 WESTERN SALES MANAGER **James Burns**
 2421 Broadway
 Suite 200
 Redwood City, CA 94063
 (415) 363-5230

MARKETING SERVICES/PROMOTION

MARKETING MANAGER **Peg Brown**
 MARKETING ASSISTANT **Rita Rivard**

CORPORATE PRODUCTION

MANUFACTURING MANAGER **Sue Gross**
 SYSTEMS COORDINATOR **Doreen Means**

IDG COMMUNICATIONS/PETERBOROUGH

PRESIDENT **Roger J. Murphy**
 VICE PRESIDENT **Dennis S. Christensen**
 MANUFACTURING/OPERATIONS
 DIRECTOR OF CORPORATE **Bonnie Welsh-Carroll**
 CIRCULATION/PLANNING
 DIRECTOR OF TECHNOLOGY RESEARCH **Jeffrey D. DeTray**
 SINGLE-COPY SALES DIRECTOR **Linda Ruth (800) 343-0728**
 NEWSSTAND PROMOTION MANAGER **Debbie Walsh**
 CIRCULATION DIRECTOR, *inCIDER* **Megan Lane**
 ASSISTANT CIRCULATION MANAGER **Laurie K. Seamans**
 CUSTOMER SERVICE **(800) 289-0619**
 DIRECTOR OF CREDIT, SALES, **William M. Boyer**
 AND COLLECTION
 AUDITS AND STATISTICS **Cecile Giguere**
 FOUNDER **Wayne Green**

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



inCider (ISSN #0740-0101) is published monthly by IDG Communications/Peterborough, Inc., 80 Elm Street, Peterborough, NH 03458. Phone: (603) 924-9471. 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, \$43.00 for two years and \$59.00 for three years. In Canada, \$34.97, U.S. funds, one year only. In Mexico, \$32.97—one year only, U.S. funds drawn on a U.S. bank. Nationally distributed by International Circulation Distributors. Foreign subscriptions (surface mail), \$47.97—one year only, U.S. funds drawn on a U.S. bank. Foreign subscriptions (air mail), \$82.97 prepaid, U.S. funds drawn on U.S. bank, one year only. **Postmaster:** Send address changes to *inCider*, Subscription Services, P.O. Box 58618, Boulder, CO 80322-8618. (Send Canadian changes of address to: *inCider*, P.O. Box 1051, Fort Erie, Ontario L2A 5N8.)

Circle 155 on Reader Service Card.

QUALITY COMPUTERS **OVER-NIGHT!**

1-800-966-1508 or 1-800-443-6697



WITKIN'S BEST Q LABS

Twelve new, useful templates from AppleWorks expert Ruth Witkin. Includes: Income tax estimator, banking bookkeeper, employee data base, balance sheet/income statement, investment planner, and more! Requires AppleWorks 3.0 or higher. **\$39.95**



DESIGN YOUR OWN HOME

From *Abracadata*. Draw floor plans or side views with architectural scales, grids, and overlays. Use the stud/beam repeater to calculate lumber. Dozens of architectural symbols included. Versions available for Apple II's, Macintosh, and IBM. **\$59.95 (IIGS)**



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**

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

OTHER TITLES

Crossword Magic	34.95
Katie's Farm	25.95
Mavis Beacon Typing	27.95
Mavis Beacon Typing GS	33.95
McGee	25.95

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	34.95
Tris	27.95
Tunnels of Armageddon	29.95
Xenocide	32.95
Zany Golf GS	26.95

SOUND & GRAPHICS SOFTWARE

Award Maker Plus	29.95
BeagleDraw	64.95
Cartooners GS	22.95
Dazzle Draw	33.95
Deluxe Paint GS	18.95
Deluxe Paint II w/Deluxe Write	27.95
Design Your Own Home GS	59.95
Font Factory GS	25.95
GraphicWriter III	74.95
GS Font Editor	29.95

Labels, Labels, Labels	28.95
Platinum Paint	59.95
PrintShop NEW! (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 (Ile or IIGS)	27.95
Publish It! 3	89.95
VCR Companion	34.95

TIMEOUT SERIES

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
ReportWriter	48.95
Graph	55.95

UTILITIES & LANGUAGES

Apple IIGS System Software Update 5.0	44.95
Chinook SCSI Tools	29.95
Copy II Plus	25.95
CrossWorks	69.95
GS Desk Accessories	37.95
Micol Advanced BASIC IIe	59.95
Micol Advanced BASIC IIGS	89.95
MS DOS v. 4.01 (3.5)	89.95
Orca/M or DesignMaster	39.95
Orca/PASCAL or Orca/C	80.95
Outliner	42.95
Q LABS	
RepairWorks or SuperPatch	34.95
RAMUP, EasyDrive, or TIC	39.95
Ruth Witkin's Best	39.95
ReportCard II	52.95
SALVATION	
Exorciser, Deliverance, or Harmonie	29.95
Guardian, or Renaissance	34.95
Wings	49.95



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**



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**

QC-MAC

HARD DRIVES

CMS MacStack 20	399.95
CMS MacStack 30	449.95
CMS MacStack 60	599.95
CMS MacStack 80	649.95
Q Drive 40	479.95
Q Drive 100	779.95

HARDWARE

1 MEG SIMMS 80ns	65.95
AE DataLink Express 2400	159.95
w/MNP-5	189.95
w/ MNP-5 & Send Fax	229.95
Send Fax option (must have MNP-5)	99.95
AE 3.5 Mac Drive	199.95
AE HD Mac Drive	239.95
AE QuadraLink	219.95
AMR HD Mac Drive	209.95
CH Roller Mouse ADB	79.95
Computer Eyes Mac	Call

Cutting Edge ADB Keyboard	129.95
Hewlett Packard DeskWriter	779.95
Kensington Turbo Mouse ADB	115.95
LightningScan 4000	Call
ThunderScan Mac	Call

SOFTWARE

Carmen Series	29.95
Excel	279.95
FreeHand 2.02	329.95
Katy's Farm	27.95
Macromind Director	439.95
Macromind Accelerator	134.95
McGee	27.95
Microsoft Word	279.95
PageMaker 4.0	499.95
Persuasion	329.95
The Playroom	29.95
SimCity	29.95
TypeStyler	119.95
WordPerfect	229.95



REPAIRWORKS/SUPERPATCH

Two Q Labs utilities that all AppleWorks user should have. RepairWorks is the award-winning database/word processing recovery and repair program. SuperPatch is the customization program that lets you change AppleWorks in over a hundred ways. **\$34.95 ea.**

**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

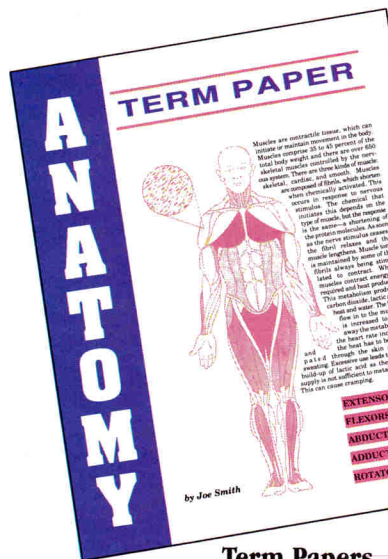
Publish-It!™

In Less Than an Hour.



Publish It! 3 — The all-in-one desktop publisher with page layout, word processing, typesetting and graphics.

Classroom Computer Learning Desktop Publishing Program of the Decade



Term Papers

Auction!! Auction!! See this month's Topic on Page 7

<p>Making a bootable disk or a sure cure for the 'unable to load ProDOS' syndrome</p> <p>So you have been downloading all those files (manuals) "Using Appleworks" by Elaine and Arthur Aron. This is the 3rd edition of the book and does cover Appleworks 3.0. Whenever I look at it, I get a technical manual I first study the Table of Contents to see what it covers, the index and the Appendix. This manual is well laid out and covered the subject in a logical manner. One appendix summarized the changes in Appleworks 3.0 and if you are well versed in earlier Appleworks you can go to just these sections.</p> <p>Word Processing, Data Base and Spreadsheet each had their own group of chapters. The first chapter of each group was a "quick start" write up that covered the basics with the following chapters going into all the details and functions. Following good communication practices the</p> <p style="text-align: right;">1 page page 4</p>	<p>Using Appleworks the book.</p> <p>Book Review By George Murphy</p> <p>This is being written to review the books (manuals) "Using Appleworks" by Elaine and Arthur Aron. This is the 3rd edition of the book and does cover Appleworks 3.0. Whenever I look at it, I get a technical manual I first study the Table of Contents to see what it covers, the index and the Appendix. This manual is well laid out and covered the subject in a logical manner. One appendix summarized the changes in Appleworks 3.0 and if you are well versed in earlier Appleworks you can go to just these sections.</p> <p>Word Processing, Data Base and Spreadsheet each had their own group of chapters. The first chapter of each group was a "quick start" write up that covered the basics with the following chapters going into all the details and functions. Following good communication practices the</p> <p style="text-align: right;">1 page page 3</p>	<p>Inside this issue...</p> <p>Apple</p> <p>Appleworks the Book Page 1 Appleworks SIG Page 9 Bootable Disk Page 1 Certificates and More Page 9</p> <p>Macintosh</p> <p>Macintosh SIG Page 11 WDEF Virus Page 1 Windows/Share Page 2</p> <p>General</p> <p>America Online Page 6 Dates to remember Back Cover DAUG Help Lines Page 11 DTP SIG Page 9 DOMS Revealed Page 7 E-Mail Page 7 E-Mail Addresses Page 6 InterCharge BBS Page 6 No. Wanted Page 3 Online Info Page 3 ProSect Page 4 Sales Computing Page 3</p> <p>Meeting Schedule</p> <p>6:30 PM Doors Open 7:00 PM Review Items 7:30 PM Auction Begins 8:30 PM Break 8:40 PM Door Prize Drawing 8:45 PM DOM Demo 9:00 PM Auction Commences 9:45 PM Wrap Up</p> <p>Location</p> <p>Lincoln Center 925 Maple Avenue Downers Grove, IL March 13, 1990</p>
--	---	--

WDEF Virus Beware!!
 Distinctant 1.0 is a new release of our Macintosh virus detection and repair utility. Shortly after the release of version 1.4 a new strain of the WDEF virus was discovered. Version 1.2 has been configured to recognize the new strain. Version 1.5 also contains code to detect and repair other strains of WDEF which may exist but have not yet been reported.
 Distinctant 1.0 is available now via anonymous FTP from site accu.nyu.edu (157.160.49.1). It will also be available soon on aumesim.com, lincolnmac.com, CompServe, Galtis, Delnet, BIX, MacLink, OnLine, Callswan, and other popular sources for files and shareware software. The following text is extracted from the new section on WDEF in Distinctant's online document. It describes what we know to date about this new virus. The description has been expanded to include new information that has recently become available.
 The WDEF virus was first discovered in December, 1989 in Belgium and

Newsletters

"Reigning champ of the DTP division." Incider

ANNUAL SALES SUMMARY YEAR ENDING 12/89 NATIONAL ACCOUNTS DIVISION

This summary report and the graphs below will summarize the efforts of our National Accounts Division for the year ending December 31, 1989. The results are compared month by month to sales from the previous year. These data are for sales figures as reported and documented by our Accounting Department. Jack Franklin (jack@pub.com) may still be in our warehouse.

COMPARISON WITH LAST YEAR'S SALES

WEEKLY SALES SUMMARY 12/1/89

KEY ACCOUNT ACTIVITY

I've made numerous calls and we decided to focus our efforts on the accounts that are most profitable. We also decided to focus our efforts on the accounts that are most profitable. We also decided to focus our efforts on the accounts that are most profitable.

REGION	MONTH	1989	1988
1	12/1/89	11%	11%
2	12/1/89	11%	11%
3	12/1/89	11%	11%
4	12/1/89	11%	11%

Top Sales People (Week of 12/1/89)

Name	1989	1988
Johnson	100	80
Carlson	80	60
Henderson	60	40
Miller	40	20

NEXT MONTH'S SALES

We have several advertising campaigns that are currently in progress. We will be focusing our efforts on the accounts that are most profitable. We will be focusing our efforts on the accounts that are most profitable.

Reports

Publish It! 3 combines the simplicity of the Macintosh user interface with a practical Quick-Start Mini-Manual and What-You-See-Is-What-You-Get displays. Design and formatting are also a snap with the built-in graphics toolbox, and the sample documents and layouts you get with the program.

All to get you up and running in less than one hour.

We've even improved our award-winning ways. New features include expanded PostScript support and improved memory, Printshop IIGS

and Newsroom support. You can also create and print color documents, import super hi-resolution graphics and select from over 1,200 possible typeface combinations.

Publish It! 3 from Timeworks. We make professional desktop publishing easy. And at \$149.95 (suggested retail), very affordable. In fact, with our 60-day full money-back guarantee, downright unbeatable.

For Apple IIe, IIc Plus, IIGS and Laser Computers

See your favorite Dealer or order direct from Timeworks, 444 Lake Cook Rd., Deerfield, IL 60015. Or call 1-708-948-9206. Fax: 1-708-948-9212.

IC291P

Timeworks and Publish-It are trademarks of Timeworks Inc.

Circle 140 on Reader Service Card.



FEBRUARY

1991 Vol. 9 No. 2

ARTICLES

- 37 HyperCard IIgs: The Apple II Culture Reborn**
Browse through thousands of commercial and public-domain stacks or write your own — for home, school, and small-business applications, Apple’s popular multimedia product for the Macintosh is reviving the do-it-yourself spirit of the Apple II.
- 47 Hard-Disk Drives Made Easy: The SCSI Side of Life**
Tired of the floppy-disk shuffle? Get a SCSI hard drive and “cache” in on speed and storage. In the second installment of our six-part series, we’ll put three interface cards to the test — Apple’s High Speed SCSI, CV Technologies’ RamFast, and CMS’ SCSI.
- 52 Family Ties: A Striking Resemblance in System Software**
Nowhere are Apples’ shared traits more evident than in the machines’ system software — an integrated, consistent method of file and program organization and maintenance. Master the GS’ Finder and system tools and you’ve got it made on the Mac.

COLUMNS

- inCider’s View** * *Dan Muse*
The Heat of Battle8
Reporting from the front lines, our intrepid editor in chief takes on the critics as we gear up for another month of expanded II/Mac coverage.
- AppleWorks in Action** * *Ruth Witkin*
The Taxman Cometh60
It’s that time of year again — so get organized with the help of an AppleWorks spreadsheet.
- Bridging the Gap** * *Gregg Keizer*
Macintosh Odyssey66
The lure of the Mac doesn’t mean you have to give up your II — the two machines *can* achieve a peaceful coexistence.
- Press Room** * *Cynthia E. Field*
Top Form70
If you’re drowning in a deluge of bureaucratic paperwork, Publish It! 3 can bail you out.
- Apple IIgs Basics** * *Joe Abernathy*
Tools of the Trade76
Tap into the power of the Toolbox and make a splash on your GS’ screen.
- Learning Curve** * *David D. Thornburg*
Pursuit of Knowledge84
We need more hackers — in all areas of scholarship. Can computers keep kids’ intrinsic love of learning alive?

DEPARTMENTS

- Letters to the Editor**12
- What’s New**
Hardware, Software, Education Notes, APA Notes, Shareware Solutions16
- Apple Clinic**
Wrap That Rascal: Got a Virus?, Ejecting Disks, AppleWorks Crash, File Transfer: IBM to Apple, Can’t Copy Disks, Using Classroom Monitors, AppleWorks Clinic...28
- Reviews**
BannerMania, LogoExpress, Gold Rush!, EuroWorks 3.0.....32
- Hints & Techniques**
ColorWorks: Bright Ideas88
- Editors’ Choice**
Plumb Crazy: Pipe Dreams.....96





**INCIDER'S
VIEW**

THE HEAT OF BATTLE

By **DAN MUSE** * EDITOR IN CHIEF

There's no retreat. They don't call us the F-Troop of magazine publishing for nothing.

"The terrible grumble, and rumble, and roar, Telling us that battle was on once more . . ."
— with apologies to Thomas Buchanan Read

PETERBOROUGH, NH — Month 3 on the front. Heavy artillery fire from Apple II on-line services and user groups keeps *inCider/A+* editors and writers on the defensive, while strong support from loyal readers keeps troop morale high. A decisive victory at the Minnesota Educational Computing Conference in November reinforces staff objectives. HQ expects a tough battle at Long Beach in early December, though, where critical forces are sure to launch a heavy offensive at AppleFest.

IF *INCIDER/A+*'S DECISION TO ADD coverage of the Mac were described as a war, the above depiction would be appropriate. Given the shots fired in all directions, maybe the battle metaphor applies. Since our December issue hit the streets, emotions have run high and attacks have been numerous. Each conversation with a reader is a battle in itself. We win some and lose a few. The mood in our otherwise peaceful New England offices has ranged from the contentment that comes from knowing we're on the right track to a shell-shocked numbness that goes with a steady barrage of verbal and written attacks. (And, please, let's leave my mother out of this.)

The decision to expand our coverage to address the Macintosh in education and home uses has incited battles that are not without casualties. We expected that. But there's no retreating now. They don't call us the F-Troop of magazine publishing for nothing. We remain convinced that the Apple II — *inCider/A+*'s bread-and-butter — and the Macintosh share many traits. This month's cover story on HyperCard IIGS (p. 37) discusses the similarities between it and the Mac version. "Family Ties — A Striking Resemblance in System Software" (p. 52) explores the many common attributes of the Mac and GS Finders. In short, if you've used a Mac, using an

Apple IIGS comes naturally, and vice versa.

Also this month — while our critics launch bombs — we're launching a new column called Bridging the Gap (p. 66). According to columnist Gregg Keizer, Bridging the Gap is all about "ingenuity in building links between two powerful computers." Notice, naysayers, that the column isn't called "Killing the II" or "Better Living Through Macintosh."

Then why discuss the Mac at all, you ask? The ammunition to defend our position is plentiful. Look at the statement issued recently by Robert Puette, president of Apple USA. To understand Apple's position on the Apple II doesn't require reading between the lines, it just requires reading: "We have no plans at this time to introduce new, stand-alone Apple II models. However, we will incorporate Apple II technology into current and future platforms . . . We believe that this compatibility strategy will preserve customers' investments in the Apple II, while allowing them to move to new technology platforms if they wish."

That's about as black-and-white as Apple can say anything. Puette didn't say, "We cannot comment on unannounced products," even once. Say what you will, but that's progress.

We don't agree with Apple's decision to not develop new Apple II platforms. After all, six million users can't be wrong. While the decision to not make new IIs is a bad one, the idea of protecting your investment through shared peripherals, networking, new operating systems, and so on is a good one.

If you have an Apple II and don't plan on adding a Mac to your repertoire, great. We'll continue to offer AppleWorks in Action, Press Room, Applesoft Adviser, Apple Clinic, AppleWorks Clinic, Notes from the AppleWorks Programmers Association, reviews of new Apple II products, and so on. But if you're curious about that new Mac in the classroom or office across the hall, we'll report on that, too.

In the meantime, the battle rages on . . . □



IIGS High Density arrives.

AE's new 3.5 High Density Drive™ for the IIGS sets a new standard for Apple IIGS storage. 1.6 MEG capacity means you can stop playing diskette roulette. Simply store your large 2-disk application programs on one, high density disk and forget about fumbling for clumsy "sets" of disks. And storing files just became twice as easy too, because you'll only need half the number of disks.

Compatible with all versions of GS/OS, our design incorporates the same, top-quality SONY mechanism that Apple uses. Aesthetically, the AE Drive is every bit as handsome as the Apple Drive. We designed a thick, high-impact plastic case to stack with and exactly match the footprint of Apple's drive. But AE's drive gives you twice the capacity at a far lower price.

Our exclusive 2-way LED indicator shows green for reading, red for writing. Now you can monitor the drive's progress and know that a disk is actually being copied, instead of being confronted with an ambiguous "on" light.

The 800K version of the AE drive works with the IIe, IIc Plus, IIGS, Macs and our PC Transporter. For IIe owners, we've even designed a low-cost optional controller card that allows the IIe to accept data from the 3.5 format. The AE Drive is also Macintosh compatible as an 800K drive. And owners of AE's 800K drive wanting 1.6 MEG high density capacity for their IIGS can affordably upgrade.

High density is quickly becoming the standard for other personal computer platforms. Now you can bring the power and convenience of high density to your IIGS!

Features

- 800K, upgradeable to 1.6 MEG on IIGS
- 2-way LED indicator, red for read, green for write
- Auto eject
- Daisy chain port - works both ways, connect a drive to it, or connect it to another drive
- 1 year warranty
- Apple compatible, works as 800K drive with IIe, IIc Plus, IIGS, Mac and PC Transporter

- Stack and footprint compatible with Apple Drive
- Conserver compatible

AE 3.5 Drive (800K) \$279

AE 3.5 IIGS High Density Drive (1.6 MEG-GS only) \$339

High Density upgrade (from 800K to 1.6 MEG) \$79

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. Add \$10 outside U.S.A.


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



Our Team of Apple/Mac "Know it alls"

Apple Computers

Apple IIGS w/1 Meg \$879
 Macintosh Classic w/1Meg \$899
New Macintosh LC Please Call

Monitors

Apple Color Analog (IIGS) \$465
 Magnavox Color RGB (IIGS) ... \$299
 Macintosh RGB 12" (Mac) \$469
 NEC MacSync RGB 14" \$459
 Magnavox Amber (Apple II) \$99

Drives & More

Apple 3.5 Disk Drive \$349
 Applied 3.5" Disk Drive \$209
 Applied 3.5 High Density (GS) \$269
 Apple 5.25 Disk Drive \$259
 Laser 5.25 Disk Drive (IIC) \$89
 Apple High Speed SCSI \$109
 CV Technologies RAM Fast
 SCSI Controller w/256K \$209
 AE 5.25 Disk Drive \$118
 AE Vulcan HD/20 \$519
 AE Vulcan HD/40 \$659
 AE Vulcan HD/100 \$1299

Applied Engineering 3.5" Disk Drive

The AE 3.5 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



CDA's 30 Day Money Back / Extended Guarantee

If you're not 100% satisfied with anything you've purchased from CDA, you may send it back within 30 days of receipt for a prompt, courteous refund or exchange (some items may be subject to restocking fees). In addition to the manufacturers warranty, CDA guarantees all products to be free of defects for one full year.

Apple IIGS Power System

- Apple IIGS CPU w/1 Mb of Memory
- AppleColor RGB Monitor
- Applied 3.5" Disk Drive
- 20Mb Vulcan Hard Drive
- Color Rainbow Ribbon
- 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 \$2679

Macintosh Classic System

- Macintosh Classic CPU w/4 Mbs of Memory, Apple SuperDrive, Keyboard, Mouse
- Microtech 50 Mb Hard Drive
- HyperCard & MultiFinder
- 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

New! Macintosh LC System

- Mac LC w/Apple 40Mb HD, Apple SuperDrive, 2 Mbs of RAM, Microphone, Keyboard and Mouse
- Apple 12" Color Monitor
- HyperCard and MultiFinder
- 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 \$2,699

Apple II Upgrades

New! from Applied Engineering
 GS-RAM II 1 Meg \$139
 GS-RAM II 2 Meg \$199
 GS-RAM II 4 Meg \$319
 GS-RAM Ultra 256K \$159
 GS-RAM Ultra 512K \$179
 GS-RAM Ultra 1 Meg \$215
 GS-RAM Ultra 2 Meg \$289
 GS-RAM Plus 1 Meg \$215
 GS-RAM Plus 2 Meg \$289
 RamWorks - all sizes available
 RamFactor 1 Meg \$245
 RamExpress II 256K \$149
 RamExpress II 512K \$159
 RamExpress II 1 Meg \$179
 Set of 8 - 256K chips 120ns \$25
 SMT 64K Extended
 80 Column Card \$36
 SMT No-Slot Clock \$35

Macintosh Upgrades

Memory
 2 Meg Simm Upgrade \$118
 4 Meg Simm Upgrade \$236
 Mac Classic Upgrade (1 Mb) ... \$119
 Mac Classic Upgrade (3 Mb) ... \$169

Macintosh Classic Hard Drives
 Microtech 20Mb Internal \$299
 Microtech 50Mb Internal \$399
 Microtech 100Mb Internal \$649
 Microtech 20Mb w/3Mb RAM .. \$479
 Microtech 50Mb w/3Mb RAM .. \$579
 Microtech 100Mb w/3Mb RAM \$819
Macintosh External Hard Drives
 Microtech Europa 20Mb \$399
 Microtech Europa 40Mb \$429
 Microtech Europa 80Mb \$619

CDA Offers You Free Freight!*

Printers

Apple II/Macintosh	
ImageWriter II w/cable	\$465
Olympia NP-30 w/cable	\$289
Olympia NP-80 w/cable	\$399
Apple II Printer Interface Cards	
SMT Envoy Serial Card	\$54
Grappler Plus	\$69
SMT Printech II	\$39
Grappler 9 Pin	\$79
Macintosh	
Personal LaserWriter NT	\$2579
TI microLaser PS17	\$1799
CoStar Organizer Cart	\$189
CoStar Organizer Cart Jr	\$69
CoStar LabelWriter	\$185

Printer Packages

ImageWriter II Package

Package Includes:

- ImageWriter II Printer
- Printer Cable
- Extra Black Ribbon
- Color Rainbow Ribbon
- Printer Dust Cover
- Package of Paper

Ic/IIGS/Mac Pkg - \$475

Ile Pkg - \$529

Macintosh - Package #9171

Apple IIGS- Package #9171

Apple Ic- Package #9172

Apple Ile- Package #9173

(Ile pkg includes the SMT Envoy interface card)

Olympia NP-30 Package

Package includes:

- Olympia NP-30 Printer
- Printer Cable
- Printer Dust Cover
- Package of Paper
- **Bonus!** 3 - Extra Black Printer Ribbons

Ic/IIGS/Mac Pkg - \$299

Ile Pkg - \$359

Macintosh- Pkg #9174B

Apple IIGS - Pkg #9174B

Apple Ic - Pkg #9175B

Apple Ile - Pkg #9176B

(Ile pkg includes the SMT Envoy interface card)

HP DeskWriter Package

Package includes:

- HP DeskWriter Printer
- 6 ft. Printer Cable
- Printer Dust Cover
- Package of Paper
- PaperDirect PaperKit

Macintosh Pkg - \$789

Ask for Package #9191

Scanners

ComputerEyes IIGS	\$199
ThunderScan	\$159
Thunderscan (Mac)	\$169
Quickie Scanner	\$199
Inwords by Westcode	\$79
Logitech ScanMan (Mac)	\$379
Dest Personal Scanner (Mac)	... Call
Microtek 300ZS (Mac)	\$1899

Accelerators

TransWarp GS	\$269
Zip Chip Iie, Ic (8 Mhz)	\$149
Zip GSX Model 1600	\$269

Input Devices

Apple Iie Mouse w/card	\$119
Mach IV Plus Joystick/Mouse	\$52
Mach III Joystick	\$35
CH Flight Stick	\$47
Kensington Turbo Mouse	\$109
Koala Pad Plus Tablet	
w/Software (Apple II)	\$89
Kurta 8.5 x 11 Tablet (GS)	\$289

Surge Protection

Kensington System Saver (GS)	\$69
Conserver (GS)	\$79
6 Outlet Surge Protector	\$29
Heavy Duty Power Supply (Iie)	\$59
Heavy Duty Power Supply (GS)	\$79

IBM/Apple

PC Transporter 768K	\$269
IIGS Installation Kit	\$39
Iie Installation Kit	\$32
TransDrive Single 360K	\$185
Crossworks by SoftSpoken	\$69

Modems

AE DataLink 2400	\$175
DataLink Express w/cable	\$199
Zoom 2400 w/cable	\$129

Sound & Music

Apple MIDI Interface 1 x 1	\$79
AE Sonic Blaster	\$94
AE Audio Animator	\$174
Bose Video Roomates	\$299
Digidesign AudioMedia (Mac)	\$799
Opcode MIDI Translator 1 x 3	\$49
Opcode EZ-Vision (Mac)	\$109
Opcode Book of MIDI	\$34
Ppyware MusicWriter Ltd GS	\$89
Passport MasterTracks Pro GS	\$245

Books

Using Appleworks GS	\$19
Using Appleworks 3rd Ed.	\$21
1001 Things to do w/your GS	\$12
The Macintosh Bible 3rd Ed.	\$38
The Little Mac Book	\$12

Macintosh Software

We carry over 5,000 titles for the Macintosh. Please call for pricing and more information, or send for CDA's 48 page Macintosh Catalog!

Apple II/GS Software

Abracadaba	
Design Your Own Train	\$35
Design Your Own Home LandScape, Architect, or Interior	\$58
Architecture Library 1,2,3 or 4	\$21
Interiors Library 1 or 2	\$21
Landscape Library 1	\$21

Accolade

Grand Prix Circuit	\$28
Test Drive II Bundled	
w/European Challenge (GS)	\$43

Beagle Brothers

Appleworks Companion	\$28
BeagleDraw	\$54
BeagleWrite GS	\$57
Platinum Paint	\$69
Point to Point	\$65
TimeOut Decision Pak	\$86
TimeOut Graph	\$49
TimeOut MacroEase	\$32
TimeOut Performance Pak	\$76
TimeOut Quickspell	\$38
TimeOut SpreadTools	\$38
TimeOut SuperForms	\$45
TimeOut SuperFonts	\$38
TimeOut TeleCom	\$38
TimeOut TextTools	\$32
TimeOut Thesaurus	\$32

Britannica

Gnarly Golf	\$17
Designasaurus (GS)	\$27
Jigsaw	\$26
LaserForce (GS)	\$17
Taskforce	\$26

Broderbund

PrintShop GS	\$36
PrintShop (5.25)	\$34
BannerMania (5.25)	\$32
Down Hill Challenge (GS)	\$22
McGee	\$26
Katie's Farm	\$26
The PlayRoom (5.25 or 3.5)	\$27
Where in Time is Carmen	
San Diego (3.5 or 5.25)	\$27
Where in the USA is Carmen	
San Diego (3.5 or 5.25)	\$27
Where in the USA is Carmen	
San Diego (IIGS)	\$32
Where in Europe is Carmen	
San Diego (3.5 or 5.25)	\$27
Where in the World is Carmen	
San Diego (5.25)	\$27

Claris

AppleWorks GS	\$192
AppleWorks (3.5 & 5.25)	\$169

CompuTeach

Once Upon a Time II (5.25)	\$27
StudyMate - The Grade	
Booster (5.25 or GS)	\$27
Joshuas Reading Machine	
Premium Pack (5.25 or GS)	\$24

Davidson

AlgeBlaster Plus	\$29
Talking Math Blaster Plus	\$29
Spell it Plus (3.5 or 5.25)	\$29
Talking Reading & Me (GS)	\$29
Word Attack Plus	\$29

DataSoft

Hunt for Red October	\$22
----------------------	------

Electronic Arts

Block Out (GS)	\$27
Earl Weaver Baseball	\$27
Tunnels of Armageddon (GS)	\$27

ECLAT

GeoGraphic Jigsaw	\$27
Fractal Explorer (GS or 5.25)	\$27

Intuit

Quicken (3.5 & 5.25)	\$38
----------------------	------

Manzanita

BusinessWorks Bundle	\$267
BusinessWorks Payroll	\$109

MECA

World Geograph (GS)	\$56
Oregon Trail	\$22

MicroRevelations

Xenocide (GS)	\$29
---------------	------

Nolo Press

Will Maker (5.25)	\$35
-------------------	------

Roger Wagner

Graphic Exchange (GS)	\$32
HyperStudio (GS)	\$82

Seven Hills Software

Graphic Writer III (GS)	\$75
Font Factory (GS)	\$23
Disk Access (GS)	\$32

The Learning Company

Talking Reader Rabbit (GS)	\$32
Childrens Writing & Publishing	
Center (3.5 or 5.25)	\$32
Math Rabbit (3.5 or 5.25)	\$24

Timeworks

Publish it V3.0	\$79
Graph it	\$43

Virgin Mastertronic

Risk (5.25)	\$27
Clue Master Detective (5.25)	\$27

Vitesse

Salvation Renaissance	\$34
Salvation Guardian	\$34
Salvation Exorciser	\$28
Salvation Deliverance	\$34
Wings	\$59

Educational/Corporate Purchase Orders Welcome

*Free Freight!

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

Fax# (908) 832-9740

Hours: Mon-Fri 9am-10pm

Saturday 9am-6pm EST

1 CDA Plaza, P.O. Box 533

Califon, New Jersey 07830

All prices subject to change without notice. CDA is not an authorized Apple dealer. Apple & Macintosh are registered trademarks of Apple Computer, Inc.

Ad #16-02

US/Canada
800-526-5313

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

Circle 8 on Reader Service Card.

NJ/Outside US
908-832-9004



DEAR JOHN. . .

WE PRINTED THE LETTER AND THE people spoke. The following is a sample of your responses to Apple CEO John Sculley's open letter to the Apple II community. (See October 1990, p. 8.) Some of you said you understood his position, some didn't. Some waxed poetic — some just wanted John Sculley waxed.

JOHN SCULLEY'S LETTER TO Apple II users rang no bells with me. Press releases are just vapor. We need hardware. We have a system that's five years old, but it's still plagued with most of the problems that crippled it when it was released. I'm not asking for a lot. Put a fast-moving processor on it, so that publishers, once again, will see this machine as a platform for meaningful software.

I picked up *Time* magazine and saw a two-page ad from Apple that completely demoralized me. It showed a picture of the MS-DOS Windows software with the caption, "Now that everyone agrees how a computer should work . . . look at the only one that works that way" — and it included a picture of a Mac. Mr. Sculley, there's another computer that works that way. Look around the back halls — your company makes it.

Doyle H. Brown
123 Edward Street
Athens, PA 18810

I READ WITH AMUSEMENT JOHN Sculley's promise to "continue to nourish" the Apple II family. I can assure him that Apple has lost many customers with his decision to discontinue the Apple contract with the Army/Air Force Exchange Service military sales outlets. Customers shopping for their first computer have their choice of anything you can think of except Apple computers. If Mr. Sculley is serious about

his commitment to customer support and increasing the Apple community, he should renew his contract with AAFES.

David J. Pollock
P.O. Box 8851
APO NY 09012

I FEEL I OWE A LOT TO APPLE AND they owe as much to me. I've spent several thousand dollars on software and upgrades as an Apple devotee since 1980. I'm now running two II Pluses and a IIe as well as a Mac Plus. It was a real service to the Apple II community for you to print John Sculley's open letter. Unfortunately, he doesn't raise my level of optimism. Mr. Sculley states that he has put the future of the Apple II in the hands of the vice president of software — hardly the most effective company officer to promote hardware improvement.

Arthur Radcliffe
2818 Chaparral Drive
Fort Collins, CO 80526

MR. SCULLEY WROTE US DEDICATED II users in order to look like an angel while he stabs us in the back. Where are the commercials and ads for the II? The support he talks about is a joke — and what about those prices? Why don't all the II users pool their money and gain a controlling interest in Apple Computer? We could make a change for the better.

Ruel Smith
inCider subscriber

I'VE LONG FELT THAT APPLE offered little or no support to its users. Apple users have demonstrated a much greater degree of loyalty to Apple than the other way around.

Jerold Murdock
Rt.4 Box 340-E
Henderson, NC 27536

WE, THE APPLE II FAMILY, ARE the slaves that keep the Macintosh experiments alive with the money we spend on Apple II systems. You give us lip service and nothing concrete to increase our longevity. This is an injustice to the productive brother that keeps the family alive.

Phillip Tulim
P.O. Box 5473
Chevak, AK 99563

MR. SCULLEY REMINDS ME OF the coach of a losing team who's trying to give the troops a pep talk in the hope that somehow it'll make a difference in the outcome of the game. When I read between the lines, I get a completely different view. But, when you think about it, what else could he say?

James Harris
6990 Peters Road
Fairburn, GA 30213

ON THE OTHER HAND

I JUST RECEIVED MY NOVEMBER issue of *inCider/A+* and read "All in the Family" (*inCider's* View, p. 8). I want to commend you on it. This is the type of attitude and point of view I've wanted to see from you for quite some time. Next, I'd like to see you challenge third-party developers to develop hardware/software so that the IIGs can use Mac software. (I know Apple has announced that the Mac LC will be able to use Apple II software, but I think the other way around is more important.)

Thanks again for taking this major step.

Robert Kielhorn
6147 North Landino Drive
Westlake Village, CA 91361

STICKY SITUATION

AS FEWER COMPANIES SUPPORT the Apple II, they put more Apple II owners in a bind. While playing Trinity (an Infocom game) I got stuck, so I ordered an *Invisiclues* hint book. A week after I placed my order, the company informed me that it no longer produces this book. If anyone has the hint book, I'd like to either buy it or trade it for one of mine.

This lack of customer support is another sign of the declining world of the Apple II. If companies can't even provide the necessary information to sustain today's old programs, what kind of support will we receive when tomorrow's programs become old? I encourage all software producers to stand by their customers or they may end up losing them.

Brian Devendor

**5742 N. 96th Street
Milwaukee, WI 53225**

We can't help you with your search for the Invisiclues hint book, but Quest for Clues (\$25), from the people who bring you Questbusters, The Adventurers Journal is the next best thing. To order your copy, contact Questbusters, P.O. Box 5845, Tuscon, AZ 85703. (The company doesn't list a phone number because it doesn't take orders or give hints over the phone.) The last part of your letter shines light on a crucial flaw in the thinking of many manufacturers of hardware and software for the Apple II market. Not supporting older products sets a dangerous precedent indeed. — eds.

LASERWRITING WITH IIE-ASE

IN THE OCTOBER 1990 LETTERS column you stated that using a LaserWriter with Apple II computers requires an Apple II Workstation card. (See "Staying Loyal," p. 12.) This is true only if you want to network several computers with your printer. If you're using only one computer, you can connect your computer to the RS-232 25-pin port on the LaserWriter IINT, IINTX, and PLPNT via a Super-Serial card or the IIC/IIC Plus serial port if you have a LaserWriter SC or PLPSC, you must use an Apple High-Speed SCSI card to connect to an Apple II Plus, IIE, or IIGS. The IIC/IIC Plus can't connect to the SC printers, because there's no way currently to convert its serial port to SCSI.

There are also many non-Apple laser

THE APPLE IIGS: WHAT THE MAC LC SHOULD HAVE BEEN?

YOUR POINT IN DECEMBER'S article "Meet the Mac LC: What the Apple IIGS Should Have Been?" (p. 40) suggests that if the Mac LC had been introduced in 1986, rather than the IIGS, people would've been fairly happy with a transition to the Mac. History doesn't accommodate "what ifs," however, so at this point, we should ask, "Is the Apple IIGS what the Mac LC should have been?"

The unexpected factor today is the world of multimedia — and the Apple IIGS is arguably the ideal multimedia (or hypermedia) machine. Regardless of what term you use, this environment will be more significant in the '90s than desktop publishing was in the '80s, particularly in the classroom. The ideal multimedia machine should have color graphics, excellent sound, and the ability to connect to laser discs, CD-ROM, and VCRs. It should be easy and intuitive to use, as well as affordable. Users should be able to present their work, and record and transport it easily to share with others. The Apple IIGS has all this and more.

Let's suppose a student creates a multimedia report and presents it to the class. With the Apple IIGS, he or she can use a standard classroom monitor or a TV — without special hardware. Although a TV isn't great for displaying 80-column text screens, multimedia presentations with graphics, larger text, and video sequences from a laser disc look fine. On a Mac or a PC, a projection system that can handle true color probably costs \$2000–\$3000 or more.

Laser discs combined with a Video Overlay Card let anyone create exciting results. On the Apple IIGS, a school can buy a such a card for about \$400. On the Mac LC (if a card were available), using the slot for a video card would preclude using the IIE card. On other Mac models, cards that work similarly to the Video Overlay Card cost around \$2500. On the Mac the projector and Overlay Card combined translate to an additional \$4000–\$5000.

You can also route the Apple IIGS video through any common VCR and record both the audio and video

portions of the presentation. With this capability, parents can see what their children do at school and keep a permanent record of the moment. Also, businesspeople can go to conferences with just a videotape — without lugging tons of computer hardware. Macs and PCs require a special adapter (an NTSC converter), which can be an expensive addition. Once you're aware of what the GS can do, hearing that another computer can't be recorded with a VCR is like hearing it can't be attached to a printer.

Schools that purchase Mac LCs, hoping for a color multimedia machine, will be surprised to discover that HyperCard on the Mac is only black-and-white. A limited ability to display single-color graphics images is available, but to just draw a line or two in color, you'll need a IIGS with HyperCard or HyperStudio. Want to use the microphone on the LC? You'll have to leave HyperCard, run a separate program, and go through some additional steps to incorporate the sound. On a IIGS with HyperStudio, you can easily integrate sound into the overall environment.

Last of all is the GS' working environment. Stack building on the GS is significantly easier. Thousands of schools are using the Apple IIGS for multimedia right now, and projects created entirely by first-graders are by no means unusual. Through user groups, mail-order catalogs, and on-line services such as America Online, CompuServe, and GENIE, you'll find almost 200 megabytes of all kinds of hypermedia applications (stacks) — all for the IIGS.

What does the future hold for the IIGS? The machine is *not* outdated technology. It sports features that aren't currently available in any machine, and offers a solution that's relevant to the next revolution in computing. If you haven't seen yet what multimedia and the Apple IIGS are all about, now is the time to find out what the future holds and how you can make that future a reality. If you have a IIGS already, you'll be happy to know you own the best machine with which to enter the '90s.

Roger Wagner

**Roger Wagner Publishing
1050 Pioneer Way, Suite P
El Cajon, CA 92020**

and ink-jet printers with RS-232 interfaces. The Hewlett-Packard DeskJet and DeskJet+ even have Epson FX emulation cartridges available that'll let you print 300 DPI resolution graphics. There's no such cartridge available for the HP LaserJets, but HP's technical service says that one may be available soon.

Gregg D. Brekke
Beagle Bros Customer Support
6215 Ferris Square, Suite 100
San Diego, CA 92121

UPDATE

At press time, Quality Computers was shipping version 7.0 of SuperPatch (January 1991, p. 37). Some of the new patches include turning on the zoom immediately after loading a file, customizing page breaks, disabling the delete-file option, customizing and disabling various displays and messages, and automatic date insertion in reports.

Registered owners of version 6.1 can upgrade to version 7.0 by calling Quality Computers at (800) 966-1508. The upgrade costs \$12 plus \$3 shipping and handling. If you purchased version 6.1 after October 1, 1991, you can get a free update by sending your original disk and a copy of your sales receipt to Quality Computers.

The Sensational Lasers

Apple IIe/IIc Compatible

\$335



New! Now Includes
COPY II PLUS®

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. Take advantage of this exceptional value today... **\$335**

Super High Speed Option!
only **\$375**

The LASER 128EX has all the features of the LASER 128, plus a triple speed processor and memory expansion to 1MB \$375.00

The LASER 128EX/2 has all the features of the LASER 128EX, plus MIDI, Clock and Daisy Chain Drive Controller \$415.00

DISK DRIVES

- * 5.25 LASER/Apple 11c \$ 99.00
- * 5.25 LASER/Apple 11e \$ 99.00
- * 3.50 LASER/Apple 800K \$179.00
- * 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 \$599.00

THE SUPERSTAR a LASER 128 Computer with 14" RGB Color Monitor and the LASER 145E Printer \$699.00

ACCESSORIES

- * 12" Monochrome Monitor \$ 89.00
- * 14" RGB Color Monitor \$249.00
- * LASER 190E Printer \$219.00
- * LASER 145E Printer **New!** \$189.00
- * Mouse \$ 59.00
- * 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

Your satisfaction is our guarantee!

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
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.

Circle 297 on Reader Service Card.

CORRECTIONS

In our July 1990 issue we stated incorrectly that Magic Window is a discontinued product ("Spell it Right," Letters, p. 10). According to Jon Gurr, Managing Director, MGA SoftCat, 41 Clinique Ports Street, Rye, East Sussex TN31 7AD, England (FAX 011-44-797-226721) MGA SoftCat stocks ArtSci's whole range of productivity tools for the Apple II series, and ships worldwide. Magic Words is a spell checker specifically for Magic Window, and the company can supply Magic Window users with a copy for \$29.95 (originally \$69.95). The package requires 48K and DOS 3.3, and works with Magic Window, Magic Window II, and Magic Window Iie. For a catalogue and price list giving details of other "discontinued" products, write or fax the address above.

To execute command 4 (unlock) before command 2 in December's "IIc Plus Speed" program listing (p. 22), add:
**145 POKE L=1,4 : CALL :
REM Unlock the accelerator**
Thanks to Chuck Stites from Ormond Beach, FL, for calling our attention to the omission. Special thanks to Steve Bernacki, an eighth-grader from Northboro, MA, who tested the patch.

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

EDUCATIONAL

Call now for a free catalog!



YOUR SINGLE SOURCE SUPPLIER FOR COMPUTER SOFTWARE ■ DISKETTES ■ ACCESSORIES

RESOURCES™

**USA/CANADA TOLLFREE
1-800-624-2926**

**IN ILLINOIS
708-888-8300**

**SAVE
UP TO
60 %
EVERYDAY!**

**L A S E R
1 2 8
S Y S T E M**



**Laser 128
Computer/Monochrome
Monitor
ONLY
\$349.95***

LASER 128 COLOR SYSTEM
Laser 128 computer
w/14" RGB Color Monitor
\$499.99*

190A Printer add..... \$196.95
Monitor Stand..... 24.95
Printer Cable..... 19.95
Includes Free Copy II Plus!
*\$10.00 shipping



**The Playroom
Your Cost
\$26.95 APL**

School Version -- \$ 36.95
Lab Pack -- \$ 79.95
MAC -- \$ 29.95

A C C E S S O R I E S

(Quantities of 6)



DISKETTES / PAPER
(MULTIPLES OF 50)

Disks -51/4", DS/DD..... \$.35
Disks -31/2", DS/DD..... .69
(10 PK., ASST.)
Color Disks - 51/4"..... 6.95
Color Disks - 31/2"..... 14.50
(250 SHEETS, ASST.-specify)
Color Paper..... 10.95

LOWEST RIBBON & ACCESSORY PRICES

Imagewriter I & II*.....	\$2.50	Epson LX 80/90*.....	\$ 2.50
Imagewriter II 4-Color Ribbons.....	5.75	Epson MX 100.....	4.00
Imagewriter II 4-Color Heat Trans..	16.00	IBM Pro Printer.....	4.75
Panasonic KX-P 1090, 1091, 1092**	3.25	Okidata 182/192/193.....	2.99
Epson MX/FX/RX 70, 80*.....	2.50	CALL IF YOU DON'T SEE IT	

*FOR QUANTITIES LESS THAN SIX OR FOR COLORS (RED, GREEN, BLUE, PURPLE OR YELLOW) - ADD \$1.00 EACH.

e x t r a s

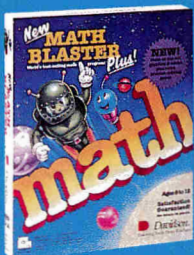
Computereyes, B/W Ite/Ilc.....	\$102.95	System Saver IIGS.....	\$ 68.95
Computereyes, Color, IIGS.....	199.95	Transwarp IIGS.....	289.95
Thunderscan APL.....	159.95	Pioneer Laserdisc V2200 Player...	749.95
Vulcan 40 Meg Hard Drive APL/IIGS...	649.95	Quickie Hand Scanner APL/IIGS...	199.00
PC Viewer 200S APL/IBM.....	627.00	Inwords (for use w/ Quickie).....	79.95



**Where in Time is
Carmen Sandiego?
Your Cost
\$26.95 APL**

School Version -- \$ 41.95
Lab Pack -- \$ 87.95
MAC -- \$ 28.95

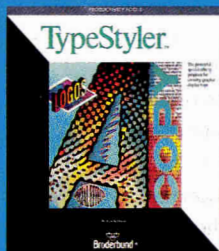
Macintosh HEADQUARTERS



**NEW
MATH BLASTER
PLUS MAC**

**Your Cost
\$34.95 MAC
\$29.95 APL**

**TYPESTYLER
Your Cost
\$117.95 MAC**



**OVER 350
COLOR
GRAPHICS**

**To extend and enhance
The Children's Writing
& Publishing Center™**



BONUS PACK!

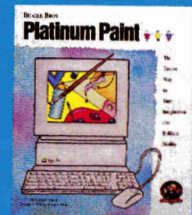
**The Children's
Writing &
Publishing Center™
& Combo Pack™
YOUR COST**

CWP School Version
\$109.95
APL/IIGS

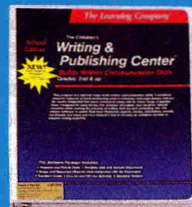
CWP Lab Pack
\$169.95
APL/IIGS

**COMBO
PACK™**

\$50.95 APL/IIGS
School Version \$64.95
Includes all three
Graphics Disks:
NATURE™
HOLIDAY™
PEOPLE & PLACES™



**Platinum Paint
Your Cost
\$59.95 IIGS**



**Children's Writing &
Publishing Center**

Your Cost
School Version
\$64.95 APL/IIGS

Home Version -- \$ 35.95
Lab Pack -- \$124.95

SEE BONUS PACK

**MAIL
SCHOOL
PO'S TO:**

**EDUCATIONAL RESOURCES
1550 EXECUTIVE DRIVE
ELGIN, ILLINOIS 60123**



T • Checks & School PO's welcome!
E • \$25 minimum on charge cards.
R • Add 5% shipping with a \$3 minimum.
M • Free shipping over \$300 (continental US only)
S • Canada add 10% with a \$5 minimum

Circle 220 on Reader Service Card.

S
O
F
T
W
A
R
E

WHAT'S NEW

edited by Paul Statt

Apple II Per Sempre!

When you think of Italy, you probably think of wine, sports cars, designer fashions, and great food. (Us, too.) Thanks to reports from Applied Engineering's President and Chief Executive Officer Bob Carroll and Sales Manager Tom Milks, though, we now know that we can add Apple IIs to the list of Italian favorites.

Carroll told inCider/A+ that the Apple II spirit is alive and well in Italy. The enthusiasm toward the Apple II at Rassegna Del Computer e Attrezzatura Ufficio — a conference for Apple and MS-DOS computer users — was reminiscent of the "enthusiasm you'd find at AppleFest," Carroll says.

The conference, which ran from October 19-21, was organized by Claudio T. Alfieri, managing director of The Woz-



Applied Engineering — a hit in Italy.

niak Foundation. Alfieri, whose organization has no official ties to the Woz, played host to Carroll and Milks and treated the pair like "kings," according to Carroll.

Each morning Carroll and Milks were picked up in a limousine and driven to the conference. According to Carroll, someone signaled the conference directors as the two were about to enter the

hall, and the duo was serenaded with "The Star Spangled Banner." This tribute occurred on each of the three days of the conference.

Carroll said that both he and Milks had interpreters, who made it easier to get a true sense of exactly how Italian Apple II users feel. You may be surprised to learn that they feel much the same way most Apple II users feel in America

— angry and frustrated. In fact, Carroll brought back 1500 letters to Apple expressing support for the II line.

How do Italians feel about the Mac? True Apple II lovers reacted as expected. "Some put their fingers in their mouths, but those were the hard-core types. Others expressed some interest in the just-announced LC, IIIsi, and Classic," Carroll said.

Most of the enthusiasm centered around the IIGs, according to Carroll, who also said that the hot Applied Engineering products at the conference were the TransWarp GS and the Sonic Blaster. And just how had all these Italians heard about Applied Engineering? "They had inCider/A+," Carroll claims. (Yeah, we knew that.) — D.M.



SOFTWARE

TimeOut ♦ SuperForms

Sometimes all it takes to make a difficult task simple is to team up an Apple II and a Beagle Bros product. With Beagle Bros' release of TimeOut SuperForms the prayers of teachers and businesspeople have been answered. No longer do teachers need to wrestle that mimeograph machine to create exams. Instead, with TimeOut SuperForms in combination with AppleWorks 3.0 and TimeOut SuperFonts, they can create custom forms complete with lines, boxes, and grids. The product even includes vertical and horizontal lines, corners, and check boxes, so that small-business owners can create order sheets and schedules in no time.

Once you design that award-winning form, use the program's FormFiller to fill that masterpiece with information from a database file. Then when you're ready to show the form to the public, TimeOut SuperForms will transform it into a word-processing file you print using TimeOut SuperFonts. So what are you waiting for? For \$69.95 you can buy TimeOut SuperForms and make reading between the lines a snap. For more information contact Beagle Bros at 6215 Ferris Square, Suite 100, San Diego, CA 92121, (619) 452-5500, or circle 353 on the Reader Service card. — C.B.

The Visionary GS video digitizer reviewed in the September 1990 issue of inCider (p. 36) is now available from New Concepts, 665 West Jaskson Street, Woodstock, IL 60098, (815) 338-8658 or (800) 869-9152.



UPDATES

"Weigh all the evidence. You'll choose Tax Preparer®"

First choice of
Tax Experts for the entire
Apple II family.

I prepare taxes for a living. And if there's one thing I've learned over the years, it's this: Be careful.

The software industry is as renowned for its hype as for its successes. And tax software is no exception. An awful lot of publishers talk up their bells and whistles. But what good is a whistle when the basic tax calculations can be inaccurate...or even nonexistent?

At HowardSoft®, they don't fool around with obscure forms you never heard of, or use up time and memory with pop-up this and pull-down that. Instead they put their energy into making sure every calculation incorporates the very latest tax laws. Automatically. And accurately. They make input easy. They think things through. And you end up with a tax return free of embarrassing holes in logic or completeness. Holes that others leave you scrambling to patch.

Accuracy, not show biz.

Take IRAs, for example. If you know the new tax laws, you know how easy it now is to contribute more to an IRA than the IRS allows. So Tax Preparer automatically creates Form 5329 whenever it's needed, and lets you know if you've exceeded your allowance. Keeping you from being taken off-guard, and paying penalties because of inaccurate results.

And, as with its other built-in forms, there's none of this half-baked "diagnostics" stuff, where the program tells you to prepare another form. Tax Preparer simply takes care of it for you. All by itself.

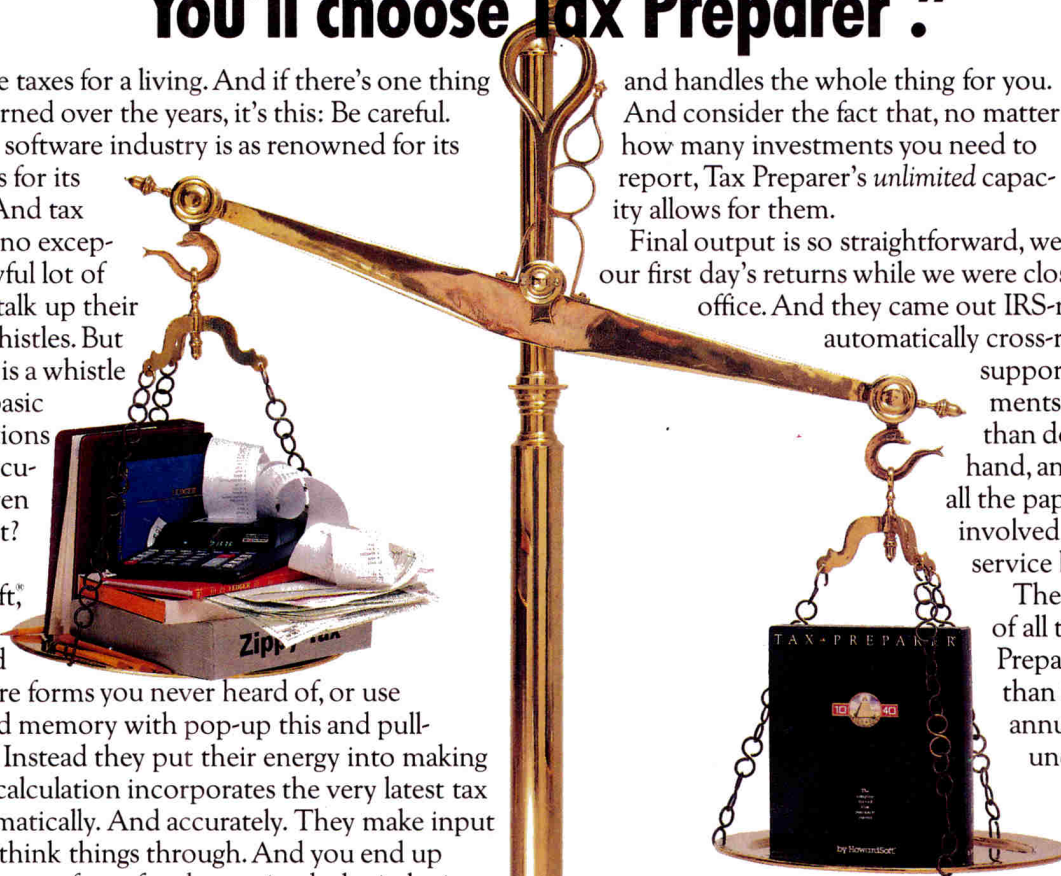
Or how about HowardSoft's execution of the Passive Activity Rules? You don't have to complete a single worksheet. Tax Preparer knows when and where they apply,

and handles the whole thing for you. And consider the fact that, no matter how many investments you need to report, Tax Preparer's unlimited capacity allows for them.

Final output is so straightforward, we printed all our first day's returns while we were closing up the office. And they came out IRS-ready, with automatically cross-referenced supporting statements. A lot faster than doing them by hand, and without all the paperwork involved in using a service bureau.

The best part of all this is Tax Preparer costs less than \$300, with annual updates under \$100.

That's affordable, even for individuals.



Quality is in the details.

All this is why, for the past 10 years, Tax Preparer has received kudos from such diverse sources as The Wall Street Journal, Business Week, PC Magazine, PC World, A+ and InCider. And why, despite its rather stuffy reputation, it's been featured on the Today Show and Good Morning America. Even their manual consistently gets rave reviews for its clarity and completeness.

So, before you buy a tax package, take a look beyond the glitz and glitter, and weigh the pros and cons instead.

You do that, and you'll buy Tax Preparer every time.

Tax Preparer by HowardSoft®

Professional software at a personal price.
1224 Prospect Street, Suite 150
La Jolla, CA 92037

For more information, call (800) 822-4-TAX. (Other professional software by HowardSoft includes a Laser Option for generating Form 1040 graphically on a laser printer; a California Supplement™ for preparing the state return starting with Federal data, and Real Estate Analyzer® for analyzing income property before and after taxes.)

I agree. And I've got the good judgment to send for the 1991 Edition of Tax Preparer. I understand I can prepare official tax returns for the 1990 tax year with this package, and perform tax planning for subsequent years. I also understand that you will keep my program up to date for future tax returns, with annual updates under \$100 per year.

Name _____

Address _____

City _____ State _____ Zip _____

Phone (_____) _____

_____ IBM-PC or compatible @ \$295 \$ _____

_____ Apple II family @ \$250 \$ _____

_____ My check is enclosed (Include 7.25% sales tax for California addresses)

Please charge to my Visa MasterCard

Acct. no. _____

Signature _____

Or call (800) 822-4-TAX to order by phone.

▼ **NOTES** from the AppleWorks Programmers Association

**Users & Programmers
Sharing the Power to Create**

▼**AW tip:** APA member Jack Countryman has a great new tip that can save you hours of rekeying data. Now you can transfer data into AppleWorks from about any program or operating system — including those that support non-Apple computers.

Some programs print data only on paper, others print to non-ASCII disk files, still others print to non-ProDOS disk files or files that are unreadable by AppleWorks. To make matters even more complicated, you probably have difficulty transferring DOS 3.3, Pascal, and MS-DOS files. But by using this technique, conversion of data from Bank Street Writer, PFS Write, various educational programs, spreadsheets, databases, and other applications into the AppleWorks word processor is relatively easy and inexpensive. (You can't transfer graphics, though, only text.)

You'll need two computers and a connecting modem cable, but you won't need a modem. The first (source) computer may be any brand, use any operating system, and run any source program that will print data to most printers.

An Apple II is the second (destination) computer. You'll need an Apple II telecommunication program that will capture a ProDOS ASCII (TXT) file or an AppleWorks word-processing file on the Apple II side. Connect one end of a modem cable with an RS-232C or an appropriate cable connector to the serial printer port of the source computer. Then connect the other end of the cable with appropriate cable connector or adapter (RS-232C or DIN mini-8) to the Apple II's modem port.

Apple IIe owners who normally use the Apple Super

Serial Card (SSC) for their printer can configure it easily for a modem port (RS-232C). The Apple IIc and IIgs have built-in modem ports (DIN mini-8).

Your Apple II terminal program settings should be set to text capture, half-duplex (host), 9600 baud, DCD off, and DSR/DTR off.

To start the transfer, boot your Apple II terminal program, get into terminal mode, and turn on the recording buffer. Then from the source computer use the source program to print the desired data from the source computer as if to the printer. The text data will appear on the screen of the Apple II and your recording buffer file will capture it. Save this file to disk.

Now quit the terminal program. From the AppleWorks AWP, create an AWP file from an ASCII (TXT) if necessary, then read the file with your AppleWorks word processor. If you're using TimeOut TeleComm (see the AW enhancement below) you need not make the ASCII-to-AWP conversion.

You may need to clean up the file to remove spurious characters caused by control printer codes sent by the source program. Once in the AWP, you can manipulate the data and transfer it to a database or spreadsheet. If you can print data to paper, you can usually capture the same data to an AppleWorks file.

▼**AW enhancements:** APA members Mark de Jong and Mark Munz have upgraded Beagle Bros' TimeOut TeleComm to version 1.2. This program works within AppleWorks Classic and provides full-featured telecommunication, an on-line or off-line editor, full-range downloading capabilities, and outstanding conferencing facilities. It also

lets you paste an AppleWorks file directly to modem output without going off line. You can save the data you capture from information services or BBSes directly to an AppleWorks AWP file. TeleComm v1.2 is a solid terminal program worthy of interest to all AppleWorks users.

▼**AW personality:** APA member Mark de Jong is the originator and co-author of TimeOut TeleComm, and author of other popular AppleWorks enhancements. When he's not programming for the Apple II or solving computer problems, Mark likes to enjoy the warm sun of Southern California by sailing an 18-footer on San Diego Bay. Mark and his wife Sharon live in the Point Loma district of San Diego, CA, with their two daughters, Janessa and Nicole.

Mark often shares his musical expertise playing his much-loved guitar for friends or at church-sponsored events. In his role as technical support manager at Beagle Bros Inc., Mark is widely known for his friendly and helpful support of Apple II users. He's a frequent visitor to on-line services and the Pro-line telecommunication network.

▼**AW macros:** Many times users don't know how to create an AppleWorks word-processing (AWP) file from an ASCII (TXT) file they've downloaded from an information service, a BBS, or another computer. Here's a time-saving UltraMacros macro for veteran users that will make this process easy.

To use this macro, compile with the TO.Macro.Compiler, set your path (prefix) to the location where the file is

stored, hold down the solid-apple key (option key), and tap the t key.

```
T:<all : oa-Q esc rtn>3<rtn>2
<rtn : {display files list}:
msg ' Highlight ASCII (TXT) file
to convert to AWP & press
Return key ' :
keyto 13 : {wait for
Return Key}:
rtn ahead>.wp<rtn : {load
file & add suffix}:
oa-Q >1m<rtn>0<rtn>
rm<rtn>0<rtn esc>!
{zero margins}
```

▼**AW news :** APA member Dan Crutcher (Macro City) has released an interesting set of original macros that include a hangman game, a check writer, and a workhorse macro.

Don Aquilino (ACTAsoft) is receiving praise for his full-featured professional double-entry bookkeeping system, Alpha Check Plus.

If you don't have the Patcher that fixes some annoying AppleWorks 3.0 bugs (it's freeware from Beagle Bros, Inc), contact your local Apple User Group or APA. They have a copy reserved for you.

APA members contributing to this month's notes include Don Aquilino, Jack Countryman, Dan Crutcher, Mark de Jong, Dave Gair, and Mark Munz. For a 5.25-inch disk that includes a set of templates, macros, and detailed documentation for tips described above, send \$4 shipping to APA at the address below. Please include the inCider/A+ issue date with your request. For membership information contact the AppleWorks Programmers Association, 6531 Lexington Avenue, Los Angeles, CA 90038, modem apa@pro-apa.cts.com (213) 463-9289, voice (213) 469-9916. The AppleWorks Programmers Association is registered with the Apple User Group Connection.



FOREVER AMBER

HARDWARE

One of the drawbacks to using Macs in school systems has been the cost — not just of the computers, but of the peripherals, as well. Although the ubiquitous amber monitor that most classroom Apple IIs use won't work with a Mac, Amdek (now a part of Wyse technology) has introduced the Amdek **PowerPage**, a low-cost monochrome 14-inch video-display subsystem for the Mac.

The advantage over the Mac monitor is obvious — the PowerPage monitor is 200 percent larger than the built-in 9-inch monitor on the Mac SE or Classic. You can use the PowerPage monitor and your built-in monitor at the same time, and display different windows on each. The 14-inch screen means that every student in the classroom, not just the ones in the front row, will be able to see.

An advantage you won't see is that the PowerPage systems — the Amdek monitor and a Lapis video card — costs only \$599. Also you can use

the Amdek monitor with IBM PCs and compatibles, if your school has them. The video output is IBM-standard VGA.

The monitor, by the way, isn't amber at all — it's a flat, high-contrast, non-glare, paper-white display. For details, contact Amdek at 3471 North First Street, San Jose CA, 95134-1803, (800) 722-6335, or circle 350 on the Reader Service card. — **P.S.**

GENERIC HARD DRIVE

Quality Computers, the big mail-order dealer, has been selling a lot of hard-disk drives from many different manufacturers. But now company president and founder Joe Gleason has decided that his firm can make a hard drive better than the competition's. The result is the **Q Drive**.

The Q Drive features Conner's reliable drive mechanisms, Apple's High Speed SCSI Card, and Apple's Finder for the IIGs. It also sports the new ProDOS 8 mini-selector for other Apple IIs. (For a generic drive it certainly uses brand-name parts.)

The Q Drive manual gives you a lesson on GS/OS and

ProDOS as it helps you set up the drive. In fact, the Q Drive software is so easy to use that it practically sets up the drive itself. You also get Quality Computers' technical-support service, and the satisfaction of buying from an Apple II leader.

A 40-megabyte Q Drive sells for a competitive \$599.95; the 100-megabyte drive sells for \$999.95. (Add \$100 for a RAMFast SCSI card instead of the Apple card.) For more information contact Quality Computers at 20200 E. Nine Mile Road, Box 665, St. Clair Shores, MI, 48080, (800) 443-669, or circle 351 on the Reader Service card. — **P.S.**

CYCLOPS BY PROXIMA

Anyone who has taken a public-speaking class or has given a presentation knows how frustrating visual aids can be. Even the recent advances that let you project a computer screen on a wall have their limitations — in order to manipulate the machine, you must tap away at the keyboard or scrape a mouse across a desk.

Imagine, though, being able to stand at the front of the lecture hall and maneuver

through a HyperCard or HyperStudio stack using only a pointer. Proxima, a division of Computer Accessories Corporation, has just introduced **Cyclops** (\$1995), a system for controlling your Apple II or Mac while you use a projection screen.

The system has two components — a camera and a pointer. The camera mounts on the back of a liquid-crystal-display monitor manufactured by Computer Accessories Corporation. The pointer is about the length of a yardstick and has a red LED (light-emitting diode) at the tip. Once you position the camera properly, you show it the edges of the screen with the pointer, and your Apple II/Macintosh will have a point-and-click interface. The camera senses the bright LED against the room's ambient light, and translates the position into the Apple Desktop Bus.

No special software is necessary. Proxima also offers a pen-sized laser that will project a red dot on your screen from up to 25 feet away. For details, contact Proxima at 6610 Nancy Ridge Drive, San Diego, CA 92121, (619) 457-5500, or circle 352 on the Reader Service card. — **C.C.**

EDUCATION * NOTES *

*William K. Bradford (Acton, MA) has released **Legends of Raven**, the second in its multicultural

Explore-A-Folktale series. The Raven legend comes from the early native civilizations of western Canada, Alaska, and the Pacific Northwest. It costs \$75, runs on an 128K enhanced Apple II, and input from a mouse is optional. Call (508) 263-6996 for details.

*MindPlay (Tucson, AZ) has recently released **Money** (\$19.95), its fifth issue of Kid-Leidoscope. This current-events magazine on a disk (Apple II) and its accompanying four-page newspaper feature stories of spending, earning, and saving money wisely. For the subscription rate of \$79 you'll receive four issues — Wildlife, Living in Space, Fitness, and Dinosaurs. Send \$3 shipping fee for a free introduction. Call (602) 322-6365 for details.

*The Milliken Storyteller for the Apple IIGs (Milliken Publishing, Saint Louis, MO) brings the classics to life. Three familiar

stories — *Henny Penny*, *Little Red Riding Hood*, and *The Ugly Duckling* — come alive with graphics, sound, and

animation. The Storyteller also includes quizzes and coloring screens to get kids involved in what they're reading. The Milliken Storyteller costs \$49.95; a **Story Collection Disk** with *Peter Rabbit*, *Jack and the Beanstalk*, and *Aladdin and the Magic Lamp* is \$24.95. The program requires an Apple IIGs with 768K of RAM and a 3.5-inch disk drive. Call (800) 325-4136 for details.

*Intellimation (Santa Barbara, CA) has published its first **Intellimation Library** for the Macintosh — it catalogs 115 software and multimedia products developed by educators for educators. Many of the programs use HyperCard, and come on CD-ROM or videodisc. Programs range from an imaging program for chemistry classes to instruction in Chinese. For a copy of the catalog, call (805) 685-8587.

Why Sensible Grammar™ is first in its class.

Now everything you write, from a school report to a business letter, can be stronger and clearer. With Sensible Grammar™. A professional proofreading program for Apple II that checks your punctuation, usage, phraseology and more.

Sensible Grammar scans your work for potential errors and automatically displays the sentences in which they appear. It explains what's wrong and even suggests corrections. Making changes is easy—a simple keystroke or click of the mouse, and you can do anything from replacing a phrase to rewriting it. And your formatting information remains unaffected.

Sensible Grammar compares your text against a library of over 2000 phrases to identify informal, vague, racist, sexist, and other faulty language, plus you can add phrases of your own. It catches embarrassing typographical errors like misused capitalization and repeated words, alerts you to improper punctuation, and more.

Sensible Grammar autoloads onto RAM cards, can be used with hard disks and works with most ProDOS word processors. And it costs just \$99.95.

So get Sensible Grammar. And write like a pro.

Also available: Sensible Speller™, the electronic spelling checker with over 80,000 words from the official Random House dictionary. Works with most ProDOS word processors (\$125).

Report Card II™, the grading system that makes compiling students' marks simpler, more accurate, and more efficient. For Apple II and IBM (\$59.95).

Bookends Extended™, a specialized database for locating information and printing bibliographies. For Apple II and IBM computers (\$149.95), and for Macintosh computers (\$99.95).

Sensible Grammar is also available in a Mac version (\$99.95).



Sensible Software,® Inc.
335 East Big Beaver, Suite 207
Troy, MI 48063
(313) 528-1950

Circle 240 on Reader Service Card.

WHAT'S
NEW

Imagine a combination of computer hardware and software so sophisticated that it creates interactive multimedia presentations complete with text, graphics, digitized sound, animation, and video — yet so simple that even a first-grade student can master it. Picture the price tag on a system that lets even a non-programmer build beautiful games, cookbooks, appointment calendars, visual databases, and interactive educational tutorials. Do you think it's out of your budget? Well, guess again. With Roger Wagner Publishing (El Cajon, CA, 619-442-0422) and your Apple IIgs, you can make it happen.

With a 1-megabyte Apple IIgs you can use run-time stacks created with **HyperStudio**. Although authors need HyperStudio (\$149.95) to create the stacks, you can buy these run-time versions for considerably less. In fact, Roger Wagner Publishing offers 10 demonstration disks that include stacks, clip art, and sound, for \$10. The package includes some of the best public-domain stacks available and a version of HyperStudio, so that you can modify any of the stacks in the demo or create your own. Because these are run-time versions, however, you can't save your work to disk.

Another source is **The HyperStudio Network** (P.O. Box 103, Blawenburg, NJ 08504, 609-466-3196). Founded by two New Jersey teachers who saw the potential of HyperStudio and decided to put out a newsletter, this network provides its members with access to a library of public-

SHAREWARE SOLUTIONS

domain stacks, clip art, and digitized sound files. (Membership is \$29 a year.) The HyperStudio Network specializes in educational stacks, many of them for young children.

Probably the most creative HyperStudio stacks have appeared in the public domain. Public-domain software refers to both freeware and shareware. Freeware costs you nothing. Shareware is distributed at no charge on on-line services and through user groups, but if you use it, you must pay the author. Public-domain software is usually copyrighted by the author.

Two of the most talented individuals writing low-cost or free stacks are Scott Everts and Jim Hirsch.

In the introduction to his **Star Trek: The Next Generation** stack, Everts (P.O. Box 227, Placentia, CA, 92670) offers some insight into the motivation of all stack developers: His ten-dollar shareware stack is a labor of love that contains volumes of little-known trivia about the crew of the USS Enterprise and their three-year TV voyage. By combining beautifully digitized graphics images with sound effects, and providing details of every Star Trek episode ever aired, Everts has produced a stack so packed with information, that "trekkies" will think it's Star Trek heaven. The first sound you hear is the Star Trek theme. The eight 3.5-inch

disks cover the first three seasons of Star Trek.

Jim Hirsch (12310 Jonquil Street NW, Coon Rapids, MN 55433) is an educational-technology consultant who's produced a series of imaginative, artistic, and informative HyperStudio stacks. Hirsch often presents multimedia and hypermedia programs to groups of teachers, but he believes that everyone, not just teachers, can learn from his work. One of Hirsch's stacks teaches youngsters about the value of money; another offers a self-paced tutorial for the AppleWorks GS word processor; another introduces the Apple IIgs, its components and peripherals; and another showcases the visual appeal of animation.

Hirsch is also a fan of NASA and a follower of the space program, so he has created a stack about the October 1989 Atlantis space-shuttle mission STS-34 that launched the Galileo probe to Jupiter. NASA prepared all the text in the **HyperShuttle** stack, so it provides an insider's detailed overview of the mission. Digitized sound and detailed graphics images make it seem true to life.

Your imagination is the only limit to what's available in HyperStudio stacks. Some stacks hold data about Academy Award winners, the Apple IIgs Finder, or the Beatles. Others cover adventure games and the Simpsons. Best of all, you don't have to be a nerd to create your own stacks. All it takes is a mouse and an active imagination.

—JOE KOHN

**Thousands of Apple & Amiga Products In Stock
and Ready to Ship—Call today for a FREE Catalog.**

**I'm gonna make you a deal
you can't refuse...**



You need to buy something for your system—right? So you're gonna check out all the other MOB's (*Mail Order Businesses*) and see what they gotta say. Then you give me a call. If I can't beat the other MOB's best advertised price in this magazine, I'm gonna send you a check for \$3.*
How can you refuse?

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

**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.

4. Management reserves the right to make final decision.

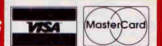
We accept the following methods of payment:

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

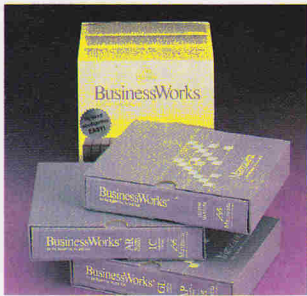
• Not responsible for product compatibility

• Sorry, no shipping, handling, or insurance refunds

• We really appreciate your business!



Programs, Peripherals



TOTAL ACCOUNTING PACKAGE

Business Works® by Manzanita Software Systems is everything you need for a complete business accounting system. Bundle includes all modules: General Ledger, Accounts Payable, Accounts Receivable, Inventory Control. AppleWorks spreadsheet compatible. Requires: IIe, IIc or IIGS, 128K/80 column card, 2 disk drives or hard disk.
Suggested Retail\$495
Programs Plus Price\$248

ACCELERATORS / RAMCARDS

American Micro Research (Micro Sci)	
80/64E 80 Column 64K Card (IIe only).....	49.
Apple Computer	
Apple IIe Enhancement Kit.....	58.
Apple IIe Extended 80 Col. Card.....	89.
Applied Engineering	
GS-Ram Plus 1MG.....	189.
GS-Ram Plus 2MG.....	268.
GS-Ram Plus 3MG.....	268.
GS-Ram II 1MG.....	139.
GS-Ram II 2MG.....	189.
GS-Ram II 4MG.....	313.
GS-Ultra 1MG.....	189.
GS-Ultra 2MG.....	253.
GS-Ultra 512K.....	163.
PC Transporter (768K).....	259.
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.....	238.
RamFactor 512K.....	189.
RamWorks III 1MG.....	201.
RamWorks III 256K.....	133.
RamWorks III 512K.....	156.
TransWarp Accelerator (GS).....	257.
TransWarp Original Accelerator.....	89.
ViewMaster 80 (II+).....	124.
Z-Ram Ultra 2 1MG.....	253.
Z-Ram Ultra 2 256K.....	176.

Z-Ram Ultra 2 512K.....	208.
Z-Ram Ultra 3 1 MG.....	319.
Chips	
Chips Set 256K 120 or 150 NS.....	23.
CV Technologies	
GS Memory Board.....	89.
Harris Labs	
GS Load 256K (3 pack).....	69.
GS Sauce 1MG.....	132.
GS Sauce 2MG.....	169.
GS Sauce 4MG.....	259.
GS Sauce Card "O" K (GS).....	75.
Zip Technology	
Zip Chip 4 MHZ.....	98.
Zip Chip 8 MHZ.....	148.
Zip Chip Model 1600 (GS).....	249.

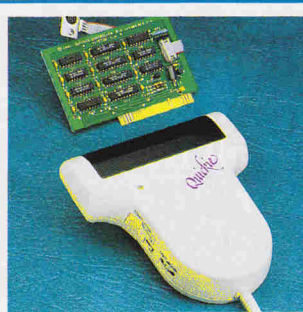
ACCESSORIES

Advanced Gravis	
Advanced Gravis' Joystick (AP & GS).....	39.
MouseStick ADB (GS).....	59.
Apple Computer	
Apple Mouse IIc.....	78.
Apple Mouse IIe.....	118.
Disk Controller Card.....	68.
Extended Keyboard ADB.....	175.
Video Overlay Card.....	428.
Applied Engineering	
Audio Animator (GS).....	174.
Conservar (GS).....	75.
High Output Power Supply.....	59.
IIGS Heavy Duty Power Supply.....	77.
Sonic Blaster (GS).....	95.
TimeMaster II H.O.....	77.
Transporter Keyboard.....	100.
CH Products	
Flight Stick.....	46.
Mach II Joystick.....	25.
Mach III Joystick.....	31.
Roller Mouse ADB (GS).....	83.
I/O Design	
Imageware II Case Black, Navy, Platinum.....	45.
ICMS, Inc. MousePen ADB.....	89.
Kalmar	
Kalmar Roll Top 3.5 (holds 135).....	26.
Kalmar Roll Top 3.5 (holds 45).....	14.
Kalmar Roll Top 3.5 (holds 90).....	21.
Kensington, Inc.	
A/B Box.....	63.
AntiGlare Filter GS.....	34.
Apple IIe, IIc or GS Dust Cover or Imagewriter II Cover.....	9.
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.

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.

Universal Printer Stand.....	19.	Mouse Systems	
Koala Technologies		Littlemouse APlus.....	78.
Koala Pad Plus		Littlemouse ADB.....	78.
w/Graphics Exhibitor.....	79.	MousTrak	
Kraft		MousePad 7"x9" Size.....	8.
Floppy Disk Notcher.....	4.	MousePad 9"x11" Size.....	9.
Kraft Universal 3 Button Joystick (IIe, IIc).....	29.	Northgate Computer Systems	
Laser Computer Inc.		OmniMac Ultra Keyboard (IIGS).....	119.
Laser 128 2 Slot Expansion Box.....	55.	Orange County Speaker	
Lynn Products		OCS 2-40 (Stereo Amplifier).....	125.
Cables (Specify).....	13.	RC Systems	
Lynx Computer		Double Talk.....	183.
Turbo Trackball (GS).....	59.	Ribbons	
Maxell		ImageWriter Ribbons available in orange, purple, black, blue, brown, green, red, yellow, silver, or gold.....	4.
Maxell 3.5 DS, DD (10).....	14.	ImageWriter II-4 Color Ribbon.....	9.
Maxell 5.25 DS/DD.....	9.	ImageWriter Rainbow Pack (6 Colors).....	19.



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\$193.

APPLE COMPATIBLE COMPUTERS

Apple Computer	
IIGS Computer 1MG CPU.....	845.
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 Amber Monitor.....	88.
Laser 128 Mouse.....	44.

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

Laser 128 System w/Amber Monitor.....	385.
Laser 128 System w/Color Monitor.....	495.
Laser 128EX Computer.....	369.
Laser 128EX II Computer (3.5).....	429.
Laser 128EX II Computer (5.25).....	399.
Laser RGB Monitor.....	215.

BACKUP UTILITIES

Alpha Logic LockSmith v6.0.....	33.
Apple Computer GS/OS v5.0.2 (GS).....	39.
Central Point Software Copy II Plus v9.0.....	25.
Glen Bredon Dos.Master.....	23.
Pro Command.....	23.
ProSel 16 (3.5).....	53.
ProSel 8 (5.25).....	36.
Vitesse, Inc. Salvation: Deliverance (GS).....	29.
Salvation: Exorcisor (GS).....	24.
Salvation: Guardian (GS).....	29.
Salvation: Renaissance (GS).....	29.
Salvation: Wings (GS).....	49.

BUSINESS SOFTWARE

Abracadata Everybody's Planner.....	49.
---	-----



IT'S TIME TO CLEAN UP THE STREETS
Task Force™ by Britannica pits you and your partner against gangsters, mobsters, skinheads and sleazy politicians. As leader of the FBI's specially organized Task Force, you're outfitted with flame throwers, missile launchers and grenades. Plus you pick up your best weapons as you tame 5 cities. Fantastic simultaneous action for 2 players.
Suggested Retail\$39.95
Programs Plus Price\$23

Actsoft Alpha Check Plus.....	34.
Alpha Check v3.1.....	26.
Addison-Wesley Wordbench (AP & GS).....	86.
Advanced Idea Stars & Planets (GS).....	27.
Beagle Brothers AW v3.0 Companion.....	27.
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).....	88.
Timeout Graph.....	49.
Timeout MacroEase.....	23.
Timeout Performance Pak (DeskTools I, II & PowerPack).....	65.
Timeout QuickSpell.....	41.
Timeout ReportWriter.....	45.
Timeout SideSpread, FileMaster, or DeskTools.....	32.
Timeout Style Pak (SuperFonts, Thesaurus & FileMaster).....	65.
Timeout SuperFonts.....	41.
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).....	SPECIAL 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.
Monogram Dollars and Sense.....	73.
Nolo Press Will Maker v3.0.....	33.
Roger Wagner Write Choice (AP).....	31.
Seven Hills Software Graphicwriter III (GS).....	72.

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.

Sierra On-Line Smart Money (GS).....	45.
SoftSpoken Cross-Works v2.0.....	67.
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).....	84.
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.
L & L Productions GBBS.....	78.
Morgan Davis Group ModemWorks.....	29.
ProLine.....	95.

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

Sider D4/T 40MB HD789.

EDUCATIONAL SOFTWARE

A.E.C.

Spanish Vocabulary
or Spanish Grammer**SPECIAL 16.**
SPECIAL EDITION PRODUCTS
WITH TEACHER'S GUIDES
Return of the Dinosaurs:
Teacher's Edition39.
Lab Pack68.
Super Lab Pack105.
Excel-A-Read:
Teacher's Edition39.
Lab Packs89.
Spanish or French Vocabulary
& Grammar:
Teacher's Pack39.
Lab Packs74.

AEC Management Systems

Phonics31.
U.S. History16.
World History16.

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.
Wizards of Words.....25.

American School Publishers

Charlie Brown's ABC's19.
Charlie Brown's ABC's (3.5)25.
Charlie Brown's 1, 2, 3's19.
Snoopy Writer19.

Barron's

Computer SAT Revised Version32.

Britannica

Algebra 1: 1st & 2nd Semester46.
Algebra 1: 1st or 2nd Semester27.
Designasaurus or Revolution (3.5) ..27.
Spellicopter22.

Broderbund

Geometry (3.5)49.
McGee or Katie's Farm (3.5)25.
Playroom**SPECIAL 25.**
Science Tool Kit Module I or II25.
Science Tool Kit Master Module49.
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)30.
Where in the World
is Carmen Sandiego?25.
Where in the World
is Carmen Sandiego? (GS)30.
Where in Time
is Carmen Sandiego? (AP or C+) ..27.

Computeach

Stepping Stones 1 & 229.
Studymate-The Grade
Booster (3.5 or 5.25)26.

Davidson & Associates

Alge-Blaster Plus (AP or GS)29.
Math Blaster Plus (AP or GS)
or Grammer Gremlins29.
Math Blaster Plus (GS)29.
Read 'N' Roll29.
Reading & Me25.
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)29.
Word Attack29.
Word Attack Plus (AP or GS)29.
Word Attack Plus
Spanish or French29.

DLM

Create with Garfield19.

Eclat Microproducts

Geographic Jigsaw (AP or GS).....25.

First Byte

The Rhyming Notebook29.

Fisher Price

I Can Remember
or Firehouse Rescue9.

A5 D Half Height 5.25" Drive
(IIGS Daisychain)135.
AMR 800k Drive w/Controller215.
AS800k 3.5 Ext. Drive168.
GS Partner: Quick 20MB515.
GS Partner: Quick 40MB585.
GS Partner: Quick 60MB665.

Apple Computer

Apple 3.5 Drive (GS & C+)315.
Apple 3.5 Unidisk315.
Apple 5.25 Drive (IIE, GS, C+)248.
High Speed DMA SCSI Card105.
Unidisk 3.5 Controller58.

Applied Engineering

AE 3.5" Drive198.
AE 5.25" Drive112.
Controller Card for 3.5" Drive
(IIE or II+)58.
Disk II Style Controller Card49.
Transdrive 360K Dual Drive289.
Transdrive 360K Single Drive185.
Transdrive Additional Drive
(for TD single)109.
Vulcan 100 Meg (AP or GS)1279.
Vulcan 20 Meg (AP or GS)498.
Vulcan 40 Meg (AP or GS)648.

CMS Enhancements

20 MB w/SCSI II card459.
30 MB w/SCSI II card492.
60 MB w/SCSI II card569.
CMS 45 Removable w/A2S799.
Cartridge for 45 Removable99.
SCSI Rom Upgrade23.

CV Technologies

Ramfast SCSI Card w/256K Ram ..195.

Laser Computer Inc.

Laser 128 5.25 Disk Drive88.
Laser 800KB Drive175.
Laser 800KB Drive w/controller ...205.
Universal Disk Controller44.

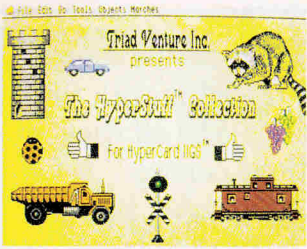
Omnishore

Sider D2 20MB HD419.

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.



THE HYPERSTUFF™ COLLECTION

Hyperstuff™ Collection by Triad Venture makes HyperCard™ IIgs even more powerful.

CLIPTUNES™ - Plays 7 voice stereo music in your stacks. Compatible with all MIDISYNTH™ songs (TOLL 35). Includes: Song library, XCMND Player, Sample Stack & Tool 35.

CLIPART PLUS™ - 20 Screens of the finest Clip Art for the IIgs. Plus 4 NDA's and 4 XCMND's. Including ICON BUTTON NDA (capture any SHR image to Hypercard™ Icon) and GET PICK XCMND (manipulate SHR and PrintShop GS™ Graphics from within HyperCard™). Suggested Retail\$39.95
Programs Plus Price.....\$25.

DISK DRIVES & HARD DISK SUB-SYSTEMS

American Micro Research (Micro Sci)

A.5 Half Height (II+ & IIE).....129.
A.5C Half Height (IIC).....129.

7 POINT POLICY BENEFITS YOU



1. VISA, MASTERCARD or DISCOVER accepted. No surcharge. Your card is not charged until we ship.
2. If we send a partial order, there's no second shipment charge.
3. All shipments insured at no extra charge.
4. No sales tax charged for out of state shipments.
5. COD maximum \$1,000, cash or certified check. COD orders ship via UPS Blue Label unless UPS Ground delivers next day.
6. 120-day limited warranty on all products. Defective software replaced immediately. Defective hardware repaired or replaced at our discretion. Prices subject to change without notice. All items subject to availability.
7. Corporate and school purchases ac-

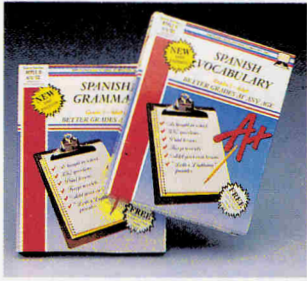
Programs Plus

1-800-832-3201



Fax: 203-381-9043
Inquires: 203-378-3662
Canada: 1-800-344-7753
75 RESEARCH DRIVE
STRATFORD, CT 06427

Software for Apple & Mac



BETTER GRADES AND SPECIAL OFFER

Spanish Grammar by American Educational Computer, Inc. is an excellent supplement for Spanish language students covering articles, verbs, adjectives, and much more. Spanish Vocabulary covers 98% of words taught in Spanish I/II. Also available for French, German and English in stand alone, lab packs and school versions each with a "Buy One Get One Free" promotion fulfilled by AEC. Stand Alone Version
Suggested Retail\$24.95
Programs Plus Price\$16.

- Little People Bowling9.
- Gametek**
- School Bus Driver or Chutes & Ladders9.
- Grade Busters Corp.**
- Grade Busters 1, 2, 369.
- 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)32.
- 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)24.
- Oregon Trail or Patterns (3.5 or 5.25)24.
- Paint with Words (5.25)24.

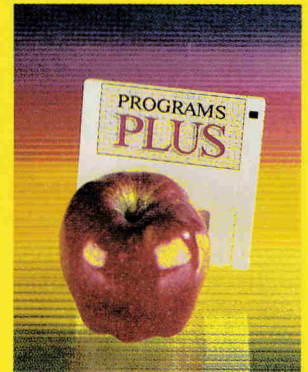
- Spellevator (3.5 or 5.25)24.
- USA Geograph (3.5) or World Geograph (3.5)49.
- Miliken Publishing**
- The Story Teller (GS only)32.
- Mindplay**
- Essay Ease38.
- Mindscape**
- Crossword Magic33.
- Orange Cherry**
- Addition & Subtraction, ABC's, Speller, Clock or Money38.
- Animals, Dinosaurs, Numbers, First Writer, First Reader38.
- Childrens Newspaper Maker (GS)38.
- Jungle Safari or Talking First Words (GS)38.
- School Bus, Alpha Chimp, Colors & Shapes, Reading Railroad38.
- Talking Multiplication & Division (GS)38.
- Talking Speller II (GS)38.
- PC Glode, Inc.**
- PC Globe 3.0 (GS) or PC USA (GS)40.
- Pelican Software**
- Dinosaur Days21.
- Monsters & Make Believe Plus25.
- Sensible Software**
- Report Card II (AP & GS)37.
- Sensible Grammar (AP & GS)59.
- Simon & Schuster**
- Typing Tutor IV (AP or GS)26.
- Software Toolworks**
- Mavis Beacon Typing (5.25)25.



LEARN WITH FUN PLAYROOM BY BRODERBUND
Welcome to the playroom, where children learn to love learning! The playroom is a delightful, child-sized world filled with games, toys, surprises - and learning experiences. Exploring, children automatically start to learn about letters, numbers, and time. As they do so, they also begin to develop thinking and computer skills. Includes stuffed toy. 5.25" disk.
Suggested Retail\$39.95
Programs Plus Price\$25.

One Of The Oldest Most Reliable Mail Order Suppliers, Programs Plus Offers You The Best Prices, Service & Support

- 24-Hour Fax Line 203-381-9043
- DHL Overnight Delivery
- Packing Materials
- 100% Safe for the Environment**



- Mavis Beacon Typing (3.5)32.
- Spinnaker**
- Facemaker: Gold Edition20.
- Kidwriter25.
- Homework Helper/Writing32.
- Kidwriter Gold (GS)30.
- Reading I: Peter Rabbit25.
- Terrapin Logo Plus**75.
- TimeWorks, Inc.**
- Evelyn Wood: Dynamic Reader25.
- 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 AvailableCALL
- Jack Nicklaus Golf (GS)31.
- Mean 18 (GS), Hardball (GS)27.
- Muscle Cursor or Supercars (GS)15.
- Serve and Volley (GS)25.
- Test Drive II (GS)29.
- Third Courier (GS)30.
- Activision**
- 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 London25.
- Ticket to Spain25.
- 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)SPECIAL 23.
- Broderbund**
- Ancient Art of War28.
- Ancient Art of War at Sea28.
- Centauri Alliance or Jam Sessions (GS)30.
- The Dark Heart of Uukrul30.
- VCR Companion30.
- Wings of Fury (AP & GS) or Prince of Persia22.
- ByteWorks Ugly Duckling (GS)**25.
- California Dreams**
- Tunnels of Armageddon (GS)26.

ENTERTAINMENT SOFTWARE

- Accolade**
- 4th & Inches (GS) or Fastbreak27.
- Autoduel25.
- Bubble Ghost (GS)21.
- California or European Challenge (GS)15.
- Grand Prix Circuit (GS)27.
- Jack Nicklaus 1990 Courses (GS)15.
- Jack Nicklaus Course Disk Vol. 1 or 2 (GS)15.

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



ORCA/PASCAL WITH LEARN TO PROGRAM TUTORIAL

Now you can learn to program even if you've never programmed before! 16 easy to follow lessons will take you step by step into the exciting world of Pascal programming using ORCA/Pascal. Each lesson includes tutorial instruction, sample programs and solutions to the problems. Requires IIGS with 1.25M of memory. Suggested Retail\$200. **Programs Plus Price\$119.**

Vegas Gambler (GS)	26.
Casady & Greene	
Crystal Quest (GS)	SPECIAL 29.
Cinemaware	
King of Chicago	16.
Star Saga 1 (AP or GS)	32.
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.
See the U.S.A.	26.
DataEast	
Batman, Robo Cop	22.
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.
Block Out (GS) or Zany Golf (GS)	26.
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.
FTL Dungeon Master (GS)	23.
GameTek	
Double Dare or Press Your Luck	9.
Infocom	
Battle Tech	19.
Journey	19.
ShoGun or Zork Zero	12.
Interplay	
Battle Chess	27.

Battle Chess (GS)	
or DragonWars (AP & GS)	30.
Neuromancer (GS)	14.
Interstel	
Empire	26.
Leisure Genius	
Clue, Risk, or Scrabble	26.
Lucasfilm Games	
Maniac Mansion	15.
Pipe Dream	19.
Melbourne	
Quarterback (AP or GS)	14.
War in Middle Earth (GS)	27.
MicroIllusions Firepower (GS)	21.
Micro League Sports	
Micro League Baseball w/	
General Manager & Stats	24.
Micro Revelations	
Xenocide (GS)	SPECIAL 28.
Microprose	
F-15 Strike Eagle	
or Silent Service (AP or GS)	12.
Pirates (GS)	28.
Miles Computing, Inc.	
Questmaster	22.
Questmaster (GS)	26.
Mindscape	
Balance of Power 1990 (GS)	32.
Gauntlet (GS)	12.
Hostage (GS)	
or Captain Blood (GS)	26.
Superstar Ice Hockey	25.
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, Ultima VI	37.
Ultima Trilogy (I, II & III)	37.
Windwalker (GS)	25.
PBI Software	
Strategic Conquest (GS)	30.
The Tower of Myraglen (GS)	34.
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.

100% Applied Engineering Memory Board with Factory Installed Chips

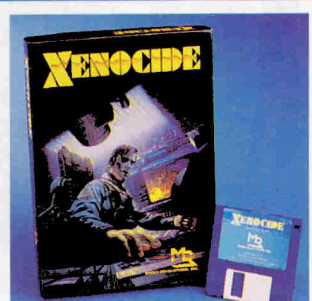
Some mail-order companies buy AE memory boards and install their own RAM chips. *Programs Plus* sells only genuine AE memory boards with factory installed RAM. Sure we might be able to sell our boards less expensive than our already low price but we don't want our customers to go through any hassles 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!

Software Toolworks

Chessmaster 2100	26.
Chessmaster 2100 (GS)	33.
Cribbage/Gin King (GS)	27.
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	
or Secret of the Silver Blade	27.

SSG

Halls of Montezuma (GS)	29.
Sublogic	
Flight Simulator II	32.



IIGS ALERT! ALIENS MUST BE DESTROYED!
Xenocide™ by Micro Revelations comes alive with superb IIGS graphics and sound that rivals top arcade games. Your challenge: defeat the spread of aliens on 3 moons orbiting Talos IV. Be brave, before it's too late. Takes special advantage of optional stereo cards. Requires IIGS with 512K RAM, 3.5" drive, mouse. Suggested Retail\$49.95 **Programs Plus Price\$28**

Three Sixty

Warlock (GS) or Dark Castle (GS)	29.
Victory Software	
2088: The Cryllan Mission:	
The Second Scenario	33.
2088: The Cryllan Mission (GS)	33.
Secrets of Bharas	36.
Virginia Reel Software	
Anchorman	21.
Walt Disney	
Mickey's Crossword Puzzle Maker	25.

GRAPHICS PACKAGES

Abracadata

Architecture Library 1, 2, 3	
or 4 (AP or GS)	19.
Design Your Own Home:	
Architecture (3.5)	47.
Interiors (3.5)	47.
Landscape (3.5)	47.
Architecture (5.25)	37.
Interiors (5.25)	37.
Landscape (5.25)	37.
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	37.
New Print Shop (AP or C+)	30.

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

for all your Apple & GS needs!



GRAPHIC DISK LABELER
GDL Graphic Disk Labeler by Triad Venture lets you create colorful 3.5 inch disk labels (or stickers) using system fonts, icons, pictures and Printshop GS™ Graphics. Paint tools for editing your artwork. 320 and 640 mode versions. Includes 50 blank labels and label grabber. NDA, 1 MEG required. For Imagewriter II. Suggested Retail\$39.95
Programs Plus Price.....\$25.

- New Printshop Graphics Party (AP) ..22.
- New Printshop Graphics Party (C+) ..19.
- New Printshop Graphics Sampler Ed. (AP).....31.
- New Printshop Graphics Sampler Ed. (C+).....19.
- New Printshop School & Business Ed. (AP or GS)31.
- Print Shop Companion (GS Specific)31.
- Print Shop Graphics Library Party Edition (GS).....22.
- Print Shop Graphics Library Sampler Edition (GS).....22.
- PrintShop(GS).....36.
- 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.
- El Kassir Software**
- COLOR+ (GS)42.
- Supergraphix II w/music (GS).....52.
- Electronic Arts**
- DeluxeWrite w/Deluxe Paint II (GS).....26.
- Orange Cherry**
- Super GS Award Maker49.
- 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 #119.
- Newsroom19.
- Newsroom Clip Art Collection Vol. 1, 2 or 314.
- Triad Venture**
- GDL Graphic Disk Labeler (GS v2.0).....SPECIAL 25.
- The HYPERSTUFF Collection:
- Cliptunes.....SPECIAL 25.
- Clipart PlusSPECIAL 25.
- VersaCAD Corp.**
- CADapple (3.5).....199.

MODEMS & MONITORS

- Anchor Automation**
- 2400E129.
- Apple Computer**
- Apple Color Composite Monitor325.
- Apple GS Color Monitor454.
- Applied Engineering**
- DataLink 120095.
- DataLink Express (ext. 2400)158.
- Dataline Express w/MNP 5.....197.
- DataLink Modem 2400B (Int AP & GS)159.
- Hayes MicroComputing**
- Hayes 2400 SmartModem335.
- Practical Peripherals**
- Practical Modem 1200 SA Mini.....80.
- Practical Modem 2400 MNP219.
- Practical Modem 2400 SA185.
- Prometheus**
- Pro Modem 2400A Internal w/Software119.
- Supra Corporation**
- SupraModem 2400 Plus.....149.
- SupraModem 2400 (Hayes Compatible)99.
- U.S. Robotics**
- Courier HST 9600.....599.

PRINTER INTERFACES

- Apple Computer**
- Apple Super Serial Card105.
- Applied Engineering**
- Parallel Pro74.
- Serial Pro99.
- Orange Micro**
- Grappler 9 pin79.
- Grappler Plus (AP & GS)69.
- SMT**
- Envoy53.
- No Slot Clock.....29.
- Print Tech II29.
- Thirdware**
- Finger Print GSI verIII (Includes Desktop Accessories-GS)83.

What's Right For You?



Call Chris!

Need help choosing from our big selection of 2,500 products?

As one of the oldest and largest software/hardware

suppliers, we've learned from tens of thousands of loyal customers what works best. We want you to be a satisfied customer, too. Call our tech service for advice so you get the right product for your special needs.

- Finger Print Plus (Parallel, Serial, or ImageWriter II)83.
- Upgrade Kit (FingerPrint I & II)29.
- Vitesse, Inc.**
- Harmonie (GS).....29.
- Xetec Inc.**
- Superwriter 924 (GS, C+, C).....44.

PRINTERS

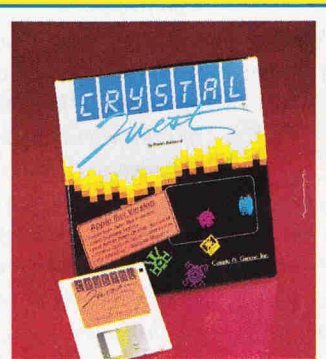
- Apple Computer**
- ImageWriter II455.
- Brother**
- M1109-AP Printer179.
- Hewlett-Packard**
- Deskwriter (requires Harmonie)747.

SCANNERS AND SOFTWARE

- Digital Vision**
- Computer Eyes (GS).....195.
- Thunderware**
- Lightningscan (GS)194.
- Thunderscan (AP & GS)148.
- Vitesse, Inc.**
- Quickie (AP & GS)SPECIAL 193.
- Quickie Update80.
- WestCode**
- Inwords77.

UTILITIES AND LANGUAGES

- Absoft**
- AC/BASIC (GS)79.
- ByteWorks**
- ORCA C w/Learn to Program119.
- ORCA/DeskTop (GS)34.
- ORCA/C (GS)79.
- ORCA/Design Master (GS).....49.
- ORCA/Disassembler (GS)32.
- ORCA/Assembler (GS)39.
- ORCA/Pascal (GS)80.
- ORCA/Pascal w/Learn to Program.....SPECIAL 119.
- Micol Systems**
- Micol Advanced Basic IIE.....59.
- Micol Advanced Basic (GS) v3.089.
- Morgan Davis Group**
- MD-Basic25.
- 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) v3.035.
- Sonix (GS)34.
- Zedcor**
- ZBasic v4.21.....39.



ADRENALINE-BOILING ARCADE ACTION

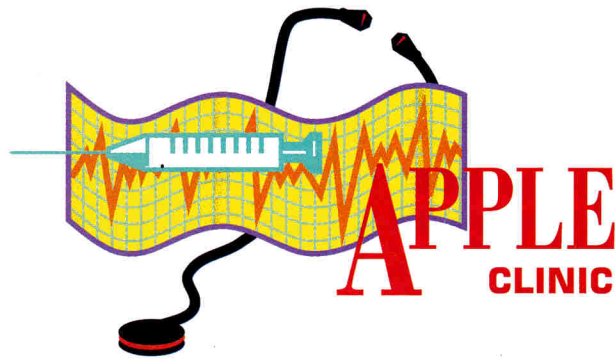
Crystal Quest™ IIgs is the fast-moving, adrenaline-boiling color action arcade game, voted Best Action Game for the Macintosh, 1988 by Macworld. Crystal Quest has 300K of incredible digitized sound. Your job is to collect all the crystals and avoid all the mines, bullets and 12 varieties of super-nasties who are out to get you in 40 different waves! Supports 1 or 2 players. Extremely addictive!
 Suggested Retail\$49.95
Programs Plus Price.....\$29.

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



WRAP THAT RASCAL

Prevention is the key to dealing
with potentially damaging
software viruses.

By **CECIL FRETWELL**

GOT A VIRUS?

WHAT IS A COMPUTER VIRUS, and what should I do if my system gets one?

Corwyn Y. Miyagishima
Highland Park, NJ

Contracting a computer virus isn't fun. In fact, it can be downright messy. Computer viruses are mini-programs with "life cycles" similar to those of the viruses that invade your body. When you launch an "infected" program on your computer, you execute the virus code, too (but you usually won't know it). This code then makes a copy of itself and inserts itself into either GS/OS or ProDos, and/or the program launcher you're using.

While some viruses are designed to cause serious damage such as erasing your hard drive, others are simply meant to be funny. Because a virus alters any program it infects, however, even the simplest message can cause catastrophic damage. A virus that places a "Merry Christmas" message into your edit menu on December 25th may be amusing, for example, but when your Finder crashes and takes your hard drive with it, you won't be smiling.

The only way to be safe from viruses is to avoid them. If you don't have a hard drive, write-protect all your program disks, and write

exclusively to special data-only disks. If you have a hard drive, use programs only from disks you've bought commercially, and back up your data frequently.

The first thing I do with any new software I receive is write-protect it even before I insert it into a drive. Then I make copies for future use. Be extremely careful with shareware or freeware programs you download from electronic bulletin boards or receive from friends. If possible, check them with antiviral software. If that's not available, keep the new programs in "quarantine." When you use them, boot up from the disk they're on, then when you're finished, turn your computer off and let it sit for several minutes before you boot another disk. If you have a hard drive, don't access it while you're using the quarantined disk.

To recover from a virus, you must first locate the disks that contained the virus originally and destroy them. If you miss just one disk, sometime in the future the virus will rear its ugly head again. To be safe if you have a hard-disk drive, reformat and reconstruct it completely using the disks you purchased originally. If you don't have a hard disk, re-create your 3.5- or 5.25-inch boot disk using the original disks from Apple Computer.

Because data files are used by programs and not executed by themselves, they can't be infected by viruses . . . yet. I'd like to close this response, however, with the three important "B's" of computing: backups, backups, backups!

EJECTING DISKS

UNDER THE PRODOS 8 BASIC interpreter, how can I make a program eject a floppy disk from a 3.5-inch drive?

John Chang
Terre Haute, IN

See the accompanying **Program listing** for a fragment of code we took from the newsletter Open-Apple (now A2-Central), volume 2, number 5, page 2.38. You can locate this code

Program listing. Make your 3.5-inch drive eject a disk.

```
100 L = 768
110 S = 5:D = 1: REM ASSUME SLOT 5, DRIVE 1
120 FOR I = L TO L + 17
130 READ J: POKE I,J
140 NEXT I
150 POKE L + 2,S + 192
160 POKE L + 11,D
170 CALL L
180 PRINT PEEK (L + 17)
190 DATA 32,13,197,4,10,3,141,17,3
```

in any free space in memory. Line 100 gives the starting location, and line 110 specifies the slot and drive. Line 180 prints an error code: 0 (zero) shows no error, 39 indicates ejection failure, and 40 indicates that no device is available.

APPLEWORKS CRASH

I UNDERSTAND THAT IF APPLEWORKS version 1.1, 1.2, or 1.3 crashes, you can restart the program. Can you describe the procedure?

Jonathan Salz
Birmingham, MI

The newsletter Open-Apple (now A2-Central), volume 3, number 4, page 3.32, is

one of many sources detailing the procedure you need. If AppleWorks or your system "hangs up" or crashes to the monitor prompt (*) for any reason, try the following steps:

1. If necessary, use Control-Reset to obtain the monitor prompt (*) at the beginning of a line on screen.

2. Now after the prompt, enter the following two lines:

```
*C073:0 <RETURN>
```

```
*3 <CTRL-P> <RETURN>
```

3. You should now be in 80-column mode with the monitor prompt in the upper left-hand

corner of the screen. If you don't see it, repeat steps 1 and 2. If that doesn't work, you have no choice — you must reboot.

4. Next, if the prompt does appear, enter the following line:

```
*2F0:2C 83 C0 2C 83 C0 4C <RETURN>
```

5. Now enter the appropriate line:

AppleWorks versions 1.1, 1.2, or 1.3:

```
*:33 10 <RETURN>
```

AppleWorks version 2.0:

```
*:27 11 <RETURN>
```

6. Now enter this line: *2F0G

You should be back at the main menu. If not,

try the procedure again. If it still doesn't work, you must reboot. The main menu may contain some garbage. If it does, hitting the escape key may clear up the problem.

If the display shows screens continuously and never stops, use Control-Reset and repeat the procedure. If that still doesn't clear up the problem, you must reboot.

If you're successful, save any desktop files immediately and reboot your system. The problem that caused your dilemma in the first place may have left some hidden bombs around, so start with a fresh system via the reboot. ➤

APPLEWORKS CLINIC

By Claris Corporation and the National AppleWorks Users Group

PRINTING ON ENVELOPES

I use a typewriter to type addresses on envelopes. Are there any easy ways to prepare these envelopes with AppleWorks?

There are probably as many "favorite" ways to print envelopes as there are versions of AppleWorks. Here are some tips for smooth operation:

1. Use windows and you'll often avoid typing addresses on envelopes. For best results, start typing the inside address about 1.5 inches from the top of the page, then fold the letter to expose the address. This is the fastest and easiest approach — if you don't mind using window envelopes.

2. Printing standard envelopes with an ImageWriter II or other late-model tractor-feed printers is easy. The trick is to learn to insert the envelope without disengaging the paper from the tractor-feed mechanism. These steps work with ImageWriter II printers:

- Print your letter and remove it from the printer.
- Flip the tractor-feed switch (the large switch near the platen knob) to the back (pressure-feed) position.
- Turn the platen knob backward until you back the paper out of the printer. It'll remain caught by the tractor mechanism and won't fall on the floor. Pull out about one-half inch of additional paper from the back of the printer, so that the paper doesn't feed into the platen with the envelope.

• Insert the envelope behind the platen through the opening at the top of the printer, much as you'd insert an envelope into a typewriter. Now print.

• Flip the tractor-feed switch back to the tractor-feed position and turn the platen knob until the paper returns to the correct printing position.

3. AppleWorks users who type a lot of envelopes in an office environment should consider buying an inexpensive second printer just for envelopes. AppleWorks can support up to three printers, so you can add an "envelope printer" easily to the AppleWorks printer menu.

If you don't use a modem, connect the second printer to the Apple IIc, IIc Plus, or IIgs modem port. It's identical to the printer port on the IIc and IIc Plus; on a GS, use the Control Panel to configure it as a printer port. If you use an Apple IIe, you can plug a second printer-interface card into slot 2 and connect the printer to that card. You can also use an in-line switch to send your output to the two different printers. Now you can use continuous- or single-sheet-feed envelopes in the second printer without disturbing the continuous-feed paper in your primary printer. Open the flap of each envelope before you insert it into the printer; that way it'll be thin and easy to print.

PRINTER INSTALLATION

A parent donated a printer to our school recently — without the manual. Do you have any suggestions to help me get started configuring the printer to work with AppleWorks?

Here are three steps to follow if you get a printer without a manual and can't get help from the manufacturer or your local dealer.

1. Try adding the printer to the AppleWorks printer menu as an Epson FX series printer and test its operation. Many printers use the same control codes as Epson FX printers; AppleWorks already "knows" the codes for these Epson-compatible units.

2. If this procedure doesn't work, check to see whether the model is listed in the printer-codes database included with AppleWorks 3.0 or in NAUG's (National AppleWorks Users' Group) AppleWorks wall chart. (The printer-codes database is on the sample-files disk included with 5.25-inch versions of AppleWorks 3.0 and in the /APPLEWORKS/SAMPLE.FILES/ADVANCED subdirectory on the 3.5-inch AppleWorks Startup disk.) Then add the model to the AppleWorks printer menu as a "custom printer."

3. If all else fails, offer a student extra credit for getting the printer to work with AppleWorks. You'll be surprised how many times this approach solves your AppleWorks problems.

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*, 80 ELM STREET, PETERBOROUGH, NH 03458. MENTION OF THIRD-PARTY PRODUCTS IN THIS COLUMN DOES NOT IMPLY ENDORSEMENT BY CLARIS CORPORATION.

By the way, if you use AppleWorks 3.0, Control-Reset should return you to the main menu after a crash.

**FILE TRANSFER:
IBM TO APPLE**

MY IBM XT IS EQUIPPED WITH a high-speed modem, which I use frequently to download both Apple and IBM programs from local bulletin-board systems (BBSes).

Now I'd like to transfer the Apple files

from the IBM XT to my Apple IIGs. Is there an inexpensive, fairly simple way to transfer the files (with no file conversion necessary) between these two different computer models?

**Fong Vang
Banning, CA**

Quality Computer's Cross-Works (\$69.95) will transfer Apple II and IBM files either way, and will also translate other formats, including AppleWorks, WordPerfect, and Lotus 1-2-3.

Contact the company at P.O. Box 665, St. Clair Shores, MI 48080, (800) 443-6697.

CAN'T COPY DISKS

AFTER ADDING A HARD DRIVE to my Apple IIGs recently, I discovered that I get I/O errors when loading many of my games and educational programs to the hard drive and launching them from the hard drive. I experience no problems if I switch the Control Panel to boot the disks from the external disk drive.

**Jeffrey A. Wheeler
New Vernon, NJ**

It sounds as if you're experiencing the woes of copy protection. Educational-software houses and some game vendors produce disks that are virtually impossible to copy to other disks, including a hard disk. These companies provide a modified operating system on disk, meaning that these pieces of software have their own algorithm to read from and write to other disks.

Although some utilities can bypass copy protection schemes, using them may result in legal problems. I encourage you not to pirate software.

USING CLASSROOM MONITORS

I'M A TEACHER WHO'D LIKE TO hook up an Apple IIGs to one or more large monitors (such as those available from Sony or Zenith) and a IIGs RGB monitor. Using this arrangement, I'd be able to demonstrate computer programs to my students. A so-called Y connector won't do the job, because the IIGs can't provide a strong enough signal.

**Reese Crispen
Hudson, MA**

Communications Specialties Inc. (516-273-0404) will provide you with a one-in-four-out distribution amplifier (part #IN3055) for \$425. Make sure you mention that you'll be using this device on a GS, because you'll need adapters (free of charge), plus other adapters to connect the monitor cables to the amplifier. (CSI will make them for you for about \$75 each.) Call and talk to the tech-support staff. □

APPLE CLINIC IS A FORUM FOR ANSWERING YOUR QUESTIONS ABOUT APPLE HARDWARE AND SOFTWARE. WRITE TO APPLE CLINIC, INCIDER, 80 ELM STREET, PETERBOROUGH, NH 03458. BECAUSE OF THE VOLUME OF LETTERS, MOST WON'T APPEAR IN PRINT, BUT WE'LL TRY TO RESPOND IF YOU ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE.

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
5.25" Duodisk (IIe)	\$185.00
3.5" AMR 800K	\$189.00
SCSI 30 Meg w/card	\$350.00
SCSI 30 Meg w/card	\$400.00
SCSI Care and Power Supply	\$85.00

Keyboards

Apple II+, III	\$45.00
Apple IIe, IIc w/exch. only	\$49.00
Numeric Keypad II, IIe, MAC	\$35.00

RAM Chips

4164 -15/-20	ea. \$ 75/\$50
41256 -10/-12	ea. \$2.75/\$2.50
41256 -15	ea. \$2.00
1024X8 SIMM	\$49.00
256X8 SIMM	\$19.00
1024X8 SIMM	\$54.00
EPROMs IC's & Other RAM Chips Avail.	
Please Call for more information.	

RAM Expansion

Super Expander boards up to 1024K	
Super Expander IIe (0K/1MB) \$59.00/109.00	
Super Expander II+ (0/Zero K)	\$69.00
Super Expander IIc (0/Zero K)	\$79.00
Super Expander GS w/1024K	\$139.00
Extended 80 (Makes 128K IIe)	\$35.00
16K(64K II+)	\$29.00

Black Media

5.25" DSDD Disks	100 for \$24.00
3.5" DSDD Disks	50 for \$25.00
DC-2000 40 meg Tape (Backup)	\$12.00

Peripheral cards

80 Col. card (II+)	\$45.00
5.25" Cont. Card (20 Pin)	\$45.00
5.25" Cont. Card (DB-19)	\$45.00
3.5" Apple UniDisk Cont. Card	\$65.00
Eurphi Disk Controller	\$39.00
Graphic Parallel Printer Card	\$35.00
Microbuffer IX w/64K	\$59.00
Super Serial Card	\$52.00
Z80 CP/M	\$29.00
Apple Parallel Interface	\$35.00
Mountain CPS (Clock, Par, Ser)	\$45.00
RGB Card/Slot 7	\$39.00
RGB 80Col/64K/e	\$79.00
Hayes Micromodem 300	\$29.00

Apple Mouse IIe	\$129.00
System Saver IIe	\$35.00

Monitors

Apple Monitor III (Refurb)	\$65.00
Color Comp. (Not for 80 Col. TXT)	\$95.00
Apple IIc9 Monochrome	\$79.00

Cables

IIc+ Imagewriter I/II	\$12.00
II+, IIe → Imagewriter I/II	\$12.00
IIGs, IIc+ → Imagewriter I/II	\$12.00
Apple MiniDin8 (Both Ends)	\$12.00
Laser 128 Parallel Cable	\$15.00
20 to 19 Pin Disk II Cable	\$14.00
Many other Cables for Apple Products Available, Please Call.	

Accessories

No Slot Clock	\$29.00
Phone Net/Local Talk Connector	\$29.00
Serial to Parallel Converter	\$49.00
Imagewriter I Accs Kit, II/e	\$29.00
Apple Parallel Cable Kit	\$15.00
Apple Modem Accs Kit, IIc	\$19.00
Apple Modem Accs Kit, II+, IIe	\$19.00
300 bd. Hayes Modern IIe	\$29.00

Apple IIGs Specific Chips

ROM 01	344-0077B	\$29.00
VGC	344S0046	\$29.00

Printers & Accessories

Citizen GSX 140 (Parallel)	\$299.00
Citizen GSX 200 (Parallel)	\$195.00
Color Kit for Citizen Printer	\$55.00
Panasonic 1124	\$299.00
Imagewriter LQ Sheetfeeder, Second Bin, & Envelope Attachment	\$150.00
Imagewriter II 4 Color Ribbon	\$5.95
Imagewriter LQ 4 Color Ribbon	\$15.00
Imagewriter LQ Black Ribbon	\$9.00
Imagewriter I Printhead w/exch	\$89.00

Apple IIe Specific Chips

Enhancement Kit	\$49.00	
6502 (CPU)	370-6502	\$3.00
65002 (CPU/Enhanced)	\$9.00	
MMU	344-0010	\$29.00
IOU	344-0020	\$29.00
CD ROM	342-0135	\$19.00
EF ROM	342-0134	\$19.00
AY-3600-PRO (Keyboard Encoder)	\$29.00	
Video ROM	342-0133	\$19.00
Video ROM (Enh) 342-0265	\$19.00	

HAL	341-0170	\$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
HyperCard v1.2 w/disks	\$29.00
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 Power Supply*	\$39.00
Apple III Power Supply*	\$39.00
SCSI Case & P/S for 3.5" HD	\$85.00

Apple II+ Specific Chips

ROMs DO-FS	ea. \$14.95
6502 (CPU)	\$3.00
ROM SPCL 341-0036 (Char ROM)	\$9.00
Keyboard Encoder KB-431	\$19.00

Apple IIc Specific Chips

65C02 (CPU)	\$9.00	
MMU	344-0011	\$29.00
IOU	344-0021	\$29.00
Character Gen	342-0265	\$19.00
IWM (Smart Port) 344-0041	\$39.00	
Serial Chip 6551	\$4.00	
Keyboard Map	342-0132	\$19.00
AY-3600-PRO (Keyboard Encoder)	\$29.00	
TMG	341-0170	\$9.00
GLU	341-0243	\$9.00

Mother Boards

Apple II+	\$100.00
Apple IIe	\$200.00
Apple IIc	\$200.00

Cases

Apple II+	\$25.00
Apple IIe	\$65.00

MacIntosh

Mac 128MB	\$95.00
Mac 512MB	\$200.00
Mac CRT	\$95.00
Mac Power Supply	\$175.00

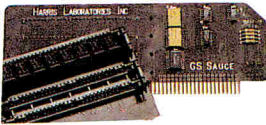
Minimum Shipping & Handling Charge \$5.00. Some Products may be used/refurbished but still carry a 90 day warranty, inquire at time of purchase for more info on specific products. Above Prices are subject to change without notice. Refunds subject to 20% restocking fee. We are not responsible for products purchased in error. Our liability is limited to purchase price only. Shipping, C.O.D., and insurance charges extra.

GOLEM COMPUTERS

If You Don't See It Call Us

P.O. BOX 6698
WESTLAKE VILLAGE, CA 91360

Special
of the Month!
MANAGING YOUR
MONEY
\$84.00
MECA



HARRIS LAB:

GS Sauce 1MB \$149.
GS Sauce 2MB \$199.

The GS Sauce is the best way to merge the technology of Macintosh Memory Modules with your Apple IIGS Computer. Lifetime Warranty
100% DMA Compatible
100% Compatible with all GS Software
Expandable from 256K - 4MB

MEMORY & INTERFACE

APPLIED ENGINEERING Transwarp GS	257.
Audio Animator	178.
Ram Works III 1MB (Ile)	172.
GS-Ram PLUS 2MB	229.
GS-Ram II 1MB	120.
Z Ram Ultra 2 - 1MB (Ile)	230.
Ram Express II 1MB (Ile +)	160.
PC Transporter 768K	257.
Sonic Blaster	95.
MAC Ram Classic	Call
CHINOOK Ram 4000GS 1MB	119.
Ram 4000GS 2MB	169.
DIGITAL VISION Computer Eyes (IIGS)	195.
HARRIS LABORATORIES SE Max (MAC)	Call
Velocitas (Ile, IIGS)	259.
MC Meg CI (1MB MAC Classic)	135.
MEMORY Dram	Call
THUNDERWARE Lightningscan (IIGS)	196.
VITESSE Quickie (IIGS, Ile)	194.

HARD/FLOPPY DISK DRIVES

APPLIED ENGINEERING	
Vulcan Hard Drive 20MB	499.
Vulcan Hard Drive 40MB	649.
5 1/4 Drive (Ile/IIGS)	111.
3 1/2 Daisychainable Drive (Ile/IIGS/Ile +)	199.
Trans Drive Dual	286.
LASER COMPUTER	
External Disk Drive (5 1/4")	90.
External Disk Drive (3 1/2")	178.
Universal Disk Controller	45.

MODEMS

APPLIED ENGINEERING Datalink 2400	160.
Datalink Express Ext. w/soft	183.
GOLEM Telink 2400 Ext. w/ Soft	149.

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	500.
Laser 128 Amber System	390.

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)	294.
--------------------------------------	------

ACCESSORIES

APPLIED ENGINEERING Conserver	73.
GS Power Supply	75.
CH PRODUCTS Flight Stick	47.
Mach III w/fire Button (Ile/IIGS)	ea. 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

BEAGLE BROS. Timeout Graph	52.
Performance Pack	73.



TAX PREPARER \$189.

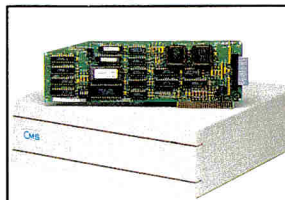
HOWARD SOFT

Tax professionals choice since 1979. Automates the preparation of tax returns for individuals by not only looking up numbers in the tables and performing the arithmetic, but automatically completes and computes Numerous IRS worksheets to handle the true letter of the law.

Style Pack	86.
Decision Pack	99.
Textools	31.
Superforms, Superfonts	ea. 42.
BYTE WORKS ORCA/C, Pascal (IIGS)	ea. 80.
ORCA/Desktop (IIGS), ORCA/M 1.1	ea. 39.
CENTRAL POINT Copy Two Plus	25.
GLEN BREDDON ProSel 16	54.
INSYNC Proform V2.2	78.
ROGER WAGNER Hyper Studio (IIGS)	82.
VITESSE Exorciser (IIGS)	27.
Renaissance (IIGS), Guardian (IIGS)	ea. 29.
Wings (IIGS)	27.
Harmonie, Deliverance	ea. 29.
WESTCODE Inwords	79.

HOME/PERSONAL

ABRACADATA Landscape (IIGS)	59.
-----------------------------	-----



CMS

MACSTACK w/ Apple SCSI

20MB	\$460.
40MB	\$575.
60MB	\$680.

Performance you can count on. CMS drives use only the highest quality components to deliver levels of dependability unequalled by the competition.

Architecture (IIGS), Interior (IIGS)	ea. 59.
BEAGLE BROS. Platinum Paint (IIGS)	60.
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 Quicken	38.
MECA Managing Your Money	89.
MECC Calendar Crafter	33.

BUSINESS

BEAGLE BROS. BeagleWrite GS	59.
AppleWorks 3.0 Companion	23.
Outliner (Appleworks 3.0)	47.
BRODERBUND Bank Street Writer Plus	41.
CLARIS Appleworks GS V1.1	195.
Appleworks V3.0	170.
SENSIBLE SOFTWARE Sensible Speller	68.
Sensible Grammar Checker	52.
SEVEN HILLS Graphics Writer III GS.	75.
TIMEWORKS Publish It 3	74.
Font Pack I, II, Symbols & Slogans,	
People, Places & Things	ea. 27.
WORDPERFECT Wordperfect (IIGS)	104.

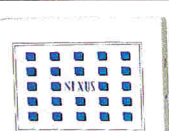
EDUCATION

BARRON'S Study Program For SAT V2.0	35.
BRITANNICA Jigsaw (IIGS)	22.
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, Katies 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.
ELECTRONIC ARTS	
Mavis Beacon Teaches Typing (IIGS)	32.
Mavis Beacon Teaches Typing (Ile/IIGS)	25.
HBJ Computer Prep for SAT	26.

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.
THE LEARNING COMPANY	
Reader Rabbit (IIGS)	36.
Children's Writing Publishing Center	ea. 36.
WEEKLY READER	
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.
ELECTRONIC ARTS Bard's Tale	Call
Immortal (IIGS), Chessmaster 2100	ea. 32.
Pipe Dream, Hunt for Red October	ea. 22.
MEDIAGENIC Battlechess (IIGS)	ea. 30.
MICRO REVELATIONS Xenocide (IIGS)	29.
MINDSCAPE Balance of Power (IIGS)	32.
Captain Blood (IIGS), Hostage (IIGS)	ea. 30.
SIERRA ON-LINE King's Quest I, II, III, IV	ea. 30.
SPECTRUM Tetris (Ile, IIGS)	ea. 24.
SSI Dungeons & Dragons	Call
VICTORY 2088 Cryllian Mission	34.
VIRGIN Spirit of Excalibur (IIGS)	32.



NEXUS

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

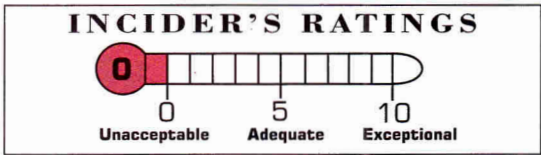
INTERNATIONAL ORDERS
AND SCHOOL PO'S
WELCOME

Mon.-Fri. 7am-6pm / Sat. 9am-4pm Pacific Time

FAX: (805) 498-7689

1111 Rancho Conejo Blvd., #407 • Newbury Park, CA 91320

REVIEWS

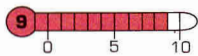


BANNERMANIA

BRODERBUND SOFTWARE

17 PAUL DRIVE, SAN RAFAEL, CA 94903-2101, (415) 492-3200

Banner-making program; 128K Apple II; 5.25- or 3.5-inch format; printer required; no copy protection; \$34.95; \$49.95 school edition, \$89.95 lab pack; 1M Macintosh Plus/SE/SE30/II/Ix/Icx; System 5.0 or later; 800K disk; hard drive or two disk drives recommended; no copy protection; \$59.95; \$69.95 school edition, \$139.95 lab pack



As the foundation of a burgeoning cottage industry, desktop printing and publishing programs, designed originally for home and school, have broken into the small-business market in a big way. Now Broderbund, the company

that created the phenomenon with the original Print Shop program, adds to its reputation as the leader in the field with its latest product, BannerMania, in Apple II and Macintosh versions.

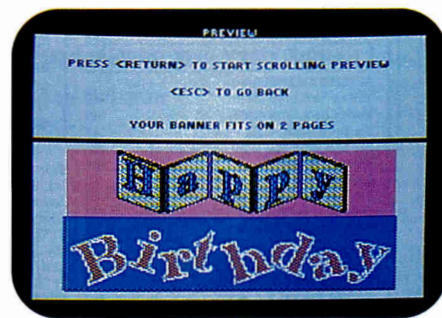
As the name indicates, the product lets

you create banners of all types, shapes, sizes, and colors. With the same intuitive icon-based operation popularized by The Print Shop and The Print Shop Companion, BannerMania for the Apple II guarantees both the familiarity and the simplicity of the design process.

The program's Macintosh version follows the same intuitive interface that is the calling card of all Mac software. Broderbund has made optimal use of every point-and-click option, every pull-down menu and pop-up window inherent in that environment.

EASY DOES IT

The step-by-step selection process inherent in the product makes BannerMania a ready-to-use program immediately upon loading. Decide on a layout, type in the text you want, select a font and any special effects, pick color combi-



BannerMania: All kinds of options.

nations or gray shading, designate a shape, and print. That's it.

Don't confuse simplicity of operation with simple programming, though. One look at the choices and options available in BannerMania makes it clear that Broderbund wasn't releasing a "rip-off" product to capitalize on The Print Shop's popularity.

Want to hear some basic numbers? Two-

line messages with up to 45 characters per line; 68 colors and 134 color combinations (plus Custom Color in the Mac version); four patterns and 13 shades of black, white, and gray in the Apple II version, 18 in the Mac; 19 print fonts, each with 28 additional special characters, such as pointing fingers, arrows, hearts, and more; 40 ready-to-use, all-occasion banners you can modify on the spot; 34 special effects such as shading and 3D; and more than two dozen banner shapes, such as arch, pennant, and ribbon. The Mac version can also employ compatible PostScript fonts in Adobe Type 1 format: Use the *Import Fonts* command found on the *File* menu.

When you combine those options with the ability to vary the size of the document, the program's applications are virtually unlimited. Unlike other publishing programs that let you select just small, medium, or large, BannerMania lets you compress the length of a banner to 10 percent of its original size or increase it to 400 percent without altering its height; reduce both the height and length of a banner by the same ratio; and create a series, for banners of unlimited length. Just by designing a single document ("Go Team" in school colors, for example) and changing its size, you can create a 30-foot paper banner, a pennant, a sign, a bookmark, a t-shirt iron-on, and a bumper sticker.

BannerMania also features some innovative and impressive utilities. Most intriguing is the software's *Transmogrify* option. The program presents a stream of modified banners on screen, eliminating the need to go through the menus one by one to experiment with new designs; when you see a layout you like, just interrupt the flow and lock in the new banner. Your text message will remain unchanged, but layout, justification, special effects, color, shape, and length will be altered automatically.

You can revert to your original design, keep both the new and the original, or page forward or backward to get a second look at any of the other variations. You can modify any design created with the *Transmogrify* feature in any of the ways available for an original banner.

You can preview your banners before printing at any stage of the creative

process. Dotted lines appear on screen to indicate page perforations. BannerMania's Mac version is sophisticated enough to recognize whether your computer is connected to a laser printer or a dot-matrix; just click on the appropriate buttons in the *Page Setup* dialog box to tell it whether you're printing in color or black-and-white and whether your printer is PostScript compatible.

QUIRKS

Any "flaws" in the program are indigenous to all software of this type. The first is the amount of time needed to print a design, which varies with the size of your creation — from less than a minute to several hours. You can leave your machine unattended, but sometimes that results in costly hardware problems. As the manual clearly states, you should give your printer at least a 5-minute break every half hour to avoid damaging the printhead.

Also, unless you're certain you have unimpeded paper paths both in and out of your printer, you'll need to make sure bunching won't occur on either end of the operation, or you can easily waste paper, ribbon, and time as a result of jams. Cost of operation is another factor to consider, and, again, that's directly proportional to the complexity and size of the design. You'll go through ribbons and paper fast.

Still, time and cost are factors that most BannerMania users will gladly accept — the program's benefits strongly outweigh the negatives. BannerMania boasts enough new features, variety, and potential applications to make it as either a stand-alone program or as a companion to Broderbund's other home-printing products. It mirrors not only their ease of use, but also the excellence of their output, and can be an enjoyable and useful tool for small businesses, schools, and individuals. It would be a challenge for any user to find a feature that has been left out of BannerMania.

Once again, Broderbund has designed a software package that lets you do your creative best. Get some fresh ribbons and a box of printer paper — you'll need them once you discover what you can do with BannerMania.

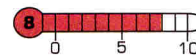
James Trunzo
Leechburg, PA

LOGOEXPRESS

LOGO COMPUTER SYSTEMS, INC.

3300 COTE VERTU ROAD, SUITE 201, MONTREAL, QUEBEC, CANADA, H4R 2B7, (800) 321-LOGO

Logo-based telecommunications software; 128K Apple II; Hayes-compatible modem (Apple IIe requires Super Serial Card or compatible); no copy protection; \$99



Any software that encourages kids' writing and the free exchange of ideas is worth at least a second look. LogoExpress, LCSi's new telecomm program specially tailored for classroom use, extends the boundaries of the typical learning environment beyond the confines of the single classroom, as youngsters communicate with students in other schools or other classrooms within the same school. Using LogoExpress, kids can auto-dial, log on, and send and receive electronic mail; special software commands let them post or access electronic bulletin-board messages. The application even includes features to simplify setup of a host system on a district-wide or local BBS.

Because the product is a programming extension of LCSi's LogoWriter word processor, most commands and procedures that work with that program also work with LogoExpress. Kids already familiar with LogoWriter will find new LogoExpress communication procedures easy to learn. The software lets them send and receive LogoWriter "pages," complete with procedures on the "flip side." (A page showing a LogoWriter work area with graphics and text is presented first; pressing a key brings up an associated screen displaying the Logo procedures used.) While LogoExpress' programming language doesn't include graphics primitives, kids can transmit LogoWriter pages containing shapes, drawings, and pictures if the two computers are using the same version of LogoWriter (IIe or IIgs).

LCSi's teaching objective is admirable — but how practical a goal can it be when students and teachers typically have no access to school telephone lines? How many classrooms or computer labs have been set up with telephone jacks? School budgets have insufficient funds for computers and software, let alone modems, monthly fees for on-line services, ☞

REVIEWS

and long-distance telephone charges. If budgetary restrictions are a problem, LogoExpress offers a partial solution: It lets you set up a telecommunications system within a single classroom or between classrooms in a single building, linking computers via serial cable instead of modem. If you need help writing procedures that will allow serially linked computers to "chat," contact LCSI for assistance.

LCSI can also help you write procedures to access an in-house bulletin board or electronic-mail system. In this configuration, one computer serves as the LogoExpress host system, managing the mailboxes (private information) and bulletin boards (public information). Kids use a second computer to dial the host system, log on, send messages, and receive mail.

TECHNICALITIES, PLEASE!

If you're lucky enough to go the modem route, you must purchase a Hayes-compatible unit. Internal modems must also be compatible with Super Serial-compatible external modems. (Novation AppleCat and Hayes Micromodem cards won't work.) While LCSI recommends an external modem for the GS, I used an Applied Engineering internal DataLink modem (1200 baud) successfully.

Both user and host-system modems should be set at the same baud rate, and each modem should be able to support that rate. Don't configure the baud rate for 2400 when only one modem supports it. If you intend to use the system with children who can't read quickly, or with kids who aren't confident computer users, consider operating at 300 baud for maximum readability when scrolling.

LogoExpress comes with two setup guides, three manuals, a *Quick Start* reference card, and software for both Apple II and MS-DOS systems. The documentation provides well-written instructions to get your system up and running, with several project ideas for using the program with a LogoExpress bulletin board.

Software setup involves configuring four special LogoExpress telecommunications pages, each with tools to facilitate a particular kind of telecommunication. *Chat* contains procedures for verifying that your hardware setup is in working order and for communication via

modem with other systems running LogoExpress; everything you type on screen is sent to the host, and everything the host sends appears on your screen page. You can also use it to "chat" with a host system — including a BBS or service not running LogoExpress.

The *Mailer* page includes tools for communicating with a LogoExpress district host. After logging on to the system, you can check your mail, read messages posted on the bulletin board, send a Logo page, and post a message or text file on the bulletin board. If you run into problems using the system, or if you have technical questions, you can take advantage of the tools provided on the *MailerTS* page, which connects you to LCSI's technical-support host system. Log on to the system, post your questions on the LCSI bulletin board, then log off. A few days later, log on again to check for messages.

The final LogoExpress master page, *MCIMail*, lets you send and receive over the MCI electronic-mail system. You must have an MCI Mail account to use this system. If you need communications tools for accessing Telenet, contact LCSI.

Teachers who want to work on telecommunications projects with their students can prepare *Scrapbook* disks for individual users, with LogoExpress files and pages (containing personalized information such as user name, password, host phone number, and so on), but not the program itself. Because LogoExpress handles all telecommunications protocols automatically, kids can spend their time writing messages or working on projects instead of bothering with protocol configuration.

Despite the program's ease of use, I'm still ambivalent about its value. If students are already familiar with LogoWriter and the teaching objective is to provide them with telecommunications experience, then LogoExpress is a good idea, as the software offers kids another way to work within the Logo programming environment. (LCSI even offers LogoExpress tools for directing a videodisc player.) On the other hand, if kids aren't familiar with the LogoWriter environment, they may find it easier to forgo LogoExpress entirely and use a conventional telecommunications package.

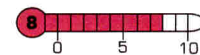
Carol S. Holzberg, Ph.D.
Shutesbury, MA

GOLD RUSH!

SIERRA ON-LINE, INC.

P.O. Box 485, Coarsegold, CA 93614,
(209) 683-4468

Simulation of the California Gold Rush;
128K Apple II version; 512K IIGS version;
no copy protection; \$39.95 (either)



When I was in school, all I needed to know about the Gold Rush could be written on the palm of my hand — 1849, California, fortunes won and lost. Those three facts seemed to be all the teacher had any interest in, and those were the things I carried out of high school as my knowledge of this era in American history. I passed the history test, but learned nothing. What a difference Sierra's Gold Rush program has made! History means real people with real stories behind them, and nothing brings it to life better than this simulation. As you play Gold Rush!, you become the fictional character Jerrod Wilson, a reporter for a small local newspaper. He gets restless and decides to follow one of three routes to the gold fields of the West Coast.

Begin by exploring your neighborhood, Brooklyn Heights, New York, to become familiar with your character and his life story — it's a little like coming out of amnesia. On the streets, you hear news of the gold strike and choose to follow the crowd to seek your fortune. Your house sells for a good price; you collect a few things



Gold Rush! brings history to life.

you'll need on your journey — bank statements, some family photos — and pack up to travel with the others who, like you, are off to find a new life in the American West.

If you've always been partial to the sea, you may choose for your first trip to sail from the East Coast south to Rio de

APPLE IIe-IIc-IIgs-II plus OWNERS!

SAVE \$\$\$ ON YOUR PERIPHERALS!

UNIV & SCHOOL P.O.'S WELCOME!

Janeiro. You'll leave there heading south and may pass a bad storm as you sail around Cape Horn. Then it's on up the west coast of South America to California. Take care of yourself — try to keep from falling into bad health or running out of strength. Food won't always be obviously available, for instance — before you get too weak to move, you'll have to look all around the ship and find the things you might need later. Surviving the Cape storm requires some common sense, too. (Don't stand on deck.)

Want to try overland next time? That journey will undoubtedly turn out to be just as difficult. You'll travel by stagecoach, canal boat, steamer, and finally wagon train, as you're plagued by cattle rustlers, hostile Indians, and thieves. And along the way are plenty of other dangers — there's a chance you'll die of thirst at the Green River crossing in Wyoming, for instance.

Your third route takes you by ship from New England to Panama, where you walk overland across the Isthmus (no canal in the mid-1800s). You'll fight your way to the Pacific, where you catch a ship for the next leg of your journey up the coast. Snakes, ants, poison plants, hostile natives, and quicksand are among the hazards that may keep you from completing your journey successfully.

All three routes finally end at Sutter's Fort in California. There, you outfit yourself for the travel and mining work ahead. It's also here that you find (through some ingenious methods) several clues you need before going on.

The challenges continue inside a quaint hotel, where you meet a strange man, find a secret room, and get an important clue that helps you locate a gold mine. During this journey, you're threatened by other miners who are looking out for their own stakes. Claim jumpers ain't welcome in these parts, stranger! After a rough time searching, you find the gold you've been looking for.

But you won't believe what you have to do to get into the mine! Sure, with intelligent play, you find gold, but also find something much more precious. Don't worry, I've left out all details — when you play, there'll be plenty of excitement. It's a complex simulation that will challenge the brightest gamer, but will also entertain motivated 12-year-olds.

Continued on p. 80

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

SOUND SYSTEM 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

IIe/IIc MEGABYTE RAM

Super Expander E for U.S. & European IIe. 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 IIc 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+/IIe. 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 IIe/IIc/IIc+

Numeric data entry made simple. Includes mathematic, decimal & RETURN keys.
PRO KEYPAD for U.S. & European IIe \$34
PRO KEYPAD for U.S. & European IIc \$39

APPLE II Plus OWNERS!

Run Appleworks on your II+ or Franklin Ace! 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 IIe/IIc

Fits underneath your CD or CFROM. Appleworks compatible. Free software \$39

FALL SPECIALS

PBC EXTENDED 80 COLUMN CARD for Apple IIe. Expands IIe 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 IIe. 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+/IIe/IIgs \$48
SSB to Imagerwriter I cable 10' \$11
SSB to Imagerwriter 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 Pascal 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+/IIe supply. Double the amp power! . \$49
TV Modulator Connects your Apple II+/IIe to any color or black/white TV \$15
Serial/Parallel Converter. Connects your IIc to any parallel printer \$49
AE Transwarp 3.6Mhz accelerator. II+/e ... \$99
ZIPCHIP 8Mhz by Zip Tech. IIe/IIc \$169

DISK DRIVES

Disk Drive H/H for Apple II+/IIe \$119
Disk Drive H/H for Apple IIc/IIc+IIgs \$119
Disk Drive H/H Dsy Chainable IIc+/IIgs ... \$139
Disk Controller BD 5.25" II+/IIe/IIgs \$34
AMR 3.5" Drive \$194
A.E. 3.5" Drive \$199
Disk Controller HD 3.5" II+/IIe \$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

Circle 105 on Reader Service Card.



THEY TALK!

\$49.95
(\$59.95 Apple IIgs)

ONCE UPON A TIME... THERE WAS

a forgetful knight who'd lost his lance... or perhaps a shy octopus who wanted to meet a seahorse... make that a mastodon with curly tusks... or a pig who didn't like his nose....

The story possibilities are endless in this fascinating 3-volume series of software featuring digitized voice for children ages 6-12. Inspired by colorful images related to nine separate themes, budding storytellers will enjoy the excitement of making up stories and then creating their very own illustrated books.

ONCE UPON A TIME...--a delightful way to develop reading, writing, spelling and vocabulary skills along with a sense of design, color and perspective.



CHOOSE ONE OR BUILD YOUR CHILD'S CREATIVE WRITING LIBRARY WITH ALL THREE!

Volume I - "Passport to Discovery" Featuring characters from DOWN MAIN STREET, FARM LIFE and ON SAFARI

Volume II - "Worlds of Enchantment" Featuring characters from UNDERWATER EXPLORER, DINOSAUR AGE and FOREST FRIENDS

Volume III - "Journey through Time" Featuring characters from SPACE ODYSSEY, MEDIEVAL TIMES and WILD WEST

Available for: *IBM & Compatibles *Apple *Apple IIgs *Macintosh *Tandy®



E D U C A T I O N A L S O F T W A R E™

For information about other Compu-Teach educational software programs, ask your dealer or call toll-free 1-800-44-TEACH (203-777-7738).

Circle 154 on Reader Service Card.

THE APPLE II CULTURE REBORN

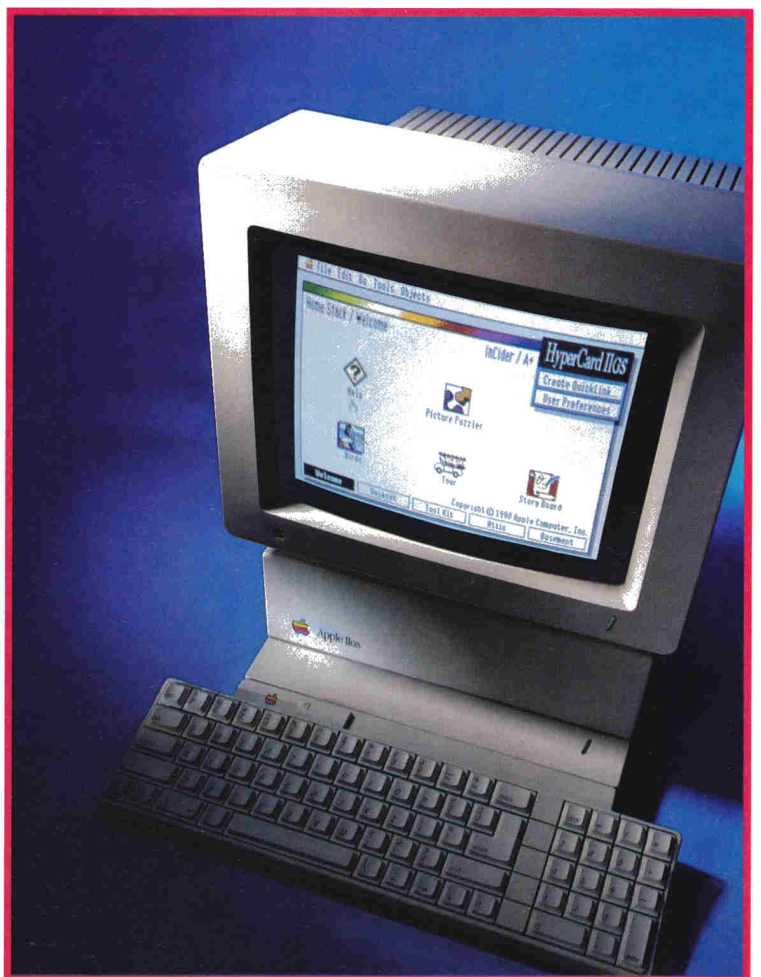
By Paul Statt, Senior Editor

HyperCard — Apple's popular multimedia programming product for the Mac — is reviving the do-it-yourself spirit of the Apple II.

The best thing about any Apple computer has always been its accessibility — that anybody with the urge could learn to program and create unique software. But as Apple's computers have become more powerful and more sophisticated, they've also gotten harder to program. The Apple IIGs and the Macintosh, for instance, don't have a native computer programming language built in, as BASIC was in the original Apple II. Like all Apple IIs, the GS comes with Applesoft — but the machine's native mode is the 16-bit 65816.

HyperCard — for the Mac and now for the Apple IIGs — brings the hacker's spirit back to Apple. HyperCard IIGs is a nearly perfect clone of the Mac version — with all the advantages and disadvantages of Apple's Macintosh HyperCard 1.25. It adds color — a feature not found even in HyperCard 2.0, the latest Macintosh version.

HyperCard IIGs, like HyperCard for the Macintosh, is a way to organize information. But it's much more than a database manager. At its most prosaic, HyperCard is a ↻



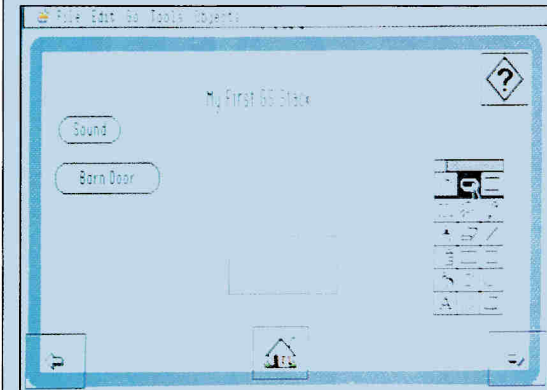
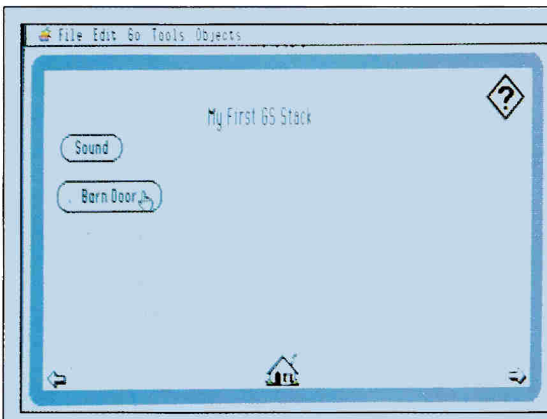


Figure 1. These two screens both represent the first card of "My First GS Stack." On both cards you see five buttons, clockwise from upper right: "information," "next card," "home," "previous card," "barn door," and "sound." The home, information, next, and previous cards are in the background of this stack: They appear on every card. The text field that reads "My First GS Stack" and the blue border are also in the background. The sound button activates a script that plays a simple tune; the barn-door button initiates a special visual effect. The photo on the bottom shows the same card in "button" mode, which you would use to create or edit a button. Here you also "see" an invisible button, plus the tool menu, which you can tear off from the menu bar.

programming language. At its most poetic, it's a way of life. As a language it's up-to-date, making use of what's known as *object-oriented programming*.

Programming with an object-oriented language is like building a car on an assembly line: All the parts are there; your job is simply to put them together. The HyperCard lifestyle is as old-fashioned as the original idea of the Apple computer — that anybody should be able to write a program, that businesspeople should write business software, that teachers should write educational software, that kids can even create their own.

As you read about HyperCard IIGs, you may think you have to learn to write HyperCard programs — called *scripts* — to enjoy it. That's not true. Thousands of programmers have already written HyperCard stacks on subjects ranging all the way from ecological awareness to pornography.

Teachers will appreciate HyperCard's five levels of control, from browsing in the stacks (other people's) to scripting your own, with typing, painting, and authoring in between. But just about everybody who uses HyperCard — a program designed to put you in control — will want to write his or her own stacks. Basically, with HyperCard you can do anything the GS can do. Scripting is where the fun begins.

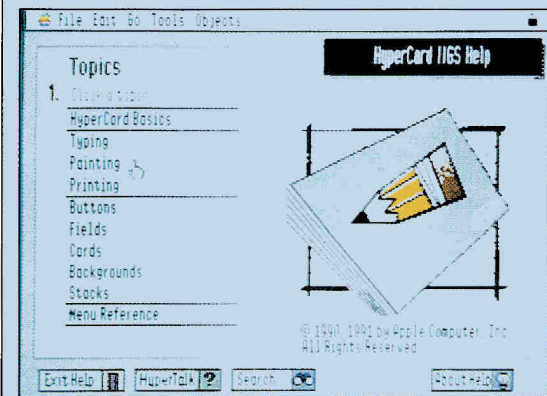


Figure 2. A background, in HyperCard, is emphatically not the scenery. The painting in the HyperCard IIGs Help stack in the top screen isn't in the background; the boxes labeled Exit Help, HyperTalk Search, and About Help are. The background, whether it's made up of buttons, fields, or a whole card, is simply what you want to appear on more than one card. When creating a stack, the background is an essential part of the design. The card on the bottom, part of the stack that controls the Visual Almanac Mac compact disc, is well put together. The lower part of each card — containing all the action items — is the same on each card, while the upper portion is a table of contents for a particular section of the CD. The HyperCard IIGs Help stack is similarly well designed.

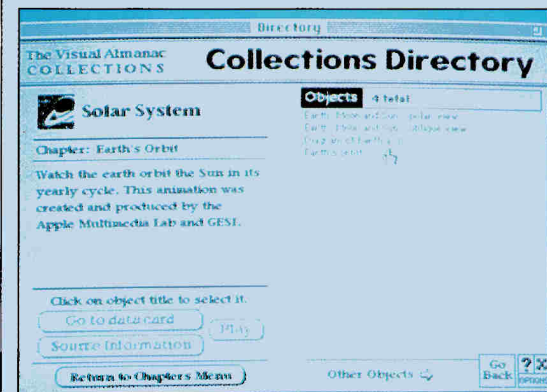
ON THE BUTTON

The key to understanding HyperCard is understanding the role of *cards*, *stacks*, *fields*, *buttons*, and *backgrounds* — the objects the HyperTalk programming language gives you to play with.

A card is what you see on a single screen (as in **Figure 1**); a stack is a collection of cards. You could think of it as a stack of index cards, but these cards are live, and you control them. In HyperCard IIGs, a card must fill the entire screen, although it's possible to hide the menu bar at the top. (HyperCard 2.0 on the Mac allows cards of different sizes.) The text and graphics you see on the card appear on two levels: background elements, which carry over from card to card, and the material unique to this card alone.

A background (**Figure 2**) can be as simple as a white screen, or as pretty a picture as you can scan, draw, or paint with HyperCard's built-in graphics tools.

Every card needs a background; in general, as we've noted, you put things you want to see on more than one card into the background. If you don't want to see anything repeated on other



cards, you'll include an empty background.

In addition to graphics, most backgrounds contain one or more buttons, the switches or controllers that make something happen (display another card, play music, perform calculations, get help, print, use a modem), and fields, areas containing text or numbers.

Common background buttons include the *home*, *next card*, and *previous card* icons (small pictorial representations, **Figure 3**). One misconception is that a HyperCard stack must have these buttons, but they aren't necessary. (See the accompanying sidebar, "Why Did You Do It That Way?" for a report on button programming.)

Table. Elementary functions used in HyperCard IIgs, as specified by the Standard Apple Numerics Environment on the Apple IIgs' 65816 microprocessor.

log2(x)	computes base 2 logarithm of x
ln(x)	computes natural (base e) logarithm of x
ln1(x)	computes natural logarithm of (x + 1)
exp2(x)	computes 2 ^x
exp(x)	computes e ^x
exp1(x)	computes e ^x - 1
cos(x)	computes cosine of x
sin(x)	computes sine of x
tan(x)	computes tangent of x
atan(x)	computes arctangent of x
random(x)	computes pseudorandom number with x as its seed
compound(r,n)	computes (1+r) ⁿ
annuity(r,n)	computes 1 - (1+r) ⁻ⁿ / r

Buttons, whether background or unique, can appear as almost any graphic (**Figure 4**). Some don't appear at all — they can be invisible. Some buttons look like the electrical switches on which they're modeled, some look like round rectangles, some look like pictures (*icons*). HyperCard includes a number of icons in a special file you can use in your stacks. An *Icon Editor* stack that lets you draw your own is included with HyperCard IIgs (**Figure 5**). Triad Ventures has also written a desk accessory, included in its **HyperCard IIgs Utilities** package, to help you create icons.

WORD AND IMAGE

Buttons are one way HyperCard gets graphics onto the computer screen, but hypermedia includes good old text, too — in objects called *fields* (**Figure 6**), as we noted above.

If you've had any experience with database

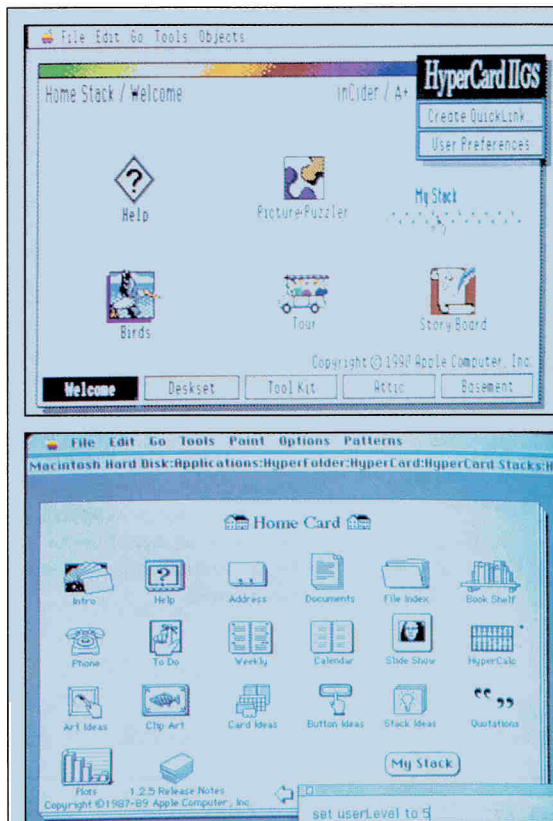


Figure 3.

These are the "home cards," or the first cards you see after starting HyperCard IIgs or HyperCard 1.25 on the Macintosh. A button to access "My Stack" has been added to both home cards. On the Apple IIgs, which uses color, a colorful icon has been created for it; on the monochrome Macintosh, a standard round-rectangle button suffices. The home card for HyperCard 2.0 for the Macintosh looks more like the HyperCard IIgs home card, except that it's limited to black-and-white. On the Macintosh screen (bottom) the user has accessed the "message" (Option-M) feature (also available in HyperCard IIgs) to "set userLevel to 5," which is the highest level possible and lets him or her write HyperTalk scripts.

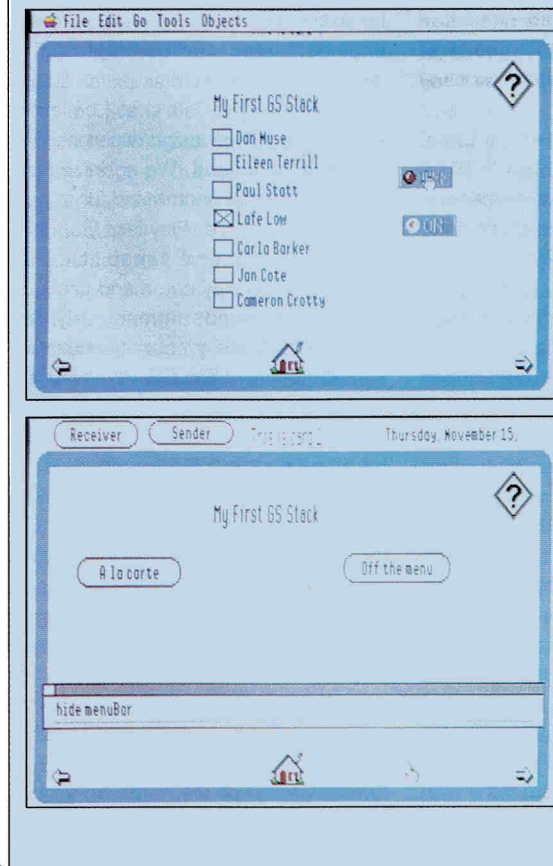


Figure 4.

On these two cards you can see a few of the many kinds of buttons available in HyperCard IIgs. The list of inCider/A+ editors at the top is a "family" of check-box buttons, which means that only one name can be selected at a time. The on and off buttons, which are represented by clip-art icons, are another family. Two buttons on the card on the bottom, "Off the menu" and "A la carte," cause the menu bar at the top of the screen to be hidden and to disappear. ("Hide menuBar" in the message box, Option-M, would have done the same thing.) The text fields with the card's number and the date are "computed" fields that appear on every card — you can see them only on a card whose menu bar is hidden. "Receiver" and "Sender" were practice buttons.

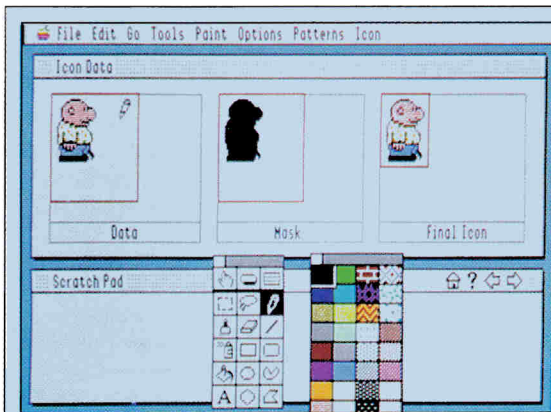


Figure 5.

The Icon Editor program included with HyperCard IIgs is the way to draw icons to use in your own stacks, or in other people's. Whenever you paint or draw in HyperCard, you can tear off the "Tools" and "Patterns" menus from the menu bar and they'll always be available wherever you like on the screen. The "Patterns" menu might have been called "Colors" but for the legacy of monochrome HyperCard for the Mac. The "Home," "Previous," and "Next Card" buttons are in interesting positions in this stack — they don't have to be at the bottom and in the corners.

management, you already know what a field is — a single part of a record. A HyperCard text field, like a database's, can contain either words or numbers; it can appear on a single card, or in every card as a background. You can save the contents of a HyperCard field as ASCII text, and import ASCII text into a stack. HyperCard can also perform calculations, including trigonometric operations, on numbers appearing in a field. (See the accompanying Table.)

Stacks are programs written in the HyperTalk language (Figure 7). Although HyperTalk doesn't include commands for every possible task — controlling a videodisc player, for example — you can enhance its native abilities with *extended commands*, or *XCMDs*, snatches of code written in C or Pascal that you call from a HyperTalk script. (XCMDs should remind Applesoft BASIC programmers of ampersand commands, which let you call a short machine-language program from BASIC. The effect is similar. See the section below, "Speaking the Language," for more on HyperTalk program-

"Why Did You Do It That Way?"

"In Italy for 30 years under the Borgias they had warfare, terror, murder, and bloodshed, but they produced Michelangelo, Leonardo da Vinci, and the Renaissance. In Switzerland they had brotherly love, they had 500 years of democracy and peace, and what did they produce? The cuckoo clock."

— Orson Welles as Harry Lime, "The Third Man," 1949

While nothing as dramatic as murder and bloodshed occurred during the creation of HyperCard IIgs (well, we did have an earthquake, but that was probably just a coincidence), users are often justifiably curious about the process of designing and creating a program as complex as HyperCard IIgs. Usually the question is posed while screaming for the head of the "idiot who wrote this thing," but nevertheless, what follows are some of the issues we dealt with while writing HyperCard IIgs.

At the most basic level, our major design requirement was to make an Apple IIgs version of HyperCard that was completely compatible with HyperCard 1.25 on the Macintosh computer. At the same time, we wanted to make improvements to the program that would benefit users and take full advantage of the capabilities of the Apple IIgs — hence a color HyperCard with improved printing and reporting capabili-

ties, as well as additional functionality in the HyperTalk scripting language.

A complete description of how we designed and wrote HyperCard IIgs would be extremely long, so as one of the two engineers who worked on HyperTalk, I'm going to confine my discussion to just two features in HyperTalk that I believe represent some of the design decisions we made. **The play command.** We agonized over the design of the play command for a long time. In Mac HyperCard, Play lets you utilize the single-voice sound capabilities of that machine. (The play command produces the requested sounds immediately. Multiple play requests are executed sequentially, not simultaneously.) The GS, however, can generate more complex sounds than the Mac.

Naturally, we wanted HyperCard IIgs to be able to take full advantage of the GS' sound capabilities, but we were under several constraints. First and foremost, the GS version had to be completely compatible with the Mac play command. In addition, there were language constraints. HyperTalk, as a language, is supposed to be English-like and simple to read and understand. Whatever syntax we arrived at would have to be comprehensible by the average user, not just acoustic engineers. And finally, whatever we came up with had to be useful to the majority of users — we

weren't going to add a super-powerful command only three people would need.

Initially we were extremely ambitious, and tried to create a syntax that would give you extensive control over the considerable sound capabilities of the GS. Regrettably, designing a syntax that was powerful, understandable, and backward compatible proved unrealizable, given the time constraints we were under. The language-design issues were difficult because of a rather odd situation — the GS' sound capabilities were too powerful! We simply couldn't figure out a way to unleash all that power and have the syntax understood by nonprogrammers.

We then tried a much simpler approach, a natural extension of the original syntax: one that would let you direct a particular sound to a specified channel, and optionally delay its execution. After setting up several sounds on separate channels, you could then tell the GS to start, and all sounds would play simultaneously. We had high hopes for this approach, but we were tripped up by the problem of synchronizing multiple sounds. Specifically, we had trouble resolving the language issue (and it's a lot more involved than you might think): how to accurately make sound B start 10 seconds, or even harder, 10 beats, into sound A.

Deadlines were looming, so rather than

ming.) You can attach an XCMD either to a single stack or to the HyperCard program itself. Triad Ventures, for instance, has already written some XCMDs to facilitate playing music (available in its **MIDI Music** package).

PLUS AND MINUS

One of HyperCard's secret strengths is that it's a pretty good database manager (**Figure 8**). Apple plays that down because it doesn't want software companies to complain that Apple's controlling the market.

Besides, "information engine" sounds more glamorous than "database manager." But teachers who need class records and individuals who don't need relational structured query language (SQL) just to keep Christmas card lists will find that they can write or buy HyperCard stacks that do the job.

Actually, HyperCard IIGs' number-crunching power would make some database managers envious. Financial functions such as annuity calculation and compounding for computing

interest, and mathematical functions such as natural logarithms and trigonometric functions (see the accompanying **Table**), are available — and you won't find those in AppleWorks Classic. HyperCard IIGs uses *Standard Apple Numerics Environment* (SANE) protocol, which gives you access to a wealth of functions, and can speed up calculations considerably if you add a math coprocessor to your GS.

The program's most obvious strength is that your GS will be able to run stacks created for the Mac, and your Mac will be able to run GS stacks. At press time, the pair of stacks that perform the conversion, HyperMover GS and HyperMover Mac, weren't available. But if you compare the look of a Mac stack and its Apple IIGs cousin, you can see that converting one to the other shouldn't be too difficult.

We tried to copy the text of a HyperCard program, called a *script*, from a GS to a Mac LC via an AppleTalk network, but it wasn't quite that simple. The text arrived intact, but the program didn't quite work on the Mac. You'd need to ⇨

**“Mac or GS,
HyperCard
brings the
hacker's
spirit back
to Apple.”**

do a mediocre job on a new syntax, and thus a disservice to the users and to the capabilities of the machine, we decided to stay with the original single-voice syntax from the Mac.

Not wanting to neglect all that power, however, we added two new XCMD callbacks: *BeginXSound* and *EndXSound*. XCMDs are user-created extensions to HyperTalk; callbacks are routines that let HyperCard and XCMDs communicate.

BeginXSound lets an XCMD take over the GS sound chip completely; *EndXSound* gives control back to HyperCard. With these new callbacks, you can extend the sound capabilities of HyperCard IIGs as far as you want, and without the constraints we were under.

You can write sound XCMDs that are as specialized, powerful, or weird as you like, and we strongly urge you to do so. That's what XCMDs are for.

Button families. The members of the HyperCard IIGs engineering team are also experienced Mac HyperCard users, and thus had a great deal of experience creating stacks with sets of radio buttons. Radio buttons, as defined by Apple's Human Interface Guidelines, are used to select one, and only one, choice out of many. If one radio button is highlighted, the other radio buttons must by definition

be dark. And each button has to have a script that handles this procedure.

Imagine a stack with five radio buttons. To act properly, button 1's script would look like the following:

```
on mouseUp
  set the hilite of button 1 to true
  set the hilite of button 2 to false
  set the hilite of button 3 to false
  set the hilite of button 4 to false
  set the hilite of button 5 to false
end mouseUp
```

Button 2's script would look something like this:

```
on mouseUp
  set the hilite of button 1 to false
  set the hilite of button 2 to true
  set the hilite of button 3 to false
  set the hilite of button 4 to false
  set the hilite of button 5 to false
end mouseUp
```

And so on. Not very difficult, certainly, but a terrible nuisance. As longtime HyperCard users, we realized that a lot of tedious scripting could be avoided if the machine could handle highlighting and dimming automatically.

As it happens, the Apple IIGs Toolbox made this relatively easy to implement, and thus button families were born. By utilizing button families, a stack developer doesn't have to write any code at all

to handle the proper highlighting of radio buttons.

An interesting thing happens when an experienced Mac HyperCard user sees HyperCard IIGs. While the obvious features, such as color, impress them, what really excites them are button families, and for the same reason they excite us — they save HyperTalk scripters lots of time.

As it happens, we decided to make families a property of all button types, not just radio buttons. That's of course their most obvious use, and although there's a danger that by not restricting their use, button families may be used for evil purposes (that is, in violation of Apple's Human Interface Guidelines), we felt it was best to give program writers the extra flexibility. In fact, if you look at their scripts, you'll notice that the rectangular buttons along the bottom of the home stack are implemented with button families.

A personal note. We brought a lot of personal experience as HyperCard users to the table when determining which features should be added or improved for the GS version. This program was written by HyperCard users. We're pretty proud of HyperCard IIGs, and hope you enjoy it and get a lot of use out of it.

— John Lawler,
Apple Computer

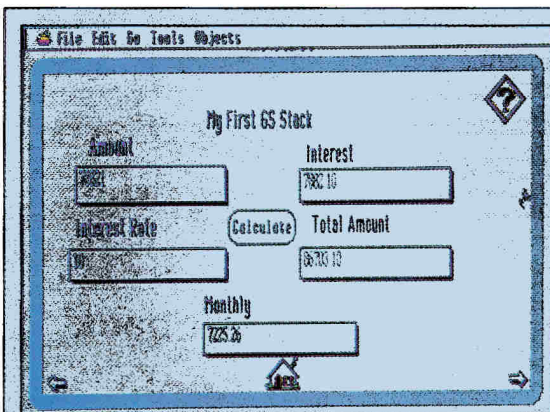
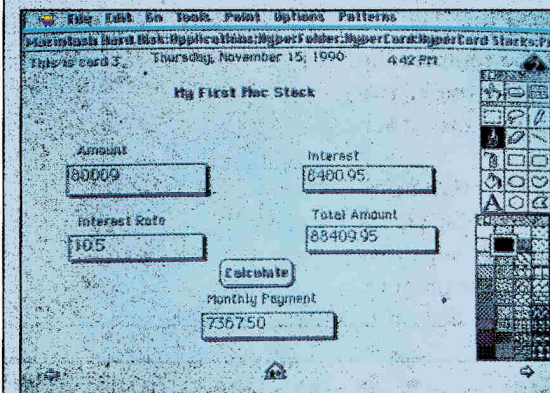


Figure 6. At the top, HyperCard IIGs; on the bottom, HyperCard 1.25 for the Mac. This card uses the mathematical muscle of HyperCard to compute, in a not very elegant way, the monthly payments on a year's loan. The HyperTalk script for the "Calculate" button is identical on both cards — it was copied from Apple's HyperTalk Beginner's Guide. This demonstrates the relative ease with which Mac and Apple IIGs stacks can be converted to each other's format. With the exception of the background buttons and the "Calculate" button, all objects on these cards are fields.



change some commands, but you could do the translation in a mechanical way — doing a find-and-replace on the offending structures. Tedious for you, but a snap for HyperMover.

The HyperMover programs will be available to developers and user groups. But other challenges remain: Stack conversions will pose a tricky legal question, for one thing. If you buy, say, a company's GradeBookStack for Macintosh HyperCard, do you need to buy another copy or a site license to run it on HyperCard IIGs? If you can legally use any Mac stack, a lot of stacks — commercial as well as public-domain — will be available for HyperCard IIGs.

A number of stacks are already available for Roger Wagner's **HyperStudio** — you don't even need to own HyperStudio to use some of them if they were created with the runtime version of the program. (See "Shareware Solutions," What's New, p. 20 in this issue.) That won't be possible with HyperCard.

It remains to be seen how many stacks will be written for HyperCard IIGs. Mac HyperCard ignited interest initially among commercial developers, but that burned out rather quickly. At press time, we knew the Boston Computer Society was writing a disk of GS shareware stacks, and Triad Ventures had written a commercial **MIDI Music** stack using Apple's new GS **MIDI Synth** tool.

HyperCard IIGs script

```
on mouseUp
  set numberFormat to 0.00
  get card field "Amount"
  multiply it by card field "Rate"
  divide it by 100
  put it into card field "Interest"
  add card field "Amount" to it
  put it into card field "Total"
  divide it by 12
  put it into card field "Monthly"
end mouseUp
```

HyperCard 1.25 script

```
on mouseUp
  set numberFormat to 0.00
  get card field "Amount"
  multiply it by card field "Rate"
  divide it by 100
  put it into card field "Interest"
  add card field "Amount" to it
  put it into card field "Total"
  divide it by 12
  put it into card field "monthly"
end mouseUp
```

Figure 7. HyperTalk scripts for the HyperCard IIGs and HyperCard 1.25 versions of a button that calculates interest (Figure 6) are identical, except that in the Mac script, the lines "on mouseUp" and "end mouseUp" appear automatically; in HyperCard IIGs you need to write them out. HyperTalk sounds enough like English that reading a script is painless; writing in HyperTalk requires more discipline.

AUDIO AND VIDEO

Given the musical talent of the GS, it's a shame HyperCard IIGs can't sing on its own, or at least play the piano. The version we tested had a choice of two musical instruments: harpsichord and a "boing" sound, which simply doesn't sound very musical. A Scriptor's Tools stack included with HyperCard IIGs, however, contains 11 other sound resources for instruments such as piano and guitar, which you can attach to a single script or to the program itself. (See the sidebar, "Why Did You Do It That Way?" for details.)

HyperCard doesn't have built-in sound digitization, however, as HyperStudio does. (See **Figure 9**. HyperStudio also includes a microphone, much like the Mac LC, making it easy to add sound to a stack.) Is Apple avoiding putting too much musical muscle into any of its products because it fears legal complications with Apple Corps, the Beatles' record company?

As we noted above, the current version of HyperCard IIGs also doesn't include commands for running a videodisc player, as HyperStudio does. HyperStudio has to offer lots of extras, because, lacking a HyperTalk-style program-

ming language as it does, adding features to the program is hard.

SPEAKING THE LANGUAGE

HyperCard is a general-purpose database manager, paint program, programming language, and even something of a word processor. The drawback? HyperCard — either version — is slow. HyperTalk simply adds another layer between you and the machine. HyperTalk is an interpreted language, which means that every line of code must be translated into something the GS understands before the machine starts to do anything. The advantage of an interpreted language is that the same code works on different machines. That's especially clear in the case of HyperCard: It's easy to write code that works on both the GS and the Mac.

HyperTalk is a plain-speaking, unaffected programming language, but a programming language nevertheless. You have to mind your Ps and Qs when you write a HyperCard stack — make sure you spell everything correctly and leave the right number of spaces.

HyperTalk is forgiving in some ways. It's unusual in that it lets you use two different words in certain cases to mean the same thing — *slow* and *slowly*, or *go to* and *go*, for instance. But it's about as much like spoken English as the commands players type into a text-adventure game. It requires some discipline to make yourself understood.

Pricing and Availability

At press time, final decisions about the price and distribution of HyperCard IIgs hadn't been made. Jane Lee, product manager for HyperCard IIgs, told us in November, though, that the price "should be around \$99." That's what HyperCard for the Macintosh costs. "It will initially be distributed by Apple," Lee said, in contrast to HyperCard Mac, which is now distributed, in part at least, by Claris, Apple's software subsidiary. "It will be available through dealers and APDA [the Apple Programmers and Developers Association, phone (408) 562-3910, (800) 282-3732], and we are pursuing licensing by [Apple-authorized] user groups."

Lee noted that because "you can't use [HyperCard IIgs] out of the box with your new [Apple IIgs] CPU — it needs 1.5 megs and a hard drive or network to run — HyperCard IIgs will not ship with the CPU," as Macintosh HyperCard does.

In addition, Lee said, "HyperMover will be available to developers and through APDA."

— P.S.

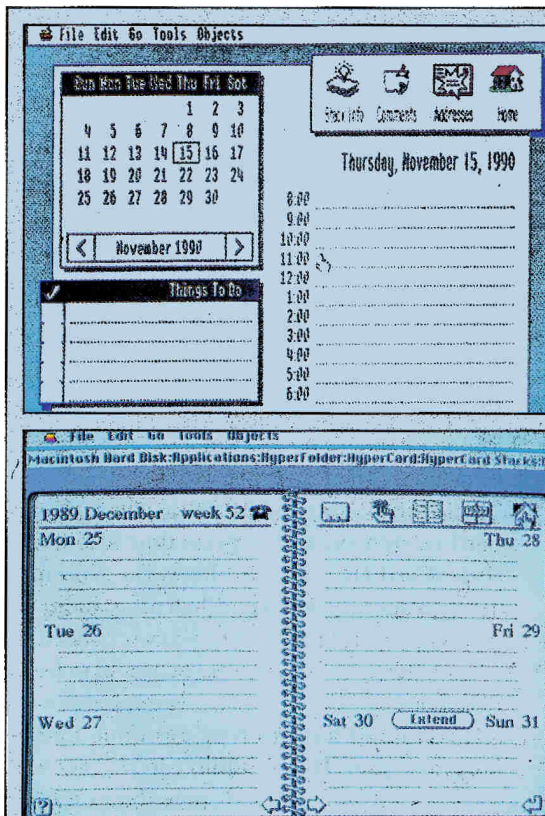


Figure 8. Calendar stacks for HyperCard IIgs (top) and Mac HyperCard 1.25 (bottom). HyperCard handles a small job like your personal appointment schedule easily; a more taxing task might overpower it. HyperCard IIgs includes this calendar stack and one to file addresses and phone numbers.



Figure 9. HyperStudio for the Apple IIgs is a program much like HyperCard IIgs, which has been available for two years already. Its home card, top, is quite a bit like HyperCard's, but stacks aren't compatible. On the bottom, a sample card from a HyperStudio stack. On this card, designed to teach the Spanish language, you can click on the dancer to hear a prerecorded human voice say "la senorita." This kind of sound recording isn't available in HyperCard IIgs.

“At its most poetic, HyperCard is a way of life.”

HyperStudio is easier to use than HyperCard, if by that you mean you can write a program without writing a line of code. HyperStudio never gets to the scripting level. It's indeed possible to build a HyperCard IIGs stack without HyperTalk by simply combining elements, but it's like baking a cake from a mix — the result will be edible, but bland. In any case, HyperTalk isn't exactly difficult. It strives to look like English, and although the impersonation isn't always successful, the meaning of a line such as *put the date into field "Today"* should be pretty clear. You'll need to take some time, and perhaps read a book or two, before you can write a script in HyperCard.

Addison-Wesley publishes excellent HyperCard references, and at press time also had a HyperCard IIGs book in the works. You may need to spend a weekend learning about it; an evening might do it. But you won't need to take a college-level course as you would to learn Pascal or C.

If you don't want to type even one line of program code, HyperStudio can do much of what HyperCard can, and some things it can't (such as videodisc control and sound digitization), simply by pointing and clicking a mouse. Some teachers will want their students to have the chance to create stacks without programming; others may want students to learn to write a computer program.

An interesting aspect of HyperCard, GS or Mac, is that you never need to save a stack. If you've experienced a crash or two, you'll understand the wisdom of this feature in a programming language. HyperStudio, which lacks the language, lets you decide when and if you want to save. If you want to experiment with HyperCard, you have the option to *Save a Copy* of your work up to a certain point.

A BIG PROGRAM

To use HyperCard, you need a big GS: 1.5 megabytes of memory and a hard-disk drive or network. Those are the official system requirements. We used a 1.25-megabyte GS with a 40-megabyte hard drive to test a beta version of the program. It was usable with that setup, but delays and out-of-memory messages were frustrating. The system ran more smoothly with 4 megabytes of RAM and an accelerator.

Faster speed really isn't crucial, but the hard drive is. After all, the whole point of HyperCard is that it's a way to manage lots of information — it gets interesting only when you have lots of cards. Some of the best Mac stacks, for instance — such as **The Visual Almanac**, shown

in **Figure 2** — run from CD-ROM discs with half a million megabytes. An AppleTalk network would be a good way for a school to run HyperCard IIGs.

Not everyone has hard-disk drives, CD-ROM players, and local-area networks, though. That's the crucial advantage HyperStudio has over HyperCard IIGs: HyperStudio runs on a GS with 512K of RAM and a 3.5-inch floppy-disk drive. You can even create stacks that run with less memory, and run without HyperStudio.

But let's not take anything away from the supreme achievement of HyperCard IIGs — it's a Macintosh program that runs on the Apple IIGs. The hundreds of Mac HyperCard programs that are available are now also available for the GS. HyperCard IIGs should actually help make HyperCard legitimate, and help maintain Apple's dominance in the school computer market.

The irony is that HyperCard may eventually help make the Macintosh legitimate in schools. Schools that have GSeS can now use HyperCard IIGs to run existing Mac stacks, many of which are designed for education. Schools, or teachers, who buy Macs can use the new machines to write educational software that will run on both Macs and Apple IIGSeS. The twain have met. □

PRODUCT INFORMATION

Apple II Public-Domain Disks: HyperCard IIGs Stacks

Apple II SIG
Boston Computer Society
One Center Plaza
Boston, MA 02108
(617) 227-4636 x201

HyperCard Stack Design Guidelines, \$16.95
HyperCard Script Language Reference, \$22.95

Addison-Wesley Publishing
Route 128
Reading, MA 01867
(617) 944-3700

HyperCard IIGs
Apple Computer
20525 Mariani Avenue
Cupertino, CA 95014
(408) 974-1010
\$99

HyperCard IIGs Utilities
HyperStuff Clip Art
MIDI Music
Triad Ventures
PO Box 349
Smithtown, NY 11787
(516) 732-3771
(516) 360-0797
\$39.95 each

HyperStudio 2.1

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

HyperStudio Network

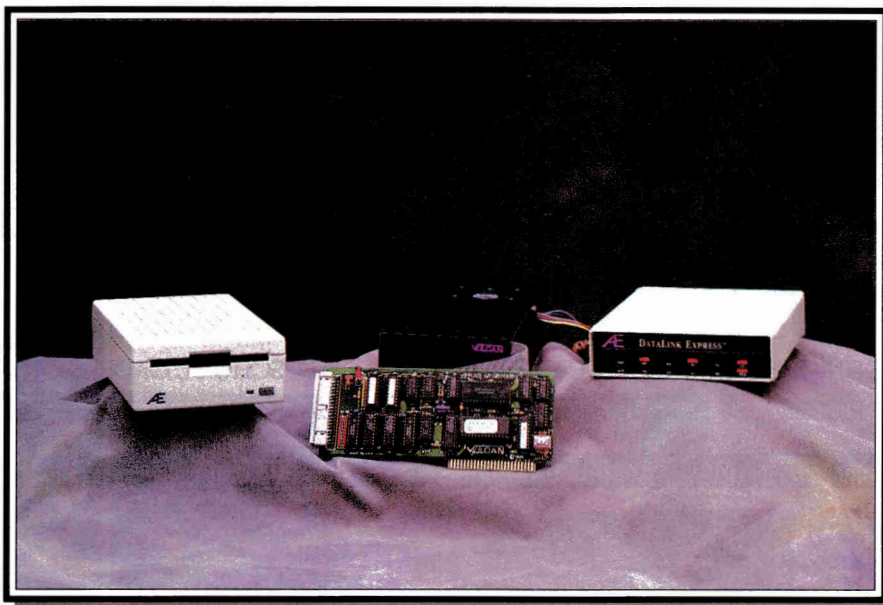
P.O. Box 103
Blawenburg, NJ 08504
(609) 466-3196
\$29/year

MIDI Synth

Apple Programmers and Developers Association
Apple Computer
20525 Mariani Avenue
MS-33G
Cupertino, CA 95014
(408) 562-3910
(800) 282-3732
\$35

The Visual Almanac

Optical Data
30 Technology Drive
Warren, NJ 07059
(908) 668-0022
\$100



Memory Expansion

Applied Engineering

New! GS-Ram II 1 Meg (GS)	.....\$131
New! GS-Ram II 2-4 Meg (GS)	.....\$ Call
GS-Ram Plus or Ultra 1 Meg (GS)	.....\$189
GS-Ram Plus or Ultra 2 Meg (GS)	.....\$263
RamWorks III 1 Meg (Ile)	.....\$199
RamFactor 1 Meg (GS, Ile, II+)	.....\$233
Ram Express II (Ile, IIc+)	.....\$ Call
Z-Ram Ultra Series (Ile)	.....\$ Call

Accelerators/Co-Processors

Special! TransWarp GS	.....\$259
TransWarp (Ile, II+)	.....\$99
FastMath (GS, Ile, II+)	.....\$131
Special! PC Transporter 768k (GS, Ile)	.....\$239
IIGS Installation kit	.....\$36
Ile/II+ Installation kit	.....\$29
MS-DOS v4.01 (5.25")	.....\$85
IBM Keyboard w/cable (PCT)	.....\$101
Combo TransDrive (5.25" & 3.5")	.....\$279
Single 5.25" or 3.5" TransDrive	.....\$189
3.5" - 720k Add-on drive (PCT)	.....\$95

Why buy from us?

- ☛ 15 day money back guarantee on all hardware. If the hardware 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 and tested RAM chips.
- ☛ 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.

AE APPLIED ENGINEERING

Authorized Dealer

Storage Devices

Applied Engineering

Vulcan Hard Drives come formatted & include controller card (specify machine).	
Special! Vulcan 20 Meg	.....\$499
Special! Vulcan 40 Meg	.....\$639
New! 3.5" 1.6 Meg drive (GS)	.....\$248
3.5" 800k drive (GS, Ile, IIc+)	.....\$189
3.5" Controller Card (Ile, II+)	.....\$59
5.25" Disk Drive (all Apple IIs)	.....\$119
5.25" Controller Card (Ile, II+)	.....\$50
AMR A5.D 5.25" drive (GS, Ile, IIc)	.....\$139
Apple High Speed SCSI (GS, Ile)	.....\$109

Accessories

Applied Engineering

TimeMaster H.O. (GS, Ile, II+)	.....\$79
Serial Pro (GS, Ile, II+)	.....\$98
Parallel Pro (GS, Ile, II+)	.....\$69
Special! Phasor (GS, Ile, II+)	.....\$89
Sonic Blaster (GS)	.....\$91
Audio Animator (GS)	.....\$175
ViewMaster 80 (II+)	.....\$124
Conservor (GS)	.....\$69
Heavy Duty Power Supply (Ile, II+)	.....\$69
IIGS Power Supply (GS)	.....\$79

CH Products

MACH III joystick (specify machine)	.....\$39
MACH IV Plus (specify machine)	.....\$69

Digital Vision

Computer Eyes GS (color)	.....\$199
Computer Eyes (B&W)	.....\$108

Kensington

System Saver (Ile)\$69
--------------------	-----------

Seiko

Closeout! DataGraph 2001 Watch with ProDOS clock. Originally sold for \$189!	
(Specify II+, Ile or IIc only)	.....\$39

Street Electronics

Special! Echo IIc\$99
--------------------------	-----------

ThunderWare

Sale! ThunderScan (GS, Ile)\$139
------------------------------------	------------

Vitesse

Quickie Scanner (GS, Ile)\$199
---------------------------	------------

Communications

Applied Engineering

Special! DataLink 1200 bps (int.)	.....\$95
DataLink 2400 bps (int.)	.....\$175
New! DataLink 2400 w/SendFAX!	.....\$ Call
DL/Express 2400 (external)	.....\$175
DL/Express 2400 w/MNP-5	.....\$209
DL/Express 2400 w/MNP-5 & SendFAX	.....\$248

(Specify machine for FAX option)	.....\$248
MNP-5 option (for DL/Express)	.....\$65
ReadyLink Communications	.....\$65

Morgan Davis Group

ModemWorks (BBS construction kit)	.....\$49
ProLine BBS (Best Apple II BBS)	.....\$175

Apple II Software

Brøderbund

Print Shop (64k)	.....\$35
Print Shop GS (768k)	.....\$45
Carmen Sandiego Series	.....\$ Call

Central Point Software

Copy II+ (128k)\$29
-----------------	-----------

Claris

AppleWorks v3.0 (128k)	.....\$199
AppleWorks GS (GS)	.....\$219

Roger Wagner

HyperStudio (GS)\$89
------------------	-----------

StoneEdge

DB Master Professional (128k)\$192
-------------------------------	------------

TimeWorks

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

WestCode Software

New! InWords (128k)\$ Call
----------------------------	--------------

Questions and Customer Service Call 214-484-5464

VISA, MasterCard & COD orders accepted. Order by phone or mail. School & Government P.O.'s welcome. Special & Sale items are limited quantities. Prices & Specifications subject to change w/o notice. Please verify product compatibility. Texas residents add 7.25% tax.

800-327-7234

Orders Only, Call Toll-Free

Preferred Computing

P.O. Box 815828 Dallas, Tx 75381

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

Vitesse

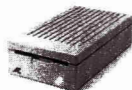


Quickie 400DPI Handscanner for Apple IIe & IIs includes new 16 gray shade software **\$194.95**

West Code Software

InWords Optical Character Reader Software for Apple IIe & IIs. Quickie Hand Scanner required **\$79.95**

AE 3.5" 800K Daisy-Chain



\$189.95
IIs and IIc+ Daisy-Chainable Drive

AMR AS800 3.5" Drive



\$169.95
IIs & IIc+ Daisy-Chainable 5.25" **\$139.95**

(Limited Quantities)

Apple IIe UDC Card **\$39.95**

Promodem 2400A



\$129.95

300/1200/2400 Baud Hayes Compatible Internal Modem for II+, IIe or IIs. Includes software!

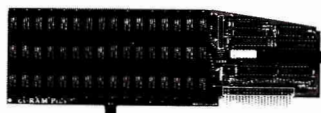
Accessories



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" Diskettes **\$6.50**
25 DS/DD 5.25" Diskettes **\$8.95**
System Saver IIs **\$69.95**
Mouse Mat **\$4.95**

Applied Engineering



GS Ram II w/1 Meg **\$129.95**
GS Ram II w/2 Meg **\$179.95**
GS Ram Plus w/1 Meg **\$189.95**
GS Ram Plus w/2 Meg **\$239.95**
GS Ram Ultra w/256K **\$149.95**
GS Ram Ultra w/1 Meg **\$189.95**
TransWarp IIs **\$249.95**
RamWorks III w/256K **\$134.95**
DataLink 2400B Modem **\$169.95**
Vulcan 20 Meg Drive **\$499.95**
Vulcan 40 Meg Drive **\$649.95**

Memory Chips

256K x1 Drams (8 - 120ns) **\$25.00**
256 x 4 Drams (2 - 120ns) **\$20.00**
1 Meg x 1 Drams (8 - 10ns) **\$59.95**

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)

Digital Vision

ComputerEyes IIe **\$99.95**
ComputerEyes IIs **\$194.95**

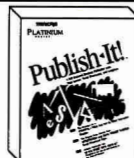
Zip Technologies

8 mhz Zip Chip **\$144.95**
Zip GSX 1600 **\$Ca.11**

Other Hardware

Thunder Scan **\$154.95**
Lightning Scan **\$199.95**
FingerPrint GSI **\$89.95**
Ile 80 Column 64K Card **\$24.95**

DTP and Graphics



Publish It! 3 **\$79.95**
(Limited Quantities)

4 in one Graphics Pack **\$74.95**
Educational Graphics **\$25.95**
Childrens' Writing & Publishing Center **\$36.95**

Beagle Brothers



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. Graph **\$53.95**
T.O. ReportWriter **\$49.50**
T.O. SuperForms **\$43.95**
Platinum Paint **\$61.95**
Outliner **\$43.95**

Entertainment Software

Test Drive II (IIs) **\$29.95**
Jack Nicklaus Golf (IIs) **\$29.95**
Chessmaster 2100 (IIs) **\$32.95**
Arkanoid II (IIs) **\$21.95**
Qix (IIs) **\$21.95**
Battle Chess (IIs) **\$30.95**
Fast Break (IIs) **\$27.95**
Ultima VI **\$41.95**
Task Force (IIs) **\$24.95**
Rastan (IIs) **\$21.95**

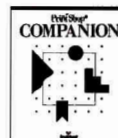
The New Print Shop



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

Sampler Graphics Iie **\$19.95** IIs **\$19.95**
Party Graphics Iie **\$19.95** IIs **\$19.95**
School & Business Graphics Iie **\$19.95**

Print Shop Companion IIs



Apple IIs **\$29.95**

Use with Print Shop IIs to create colorful calendars, envelopes, labels, etc.! Quick Page creates pages of graphics and text. Cataloger prints out reference.

Productivity Software

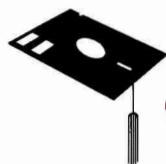
AppleWorks 3.0 **\$169.95**
AppleWorks GS 1.1 **\$199.95**
HyperStudio 2.1 (IIs) **\$89.95**
Quicken **\$37.95**

Utility Software

Copy II Plus 9.0 **\$24.95**
Prosel 16 (IIs) **\$54.95**
Cross-Works **\$69.95**
Repair Works **\$27.95**
Easy Drive **\$41.95**

Educational Software

Where in Time **\$27.95**
Where in the World **\$25.95**
Where in the USA **\$27.95**
Where in Europe **\$27.95**
Math Blaster Plus **\$29.95**
Word Attack Plus **\$29.95**
Oregon Trail **\$25.95**
McGee or Katies Farm (IIs) **\$27.95**



FAS-TRACK
COMPUTER PRODUCTS

ALWAYS CALL
TOLL-FREE



1-800-272-1600

1-614-847-4050 (Central Ohio)

1-614-847-4180 FAX

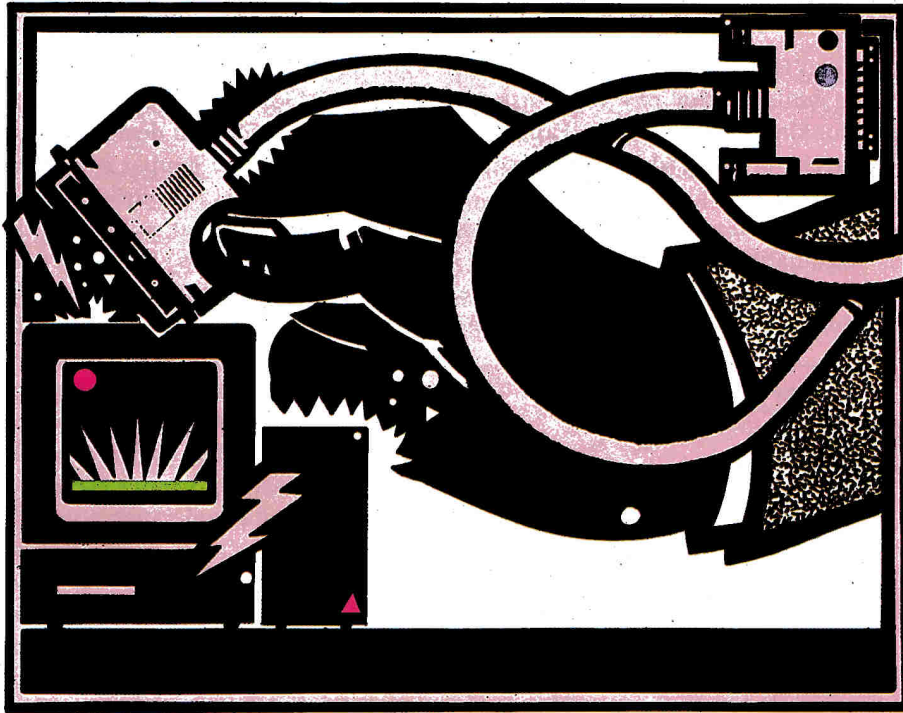
Business Hours: Mon—Fri 9 AM to 8 PM/Sat 10 AM to 5 PM (EST)

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.

7 0 3 0 C H U N T L E Y R O A D • C O L U M B U S , O H I O 4 3 2 2 9

Circle 85 on Reader Service Card.

THE SCSI SIDE OF LIFE



Are you tired of doing the floppy-disk shuffle? With a SCSI card and a hard drive you can “cache” in on speed and storage.

By Gary R. Morrison and Walker Archer

As any good advertiser knows, consumers will buy any product marketed to save time. But while most of you wouldn't dream of cooking in a conventional oven or brewing your morning coffee in a percolator, some of you still stare blankly at the monitor as you swap floppy disks and wait for your computer to load your programs. With a hard-disk drive, however, you won't need to suffer any longer. Because buying a hard drive can be as big a decision as it is an investment, this six-part series takes a look at some questions to ask before you pull out your VISA card. This month we focus on several SCSI interface cards (pronounced “scuzzy,” *small-computer-systems interface*) that work with a host of SCSI hard drives. Read on and see how the **Apple High-Speed SCSI**, the **RamFast SCSI**, and the **CMS SCSI** cards stack up.

A STANDARD TO FOLLOW

The Apple High-Speed SCSI card is the worthy successor to the original Apple SCSI card.

Its most notable new feature is its capability to do DMA (*direct memory access*) transfers. DMA lets the interface card put data directly into memory, without using the computer's microprocessor. (See **Figure 1**.) Information is transferred faster and more efficiently because it travels a shorter path to the final memory location.

Depending on the configuration of your computer, however, you may not be able to use this feature. Make sure you have no other cards in your computer that also utilize their own DMA, for example. If you have an Apple IIGS with a memory card, make sure that the card can handle DMA transfers. If you can't use this DMA transfer capability, disable it by setting a switch on the card during installation.

A well-illustrated installation and owner's guide is included with the Apple II High-Speed SCSI card, as well as all the hardware you need to install the card and mount the connector to the back of your computer. You'll also find software for formatting and partitioning a new hard drive, as well as drivers and installation scripts for use with GS/OS on the Apple IIGs. (More on ↪

card installation and configuration below.) In addition, you'll find a copy of Backup II software for safeguarding the data on your hard drive. This updated version the program includes support for GS/OS forked files, and uses the full 80-column screen.

A SPEEDY ALTERNATIVE

The RamFast SCSI card also uses DMA to achieve quick data transfer. It keeps up to 256K of the disk data you use most often in a bit of RAM called a *cache*, a scheme perfected by Ohio Kache Systems. The *cache* (or *look-ahead* memory) temporarily remembers information that has been transferred to or from the hard

disk. (The access speed of cache memory is similar to that of a RAM disk.) By thinking ahead, the RamFast card is capable of taking advantage of each spin of the drive.

The RamFast SCSI card comes with an installation and owners guide and is illustrated only with several screen dumps. This card doesn't include any

"Information moves faster — it travels a shorter path to RAM."

drive, both machines will see the drive exactly the same way, because partitioning information is in a table on the drive. The CMS partitioning information, however, is on the SCSI card, so each machine will see the drive differently. In other words, you can configure the cards so that one computer owns one partition and the other owns the second partition.

The CMS SCSI card comes with an installation guide that details many of the most common jumper configurations. In addition, CMS provides configuration software that will report the card's jumper settings. The latest CMS SCSI-card ROMs also supply an initial boot screen so that you can change the priority of the partitions and boot from the second partition. With this setup you can easily install GS/OS on one partition and ProDOS 8 or GEOS on another. By using the initial boot screen you can boot quickly into either operating system.

CARD INSTALLATION

Actually seating one of the SCSI cards is no more difficult than installing any other card in an Apple computer. Simply insert it into the slot and run the cable to the back of the computer. On the back plate, you can remove one of the plugs and use the hex nuts attached to the cable connector to bolt it in place. This procedure is common to all three cards. Most of the time you'll want to place the interface card in slot 7, because it's the first slot in which your Apple IIe searches for a bootable disk device, and it's the only slot that doesn't have an alternative function on the Apple IIGS.

Configuring the card is another matter entirely. The configuration steps vary widely for each card. The following is a description of the steps and considerations for configuring each card.

HIGH-SPEED ID

The Apple High-Speed SCSI card has a set of four DIP switches located toward the front of the card. Switch 1 controls whether the card will use DMA; the other three switches select the SCSI ID number for the computer. Every device on the SCSI chain must have a different ID

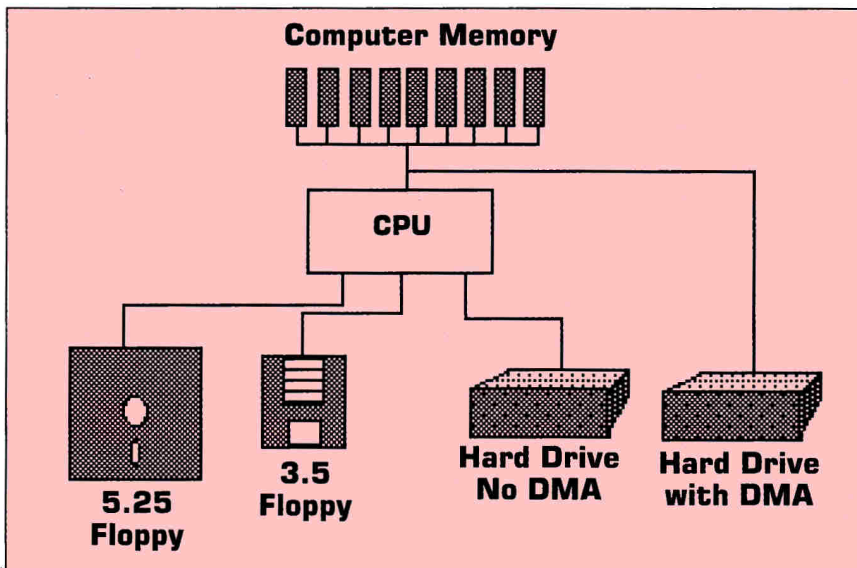


Figure 1. Data flows from a floppy disk, a hard disk, and a hard disk with DMA capability.

drive. If the RamFast card receives another request for the same data, it will take it from cache memory instead of accessing the hard drive. In other words, when you request a block of data, the RamFast card actually reads that block and a number of other consecutive blocks into look-ahead memory. (See Figure 2.)

Because GS/OS or ProDOS attempts to store most programs and data consecutively on a hard drive, the result is faster access from the RamFast internal memory and fewer reads from the hard drive. Reading data from look-ahead memory is like reading data from a RAM

software on disk; everything you'll need to use is included in a clever ROM-disk scheme built into the card.

AN UNDERCOVER OPTION

The CMS SCSI card is usually bundled with CMS hard drives, but you can use it with just about any SCSI-compatible hard drive. With it you can partition a hard drive using the card's jumper pins instead of its software. As a result, you'll have an easier time setting up the CMS SCSI card to share one hard drive between two computers.

Although the Apple High-Speed SCSI card lets two computers share a hard

number. The computer's SCSI ID is usually 7. On an Apple II, the hard drive can have any SCSI ID between 0 and 6. Apple has attempted to set a convention by assigning a 0 to the Macintosh's internal hard drive and a 3 to the CD-ROM drive. Scanners and the LaserWriter IIsc will also have SCSI IDs; therefore, you may want to assign an ID of 1, 2, 4, 5, or 6 to your external hard drive for future compatibility and expansion. Once you've assigned the proper ID to the card, you're finished configuring your Apple SCSI card. You have few decisions to make, so installation is simple.

It's also important to note that the Apple High-Speed SCSI card treats terminator power differently from the older Apple SCSI card. If you have the older card and want to upgrade to the High-Speed SCSI card, you may need to use a different number of terminators. Also, we've found that some Mac hard drives won't work correctly with the Apple High-Speed SCSI card — some manufacturers have cut one or more of the lines inside the drive unit that the Mac SCSI interface normally doesn't need. You can correct this problem by replacing the internal cable with one that has all the lines intact, but getting the vendor's assurance that the drive works with your SCSI card before you buy would be easier.

FROM RAM TO ROM

The RamFast SCSI card has a set of eight DIP switches on board. Similarly to the Apple High-Speed SCSI card's switch 1, this card's switch 4 controls whether the card will use DMA transfers. Switch 1 on the RamFast SCSI card lets you choose whether the RamFast will supply the terminator power that allows the card to work easily with a wider variety of hard drives than does the Apple card. Other DIP switches specify what kind of machine you're running, the amount of time to search for a drive on power-up, and whether the ROM disk should be disabled.

After installing the RamFast card, boot up the accompanying software and you'll see the configuration screen. (You don't need any additional software to set up a

"By thinking ahead, RamFast takes advantage of each spin of the drive."

new hard drive.) This screen will let you override many of the DIP-switch settings that you set up initially, do a low-level format (including setting the interleave), and partition your hard drive. (See the sidebar in "A Hard Drive Is Good to Find," July 1990, p. 45, for more information on low-level formatting and setting interleaves.) You can also set the

Also, with the RamFast card you can set up slot-allocation priorities for partitions beyond the first two allowed under ProDOS 8. When you buy a hard drive for use under ProDOS 8 you can normally use only 64 megabytes of storage, because ProDOS 8 allows only two devices per slot, with a maximum of 32 megabytes per device. The RamFast lets you use a drive larger than 64 megabytes. The card maps the partitions it can't access to other slots, such as the IIe slots it doesn't use and the IIgs internal ports it does use (a printer or a modem port, for example). Another feature is its ability to lock or write-protect any partition via the configuration software.

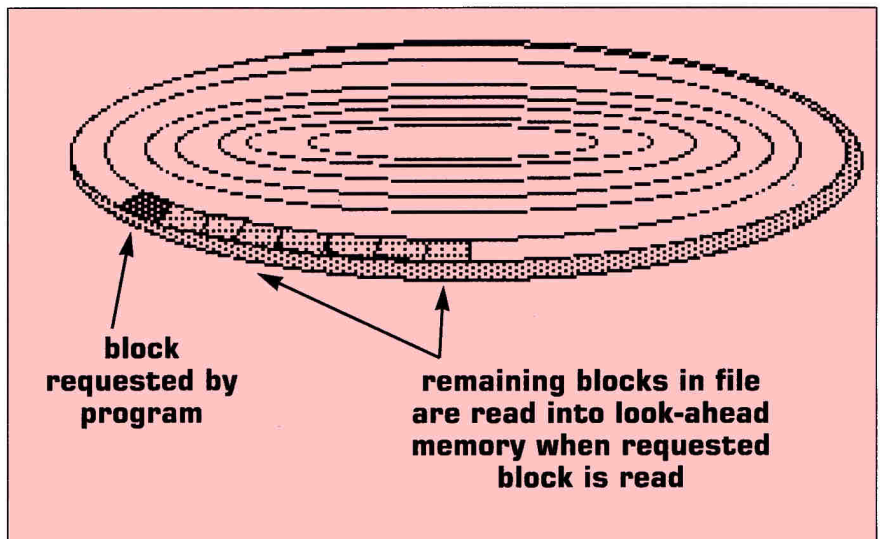


Figure 2. RamFast cache – look-ahead memory.

size of the look-ahead buffer. Experiment with this value freely, but we've found that 12K produces the best general results, especially when booting GS/OS.

After you finish configuring the drive and booting the operating system, a special ROM disk is available that contains configuration software and drivers for GS/OS. This software is actually contained in the ROM chips of the RamFast card, but you can copy them to your hard drive as though you were copying the files from a floppy disk. Don't worry: You can't lose the software that comes with the RamFast card. After copying the software, you can then disable the ROM disk so that it doesn't take up a slot/drive allocation or clutter your IIgs desktop.

One of RamFast's weaknesses is its lack of support for removable-media drives such as removable hard drives and SCSI tape drives. Support for these devices, however, has been promised in the near future and should come in the form of a simple ROM upgrade.

The RamFast card does currently support a number of SASI standard drives (Shugart Associates Standard Interface), however, such as First Class Peripherals' Sider models.

COMPLICATED CMS

Initial configuration for the CMS SCSI card is considerably more difficult. In most cases the card comes configured from the factory exactly the way you'll ◊

want to use it. If you want to change any of the factory settings (size of partitions, or SCSI IDs) there's quite a bit to learn. With the card's accompanying software, you must set SCSI IDs for both the card and the hard drive.

In addition, you'll need to understand the concepts of partition size and position to physically set the jumper-pin settings for both partitions. There are no configuration options for DMA because the CMS SCSI card doesn't support DMA transfers. Also, no native drivers are available for the CMS SCSI card for use under GS/OS despite persistent rumors that CMS has been working on them.

Although the initial setup may seem complicated, the up side is that it's

"The optimum card will make your work time more productive."

on most drives with DMA equipped cards. The CMS card, however, will probably require a different interleave for mechanisms that don't have a track-cache feature. We performed all tests on a ROM 1 Apple IIGS computer with 3 megabytes of memory with an Applied Engineering GS RAM+ extended-memory card.

These tests are in no way a comprehensive evaluation of the performance of

ularly noticeable under ProDOS 8. The Apple High-Speed SCSI card performs most admirably under GS/OS where it has access to special operating system features, such as multiblock reads and caching. Under ProDOS 8 where these features aren't available, the Apple card's only advantage is DMA transfers. Because the RamFast cache is built into the card, it performs well under both GS/OS and ProDOS 8.

Each of these SCSI cards has its strengths and weaknesses, so base your decision to buy one on your needs and your system's requirements. The manufacturer of each of these cards has taken the extra effort to provide detailed instructions for installing and configuring it. Selecting the optimum card for your system will make your work time more productive. After all, isn't that what using a computer is all about? □

Table. Putting SCSI interface cards to the test.

	Apple	RamFast	CMS
Boot to GS/OS Finder	00:43	00:18	00:33
Boot to ProDOS 8 (BASIC.SYSTEM)	00:07	00:04	00:04
Verify 32 meg partition (Finder)	02:28	01:19	19:31
Verify 32 meg partition (Copy II Plus)	19:04	03:55	19:05
Copy 1 meg file (Finder)	00:15	00:13	01:20
Copy 1 meg file (Copy II Plus)	02:04	00:30	01:58

possible to configure the system so that two Apple II computers can share one hard drive. It's even possible to share a hard drive between a Macintosh and an Apple II.

THE RESULTS ARE IN

We performed all our tests by connecting the same hard drive to each of the SCSI cards. The test unit was a 40-megabyte Conner hard drive with an average seek time of 25 milliseconds. This drive mechanism also had a built-in 8K track-cache buffer, so we expected to see more comparable timings between the RamFast and Apple SCSI cards. As you'll see, the results were surprising.

We implemented three different "real-world" tests under both ProDOS 8 and GS/OS version 5.02. (See the accompanying Table.) All results are shown at a 1:1 interleave that turned out to be the best interleave for all cards tested. You'll probably find a 1:1 interleave to be optimum

these cards, but they should help indicate what you can expect if you install one of the cards in your computer.

Some of the results were surprising. You'd expect the Apple card to outperform the CMS card during a boot of GS/OS, but it didn't — possibly because the Apple card pauses when booted and loads a driver.

You'd expect the comparably slow performance of the CMS card under GS/OS, because no loaded driver device is available; GS/OS must create a driver internally that simply transfers program control to the ROM code on the card every time it requests disk I/O. When it transfers control, the GS must slow down to 1 megahertz and shift to 6502 emulation mode. The CMS card, however, performed quite comparably to the Apple card under ProDOS 8, even though it doesn't support DMA transfers.

The difference in speed between the RamFast and the Apple cards was partic-

GARY R. MORRISON IS AN ASSOCIATE PROFESSOR IN THE DEPARTMENT OF CURRICULUM AND INSTRUCTION AT MEMPHIS STATE UNIVERSITY, WHERE HE TEACHES COURSES IN INSTRUCTIONAL DESIGN AND TECHNOLOGY. HE'S THE AUTHOR OF REPAIRWORKS, PUBLISHED BY QUALITY COMPUTERS, AND *THE APPLE II HARD DISK PRIMER*, PUBLISHED BY NAUG. WALKER ARCHER IS MANAGER OF SOFTWARE DEVELOPMENT AT QUALITY COMPUTERS AND IS THE DEVELOPER OF EASY-DRIVE AND RAMUP. ARCHER AND MORRISON HAVE ALSO WRITTEN AN ON-LINE COURSE ON C PROGRAMMING FOR THE GS. WRITE TO THEM C/O *INCIDER*, 80 ELM STREET, PETERBOROUGH, NH 03458. ENCLOSE AN SASE IF YOU'D LIKE A REPLY.

Product Information

Apple II High-Speed SCSI Card

Apple Computer
20525 Mariani Avenue
Cupertino, CA 95041
(408) 996-1010
\$129

RamFast SCSI Card

CV Technologies
9431 Saddlebrook Lane
Suite #2C
Miamisburg, OH 45342
(513) 453-5743
\$289

CMS SCSI Card

CMS Enhancements
2722 Michelson Drive
Irvine, CA 92715
(714) 222-6000
\$129

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



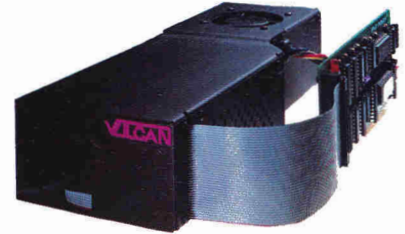
you something. They're all very different systems, but all come with internal hard disks (it's hard to even find a Mac these days without an internal hard disk). The reason? Internals are the latest advance. The modern storage solution. They become a transparent part of your system, and in the case of 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. Add \$10 outside U.S.A.

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.

FAMILY TIES

No one's going to claim they're twins. The Apple IIgs and the Macintosh, both born and raised in Cupertino, California, may be siblings, but they're not always on speaking terms. Jealousy often colors judgment — the GS wants the respect that everyone seems to give the Macintosh automatically, while the Mac pines for a place in the classroom and den — and sometimes everyone forgets to be polite. Defenders of both machines argue merits and demerits like parents taking sides. And public squabbles, like siblings fighting in the supermarket over who pushes the cart, let everyone know that even Apple doesn't think of its two children as equals.

On the surface, the GS and the Mac may seem to have little more in common than the striped logo on the front of the case. But scratch that surface and you'll find strong traits both share. Nowhere is this more evident than in system software. Moving from one machine to the other, even daily, takes little mental effort simply because the ways in which you use the two computers are so alike.

That's no accident. Compared to MS-DOS computer users, who are only now seeing ways to bind together different programs under one interface's umbrella, GS and Mac owners have had it easy. From the beginning, Mac and GS system software created an integrated and consistent method for doing everything from copying files to launching programs. Master the GS' Finder and system tools and you



A STRIKING RESEMBLANCE IN SYSTEM SOFTWARE

By Gregg Keizer

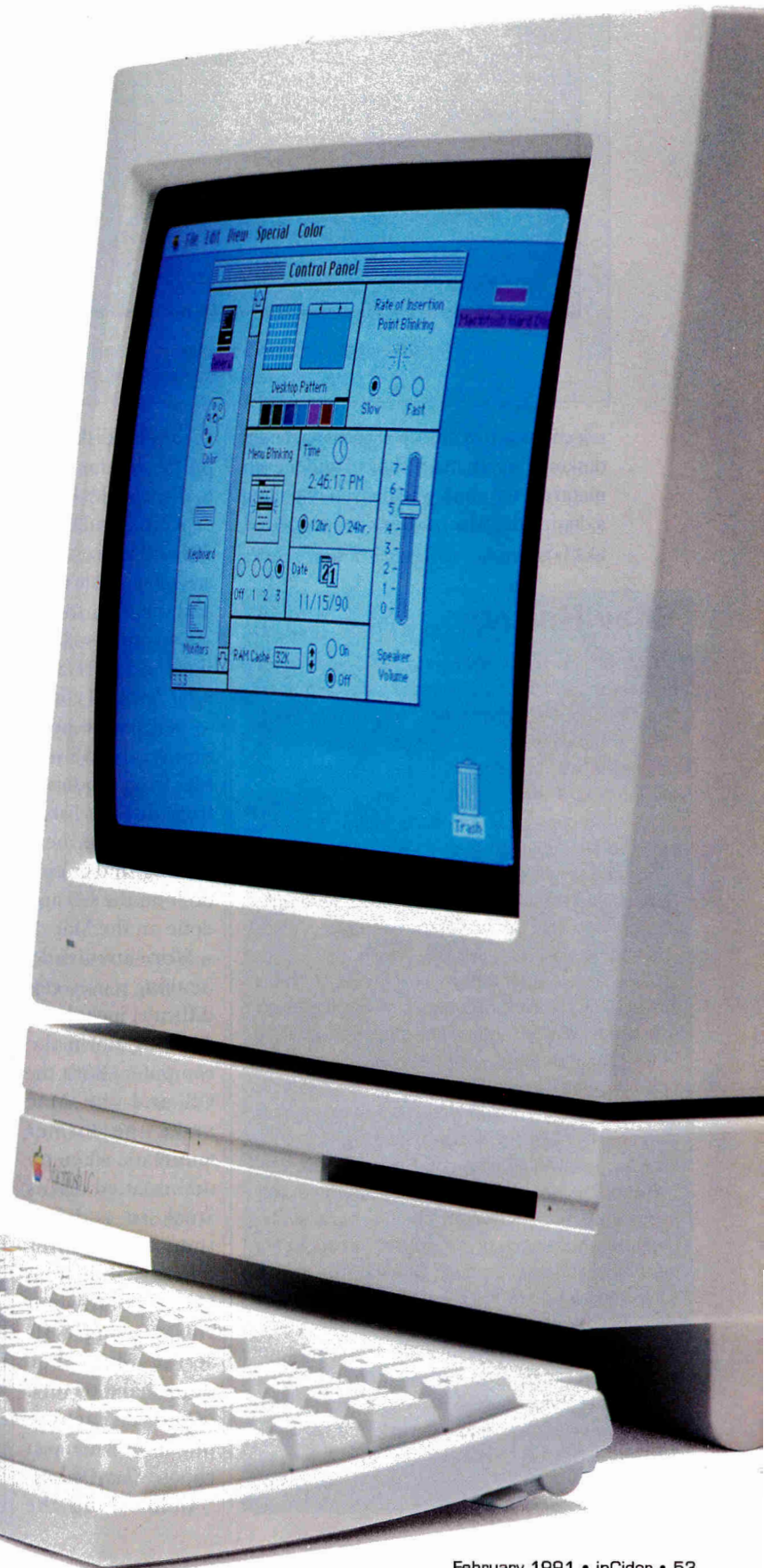
can sit down at the Macintosh and feel right at home.

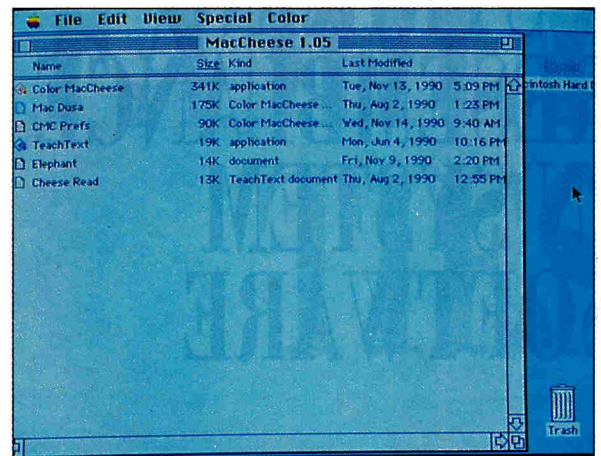
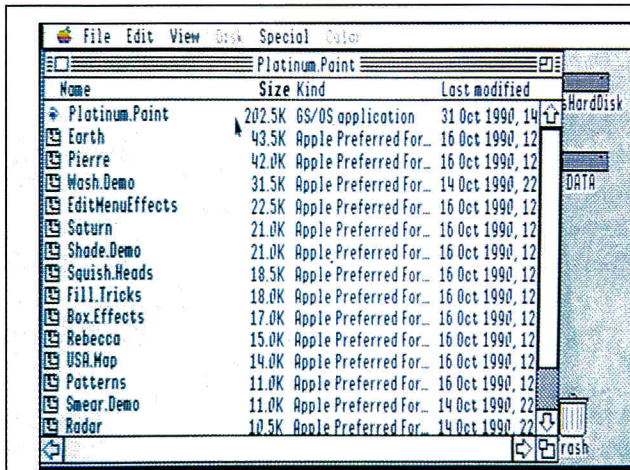
The rewards are stunning. As Apples and Macs increasingly find themselves cheek-by-jowl in classroom networks or on home desktops, shifting from a GS to a Mac and back again will be commonplace. (See "Connecting in the '90s," December 1990, p. 66, for details on how Apples and Macs can share information over networks.) The less trouble the transition, the smaller the amount of relearning of commands and procedures you have to do, the more you can concentrate on turning the computer into a tool. Apple IIGS System Software 5.02 and Macintosh System Software 6.0.5 share more than they segregate. That's a boon for any Apple computer user.

FIND THE LOOK AND FEEL

The GS and the Mac put on their faces with the Finder, the program that creates their desktop-like environments. It's in the Finder where you handle the maintenance chores of copying files and disks, viewing contents of disks, making new folders (subdirectories), initializing and erasing disks, and launching applications. Like any good spokesperson, the Finder is slick, polished, and nearly flawless.

The GS and Mac Finders are almost identical, the legacy of Apple's across-the-board *Human Interface Guidelines*. Both sport windows you can resize, close, and move with the mouse. (See the **Figure** at the bottom of p. 54.) The menu bar, a consistent feature of all GS and Macintosh applications as well, puts the *Apple*, *File*, *Edit*, *View*, and *Special*





The GS and Mac operating systems let you view the contents of a disk by name, date, size, or type. Here the disks' contents are organized by size.

selections across the top of each machine's desktop. In fact, many choices under each menu are the same, whether you're pulling it down with a Mac mouse or one connected to a GS.

To see a disk's contents, for instance, pull down the *View* menu, then choose to display files by name, date, size, type, or icon (regular and small-sized). Pick *Size* and the resulting file and folder lists are remarkably uniform between the GS and the Mac. (See the **Figure** above.)

GS' greatest advantage over its bigger siblings, is now shared with modular Macs, from the Finder to applications, games, and even utilities. Tinting file, folder, and disk icons is easy, and helps organize crowded displays, especially of a hard disk's contents. (See the **Figure** at the top of p. 55.)

Cdev Heaven

One of the most striking features shared by Macintosh and GS system software is the Control Panel, and the way it uses the utilities known as "cdevs." A cdev (control-panel device) is a small program you access from the Control Panel.

To add a cdev to the Control Panel, drag its file into the System folder (Mac) or into the Cdev folder within the System folder (GS). Reboot your machine and the cdev is available by going to the Control Panel and clicking on the cdev's icon.

Cdev development is more than a cottage industry on the Macintosh, but it's just getting started on the GS. Much like a desk accessory in its specific focus, a cdev is usually a small one-shot application. One popular Mac example is Soundmaster, which lets you assign sounds to a variety of Finder actions, such as Startup, Disk Insert, Disk Eject, and Empty Trash.

Although many Mac cdevs are commercial programs, most cdevs for the GS are distributed as shareware or as public-domain software. A quick tour through GENie's A2 Roundtable turned up several interesting cdevs, from Twilight (blanks the screen) to Desk Color (changes the desktop from the standard blue to any pattern or picture).

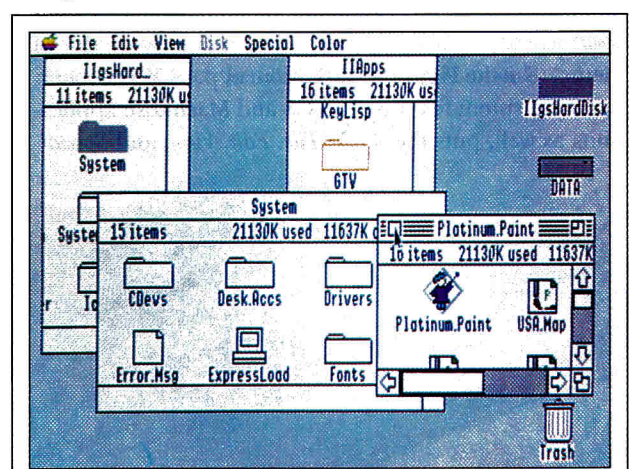
Keep watch for more GS cdevs in the future, especially on such telecommunications services as CompuServe, GENie, Delphi, and America Online.

— G.K.

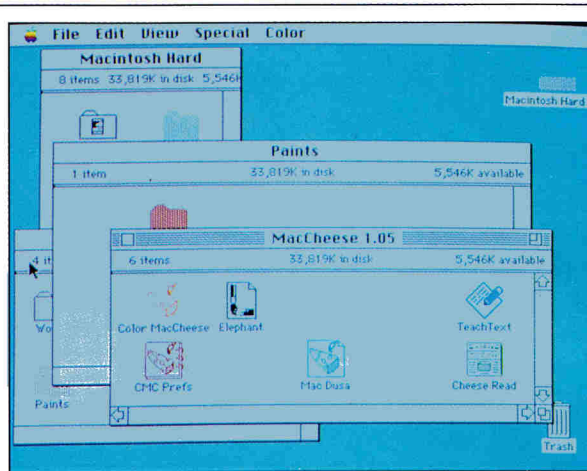
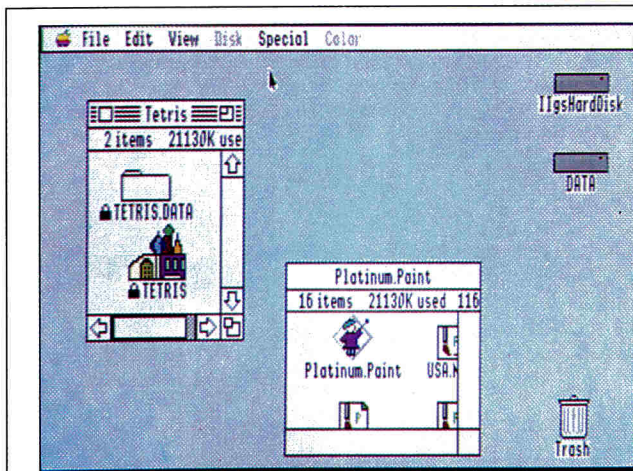
Copying files — never an easy proposition in ProDOS, the operating system 8-bit Apple II computers used for years — is a simple point-and-shoot operation on the GS or the Mac. Dragging files from subdirectory to subdirectory, from disk to disk, or from disk to the Trash are the metaphors for moving, copying, and erasing files. Learn how to do it on the GS and you know how it's done on the Mac. It's that simple.

Not everything's share-and-share-alike. One of the biggest differences between GS and Mac versions of the system software is something the GS is missing — Multifinder, a Mac program manager that lets you open several programs, then switch quickly from one to another with a single mouse click. (See the **Figure** at the bottom of p. 55.) Multifinder is a RAM hog, and though it works in 1 megabyte, it's really useful only if your Mac has 2 or more. Still, it makes the Mac much more versatile

More-involved Finder functions (nothing is even close to what you'd call difficult) include initializing disks and shutting down the computer. Both the GS and the Mac make the former automatic when an unformatted disk is stuck in a drive, though the latter differs slightly from GS to Mac when you're using a II-series Mac (You don't have to turn off the machine physically when you choose *Shut Down*.)



Like the Mac, the GS lets you open multiple windows.



Both the Mac and the GS Finders are live and in color. You can colorize icons and folders for fun or to help organize your hard-disk drive's contents better.

when your application set includes two or more programs. Imagine a beefed-up GS that could switch instantly among AppleWorks GS, Publish It!, and the Finder, cutting and pasting between the two applications and dropping to the Finder to create a new folder. That's what Multifinder does for the Mac.

Except for this admittedly major difference, GS system software and its Mac counterpart present much the same look and feel with their Finders. Learn one Finder and you've learned them both. No other element of either computer does more to make you feel comfortable with both machines.

SIBLINGS SHARE TOYS, TOO

But the GS and the Mac share more than just a common look and feel. Each machine's system software includes ways

to control and customize the computer and your computing environment. Though the methods vary in some respects, they're much more alike than different.

Take the *Installer*, for example. During your computer's lifespan (whether GS or Mac) you'll probably update its System, Finder, and associated files several times as Apple releases new versions. The Installer is particularly crucial to the Mac, simply because of the way the machine adds fonts and desk accessories to the System file; using the Installer saves a lot of time you'd otherwise waste re-creating your font and DA set in a new System. Even on the GS, though, the Installer is a time saver, especially if you have several startup disks.

The GS and Macintosh versions of the Installer are similar, though not identical. In both you select the update items —

from *AppleShare* and *SCSI hard disk* on the GS to *Laser-Writer SC* and *32-bit Quick-Draw* on the Macintosh — and the Installer automatically updates the startup disk software. (See the **Figure** at the top of p. 56.)

But it's really in the Control Panel that these two machines show off their relationship. Want to change

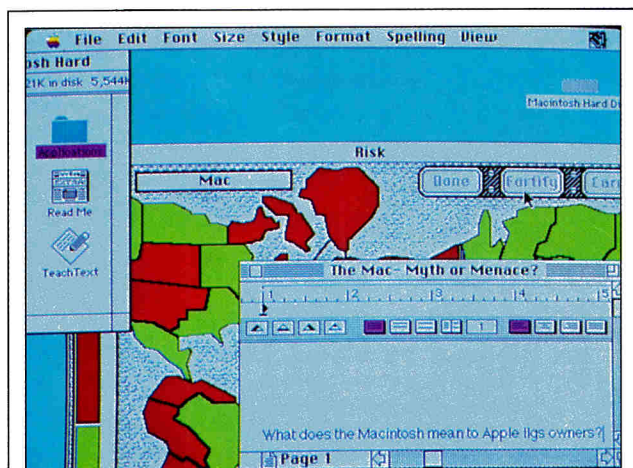
the speed with which the mouse moves the cursor across the screen? Simple. Just pull up the Control Panel and click on the Mouse icon. The Mac display is more graphical and icon-oriented, while

Tips for Better System Living

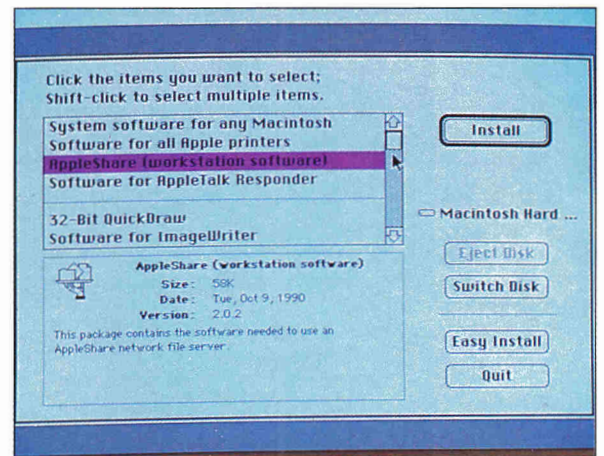
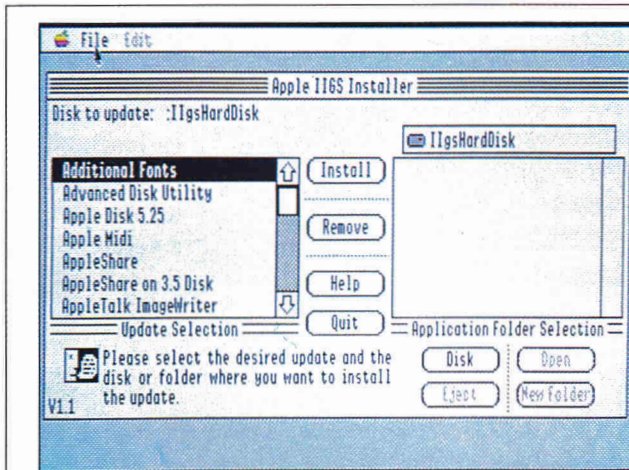
Here are some quick hints to help you work faster and better with the GS Finder and other system tools:

- Hold down the option key when you click on a window's close box. This nullifies any changes you made to the window (enlarging it, moving it, or switching views). When you reopen the window, it's in its original shape, size, and location.
- Rather than write-protect an entire disk, use the Locked box to ensure that vital files and folders aren't copied over or deleted accidentally. Select the file or folder, then choose Icon Information from the Special menu. Just click on the Locked box to lock (or unlock).
- Erase a disk and you haven't destroyed the data. (All you've done is eliminate the disk's directory.) To destroy confidential data, use the Advanced Disk Utility. Its Zero option writes across the entire disk, obliterating everything.
- Normally when you copy a floppy disk to a hard disk (or a 5.25-inch disk to a 3.5-inch disk), the source disk's files are stored in a folder on the destination disk. To simply add the files to the contents of the destination disk (without segregating them in a folder), hold down the option key while you drag the disk icon. The Disk Copy Alternatives box appears; click on the third button and then click on OK.

— G.K.



Multifinder lets you have more than one program active at a time, so you can switch quickly from play to productivity.



As you can see, the GS Installer and the Mac Installer aren't identical; on both machines, however, the Installer lets you update your system.

the GS simply lists boxes you click, but the choices are identical. (See the **Figure** at the top of p. 58.) You can speed up or slow down the mouse tracking speed, or change the way the mouse reacts to double clicks. Changing other characteristics is just as simple. Both the GS and Mac Control Panels manage

everything from the amount of memory set aside for a RAM cache to sound volume and monitor type.

But just as in the Finder, the comparisons don't stretch everywhere. The way you add fonts and desk accessories to your GS and Macintosh system software is quite different — at least for now.

The GS makes its simple. Drop new font and desk-accessory files into the *Fonts* and *Desk.Accs* folders, reboot, and you're through. It's not as easy on the Macintosh. You've got to use a utility called *Font/DA Mover* to append font and DA files to the *System* file. (See the **Figure** below.) The process isn't hard, but it can be time-consuming if you're adding several fonts and desk accessories, or if the *System* file is already huge. Apple's new *System 7.0* for the Macintosh will reportedly take a page from the GS' playbook and make font and DA installation as easy as copying files to the *System* folder.

System tools are another example of the consistency that Apple brings to both its lines. This uniformity proves its worth the first time you move from a GS to a Macintosh. You can't carry your tools with you, but you can sure

carry your knowledge of how those tools work and what they're for.

WIRES AND WORDS

You may not particularly like your family, but you can always talk to them. Networks bind the GS and the Mac in much the same way.

Using LocalTalk cabling, AppleShare software, and a Macintosh as a file server, you can set up networks that link Macs, Apples, printers, and other peripherals. One of the major benefits of an Apple/Mac network is that it lets Apple users share data files with Mac users without going through the cumbersome necessity of using a file transfer program. Just save or print that document as a text file to your file server, and anyone on the network can use it.

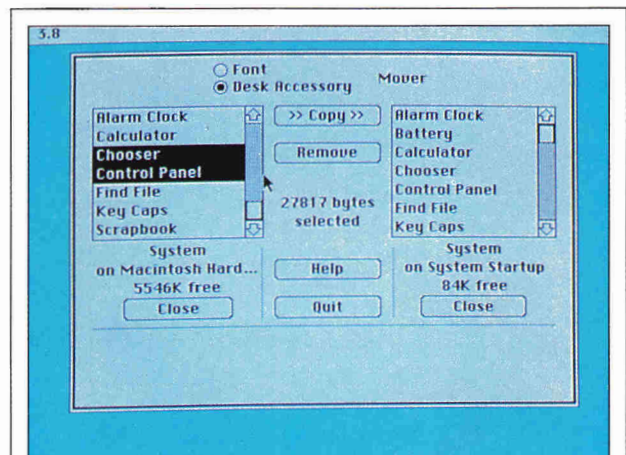
Wild for Windows?

Last May, the PC world went wild over Windows 3.0. What's the big deal? Well, to the graphical-interface-starved PC crowd, Windows is like manna from on high. "Finally, my PC looks and works like an Apple," they're saying.

Not quite. Windows 3.0 may be an operating environment similar to the Mac and GS Finders, complete with windows that move, resize, and overlap; it may launch software by clicking on an icon with a mouse pointer; it may even handle file and disk chores. But it's not the Finder; and it's nowhere close to the operating systems your Mac and GS already enjoy. For instance, Windows 3.0 separates two common Finder jobs — organizing and launching files from windows, and copying, moving, and renaming files — into two separate programs: the *Program Manager* and the *File Manager*.

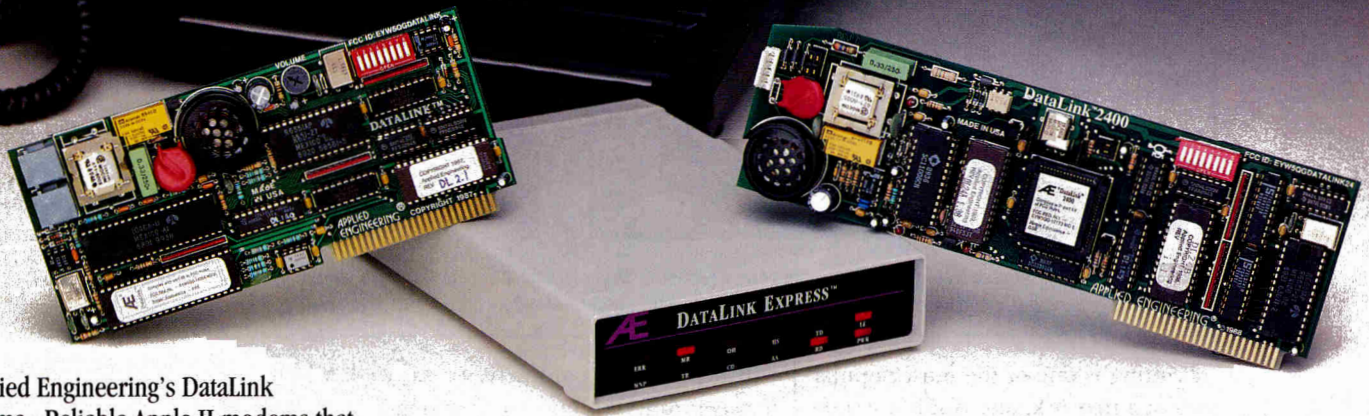
The bottom line? Windows 3.0 is the PC's first foray into a graphical user interface (GUI) that works fast and dependably. It's not equal to Apple system software, Mac or GS. Not yet. But GUIs aren't the domain of Apple alone. To stay ahead, Apple must continue to improve its interface and its system software. The Mac's *System 7* (scheduled for release in 1991) should push up to that next GUI plateau.

It better. PCs are breathing down Apple's GUI neck. — G.K.



Adding fonts and DAs to your GS' *System* folder is a snap. By contrast, Mac users need to wrestle with *Font/DA Mover*.

When you choose a modem, choose a DataLink



Applied Engineering's DataLink modems. Reliable Apple II modems that are easy to use and have just the right combination of simplicity and complexity - with enough features to let you custom tailor the modem's setup to suit your own needs.

Whether you're looking for an internal, external, 1200 or 2400, MNP-5 or AE Send-Fax™, Applied Engineering has the right modem for you. Choose from our upgradeable DataLink Express™ external (center), DataLink 2400™ internal (right) or the economical DataLink 1200™ (left).

All three DataLink modems feature AE's communications software - on disk and in ROM - everything needed to get you immediately up and running. Our powerful DataTerm software for the IIGS and IIE supports VT-52 screen emulation, macros, file transfers, on-line time display, recording buffer and more. It even handles hundreds of phone numbers for auto-dialing and log on.

With the new AE Send-Fax™ option, DataLink 2400 and DataLink Express owners can fax text and graphics directly from their computer screen, without even printing a "hard copy" of the information. And an upgrade path is being made available for AE customers with earlier versions of the DataLink 2400.

DataLink Express offers a twelve-lamp status light array including our exclusive "Line Engaged" indicator to show when a shared modem line is in use. DataLink Express can also be

upgraded to include MNP-5 error correction and data compression for 4800 baud throughput.

All DataLinks carry a full five year warranty and come complete with two modular phone jacks for data and voice calls. We also include an extra long telephone cable, in case your computer is across the room from your telephone jack. You can track the progress of calls either electronically or via on-board speaker. And built-in diagnostics reliably check transmission accuracy.

Packed with important features. DataLink 2400 and DataLink Express include:

- Non-volatile memory for modem configuration
- Full Hayes AT compatibility
- Compatibility with Bell 103, 212 and European CCITT V.22 BIS, V.22 and V.21
- Super Serial Card "Front End" for highest software compatibility (unlike some competitors)
- Adaptive equalization and descrambling
- Hardware configuration for DSR and DCD
- PC Transporter (MS-DOS) compatibility
- FCC certified designs

DataLink 1200 reduced. Loaded with all the features of the 2400, (except CCITT, DSR/DCD and non-volatile ROM

configurations) our 1200 bps DataLink modem, complete with software and freebies, is an affordable alternative.

Freebies. We also throw in a nice collection of goodies - free subscriptions, special offers and even free online time on a variety of online services and bulletin boards. Folks like GENie, CompuServe, NewsNet, the Official Airline Guide, the Electronic Forum and Delphi giving you a sample of the wonderful services in store for DataLink owners.

DataLink 1200	\$119
DataLink 2400	\$219
DataLink 2400 w/SendFax	\$269
DataLink Express	\$249
DataLink Express w/MNP-5 & Send-Fax	\$349
AE Send-Fax option	\$79

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. Add \$10 outside U.S.A.

AE
Applied Engineering®
The enhancement experts.

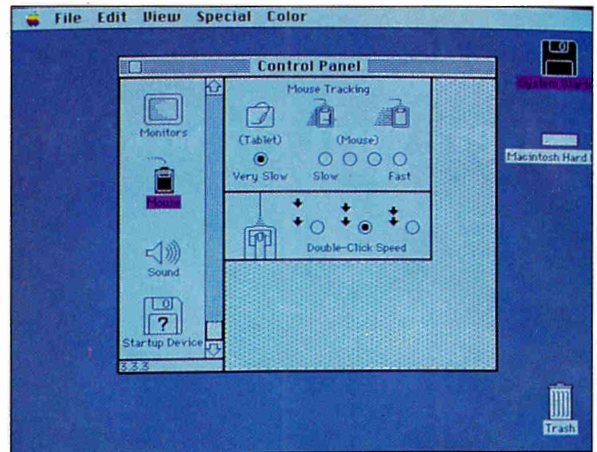
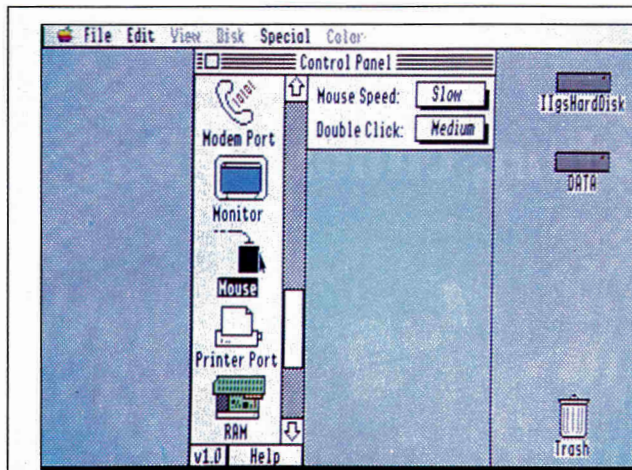
A Division of AE Research Corporation

(214) 241-6060

P. O. Box 5100
 Carrollton, TX 75011



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



Whether you're using GS/OS or the Mac operating system, the Control Panel is where you customize your system. The examples above (GS, left; Mac, right) show settings for adjusting your mouse.

Printing is one of the most popular uses of a network, and Apple's system software makes that a snap. On the Macintosh, you select the printer (there may be several connected to the network) with the *Chooser*, a desk accessory. From the GS, you head to the Control Panel and choose the appropriate printer icon. Either method takes only a moment.

With the introduction of System 5.0, Apple made the GS workstation-ready. In other words, you don't need any additional software to connect a GS to an AppleTalk network. (See the **Figure** below.) This integration of client workstation software with system software began with 5.0, and according to Tim Golden, Apple's product manager for classroom networking, will continue. "The goal of system software for the GS

will be to make connectivity easier between different operating systems," says Golden. System software that shares traits, whether in networking ease of use or printer setup, is a welcome sight when you're moving from GS to Mac and back.

MOVE ALONG, LITTLE DOGIES

It's obvious that Apple is devoted to its Macintosh. The debut of the new, lower-priced Macintosh Classic, LC, and IIsi computers makes that clear. Less clear is Apple's dedication to the Apple IIGs. The GS of today is probably the GS of tomorrow.

Similar system software across the Mac/Apple chasm makes that hardware dead end easier to face. That's because the time you spend becoming a power GS user won't be wasted when you bring

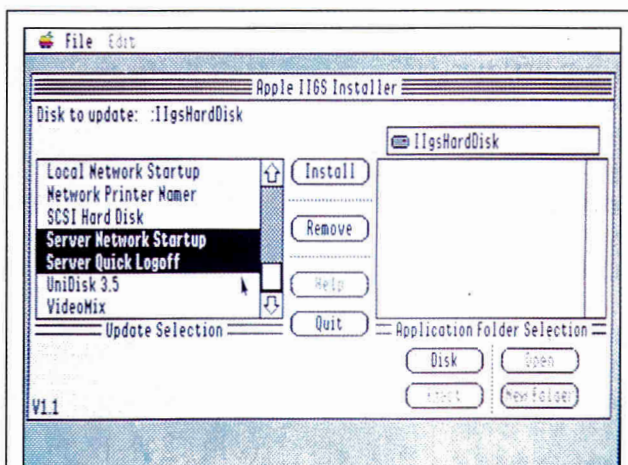
Mac LC" and "New Wine in an Old Bottle," December 1990, pp. 40 and 43, respectively.) Compare that to the months you'd spend learning a new operating system — say, MS-DOS.

HOW EASY IS IT TO MAKE THE SWITCH — REALLY?

I've been a Macintosh user since 1984 and an Apple IIGs user since 1986. It took System Software 5.0 to convince me that they were from the same company. Moving back and forth between my Mac and the GS, whether stand-alone or connected, is a breeze — not the nightmare of change I'm forced into each time I leave an Apple computer and touch the keyboard of an IBM PC compatible. Nearly identical Finders, similar Control Panels (both graphics-based), fonts and desk accessories, network configurations, and shared printer resources all soften the impact of turning off one computer and turning on another.

System software paves the way for the transition from Apple IIGs to Mac, and back, too. The care Apple's taken to make the GS and its Macintosh siblings act alike and look alike pays off when you bridge the gap and bring in Macs to share your desktop. □

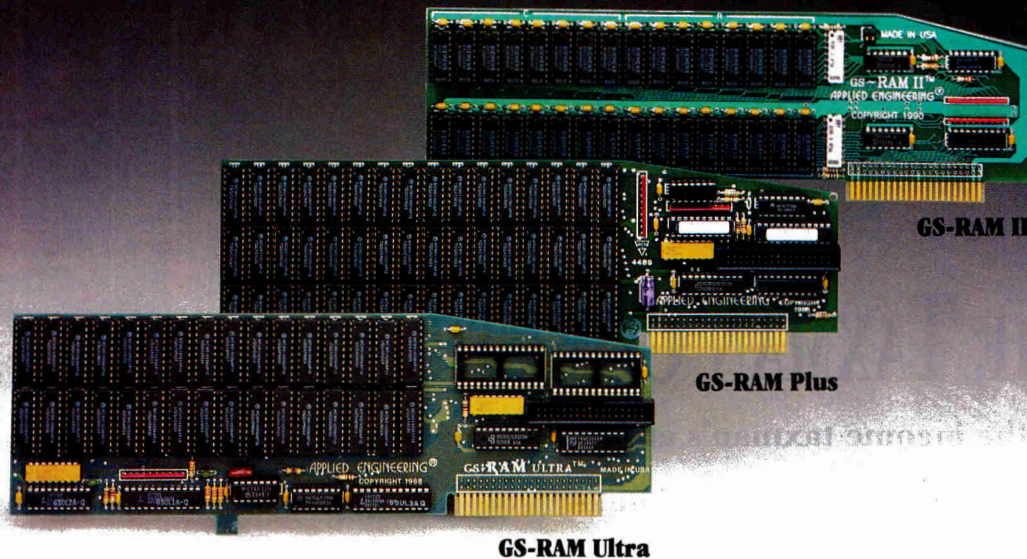
GREGG KEIZER IS A FREE-LANCE JOURNALIST SPECIALIZING IN COMPUTER-RELATED TOPICS. WRITE TO HIM AT 614 LINDEN STREET, SHREVEPORT, LA 71104. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.



Since System Disk 5.0, the GS is at home on an AppleTalk network.

a Macintosh into your computer fold. When you decide to add a Macintosh, you'll be able to turn the corner from all Apple II to Apple II/Macintosh user in a matter of moments. (Both the Classic and the LC are excellent candidates; for a closeup and an analysis of their impact on Apple II computing, see "Meet the

GS-RAM™ means value.



When it comes to memory cards for the IIGS, AE's GS-RAM™ Series has no equal. There simply aren't any other memory cards that offer you a fraction of the value.

DMA Compatibility. All three of our GS memory cards are fully DMA compatible (and they're the ONLY large format cards that are), to they not only run all GS software, they support *current and future* DMA Peripherals. And since AE's GS-RAMs are THE industry standard, you can rest assured that no serious developer will come up with a product that's NOT compatible with one of our memory cards.

AE pioneered AppleWorks enhancement (there for the first version and still there for the most recent version) and each of our GS-RAM cards comes with our exclusive AppleWorks enhancement package (Versions 3.0, 2.1, and 2.0). GS-RAM cards are the ONLY cards that actually increase AppleWorks word processor lines and database records. GS-RAM cards are loaded with exclusive features like our diagnostic utility feature that graphically detects the presence of bad or improperly installed chips and tests for CAS before RAS chips.

Installation couldn't be easier, the cards just plug in. And all GS-RAM cards feature Applied Engineering's meticulous

craftsmanship, along with our 5-year warranty and American-made pride.

Which card for you? We make three cards because each IIGS user has different needs. Need a moderate amount of memory? GS-RAM II™ lets you expand economically. Need lots of memory right away? GS-RAM Plus™ is your best bet. Want to start small and leave open the possibility of huge expansion? GS-RAM Ultra™ is your card. And our GS Expander™ piggy back adds up to 2 MEG to either the Plus or Ultra cards. Call AE for prices.

GS-RAM Ultra. (front) Designed for a more incremental growth path, the GS-RAM Ultra incorporates the 256K x 4 chip, which has four times the density of 256K x 1 chips. That permits incremental expansion in 256K jumps so you can start small and still grow to a massive 4 MEGs.

GS-RAM Plus. (center) Expands from 1 to 6 MEG in 1 MEG increments. Originally designed for power-users requiring a great deal of internal memory, GS-RAM Plus has recently found favor with many moderate users. MEG-sized jumps in memory have now become practical for many users because of the enormous memory requirements of today's software titles. Incorporates 1 MEG x 1 chips.

GS-RAM II (top). AE's most economi-

cal memory card, the new GS-RAM II, grows from 1 to a whopping 4 MEGs in 1 MEG increments. GS-RAM II features full DMA compatibility, our exclusive AppleWorks enhancement package and AE's famous five year warranty.

GS-RAM Ultra w/256K.....	\$199
512K.....	\$219
768K-4 MEG.....	CALL
GS-RAM Plus w/1 MEG.....	\$259
2 MEG.....	\$359
3-6 MEG.....	CALL
GS-RAM II w/1 MEG.....	\$179
2 MEG.....	\$259
4 MEG.....	CALL

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. Add \$10 outside U.S.A.

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.



THE TAXMAN COMETH

When the income taxman's at the door, have
your return ready with the help of
this AppleWorks spreadsheet.

By **RUTH K. WITKIN**

"I BELIEVE WE SHOULD ALL PAY our tax bills with a smile. I tried — but they wanted cash." That delightful old saw may bring a chuckle or two, but paying taxes is no laughing matter.

Figures 1 and 2 show this year's version of the income-tax spreadsheet, loaded with new features, formulas, and a streamlined tax schedule. Many thanks to Jim Harper of Dallas, Texas, George Nicoll of Green Valley, Arizona, and Bill Conlon of Bethpage, New York, for helping to refine this spreadsheet. Jim adapted tax formulas first presented in *NAUG Forum* (September 1989, published by the National AppleWorks Users Group), which I modified further for this column. Special thanks to my favorite tax consultant, George Stein, C.P.A., for his comments and advice.

Tax rules change right up to filing time (or so it seems). Be sure to check that everything you find in this column (written four months ago) is still valid.

Load AppleWorks and create a new spreadsheet file named TAXES90. Referring to **Figures 1 and 2**, set up the spreadsheet as follows:

Long horizontal lines. Type quotation marks first (to identify the entry as a label), then hold down the equal- or minus-sign key. Use the clipboard as much as possible

to copy lines (Open apple-C, or OA-C).

Long vertical lines. Type the vertical character twice in D1, center the characters, copy down column D, then copy all of column D to column L.

Column width. Use OA-L to change column A to 63 characters, B to 11 characters, C to 2 characters, D to 4 characters, E to 20 characters, H to 6 characters, I to 10 characters, K to 8 characters, and L to 4 characters. Columns F, G, and J remain at the default of 9 characters.

Entries. Enter all labels and numbers, except the numbers in formula cells; the program will calculate them. In **Figures 1 and 2**, each formula cell is highlighted, with or without a formula number beside it. Here are some more detailed instructions for making entries:

- **Indented labels.** In columns A and E, indent with spaces. (For example, indent one space in A4 and E9, two spaces in A21, and three spaces in A34.) Type quotation marks and press the spacebar the proper number of times before typing the entry. In J53, indent three spaces, and in F1, indent eight spaces.

- **"Outdented" labels.** Type a space after typing the labels in H6, I47, and J47.

- **Percentages.** In G49, type .075; in G50, .1; and in G51, .02. Use OA-L to format these cells for *Percent* with one decimal place.

Short lines in column B. Type quotation

marks, press the spacebar, then type 10 minus signs.

Formats. Use OA-V to set a standard value of *Commas* with no decimal places. Use OA-L to center the spreadsheet title in A1 and right-align the labels in H6, I6, G47 through K47, and F59. When you finish, press OA-S to store the spreadsheet on disk.

Now enter the formulas in the locations shown in **Figures 1 and 2**. Place the cursor on the cell receiving the formula, build the formula, and press Return.

FORMULA 1: Social Security Benefits (Taxable). Formula 1 takes the lesser of two amounts (E59 or G59) calculated in the Social Security work area, and enters it in B17.

Cell location: B17

Formula: @MIN(E59,G59)

Protect this formula: With the cursor on B17, press OA-L and hit Return to confirm *Entry*. Type **PN** to select *Protection and Nothing*. Protect every other formula as soon as you create it.

FORMULA 2: Total Income. Formula 2 adds income amounts (B4 through B18) to produce total income in B20. This formula includes B3 (an empty cell) and B19 (a line).

Cell location: B20

Formula: @SUM(B19.B3)

FORMULA 3: Total Adjustments. Formula 3 adds adjustments to income (B23 through B30) to produce total adjustments in B32.

Cell location: B32

Formula: @SUM(B31.B22)

FORMULA 4: AGI. Formula 4 subtracts total income (B20) from total adjustments (B32) to produce adjusted gross income in B34.

Cell location: B34

Formula: +B20-B32

FORMULAS 5 - 7: Deductions in Excess These formulas copy from the work area:

Cell location: B37

Formula 5: +K49



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. Add \$10 outside U.S.A.

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

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

=====A=====		=====B=====	
11	TAX FORECAST FOR 1990		
21			
31	INCOME:		
41	Wages, salaries, tips, etc.	61,425	
51	Interest income (taxable amount)	3,550	
61	Dividend income	600	
71	Taxable refund of state and local income taxes	820	
81	Alimony received	0	
91	Net business/partnership income subject to self-employ tax	14,325	
101	Net capital gain or (loss up to \$3000)	1,050	
111	Pensions, annuities, IRA distributions (taxable amount)	0	
121	Scholarships, prizes, and grants (taxable amount)	0	
131	Rents and royalties minus expenses	1,855	
141	Farm income or (loss)	0	
151	Income from estates and trusts	0	
161	Unemployment compensation	0	
171	Social Security benefits (taxable amount)	0	1
181	Other income	0	
191			
201	TOTAL INCOME	83,625	2
211			
221	ADJUSTMENTS TO INCOME:		
231	Reimbursed employee business expenses	425	
241	Deductible IRA contributions (self)	2,000	
251	Spouse's IRA deduction	2,000	
261	Keogh contributions and SEP deductions (self and spouse)	1,891	
271	Net passive losses from limited partnerships (reduced by 80%)	0	
281	Penalty on early withdrawal of savings	0	
291	Alimony paid	0	
301	Other adjustments	0	
311			
321	TOTAL ADJUSTMENTS	6,316	3
331			
341	ADJUSTED GROSS INCOME (AGI)	77,309	4
351			
361	DEDUCTIONS:		
371	Unreimbursed medical/dental expenses (exceeding 7.5% AGI)	1,257	5
381	State and local income taxes	1,234	
391	Real estate and property taxes	4,555	
401	Mortgage and investment interest	1,022	
411	Other deductible interest expenses	0	
421	Personal interest (deductible portion-limit 10%)	0	
431	Charitable contributions	1,500	
441	Casualty and theft loss (exceeding 10% AGI)	0	6
451	Moving expenses	0	
461	Other deductions (exceeding 2% AGI)	0	7
471			
481	TOTAL DEDUCTIONS (or standard deduction if greater)	9,568	8
491			
501			
511	PERSONAL EXEMPTIONS	8,000	9
521	TAXABLE INCOME	59,741	10
531	ESTIMATED INCOME TAX (before credits)	12,509	11
541	TAX CREDITS (child care, elderly, business, housing, other)	375	11
551	ESTIMATED INCOME TAX (after credits)	12,134	12
561	TAX WITHHELD AND ESTIMATED TAX PAID	12,455	12
571	AMOUNT YOU OWE OR (REFUND)	(321)	13
581	SOCIAL SECURITY OWED ON BUSINESS INCOME	0	14
591	OTHER TAXES OWED (self-employment, AMT, other)	0	14
601	NET TAX EXPOSURE (income tax, social security, other)	(321)	15
611			

Figure 1. Completed tax-forecast spreadsheet.

Cell location: B44
Formula 6: +K50
Cell location: B46
Formula 7: +K51

Cells K49 through K51 are empty, so the formulas produce a zero in each cell, not the amounts shown in **Figure 1**. From this point, most of your results will differ from **Figure 1**.

FORMULA 8: Total Deductions. Formula 8 enters the larger of two numbers — the

sum of deductions in B36 through B46 or the standard deduction in H8 through H22, which it finds by using the LOOKUP function based on the filing status in F4.

Cell location: B48
Formula: @MAX(@SUM(B47..B36), @LOOKUP(F4,H8..H22))

Your result should be 8311.
FORMULA 9: Personal Exemptions. Formula 9 multiplies the number of exemptions in F3 by \$2000 (the amount

you can claim for each exemption) and enters the result in B51.

Cell location: B51
Formula: +F3*2000

FORMULA 10: Taxable Income. Formula 10 is an IF formula that calculates taxable income. The *Test* statement subtracts total deductions (B48) and personal exemptions (B51) from adjusted gross income (B34). If the result is less than or equal to zero, the *Then* statement enters zero as the taxable income in B52. If the result is greater than zero, *Else* enters the result of the calculation.

Cell location: B52
Formula: @IF(B34-(B48+B51)<=0, 0,B34-(B48+B51))
Your result should be 60,998.

FORMULA 11: Regular Tax Calculation (Before Credits). Formula 11 copies the largest amount calculated (that is, any amount greater than zero) in the estimated-tax cells (K8 through K22) to B53.

Cell location: B53
Formula: @MAX(K8..K22)

Your result should be 0 (zero).
FORMULA 12: Regular Tax Calculation (After Credits). The *Test* statement in Formula 12 subtracts tax credits (B54) from estimated tax before credits (B53). If the result is greater than zero, the *Then* statement does the same subtraction, entering the result in B55 as the regular tax calculation after credits. Otherwise, the *Else* statement enters a zero.

Cell location: B55
Formula: @IF(B53-B54>0,B53-B54,0)
Your result should be 0 (zero).

FORMULA 13: Amount You Owe. Formula 13 subtracts the amount of tax withheld and estimated tax paid (B56) from the regular tax calculation after credits (B55) to produce the amount you owe or the refund you can expect in B57.

Cell location: B57
Formula: +B55-B56

Your result should be (12,930).
FORMULA 14: Social Security Owed on Business Income. Formula 14 is an IF/OR formula that tests for two possibilities. If net business/partnership income in B9 is less than \$400 or if wages in B4 are greater than \$51,300, the *Then* statement enters a zero. Otherwise, the *Else* statement enters the lesser of 15.3 percent of \$51,300 or 92.35 percent (reciprocal of 7.65 percent) of business income.

Cell location: B58

Formula: @IF(@OR(B9<400,B4>51300),0,.153*@MIN(51300,.9235*B9))

Formula 14 is accurate if you have business income only (that is, no wages). If you have both business income and wages, new tax provisions prevail. Be sure to check.

FORMULA 15: Net Tax Exposure.

Formula 15 adds the amount you owe or your refund (B57), Social Security owed on business income (B58), and other taxes (B59) to produce your net tax exposure.

Cell location: B60

Formula: @SUM(B59..B57)

Your result should be (11,065).

This completes the formulas shown in Figure 1, so press OA-S to store everything on disk. Now start the work-area formulas in the locations shown in Figure 2.

FORMULA 16: Estimated Tax — Single Filer.

The Test statement in Formula 16 compares the filing code in F4 with the status code in H8. If they match, the Then statement takes the largest amount produced by the formulas in the Single Filer schedule (F27 through F30) and enters the result in K8. If they don't agree, the Else statement enters invisible double quotation marks (""), which make the field appear empty.

Cell location: K8

Formula: @IF(F4=H8,@MAX(F27..F30),"")

The formula is in the cell, but the cell shows nothing. Copy Formula 16 into the two cells below it: With the cursor on K8, press OA-C to start the Copy command. Press Return twice to confirm Within worksheet and the Source. Now move the cursor to K9, type a period, move the cursor to K10, and hit Return. To tell AppleWorks which cells are No change and which are Relative, press Return, type R, and hit OA-Return. Each formula cell now looks empty. OA-Return tells the spreadsheet that the rest of the cell references are No change. If they were Relative, you'd hit OA-R instead.

FORMULA 17: Estimated Tax — Married Filing Jointly or Surviving Spouse.

The next formula, number 17, enters either the estimated tax for married couples filing jointly or a surviving spouse (F32 through F35) or makes K11 look empty.

Cell location: K11

Formula: @IF(F4=H11,@MAX(F32..F35),"")

FILING STATUS	CODE	DEDUCTION	EST TAX
Single Filer	1	3,250	
Same-over 65 OR blind	2	4,050	
Same-over 65 AND blind	3	4,850	
Married-Filing Jointly/Surv Spouse	4	5,450	12,509
Same-one over 65 OR blind	5	6,100	
Same-one over 65 AND blind	6	6,750	
Same-both over 65 OR blind	7	6,750	
Same-both over 65 AND one blind/revse	8	7,400	
Same-both over 65 AND both blind	9	7,050	
Married-Filing Separately	10	2,725	
Same-over 65 OR blind	11	3,375	
Same-over 65 AND blind	12	4,025	
Head of Household	13	4,750	
Same-over 65 OR blind	14	5,550	
Same-over 65 AND blind	15	6,350	

TAX SCHEDULES	ESTIMATED TAX
Table 1 - SINGLE FILER (SCHEDULE X)	
0	0
19,450	0
47,050	14,834
97,620	0
Table 2 - MARRIED FILING JOINTLY/SURVIVING SPOUSE (SCHEDULE Y1)	
0	0
32,450	12,509
78,400	0
162,770	0
Table 3 - MARRIED FILING SEPARATELY (SCHEDULE Y2)	
0	0
16,225	0
39,200	15,645
123,570	0
Table 4 - HEAD OF HOUSEHOLD (SCHEDULE Z)	
0	0
26,050	13,341
67,200	0
134,930	0

DEDUCTIONS	PERCENT	% OF AGI	AMOUNT	EXCESS
Unreimbursed medical/dental	7.5%	5,798	7,055	1,257
Casualty or theft loss	10.0%	7,631	0	0
Other deductions	2.0%	1,546	980	0

SOCIAL SECURITY TAXABLE (USE ONLY IF COLLECTING):	SOC SEC EXEMPT
Enter amount of benefits in K3 and interest in K4.	1 25,000
APPLEWORKS CALCULATIONS:	4 32,000
Total before exemptions	77,309
AppleWorks enters lesser of following in B17:	10 0
22,654 or 0	13 25,000

Figure 2. Work area of tax-forecast spreadsheet.

Your result should be an empty-looking cell. Copy Formula 17 into the five cells below: With the cursor on K11, press OA-C and hit Return twice. Move the cursor to K12, type a period, move to K16, and hit Return again. Press Return, type R, and hit OA-Return. You now have more empty-looking cells.

FORMULA 18: Estimated Tax — Married Filing Separately. Formula 18 enters either the estimated tax for married couples filing separately (F37 through F40) or makes K17 look empty.

Cell location: K17

Formula: @IF(F4=H17,@MAX(F37..F40),"")

The formula produces a zero. Copy Formula 18 into the two cells below it: With the cursor on K17, press OA-C, and hit Return twice. Move the cursor to K18, type a period, move the cursor to K19, and hit Return. Again, press Return, type R, and hit OA-Return. More empty-looking cells.

FORMULA 19: Estimated Tax — Head of Household. Formula 19 also works the same way Formula 16 does. It enters either

estimated tax for filers who are heads of households (F42 through F45) or makes K20 look empty.

Cell location: K20
Formula: @IF(F4=H20,@MIN(F42.F45),"")

Again, the cell looks empty. Now copy Formula 19 into the two cells below.

FORMULA 20A/B/C/D: Single Filer (Schedule X). Figure 2 shows four tax schedules, each containing four formulas (a, b, c, and d), one of which calculates the estimated tax based on taxable income. The formulas contain both the base tax and the bracket percentage.

Formula 20 (F27 through F30) produces the estimated tax for the single filer.

Formula 20a uses the AND function to establish the income level at which it works. If taxable income (B52) is greater than or equal to the amount in E27 (0) and less than the amount in E28 (19,450), the *Then* statement calculates 15 percent of the taxable income. If taxable income is outside these limits (either below or above), the *Else* statement enters a zero. This prevents both a negative estimated tax when taxable income is less than zero and an improper calculation when taxable income is greater than the first level.

Cell location: F27
Formula 20a: @IF(@AND(B52>=E27,B52<E28),B52*.15,0)

Formula 20b calculates the estimated tax when taxable income is greater than or equal to 19,450 (E28) and less than 47,050 (E29). If taxable income is within these limits, the *Then* statement subtracts 19,450 from the taxable income, multiplies the result by 28 percent, and adds a base tax of 2917.50. If taxable income is outside these limits, the *Else* statement enters a zero.

Cell location: F28
Formula 20b: @IF(@AND(B52>=E28,B52<E29),(B52-E28)*.28+2917.5,0)

Formula 20c calculates the estimated tax when taxable income is greater than or equal to 47,050 (E29) and less than 97,620 (E30). If taxable income is within these limits, the *Then* statement subtracts 47,050 from the taxable income, multiplies the result by 33 percent, and adds a base tax of 10,645.50. If taxable income is outside

these limits, the *Else* statement enters a zero.

Cell location: F29
Formula 20c: @IF(@AND(B52>=E29,B52<E30),(B52-E29)*.33+10645.5,0)

Formula 20d calculates the estimated tax when taxable income is greater than or equal to 97,620 (E30). It first adds the base tax of 27,333.60 to the result of taking 28 percent of 97,620 subtracted from taxable income. It then adds this amount to the lesser of 5 percent of taxable income less 97,620 or the sum of personal or dependency exemptions, thus satisfying the surcharge provision eliminating 28 percent of personal exemptions if taxable income exceeds the top amount in the schedule. If taxable income is below this limit, *Else* enters a zero.

Cell location: F30
Formula 20d: @IF(B52>=E30,27333.6+(.28*(B52-E30))+@MIN(.05*(B52-E30),574*F3),0)

FORMULA 21A/B/C/D: Married Filing Jointly or Surviving Spouse (Schedule Y1).

Cell location: F32
Formula 21a: @IF(@AND(B52>=E32,B52<E33),B52*.15,0)

Cell location: F33
Formula 21b: @IF(@AND(B52>=E33,B52<E34),(B52-E33)*.28+4867.5,0)

Cell location: F34
Formula 21c: @IF(@AND(B52>=E34,B52<E35),(B52-E34)*.33+17733.5,0)

Cell location: F35
Formula 21d: @IF(B52>=E35,45575.6+(.28*(B52-E35))+@MIN(.05*(B52-E35),574*F3),0)

FORMULA 22A/B/C/D: Married Filing Separately (Schedule Y2).

Cell location: F37
Formula 22a: @IF(@AND(B52>=E37,B52<E38),B52*.15,0)

Cell location: F38
Formula 22b: @IF(@AND(B52>=E38,B52<E39),(B52-E38)*.28+2433.75,0)

Cell location: F39
Formula 22c: @IF(@AND(B52>=E39,B52<E40),(B52-E39)*.33+8866.75,0)

Cell location: F40
Formula 22d: @IF(B52>=E40,36708.85+(.28*(B52-E40))+@MIN(.05*(B52-E40),574*F3),0)

FORMULA 23A/B/C/D: Head of Household (Schedule Z).

Cell location: F42
Formula 23a: @IF(@AND(B52>=E42,B52<E43),B52*.15,0)

Cell location: F43
Formula 23b: @IF(@AND(B52>=E43,B52<E44),(B52-E43)*.28+3907.5,0)

Cell location: F44
Formula 23c: @IF(@AND(B52>=E44,B52<E45),(B52-E45)*.33+15429.5,0)

Cell location: F45
Formula 23d: @IF(B52>=E45,37780.4+(.28*(B52-E45))+@MIN(.05*(B52-E45),574*F3),0)

FORMULA 24: Deductions as Percentage of AGI. Formula 24 produces a percentage of AGI (adjusted gross income), so you can see if certain expenses or losses qualify as deductions. In I49, Formula 24 calculates 7.5 percent of AGI, the amount you can deduct for unreimbursed medical and dental expenses.

Cell location: I49
Formula: +B34*G49

Copy Formula 24 into I51: Leave the cursor on I49 and press OA-C. Hit Return twice. Press Down Arrow twice, and hit Return. Now press Return, and type R.

FORMULA 25: Casualty or Theft Loss. Formula 25 calculates 10 percent of AGI less \$100 (the deductible for casualty or theft loss) and enters the result in I50.

Cell location: I50
Formula: +B34*G50-100

FORMULA 26: Excess. The *Test* statement in Formula 26 looks at I49. If I49 is greater than zero (meaning you've entered a number in I49), the *Then* statement en-

ters either the amount generated in J49 less I49 or zero, whichever is greater. If I49 is equal to or less than zero (I49 contains zero or is empty), the *Else* statement enters a zero instead of the negative number you'd get by subtracting the percent of AGI amount from nothing.

Cell location: K49

Formula: @IF(I49>0,
@MAX(J49-I49,0),0)

Copy Formula 26 into K50 and K51: Leave the cursor on K49, press OA-C, and hit Return twice. Press Down Arrow, type a period, and press Down Arrow again. Hit Return and OA-R.

FORMULA 27: Total Before Exemptions. Formula 27 adds income items (B4 through B16) and tax-exempt interest (K4), subtracts total adjustments in B32, adds half the Social Security benefits received (K3), and enters the total before exemptions in I57 in the Social Security work area.

Cell location: I57

Formula: @SUM(B4..B16,

B18..K4)-B32+(K3*.5)

FORMULA 28: SS Taxable — Alternate 1.

Formula 28 enters either the Social Security taxable amount or zero. The *Test* statement checks the total before exemptions (I57) to see if it's greater than the Social Security exemption (K55 through K58) it finds by looking up your file code (F4) in the Social Security exemption table (J55 through J58). If it is greater, the *Then* statement reduces the total (I57) by the Social Security exemption in the corresponding cell (K55 through K58), divides the result by two, and enters it in E59. Otherwise, the *Else* statement enters a zero.

Cell location: E59

Formula: @IF(I57>@LOOKUP
(F4,J55..J58),
(I57-@LOOKUP
(F4,J55..J58))/2,0)

FORMULA 29: SS Taxable — Alternate 2.

Formula 29 enters either 50 percent of Social Security income or zero. The *Test* statement checks the total in I57. If this amount is greater than the Social Security exemption

(K55 through K58), the *Then* statement enters one-half of the Social Security income in G59. Otherwise, *Else* enters a zero.

Cell location: G59

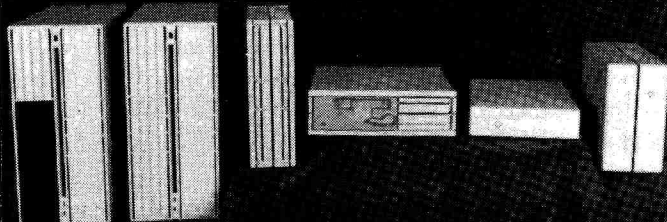
Formula: @IF(I57>@LOOKUP
(F4,J55..J58),K3*.5,0)

Your spreadsheet should now look like **Figures 1 and 2**. Press OA-S to store it. Turn on your printer. Press OA-O to bring up the *Printer Options* screen. Change the following settings: **CI** (*Chars per Inch*) to **12**, **LM** (*Left Margin*) to **.7**, and **RM** (*Right Margin*) to **.7**. Press OA-S to store the spreadsheet on disk and return the spreadsheet to the screen. Press OA-P and confirm *All*. Confirm the printer (or type a printer number, then Return). Type today's date (or, if you have a computer clock, type @, the "at" sign), and hit Return twice. The printer will whirl away, producing this year's powerful income-tax spreadsheet. □

WRITE TO RUTH K. WITKIN AT 5 PATRICIA STREET, PLAINVIEW, NY 11803. PLEASE ENCLOSE AN SASE IF YOU'D LIKE A REPLY.

Hard Disk Subsystem (plug & play)

- **A-Hive Jr-hard disk** 7.1"X7.1"X2.2"
 - **A-Hive-hard disk(expandable)** 9.9"X9.6"X4.3"
- Complete w/Apple High Speed SCSI Card**
and latest GS/OS 5.0.3 system software
- 32MB-\$525 48MB-\$579 85MB-\$619 100MB-\$815



add \$99 for RamFast Card

- **Cartridge Drive --44MB per cartridge** \$699
- **Hermit Crab--portable** 20MB\$499 40MB\$609
- **Half Shell--compact** 20Mb \$499 40MB \$609
- **Tape Subsystem w/ backup software**
155MB--\$599 50MB--\$519

A-Hive (5.25") & A-Hive Jr. (3.5")

disk enclosure--30watts- \$119 65watts- \$169

We also carry Macintosh storage products

TULIN CORPORATION

2156H O'Toole Avenue Tel: 408-432-9025

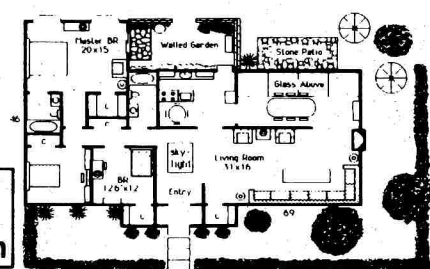
San Jose, CA 95131 Fax: 408-943-0782

Apple is a registered trademark of Apple Computer, Inc.

Circle 231 on Reader Service Card.

DESIGN YOUR OWN HOME™

on your Apple II's, IIGs, IBM, Macintosh



Winner of American Library Association Software's Greatest Hits award 1989

Architecture

Draw floor plans or side views with architectural scales, grids, overlays. Use the stud/beam repeater to calculate lumber. Dozens of architectural symbols included.

Interiors

Draw room plans, arrange furniture and explore color schemes. Includes hundreds of furniture pieces. Automatic side view feature.

Landscape

Create a full-color plan of your property. Dozens of plants included. Create a top view and use the auto side view feature to view your plan from any direction. Includes slopes, scaling, and plant "aging," plant identification, and shopping lists!

Landscape Regional Image Libraries

Contain specific plants and landscape elements for five different regions: South, East, Midwest, Southwest, and Northwest/ Mountain. \$29.95 each.

CK/MO/VISA/MC/AmEx \$4 shipping (add \$1 for each additional package)

LIBRARIES

- Architecture Library 1 (vacation, solar, A-frame, country)
- Architecture Library 2 (traditional, ranch, colonial)
- Architecture Library 3 (modern, Spanish, Tudor, Cape Cod, Victorian, French)
- Architecture Library 4 (offices)
- Interiors Library 1 (homes)
- Interiors Library 2 (offices)
- Landscape Library 1 (homes)

Each library is \$29.95 and includes four dozen plans.

SYSTEM REQUIREMENTS

- Apple II series with 64K . . . \$69.95
- Apple IIGS with IMB . . . \$89.95
- *Macintosh with IMB . . . \$99.95
- IBM with 640K . . . \$99.95
- All libraries . . . \$29.95 ea.

Compatible with Laser 128
*Call for availability

1-800-451-4871

Abracadata
the source of plan-making software
DEPT D PO Box 2440
Eugene, OR 97402
(503) 342-3030

Circle 40 on Reader Service Card.

BRIDGING THE GAP

MACINTOSH ODYSSEY

The lure of the Mac doesn't mean you have to give up your II. In our new Bridging the Gap column, we'll show you how the two machines can achieve a peaceful coexistence, sharing files and peripherals in a powerful, productive partnership.

By GREGG KEIZER

GIVE IT UP. GIVE UP THE GO-NOWHERE life of an Apple II owner and join the hot, happenin' Macintosh world.

That's the siren song Apple plays today. Its newest computers, the less-expensive Macintosh Classic, LC, and IIsi, are perfect sound bites. The Mac LC, with its Apple II emulation card, goes the furthest in calling Apple II users to the technological high ground.

But to many Apple II owners, that high ground is nothing but a stony shoal, one that's luring them to smash their trusty Apple IIs to bits against the rocks. Let's turn that siren song into a call that calms the waters. We'll have to face facts — the Apple II's glory days are long gone, and to experience the best that Apple personal computing can provide, you've got to keep the Mac in mind — but that's not to say you should drop everything, including your Apple II and a bundle of cash, and dash out for the nearest Macintosh.

What you should do is consider the Mac when you add a computer to your home, office, or school. Pairing the Macintosh with the Apple II is a smart move, and makes a lot more sense than delving into

the mysteries of PC hardware and the arcane commands of DOS software.

Bridging the Gap will show you how the Apple II and the Macintosh can co-exist and even prosper when they work together, not on opposite sides. Apple II and Macintosh computers can cooperate, can even connect, to make each platform more powerful in combination than it was alone. You need to know what works with both machines, so that you can save money by sharing peripherals and save time by trimming costly learning curves.

This column will tackle anything that shows how the Apple II and the Macintosh bridge the gap between different operating systems, different philosophies, and different applications. Look here for everything from printer sharing to software links that let you import AppleWorks files directly into Macintosh programs, from Apple II/Macintosh strategies in the home to applications in the classroom and small business.

ROOM FOR II

It's no secret that schools have the most experience getting Macs and Apple IIs to work together. Educators have hundreds of thousands of Apple IIs in their inventories.

Replacing them is usually impossible. Macs trickle in, usually first through the back door as machines for the school office and the journalism class, then as file servers for AppleShare networks. Sometimes the trickle turns to a flood and the choice becomes one of integrating the two computers. Many schools have met the challenge, keeping the best of the Apple II while moving forward with the Mac.

One such system is Haverford Township, Pennsylvania, a suburb of Philadelphia. Even as the school district goes more Mac, there's room for Apple IIs. Elementary schools have at least one Apple II Plus, IIe, or IIGs in each classroom. According to Morrell Etner, educational media specialist, "[The district's kindergartens and first and second grades are] using 48K machines and software that still run fine." The middle school also depends on the Apple IIe and II Plus, though GSeS have made a difference. Linked with AppleShare and supported by a Macintosh as the file server, the GS lab runs creative software such as Scholastic's SuperPaint.

At the moment, Macs make an appearance only in the high school. "We start out with MacWrite," says Etner, "then Microsoft Works, Microsoft Word, and Excel, then finally PageMaker. We see the computer as a tool to help us in the learning process. We're using it in a variety of different ways — for the power of the computer in simulations and science, and for the repetitive drill-and-practice."

Like a lot of other schools, Haverford is moving more toward the Macintosh. "Our order [for new computers] this year will consist of Macintosh LCs and Classics," confides Etner. "With the LC and the Apple II emulation card, you're getting two machines for the cost of one." And echoing some Apple watchers, Etner

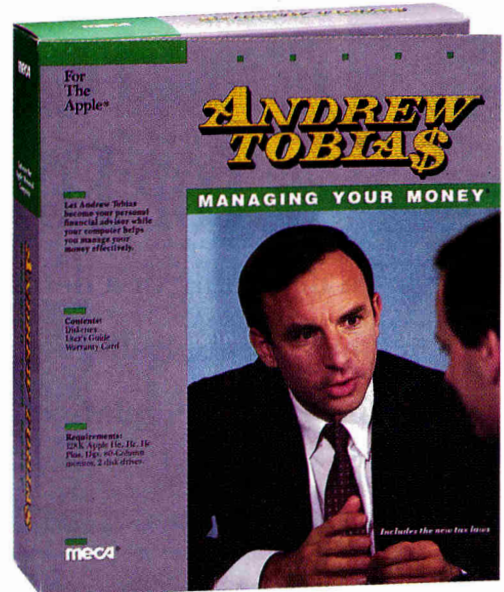
INTRODUCING

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

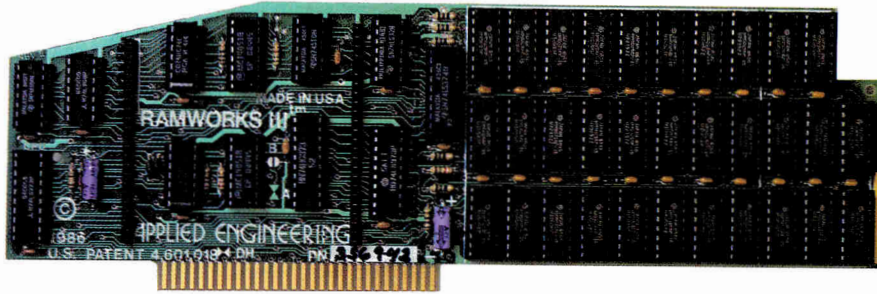
Requires: 128K Apple IIe, IIc, IIc Plus, IIgs. 80-column monitor. 2 disk drives. Contains both 5.25" and 3.5" disks.

Offer expires 6/30/91.

© 1990 MECA Software, Inc.



RamWorks III™



*The best selling, most compatible, most recommended,
most expandable card available.*

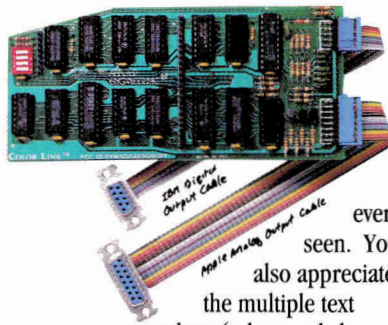
While RamWorks III™ is recognized by all memory intensive programs, NO other expansion card comes close to offering the multitude of enhancements to AppleWorks that RamWorks III does.

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.

RamWorks III with 256K	\$179
RamWorks III with 1 MEG	\$269
RamWorks III with 1.5 MEG	\$369
RamWorks III with 3 MEG	\$549
RamExpander + 1 MEG	\$180
RamExpander + 2 MEG	\$260
ColorLink RGB Option	\$129

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. Add \$10 outside U.S.A.



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.

predicts a dramatic change in the educational computing scene: "I see [the LC] replacing the GS, migrating down from the senior high to the middle school to the elementary schools. In fact, we may have an LC lab in an elementary school as early as this year." But the II still has a place in Haverford's plans. Haverford schools use GSeS to teach music, where they serve as controllers for synthesizers and other MIDI-equipped devices. "We have such a heavy investment in GSeS," Etner explains, "that I see us staying with the GS in music. It's a great machine for music."

With more than 400 Apple II computers, it's not a tough decision to keep using older technology. "The future of our Apple II Plus and IIE computers is as stand-alones," says Etner, "where a teacher sends a kid to the computer to work." Of the IIs in Haverford, only GSeS will be networked, he added, considering the computer's built-in AppleTalk support. Haverford's Macs and Apple IIs may not work together directly, but they're being used in the same schools, and each is put to its best use, according to Etner: "Our philosophy is we take the machine that does the job and we put it where it will do that job."

II CREATIVITY

In Charleston, South Carolina, the aftermath of Hurricane Hugo may still show on the outside of Ashley River Creative Arts Elementary School, but inside, Macs and Apple IIs are cooking up a storm of creativity. Though there are never enough computers, says Media Specialist Renda Taylor, the school's 30-odd Apple IIE, IIGS, and Macintosh machines are used in an impressive array of activities.

This creative-arts magnet school emphasizes the computers' word-processing power to nearly every one of its 480 students. With an Apple IIE in each class and a lab of 14 IIEs and GSeS in a lab, most children spend about 30 minutes a week working with AppleWorks, writing everything from original plays to histories of Spanish-speaking countries. When the writing's polished, the kids often hit the GS to create illustrations with Activision's PaintWorks Plus. "We do a lot of computer-assisted instruction, too," says Taylor, noting that writing and drill-and-practice

are the two main applications of any Ashley River computer, whether Apple II or Macintosh. "I don't know if we're using them in an integrated way," says Taylor. "We just use them [Macintoshes and Apple IIs] for different things, depending on the software."

Students may "stand in line" to use a Macintosh at Ashley River, says Taylor, but "they love the color on the GS" when they're drawing PaintWorks Plus illustrations to complement their reports. And children are much more likely to work alone when they use the Apple II. "On the Mac we tend to boot up the program for them, especially if it's on the hard disk," says Taylor, while Apple II use is unrestricted. Kids handle everything themselves — even first-graders know how to use AppleWorks.

Taylor plans to link some or all of the Apple IIs and Macs in Ashley River with an AppleShare network. She even has a Mac II reserved as the file server, though Hugo's devastation put the network on hold. Until then, the school will continue to use Apple IIs and Macs to bring out the creativity in its children. "The computers are an accepted thing to the kids now," Taylor adds. "But when they learn something new, they still get excited."

HIGH-TECH MIXER

Jim Giles' technology classroom at Ingle-side Middle School, Phoenix, Arizona, mixes Macs and Apple IIGS computers successfully. A small AppleShare network, driven by a Macintosh SE/30, connects four more Macs, four GSeS, and a Laser-Writer printer. Giles has set up four technology islands in his classroom, each with a specific theme: power, energy, and transportation; visual communication; manufacturing; and construction. Each island includes three workstations, each with a different activity. Pairs of seventh- and eighth-graders rotate through the stations, working through the activities.

The Macs and GSeS are an integral part of the course, running the Lab 2000 program from Creative Systems. Students can work at a GS station that lets them design and build cars on screen, or at a Macintosh station where they try their hand at desktop publishing as they create forms for Ingle-side's faculty.

"The kids see the computers as simulators and controllers," says Giles. "The GSeS run scientific tools and even a simulator of the physics of flight. They drive robot construction sets, programming land vehicles and stepper motors. We even use a GS as a control and trajectory device to launch model rockets. It's a good machine." Students also use PaintWorks to design letterhead stationery and business cards on the GS, he adds.

Giles' students move from Mac to GS and back constantly. One Mac-driven station, for instance, displays a parts list from a FischerTechnik robotic component package, then lets the kids build a device on screen with a CAD (computer-aided design) program. "They print a blueprint of their design, then go over to the modeling center to build it," says Giles.

Like many educators, Giles is eager to see what the Macintosh LC can do for his program and his students. "I'd like to get into interactive video," he muses, wishing for a paperless classroom where even the instructions at each workstation are called up from a computer-controlled videodisc. But Giles' GSeS aren't going anywhere. "We're locked into the GS," he says, proving that Macs and Apple IIs can coexist and cooperate in the classroom.

If you're a teacher, administrator student, or parent working with both the Apple II and the Macintosh, we'd like to hear about your victories (and defeats) in integrating the two systems; just write to me at the address listed below. But Bridging the Gap won't dwell on schoolroom concerns every month. In the issues to come, we'll show you how Mac software reads Apple II files, what affordable printers work best with the Mac and the Apple II, and much more.

Apples and Macs have gotten along beautifully on my desktop for years, and they will on yours — all it takes is a little encouragement. That's what Bridging the Gap is all about — ingenuity in building links between two powerful computers. □

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 AN SASE IF YOU'D LIKE A PERSONAL REPLY.



TOP FORM

If you're drowning in a deluge of bureaucratic paperwork, our all-purpose, adaptable Publish It! 3 template can bail you out.

By CYNTHIA E. FIELD, Ph.D.

NEARLY 20 YEARS AGO I DISCOVERED that forms are a fact of business life. At a large Rhode Island hospital where I was doing medical research, we even had a form for requisitioning forms — a masterpiece of ingenuity I mockingly referred to as the “forms form.”

Things haven't changed much, or so it would seem for Jim Meece, an administrator for the United Food & Commercial Workers Union, Local 464A, in Little Falls, New Jersey. The group boasts some 20,000 members, mostly meat cutters and retail clerks employed by major supermarkets in northern New Jersey and southern New York state.

On any given day Meece can just choose a job title — or two or three, for that matter. He's coordinator of dental and vision benefits, blood-bank chairman, assistant to the executive administrator, and COBRA (Consolidated Omnibus Budget Reconciliation Act of 1985) administrator. With little arm twisting, he'd happily add the moniker “Publish It! expert” to that list.

Meece says he sometimes fails to realize the extent to which he's used his Apple IIc, **AppleWorks 3.0**, and **Publish It! 3** to generate “the volume of forms” he's designed, including his recent project: a

series of COBRA enrollment forms like the one shown in **Figure 1**.

Why is COBRA enrollment important to workers? “Simply put,” Meece says, “the federal government passed a law that requires any employer or union that provides group health insurance to allow their employees or their families who are losing coverage the opportunity to continue it by making payments directly to the insurance company. This is a major event in the insurance industry. Most people who left employment [in the past] found that their coverage stopped upon separation. Those who could [afford to do so] would buy an individual policy with an outside insurance company. This law allows people to continue their group coverage through self-payment until they can get a new job and pick up new [group] coverage.”

FOOD FOR THOUGHT

Meece's COBRA enrollment form, an attractive, functional document, can easily serve as a model for any type of fill-in form you need to create for your school or business. Think of the possibilities: parental permission forms, extracurricular club or team membership forms, employee application forms, personnel forms, payroll deduction forms. Even forms forms!

Replicating part or all of the COBRA form is easy. Start up Publish It! 3, begin

working in *Size to Fit* mode (press Open apple-4 or pull down the *Special* menu), and select the tools required to create the objects listed in the accompanying **Table**.

For text frames use the text tool; for shaded rectangles, use the box tool, then select the first gray pattern in the *Set Fill Pattern* palette (*Objects* menu). For hollow rectangles (check boxes) use the box tool, but select the white color swatch instead. As you might guess, Meece created horizontal and vertical rules with Publish It!'s line tool.

If you're using an earlier version of Publish It! you can still create forms like Meece's, though you won't be able to print selected sections in red as he did with his ImageWriter II printer.

Versions prior to Publish It! 3 don't support color printing. If you prefer a GS-specific desktop-publishing (DTP) package, select analogous tools and features, including your program's color text-printing capability.

After you create each object with Publish It!, press Open apple-M or pull down the *Objects* menu and choose *ShowSpecifications*. Edit the dimensional values to conform to those listed in the **Table**. In other DTP programs, use on-screen rulers or set guides to help you size and align the objects that comprise your form.

RECIPE FOR SUCCESS

Notice how, in laying out his COBRA enrollment form, Meece divided a large, seemingly complicated project into a series of smaller, manageable parts. For one thing, each area between shaded bars is an individual text frame.

Each section heading is simply a shaded rectangle with a text-frame “label” on top of it. If, during the design process, a text label becomes “hidden” behind a shaded

Take your choice of these popular children's computer software programs worth up to \$59.95... **FOR JUST \$9.95!**

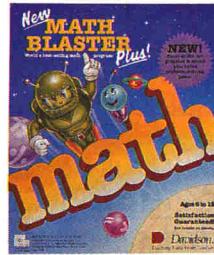
Plus shipping and handling, with membership.



■ Where in the U.S.A. is Carmen Sandiego?: Regular Price: \$49.95 Won Outstanding Software Award! Learn hundreds of U.S.A. facts. Available for IBM and Apple II, ITEM NUMBER 1



■ Where in Time is Carmen Sandiego?: Regular Price: \$49.95 Travel through Time to capture the villain and her gang. Available for IBM and Apple II, ITEM NUMBER 2



■ New Math Blaster Plus: Regular Price: \$49.95 World's best-selling math program has fun "Blasternaut" game. New Version Now Available for IBM. Apple II version's MBP, ITEM NUMBER 3



■ Super Solvers Out Numbered: Regular Price: \$49.95 A highly-recommended program that develops math, problem-solving and other skills. Available for IBM and compatibles only, ITEM NUMBER 4



■ Mavis Beacon Teaches Typing: Regular Price: \$49.95 Best Home Learning Award! Fun typing skills for all ages. Available for IBM and Apple II, ITEM NUMBER 5



■ The Oregon Trail: Regular Price: \$49.95 Travel with a pioneer family across the 19th century wilderness, learning how to survive. Available for IBM and Apple II, ITEM NUMBER 6



■ The New Print Shop: Regular Price: \$59.95 The most popular graphics software in history. Print your own cards, banners and signs. Printer required. Available for IBM and Apple II, ITEM NUMBER 7



■ Mixed-Up Mother Goose: Regular Price: \$39.95 Help Mother Goose find the missing pieces to her rhymes. Available for IBM and Apple II, ITEM NUMBER 8



■ Stepping Stones I & II: Regular Price: \$49.95 From early reading to addition, spelling and vocabulary. Colorful graphics. Available for IBM (enhanced version) and Apple II, ITEM NUMBER 9

SOFTWARE SELECTION GUIDE

Key to Colors:

- Ages 3-7
- Ages 7-10
- Ages 10-13+



Watch your children laugh and learn...with software that's fun!

You've got the children. You've got the computer. Now you can bring the two together and turn leisure time into learning time with software that's fun! The Learning Adventure Computer Club takes the work out of software selection for you. We review hundreds of computer programs for youngsters — invite children like yours to test them — then select only the ones that combine active fun with measurable learning in:

- * MATH * SOCIAL SCIENCE AND GEOGRAPHY * SCIENCE
- * LANGUAGE ARTS AND READING * CRITICAL THINKING SKILLS
- ...AND MORE IMPORTANT SKILLS!

Software Geared to Your Child's Age and Interests

To find out which programs are best for your child, check the colored square by each program: they're keyed in three age groups. Blue programs introduce your 3-7 year-olds to the computer with activities that arouse their curiosity...capture their imagination...and instill a lifelong love of learning. Red programs turn the Three R's into rip-roaring adventures for 7-10 year-olds with programs developed to supplement their education and turn their weaknesses into strengths. Green programs stretch the minds of 10-13+ year-olds with sophisticated software that make academic challenges fun and rewarding!

How the Club Operates:

Try your first computer program FREE for 15 days at no risk or obligation. Just select the software package of your choice, fill out the coupon and mail it today.

We'll send you the program you select. If you are pleased with the program, you'll pay for it at the Charter Members' price of just \$9.95 plus shipping and handling, a savings of up to \$50.00 off the retail price.

Then about every four weeks (13 times a year) you'll receive a new Parents Newsletter with details about the next selection for your child. To receive the main selection, you need do nothing — it will be sent automatically. If you wish to order an alternate selection, or wish no selection at all, simply return the card we provide to tell us your choice. You will always have at least 10 days to decide.

Enjoy a 15-Day Free Trial

What's more, you will always have 15 days to preview each shipment and return any program you don't want. Your only commitment is to purchase three additional selections in the next year at regular club prices. You may cancel your membership anytime thereafter. You have absolutely nothing to lose, and a whole new world of fun and learning to gain for your children. So don't wait: return the coupon today!

Exciting Newsletter...FREE!

Charter members receive the Learning Adventure Computer Club Parents Newsletter FREE. Featuring a host of recommended software for children 3-13+!

Mail to: Learning Adventure™ Computer Club
925 Oak Street, Scranton, PA 18515 Dept. SARA21

YES! Please send me the program I have indicated below to preview for 15 days at no risk or obligation. I may return the program after 15 days and have no further obligation. If I am pleased with the program, I'll pay for it at the special new member price of only \$9.95 plus \$2.95 shipping and handling, and enroll as a new member under the terms outlined on this page. As a new member, I need to buy just 3 more selections at regular club prices in the next year and may cancel any time thereafter.

Name _____
Address _____
City _____ State _____ Zip _____
Telephone () _____

1. Please send me item number _____ to preview. (Please fill in identification number of program shown above.)

2. AGE of child (check one):
 3-7 7-10 10-13+

3. Computer you own and size of disk required (check one):
 IBM/Tandy & Compatibles with 5 1/4" disk drive
 IBM/Tandy & Compatibles with 3 1/2" disk drive
 Apple II Family & Compatibles with 5 1/4" disk drive

4. Child's name _____
Child's birthdate: Month _____ Day _____ Year _____

5. Please check below if you have a:
 Printer Modem Color Monitor

6. Parent's Signature _____

We reserve the right to request additional information or reject any application or cancel any membership. Limited to new members in the continental USA only excluding AK. Sales tax will be added in PA and CA. We'll send you details of the clubs operation with your enrollment shipment, and you have a 15-day no-obligation privilege to decide if you wish to continue as a member.

bar, select the bar and then choose *Move to Back* from the *Objects* menu to reorient items correctly.

Each check box on Meece's form is nothing more than a hollow rectangle. Create one according to the specifications found in the **Table** and then select, *Copy* (Open Apple-C), and *Paste* (Open Apple-V) duplicate boxes wherever you need them.

Making check boxes this way is an uncomplicated alternative to using a check-box "dingbat." A *dingbat* is a typographic symbol, one series of which is included in the public-domain font known as *Zapf Dingbats*.

Public-domain fonts compatible with Publish It! 3 and GS desktop-publishing programs are available from user groups, on-line services, and commercial freeware libraries.

For date and signature lines Meece used a series of shift-underline key presses instead of drawing rules with the line tool. Using the line tool would require tedious

and frustrating alignment shifts if text were edited later on.

Meece's choice of typeface (*Font* menu) is simple: He used 24-point plain Deerfield for the heading (**COBRA ENROLLMENT FORM**), 12-point plain Deerfield for the subhead (**CONTINUATION OF HEALTH CARE COVERAGE . . .**), and 9-point plain Deerfield for the body text. He emphasized section titles (**MEMBER INFORMATION**, **ELECTION OF COVERAGE**, and so on) with boldface type. All text is printed in uppercase.

THE RIGHT INGREDIENTS

Thanks to his extensive experience, Meece has put together a few other tricks that can help novice form crafters get started. "One good rule of thumb is to establish the text areas first," he notes.

Meece types text and checks spelling with the AppleWorks 3.0 word processor. Trying to do that on the screen version of the form itself can cause eyestrain, so

Meece imports the already edited text into its appropriate text frame on his Publish It! template.

For extensive typeface, style, or size changes, Meece inserts the I-beam tool at the beginning of the targeted text and then presses Open apple-E (or pulls down the *Edit* menu). Finally, he chooses the attributes he wants from the *Font* menu.

Before starting a new form, Meece sets his document size (*Page* menu) to *Legal* (8.5 by 14 inches) so that he can have access to 3 inches of work area below the standard form. In the bottom text frame, he types text in *Show Full Size* mode (Open apple-I or *Special* menu) and later resizes the text frame, if necessary, with the pointer or the *Show Specifications* feature.

JUST DESSERTS

Jim Meece enjoys one significant "perk" most of us don't: His union has its own print shop. As he points out, "My computer and a photocopier couldn't produce

COBRA ENROLLMENT FORM
CONTINUATION OF HEALTH CARE COVERAGE
WITH SELF PAYMENT OF PREMIUMS

IF YOU ARE SELECTING SINGLE OR FAMILY HEALTH CARE CONTINUATION COVERAGE (PART-TIME MEMBERS ARE NOT ENTITLED TO FAMILY COVERAGE), YOU MUST COMPLETE ALL INFORMATION REQUESTED ON THIS FORM. ANY FORM INCOMPLETE OR UNSIGNED WILL BE RETURNED. FULL-TIME MEMBERS MUST HAVE SPOUSE SIGN ALSO.

MEMBER INFORMATION

MEMBER NAME _____ SOCIAL SECURITY # _____
ADDRESS _____ EMPLOYER _____
CITY _____ ST _____ ZIP _____ LAST COVERED DATE _____

ELECTION OF COVERAGE

I HEREBY ELECT TO CONTINUE THE BENEFITS INDICATED IN THIS FORM FOR MYSELF, AND IF APPLICABLE, FOR THE ELIGIBLE QUALIFIED DEPENDENTS LISTED ON THIS FORM, AND I AGREE TO PAY THE PREMIUM LISTED ON THE PREMIUM CHART ENCLOSED. I HAVE READ THE NOTICE ACCOMPANYING THIS FORM AND UNDERSTAND MY RIGHTS TO ELECT CONTINUATION COVERAGE. I ALSO UNDERSTAND THE FOLLOWING:

- 1) THIS CONTINUATION COVERAGE PROVIDES BASIC HOSPITAL, MEDICAL & PRESCRIPTION COVERAGE, (MAJOR MEDICAL FOR FULL-TIME MEMBERS ONLY) AND DENTAL/VISION COVERAGE IF ALSO SELECTED. THIS COVERAGE DOES NOT PROVIDE DEATH OR DISMEMBERMENT BENEFITS.
- 2) HEALTH BENEFITS WILL BE CONTINUED FOR A MAXIMUM PERIOD OF 18 MONTHS AFTER MY TERMINATION OF EMPLOYMENT OR REDUCTION OF HOURS, PROVIDED PREMIUMS ARE PAID ON TIME FOR THAT PERIOD.
- 3) IF THIS FORM IS NOT RETURNED TO THE FUND BY THE DATE INDICATED ON THE ACCOMPANYING NOTICE, I WILL NOT BE ELIGIBLE FOR CONTINUATION COVERAGE.
- 4) PREMIUMS ARE SUBJECT TO CHANGE ONCE EACH YEAR.
- 5) THE INITIAL PAYMENT MUST COVER THE FIRST MONTHLY PREMIUM DUE AND ALL MONTHS UP THRU THE DATE OF PAYMENT. IF I HAVE NOT INCLUDED A CHECK WITH THIS FORM, ONE WILL BE SENT WITHIN 45 DAYS OR I WILL NOT BE ELIGIBLE FOR THIS CONTINUATION COVERAGE.
- 6) IF MONTHLY PREMIUM PAYMENTS ARE NOT RECEIVED BY THE FUND BY THE 30TH DAY OF EACH MONTH, THE CONTINUATION COVERAGE WILL TERMINATE. I UNDERSTAND THAT PAYMENTS OF TIMELY PREMIUMS IS MY RESPONSIBILITY AND THAT THE FUND WILL NOT SEND ME MONTHLY BILLS FOR THESE PREMIUMS. IF COVERAGE TERMINATES, IT CANNOT BE REINSTATED.
- 7) MY CONTINUATION COVERAGE WILL TERMINATE IF I AM ELIGIBLE FOR COVERAGE UNDER MEDICARE.
- 8) IF I (AND/OR MY DEPENDENTS IF ELIGIBLE) BECOME COVERED UNDER ANOTHER GROUP HEALTH PLAN (UNLESS SUCH PLAN HAS LIMITS ON PRE-EXISTING CONDITIONS), COVERAGE UNDER THIS PLAN WILL TERMINATE FOR EACH PERSON COVERED BY THE OTHER PLAN.
- 9) IT IS MY RESPONSIBILITY TO NOTIFY THE FUND OF ANY CHANGE OF STATUS OR ADDRESS (INCLUDING ANY QUALIFIED DEPENDENT COVERED UNDER THIS PLAN).

I HEREBY ELECT (CHECK ONE BOX): SINGLE COVERAGE FAMILY COVERAGE (FULL-TIME ONLY)

I ALSO WANT TO (CHECK ONE BOX): CONTINUE DENTAL & VISION CARE REJECT DENTAL & VISION CARE

I AM (CHECK ONE BOX): COVERED BY ANOTHER MEDICAL PLAN NOT COVERED BY ANOTHER MEDICAL PLAN

I HAVE READ AND UNDERSTAND THE INFORMATION AS STATED ABOVE AND AFFIX MY SIGNATURE AS ACKNOWLEDGEMENT OF SAME.

DATE _____ SIGNATURE _____

REJECTION OF COVERAGE

I DECLINE TO CONTINUE HEALTH CARE COVERAGE FOR MYSELF (AND DEPENDENTS, IF ELIGIBLE).

I DECLINE TO CONTINUE HEALTH CARE COVERAGE MY SPOUSE AND DEPENDENTS. I HAVE ELECTED SINGLE COVERAGE.

DATE _____ SIGNATURE _____

TO BE COMPLETED BY MEMBERS SPOUSE (FULL-TIME ONLY)

I AGREE WITH THE SELECTION AS MADE BY MY SPOUSE.

I CHOOSE TO SELECT COVERAGE FOR MYSELF (AND DEPENDENTS). PLEASE SEND ME AN ENROLLMENT FORM.

DATE _____ SPOUSE SIGNATURE _____

COVERED ENROLLEES (FAMILY COVERAGE ONLY)

SPOUSE NAME: _____ SOCIAL # _____ BIRTH DATE _____
CHILD #1: _____ SOCIAL # _____ BIRTH DATE _____
CHILD #2: _____ SOCIAL # _____ BIRTH DATE _____
CHILD #3: _____ SOCIAL # _____ BIRTH DATE _____

FOR ADDITIONAL CHILDREN, PLEASE USE A SEPARATE SHEET OF PAPER.

WHITE COPY - FUND OFFICE PINK COPY - MEMBER

FORM #55 - MEMBER APPLICATION

Figure 1. Publish It! 3 COBRA form.

UNITED FOOD & COMMERCIAL WORKERS UNION LOCAL 484A • 245 PATERSON AVENUE • LITTLE FALLS, N.J. 07643

WELFARE FUND
COBRA ENROLLMENT FORM
CONTINUATION OF HEALTH CARE COVERAGE
WITH SELF PAYMENT OF PREMIUMS

IF YOU ARE SELECTING SINGLE OR FAMILY HEALTH CARE CONTINUATION COVERAGE (PART-TIME MEMBERS ARE NOT ENTITLED TO FAMILY COVERAGE), YOU MUST COMPLETE ALL INFORMATION REQUESTED ON THIS FORM. ANY FORM INCOMPLETE OR UNSIGNED WILL BE RETURNED. FULL-TIME MEMBERS MUST HAVE SPOUSE SIGN ALSO.

MEMBER INFORMATION

MEMBER NAME _____ SOCIAL SECURITY # _____
ADDRESS _____ EMPLOYER _____
CITY _____ ST _____ ZIP _____ LAST COVERED DATE _____

ELECTION OF COVERAGE

I HEREBY ELECT TO CONTINUE THE BENEFITS INDICATED IN THIS FORM FOR MYSELF, AND IF APPLICABLE, FOR THE ELIGIBLE QUALIFIED DEPENDENTS LISTED ON THIS FORM, AND I AGREE TO PAY THE PREMIUM LISTED ON THE PREMIUM CHART ENCLOSED. I ALSO UNDERSTAND THE FOLLOWING:

- 1) THIS CONTINUATION COVERAGE PROVIDES BASIC HOSPITAL MEDICAL & PRESCRIPTION COVERAGE, (MAJOR MEDICAL FOR FULL-TIME MEMBERS ONLY) AND DENTAL/VISION COVERAGE IF ALSO SELECTED. THIS COVERAGE DOES NOT PROVIDE DEATH OR DISMEMBERMENT BENEFITS.
- 2) HEALTH BENEFITS WILL BE CONTINUED FOR A MAXIMUM PERIOD OF 18 MONTHS AFTER MY TERMINATION OF EMPLOYMENT OR REDUCTION OF HOURS, PROVIDED PREMIUMS ARE PAID ON TIME FOR THAT PERIOD.
- 3) IF THIS FORM IS NOT RETURNED TO THE FUND BY THE DATE INDICATED IN THE ACCOMPANYING NOTICE, I WILL NOT BE ELIGIBLE FOR CONTINUATION COVERAGE.
- 4) PREMIUMS ARE SUBJECT TO CHANGE ONCE EACH YEAR.
- 5) THE INITIAL PAYMENT MUST COVER THE FIRST MONTHLY PREMIUM DUE AND ALL MONTHS UP THRU THE DATE OF PAYMENT. IF I HAVE NOT INCLUDED A CHECK WITH THIS FORM, ONE WILL BE SENT WITHIN 45 DAYS OR I WILL NOT BE ELIGIBLE FOR THIS CONTINUATION COVERAGE.
- 6) IF MONTHLY PREMIUM PAYMENTS ARE NOT RECEIVED BY THE FUND BY THE 30TH DAY OF EACH MONTH, THE CONTINUATION COVERAGE WILL TERMINATE. I UNDERSTAND THAT PAYMENTS OF TIMELY PREMIUMS ARE MY RESPONSIBILITY AND THAT THE FUND WILL NOT SEND ME MONTHLY BILLS FOR THESE PREMIUMS. IF COVERAGE TERMINATES, IT CANNOT BE REINSTATED.
- 7) MY CONTINUATION COVERAGE WILL TERMINATE IF I AM ELIGIBLE FOR COVERAGE UNDER MEDICARE.
- 8) IF I (AND/OR MY DEPENDENTS IF ELIGIBLE) BECOME COVERED UNDER ANOTHER GROUP HEALTH PLAN (UNLESS SUCH PLAN HAS LIMITS ON PRE-EXISTING CONDITIONS), COVERAGE UNDER THIS PLAN WILL TERMINATE FOR EACH PERSON COVERED BY THE OTHER PLAN.
- 9) IT IS MY RESPONSIBILITY TO NOTIFY THE FUND OF ANY CHANGE OF STATUS OR ADDRESS (INCLUDING ANY QUALIFIED DEPENDENT COVERED UNDER THIS PLAN).

I HEREBY ELECT (CHECK ONE BOX): SINGLE COVERAGE FAMILY COVERAGE (FULL-TIME MEMBERS ONLY)

I ALSO WANT TO (CHECK ONE BOX): CONTINUE DENTAL & VISION CARE REJECT DENTAL & VISION CARE

I AM (CHECK ONE BOX): COVERED BY ANOTHER MEDICAL PLAN NOT COVERED BY ANOTHER MEDICAL PLAN

I HAVE READ AND UNDERSTAND THE INFORMATION AS STATED ABOVE AND AFFIX MY SIGNATURE AS ACKNOWLEDGEMENT OF SAME.

DATE _____ SIGNATURE _____

REJECTION OF COVERAGE

I DECLINE TO CONTINUE HEALTH CARE COVERAGE FOR MYSELF (AND DEPENDENTS, IF ELIGIBLE).

I DECLINE TO CONTINUE HEALTH CARE COVERAGE FOR MY SPOUSE AND DEPENDENTS. I HAVE ELECTED SINGLE COVERAGE.

DATE _____ SIGNATURE _____

TO BE COMPLETED BY MEMBERS SPOUSE (FULL-TIME ONLY)

I, THE SPOUSE OF THE COVERED MEMBER STATED ABOVE HEREBY STATE:

I AGREE WITH THE SELECTION AS MADE BY MY SPOUSE.

I CHOOSE TO SELECT COVERAGE FOR MYSELF (AND DEPENDENTS). PLEASE SEND ME AN ENROLLMENT FORM.

DATE _____ SPOUSE SIGNATURE _____

COVERED ENROLLEES (FAMILY COVERAGE ONLY)

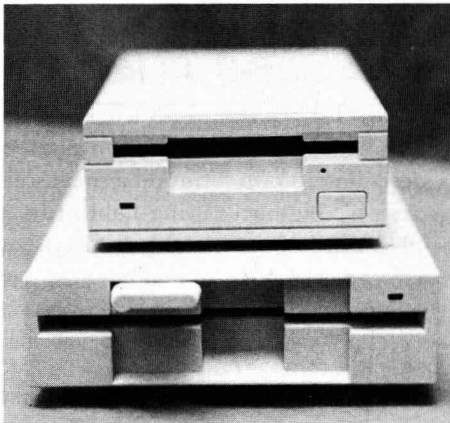
SPOUSE NAME: _____ SOCIAL # _____ BIRTH DATE _____
CHILD #1: _____ SOCIAL # _____ BIRTH DATE _____
CHILD #2: _____ SOCIAL # _____ BIRTH DATE _____
CHILD #3: _____ SOCIAL # _____ BIRTH DATE _____

FOR ADDITIONAL CHILDREN, PLEASE USE A SEPARATE SHEET OF PAPER.

WHITE COPY - FUND OFFICE PINK COPY - MEMBER

FORM #55 - MEMBER APPLICATION

Figure 2. Professionally printed COBRA form.



5 1/4" DISK DRIVES FOR APPLE

1 Year Warranty
Parts & Labor
100% Compatible
Super Quiet
Cable
Included

Apple II, II+, IIe
Franklin Ace 1000
Apple IIc, IIc+, IIGS
Apple IIe UniDisk
Laser 128
Apple IIc+, IIGS
Daisy Chain

\$79.00
\$79.00
\$99.00

AMR 3 1/2" Disk Drive
For Apple IIc+ & IIGS

\$199.00

ZIP CHIP 8 Mhz \$158.00		Extended 80 Column Card With 64K For Apple IIe 100% Appleworks Compatible 5 Year Warranty \$38.95		UNIVERSAL Disk Controller Run 800K Disc Drives on your II+ and IIe \$64.95	
NEW MPD DUAL SYSTEM We did it... You can now run Apple and IBM software on the same computer! Complete Systems ... from \$999.00 Call for details.		Super Serial Card 100% Apple Compatible 5 Year Warranty \$48.95		800K DISK DRIVE 3 1/2" for II+, IIe, MAC, LASER 128 \$179.00	
Do you have an IBM System? Want to run Apple software... You need TRACKSTAR... \$399.00		Graphics Printer Card w/ Cable or Apple II+ & IIe 5 Year Warranty Parallel \$44.95		Disk Controller Card For Apple II, II+ & IIe 5 Year Warranty \$34.95	
CHECKMATE PRODUCTS					
PRO TERM \$78.50	MultiRam RGB IIe 0K to 1 Meg. from \$121.00	LASER 128 Computer 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		CPM Card \$34.95 IIe Numeric Keypad \$34.95 II+ & IIe RF Modulator \$15.95	
MultiRam IIc 0K to 768K from \$88.50	MultiRam IIc 0K to 1 Meg. from \$105.00	DISKETTE STORAGE W/Lock 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 50 Disks \$6.95 3 1/2 Holds 100 Disks \$8.95		Cooling Fan For Apple II+ & IIe With Surge Suppressor \$26.95	
Memory Chips Call		II+ Owners 16K Card \$34.95 128K Card \$64.95 80 Column Card \$48.95 Plus Works \$49.00 5 Year Warranty		Cooling Fan For Apple IIGS No Noise Interference \$19.95	
MPD 4 Meg GS Card 0 Meg to 4 Meg from \$59.00		SWITCH BOXES 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		ACCESSORIES Mouse Pad \$4.95 Disk Notcher \$4.50 Disk Clean 5 1/4 \$4.00 Disk Clean 3 1/2 \$4.00 LASER Add on's Call Mouse \$49.00 Printers Call	
Super Expander IIe 0K to 1 Meg from \$52.50 IIc 0K to 1 Meg from \$65.50		Cables From \$9.95 IIe to Modem IIc to Modem IIe to IMG I IIc to IMG II IIe to IMG II Others Talk & Data Kits SCSI Cables		Replacement Keyboard for IIe \$55.00	
GS Mouse \$59.00		Prices subject to change without notice		5 Amp Pwr. Supp. II, II+ & IIe \$49.00	
Green or Amber Monitor \$99.00				Joystick for Apple IIe, IIc, IIc+, & IIGS With Fire Button Same as Mach III \$24.95	

We Ship 2nd Day Air Continental US Only

VISA & MASTERCARD — NO EXTRA CHARGE DEALER PRICING
Shipping Most Items \$5.00 / Drives \$7.00 / Computers Call / C.O.D. + \$3.50

We Ship 2nd Day Air Continental US Only

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

We carry only the Highest Quality products for your Apple. That's why we are the LARGEST and the BEST!

10 a.m. to 5 p.m. M.S.T. Mon - Fri. University & School P.O. Accepted
20% Restocking charge on returned items

UNITED FOOD and COMMERCIAL WORKERS INTERNATIONAL UNION LOCAL #464A, affiliated with A.F. of L. - C.I.O.

WELFARE FUNDS

Local Officers:
 JOHN T. NICCOLAI
 RAMON RANCO
 JOHN NICCOLAI, SR.
 WALTER V. BERNACKI

Management Trustees:
 J. BARRON LEEDS
 Grant Smith
 MARTIN J. GUINN
 A. & P. Fox Company
 JOSEPH SHERIDAN
 Intervenors Group
 PAUL FARRO
 Shreve & Co.

Date: _____

Dear Cobra Participant:

Our records indicate that you are now age 65 and are now eligible for Medicare coverage. Under the terms on the Cobra laws, your continuous coverage will now cease. Please note that Medicare does not cover any medical condition that has been treated (pre-existing) before becoming eligible for Medicare. If there are any pre-existing conditions that will not be covered by medicare, you can continue your Cobra coverage with us.

If a covered dependent (spouse or child) will be losing coverage thru this policy due to your eligibility for Medicare, they can elect their own policy by contacting me within 60 days of your eligibility for Medicare coverage.

You must notify us of Medicare's rejection of a pre-existing condition in order to continue your Cobra coverage.


Sincerely,

 Jim Meece
 Cobra Administrator

Figure 3. Publish It! letter with address area sized to fit window envelope.

the number of forms necessary [for my department] to function on a daily basis.”

For a run of 5000 COBRA enrollment forms on two-part carbonless paper, the union's print shop charges \$715. The professionally printed version is shown in **Figure 2.**

AND OTHER GOODIES

Nevertheless, thanks to Publish It! 3, Meece estimates he saved at least \$150 in layout and proofing charges for this project alone. Add up the myriad forms, rate cards, and letters he produces for the United Food & Commercial Workers Union local, and the savings prove substantial indeed.

Meece's Publish It! 3 projects save a lot of time, too: For example, he outlines an address area on letters such as the *Notice of*

PRODUCT INFORMATION

AppleWorks 3.0

Clarix Corp.
 5201 Patrick Henry Drive
 P.O. Box 58168
 Santa Clara, CA 95052
 (408) 727-8227
 \$249

Publish It! 3

Timeworks Inc.
 444 Lake Cook Road
 Deerfield, IL 60015
 (708) 948-9200
 \$129.95

Medicare Eligibility shown in **Figure 3.** All he has to do is fold the completed letter and insert it into a window envelope, eliminating the need to address the envelope separately.

APPETITE FOR SAVINGS

After designing the COBRA enrollment form, Meece was curious to know what the finished forms would cost if he hadn't used the union print shop's presses, two-part carbonless paper, or two-color printing. A local quick-printer in the Little Falls area quoted a price of \$129 for 5000 photo-

copies of any camera-ready letter or form.

Says Meece, "Any company involved in designing its own forms on a small scale can save big bucks using Publish It! 3. Just think — with the money you save, you could go out and buy your own photocopier!" □

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 A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

Object	Left Start	Top Start	Width	Height	Color
TEXT FRAMES					
Heading	0.500	0.000	7.500	1.160	black
Member Text	0.500	1.440	7.500	0.840	black
Coverage Text	0.500	2.500	7.500	4.900	black/red
Option Text 1	3.015	6.120	2.262	0.740	red
OptionText 2	5.427	6.120	2.534	0.720	red
Rejection Text	0.645	7.701	7.250	0.450	red
Signature Text 1	0.500	8.143	7.500	0.290	red
Spouse Text	0.645	8.729	7.250	0.419	red
Signature Text 2	0.500	9.250	7.500	0.293	red
Enrollees Text	0.500	9.779	7.500	1.125	black
Bar 1 Label	0.550	1.230	1.575	0.140	black
Bar 2 Label	0.550	2.313	1.700	0.140	black
Bar 3 Label	0.550	7.454	1.750	0.140	black
Bar 4 Label	0.550	8.520	3.850	0.140	black
Bar 5 Label	0.550	9.577	3.200	0.140	black
SHADED RECTANGLES					
Bar 1	0.500	1.184	7.500	0.227	black
Bar 2	0.500	2.259	7.500	0.227	black
Bar 3	0.500	7.433	7.500	0.227	black
Bar 4	0.500	8.463	7.500	0.227	black
Bar 5	0.500	9.538	7.500	0.227	black
HORIZONTAL LINES					
H. Line 1	0.500	6.063	7.500	n/a	red
H. Line 2	0.500	6.305	7.500	n/a	red
H. Line 3	0.500	6.604	7.500	n/a	red
H. Line 4	0.500	6.870	7.500	n/a	red
VERTICAL LINES					
V. Line 1	0.500	6.076	n/a	0.833	red
V. Line 2	7.962	6.076	n/a	0.833	red
HOLLOW RECTANGLES (left to right, top to bottom)					
Check Box 1	2.885	6.118	0.120	0.120	red
Check Box 2	5.305	6.118	0.120	0.120	red
Check Box 3	2.885	6.404	0.120	0.120	red
Check Box 4	5.305	6.404	0.120	0.120	red
Check Box 5	2.885	6.680	0.120	0.120	red
Check Box 6	5.305	6.681	0.120	0.120	red
Check Box 7	0.500	7.700	0.120	0.120	red
Check Box 8	0.500	7.977	0.120	0.120	red
Check Box 9	0.500	8.729	0.120	0.120	red
Check Box 10	0.500	8.995	0.120	0.120	red

Table. Specifications for COBRA form (all dimensions in inches).

Apple LRO Computer Sales

Hard Drives 665 West Jackson Street, Woodstock, IL 60098

- Stor-Mate 30 Meg 28ms SCSI Prodrive \$ 379
- Stor-Mate 46 Meg 28ms SCSI Prodrive \$ 439
- Stor-Mate 80 Meg 24ms SCSI Prodrive \$ 529**
- Stor-Mate 100 Meg 19ms SCSI Prodrive\$ 699
- Stor-Mate 200 Meg 18ms SCSI Prodrive\$ 999
- Stor-Mate 330 Meg 15ms SCSI Prodrive\$1299
- Chinook CT-100 meg Hard Drive 19ms\$ 799
- CMS 60 megabyte Hard Drive 40ms \$ 589

RamFast SCSI with 256k Cache and hard drive purchase \$ 169

RamFast SCSI with 256k Cache w/o hard drive purchase \$ 185

- Q-Labs EasyDrive \$ 35**
- Apple DMA SCSI w/ HD purchase \$ 95
- Apple DMA SCSI w/o HD purchase \$ 105
- AE Vulcan 100 meg Int.HD(E/GS/+) \$1299
- AE Vulcan 40 meg Int.HD(E/GS/+) \$ 639
- AE Vulcan 20 meg Int.HD(E/GS/+) \$ 489

All Stor-Mate HD's include 20 megs of PD/Free/Shareware and System 5.0.4 for the IIs/EasyDrive for the Apple IIe.*

Memory and Expansion

GS-4 Memory Expansion Board with 0k-\$55; 1 meg-\$119; 2 meg-\$171; 4 meg-\$279

NCS-GS Expansion Board with 0k-\$69; 1 meg-\$129; 2 meg-\$189; 4 meg-\$299

Applied Engineering GS-Ram Plus with 0k-\$140; 1meg-\$189; 2 meg-\$245; 3 meg-\$308 4 meg-\$371; 5 meg-\$431; 6 meg-\$481

Applied Engineering GS-Ram Ultra with 0k-\$139; 256k-\$149; 512k-\$166; 1 meg-\$196 2 meg-\$256; 3 meg-\$316; 4 meg-\$371

Harris Labs GS-Sauce with 0k-\$84; 1 meg-\$149; 2 meg-\$219; 4 meg-\$329

Ram Express II for the Apple IIc+ with 256k-\$180; add \$19 per addl. 256k (up to 1 meg)

Ramworks III for the Apple IIe with 256k-\$121; add \$19 per addl. 256k

Ram Factor with 0k-\$146.50; add \$19 per additional 256k

ColorLink RGB Adaptor- \$99

1 meg 80ns Exp. sets for the Apple IIs- \$59

1 meg 80ns SIMMs (OctoRam,GS Sauce & Mac)\$59

256k Exp. kits for RW III, RE,A2GS memory- \$19

256k x 4 Exp. sets for GS-R Ultra & RamPak4GS\$17

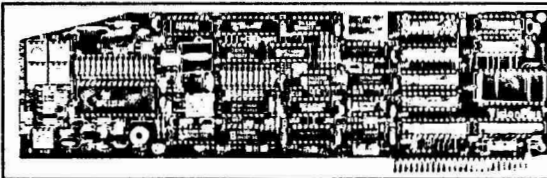
All Ram is NEW with a 5 year warranty. We guarantee compatibility with all Apple IIs/IIc/IIc+/II+ and compatible computers.

Hardware

- A+ Optical ADB Mouse IIs \$ 84
- A+ Optical Mouse (IIe/IIc/IIc+/Mac) \$ 76
- Apple IIs MIDI Interface \$ 89
- AE Audio Animator Sereo/MIDI \$177
- AE Sonic Blaster GS Stereo \$ 96
- AE Transwarp IIs \$247
- AE PC-Transporter with 768k \$259
- PC-T GS Installation kit / IIe kit \$39/29
- 8087 Math Coprocessor for PC-T \$189
- Applied Engineering Conservor \$ 77
- AE IIs/IIe Heavy Duty Power \$77/64
- AE 3.5 Drive IIs/IIe/IIc \$195
- AE UD Controller for IIe/II+ \$ 69
- Kensington Anti-Glare screen GS \$ 39

Product Spotlight

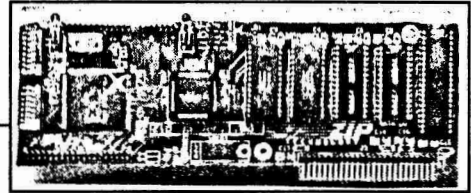
InnerExpress enhancement for Ingenuity drives-	\$ 69	Zip Chip Model 8000 for Apple IIc/+ \$139
Emerald Visions Full Screen 3200 color paint program-	\$ 79	
GS-Numerics Algebra 2/Trig Math system-	\$107	HyperStudio \$89
Quickie Hand Scanner IIs/IIe/II+	\$195	
Graphic Disk Labeler	\$ 26	
Salvation Series:		
Guardian-	\$29	Hewlett Packard DeskJet 500 printer packages
Renaissance-	\$29	HP500- \$579
Harmonic-	\$29	HP500/Harmonic Laser bundle- \$599
Wings-	\$47	HP500/Epson Emulation card/Harmonic bundle- \$669
Exorciser-	\$27	HP DeskJet Inkjet replacement- \$ 27
Deliverance-	\$29	HP Emulation cartridge for use w/ DJ 500 & 8-bit software- \$ 79



Visionary-
The realtime video digitizer for the GS.
\$289

Zip Board GSX

Model 1600 8 MHz accelerator board for the GS. \$257



Apple Computers & System Hardware

- Apple IIs CPU with 1 meg, mouse and keyboard \$869
- Apple IIs Color RGB Monitor \$460
- Apple 3.5 Drive IIs \$329
- Apple ImageWriter II Color printer with 32k buffer \$459
- Magnavox Color RGB Monitor CM8764074G with cable \$319

Modems

- AE DataLink 1200 bps Internal \$139
- AE DataLink 2400 bps Internal \$179
- AE DataLink 2400 bps Express External \$189
- AE DataLink 2400 bps Express with MNP Level 5 \$239
- Cardinal 2400 bps External \$109
- Cardinal 2400 bps External with MNP Level 5 \$174
- Hayes V-Series 900 V.42bis Modem \$569
- US Robotics Courier HST 14.4kps V.42bis Modem \$599
- US Robotics Dual Standard 14.4 HST/V.32 Modem \$949

No surcharge for Visa/MC. Add \$5 for Fed Ex. COD service. Add \$4 for UPS COD service. Illinois residents add 6.5% sales tax. All hardware may be returned within 15 days of receipt with no restocking fee. Shipping charges vary. Prices subject to change without notice.

IIGS Games

- The Immortal- \$36.50
- Rastan- \$28.00
- Space Ace- \$49.00
- FutureShock Entertainment System v2.0 w/ FuturePad- \$59.00

Joysticks

- CH Products-**
- FlightStick- \$54.00
- Mach II- \$31.00
- Mach III- \$37.00

We Ship



To order, call (800)869-9152

FAX: (815) 338-8597
Inquiries/Tech Support (815) 338-8913
Open M-F, 9-8, Sat. 12-5 CST
School P.O.'s / COD's accepted!



TOOLS OF THE TRADE

Learn to tap into the power
of the Toolbox and you'll make
a splash on the screen of your IIGS.

By **JOE ABERNATHY**

SO YOU WANNA BE A GRAPHICS cowboy. You may be an experienced programmer, or you may be taking your first shaky steps. But no matter who you are, your brain is filled with thoughts of exploding sunbursts, delicately colored panoramas, and starships giving their pilots whiplash. You've seen what your GS can do and you hunger for the means to do it, but you think it'll take a degree in advanced hyperbolic programming. Not so! Thanks to the Toolbox — a thoughtfully designed programmer's interface and an integral part of GS/OS — you can make your Apple do some amazing things.

The Toolbox is a collection of prewritten routines, or programming tools you can call from within your program. In both GS/OS and Macintosh programs, everything you see on the screen, including text and graphics, is drawn using a group of tools known collectively as QuickDraw II in GS/OS and QuickDraw in the Macintosh. With these tools, you can produce pull-down menus, dialog boxes, text, and graphics quickly and easily.

QuickDraw II offers two resolution modes: 640 and 320. These numbers correspond to the number of pixels in

each of the 200 horizontal screen lines. Most GS programs use 320 mode, which gives them a choice of 16 colors; 640 mode offers greater resolution, but you can choose from only four colors. During the execution of a program, you can change modes, but you can't preserve the contents of a screen. Text appears as 40 columns in 320 mode and as 80 columns in 640 mode. Regardless of the mode, QuickDraw II offers the same set of drawing tools.

You can follow along with this discussion on introductory graphics programming even if you're a novice programmer. If you haven't chosen a language yet, or if you think this month's column presumes too much about your level of knowledge, read the two-part feature "Breaking the Programming Code" (June 1990, p. 50, and July 1990, p. 56).

All languages available for the IIGs let you use built-in QuickDraw II graphics, each with varying levels of performance. Assembly language is preferred for doing heavy animation, and it's required for the most sophisticated animation.

Micol Advanced BASIC (\$145) is one of the most interesting languages for free-form graphics programming. This language lets you use more screen resolutions than any other language, and it includes routines that simplify on-screen

drawing. Combined with its ability to compile straight Applesoft code, this language becomes a simple way to enliven any of the thousands of old BASIC programs that may catch your attention. For details contact Micol Systems Inc. at 9 Lynch Road, Willowdale, Ontario, Canada M2J 2V6, (416) 495-6864.

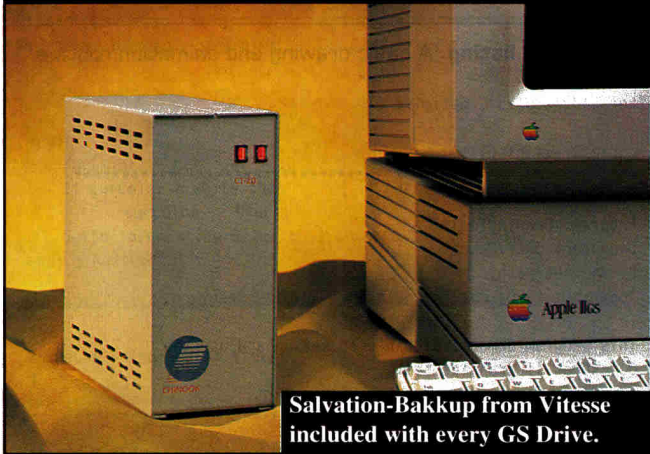
Although more difficult to write than Pascal, C retains the flexibility of assembly language — an important aspect when you start employing the most sophisticated screen-drawing and animation techniques. Three good versions are Complete Technology Inc.'s **Complete Pascal 1.1** (\$29.95), formerly TML Pascal, and The Byte Works' **ORCA/Pascal** (\$150) and **ORCA/C**. (\$150). For details contact Complete Technology at 5411 Ortega Boulevard, Suite 7, Jacksonville, FL 32210, (904) 389-7174, and The Byte Works at 4700 Irving Boulevard NW, Suite 207, Albuquerque, NM 87114, (505) 898-8183. For lighter graphics tasks, any of the other compilers will provide adequate performance.

Note that the tools available in QuickDraw II are similar to the ones in QuickDraw, the Macintosh drawing toolset — so you're learning to program on two machines instead of one.

READY, SET, DRAW

There are five basic shapes in the QuickDraw II collection — lines, arcs, ovals, rectangles, and rounded rectangles. You can create points by plotting lines one pixel long. The machine can perform five operations on the four shapes — erase, fill, frame, invert, and paint. By using the operations in combination with the shapes, you can call routines such as *PaintRect*, *FrameRect*, and *EraseRect*. Once you've drawn a shape or small picture you want to

YOU NEED SCSI AND CHINOOK IS IT!



Salvation-Bakkup from Vitesse included with every GS Drive.

With Apple's release of the new High-Speed SCSI controller card you can now take advantage of the inherent flexibility of SCSI, combined with the speed of Direct Memory Access (DMA). For example, DMA allows the Chinook CT-40 to verify over 725 blocks/sec. Combine DMA speed with the flexibility SCSI offers and there can be no doubt. SCSI is **the** solution.

The Hardware

Chinook sells only Voice Coil Actuator (VCA) disk drives -- the most reliable technology available. Unlike other technologies, VCA keeps the data heads aligned directly with your data using a technique known as closed loop servo positioning. This technique assures fast, error free data transfer every time. A Chinook VCA hard drive translates to a worry free hard drive.

"According to our benchmarks results, Chinook's CT-40 connected to the Apple II High Speed SCSI Card is the best performer of the lot -- that is, if you want a compact, competitively priced, fast, quiet fixed external hard-disk drive."

inCider Magazine, July 1990

The Software

Excellent utility software comes with every drive. IIE owners receive the Chinook SCSI Utilities and Backup II™ from Apple. IIGS owners receive Salvation-Bakkup from Vitesse and the Chinook SCSI Utilities™. Also included is a demo version of Hyperstudio™ (GS owners only) and the shareware version of DB Master™. Drives are formatted with the latest system software installed and are **"ready to run"**.

All drives come with a 30 day money back guarantee and a one year warranty. We accept Visa/MC/Money order/School Purchase Orders. To place an order or for additional information, call us today at **(800)/999-7034**.

Drive	Access Time	Auto-head Parking	Price
CT-40	25ms	Yes	\$529
CT-100	25	Yes	799
CT-200	19	Yes	1249

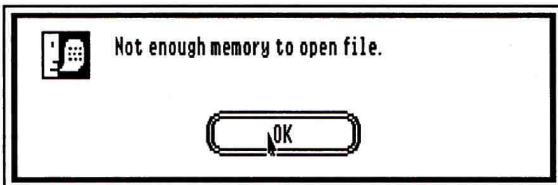
Apple SCSI Card (req'd)	99
RAMFast SCSI	199



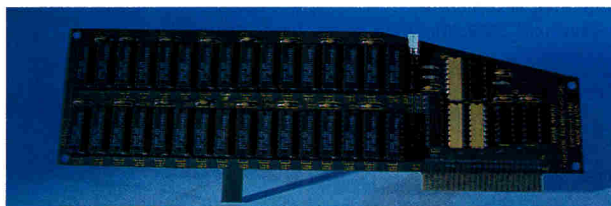
CHINOOK

The No Compromise Storage Company!

The Solution To



IS



The RAM 4000

- Great Solution for HyperCard GS™
- 100% DMA Compatible
- Supports 1, 2 and 4MB configurations
- Supports both ROM 1 and ROM 3 IIGS, no alterations
- Multi-layer printed circuit board construction (like all Apple memory cards)

- 5 year warranty and 30 day money back guarantee
RAM 4000™, 1MB \$149

Additional Memory 59.95/1MB bank



615 Main St., #635
 Longmont, CO 80501
 303/678-5544
 FAX: 303/772-1395
 Tech: 303/678-5007

To Order, or for additional information call:

800/999-7034

HyperCard GS Needs RAM

Apple IIGS Owners

Are you planning to use HyperCard GS? Do you use memory-intensive programs like AppleWorks GS, GraphicWriter III or HyperStudio? Would you like to create stacks with sound and/or graphics? Has that message "Not Enough Memory" been popping up with alarming regularity?

Apple IIE Owners

Do you use programs like AppleWorks with Timeout, Publish It 3, BeagleWrite, Tutor tech or BusinessWorks? Have you been suffering through accessing your Timeout applications from disk instead of loading them into RAM at startup? Would you like to add graphics to your Publish It! documents or Tutor tech stacks?

If you can answer yes to any of these questions, Chinook has a solution for you. You need RAM for your memory cards and we have it.

THE CHIPS ARE DOWN!

RAM chips used to be made of gold, or so it seemed. No longer. We're buying memory by the load. All orders received by 2PM MST will be shipped out the same day. Need memory fast? Overnight and 2nd day shipping are available.

Why Chinook RAM?

We stock the popular 1MB x 1, 256K x 1 and 256K x 4 chips for all Apple and compatible memory cards. The chips we distribute are made by companies like Intel, Micron Technology, Samsung and Goldstar and we guarantee them in all memory cards for 5 years.

Banish your memory headaches today.

Chinook Technology RAM, 5 Yr Warranty

1MB x 1	\$59.95/bank	800/999-7034
256K x 1	\$21.95/bank	
256K x 4	\$15.95/bank	

School Purchase Orders Welcome!

Shipping information:

Hard drives, \$9 UPS Gnd, \$18 2nd day.
 RAM cards and chips, \$3 UPS Gnd, \$6 2nd day, \$10 overnight.

Canadian Customers contact:
 Canadian Computer Outlet
 Box 7081
 Oakville, ONT L6J-6J5
 416/849-0737

move, you can define it as a *region* for easy handling (an area your Apple treats as a single shape). Specifying coordinates measured in pixels is usually all that's necessary to draw on screen. Here's an example:

```
SetMode(320);      { Set Graphics Mode }
ClearScreen(4);   { clear screen to black }
SetPenSize(4,2);  { width, height, in pixels }
SetSolidPenPat(white); { set drawing color }
MoveTo(110,100);  { horizontal, vertical }
LineTo(210,100);  { .. middle of 320screen }
```

We didn't intend this pseudo-code to represent any individual language — you'll have to translate it into syntax your compiler will recognize. This routine clears the screen to the color black, sets the color of the pen to white, and draws a horizontal line in the middle third of the screen (from 110 to 210). Now you're ready for the basic algorithm of all animation: Draw something on screen, erase it, move to a nearby location and redraw, then repeat. A number of advanced techniques can enhance speed and quality, but this simple process is your foundation.

Although the accompanying **Program listing** demonstrates basic drawing and animation techniques and can serve as a template to get you started using graphics, it doesn't run perfectly. In fact, the object flickers while it's undergoing animation. Also, you can't use a background because when you move your object you'll leave a hole. The solution depends on how much time you have, and how deeply you want to immerse yourself in programming. We'll keep it simple for now, and discuss the sophisticated techniques later.

Using standard QuickDraw II techniques there's no way to cure the flicker completely. Instead, keep the animated object's size small and its incremental movement limited, so that you'll diminish or eliminate the flicker. Most games use a background such as a picture, over which your machine draws the animated object. With a special QuickDraw II pen mode known as *transfer mode*, you can keep your background from getting destroyed by the drawing taking place in the foreground. Here's an example:

```
ClearScreen(4);    { Set Background Color to Blue }
modeXOR = 2;      { define XOR mode }
SetPenMode(modeXOR); { set pen mode }
MoveTo (110,100);  { Now, drawing this line }
LineTo (210,100);  { won't destroy background }
```

You can use this method to draw shapes over backgrounds or other shapes, without marring the background. As you move the objects, setting the pen mode to *modeXOR* restores the underlying images. One problem remains: Images caught in an overlap look gauzy. It's a minor tradeoff for access to a sophisticated tool.

If you're a beginning graphics programmer, you're set to go to work. Take a look at the accompanying **Program listing** (which is written in Pascal to make it easy to understand) to see how we used QuickDraw tools, and to get a feel for the required program infrastructure. The crucial part of learning how to create graphics images, as with all computer programming, is experimentation.

ADVANCED ANIMATION

In general, the "advanced" in "advanced animation" translates as "faster and smoother." Without getting into complex

Program listing. A basic drawing and animation routine.

```
{ $keep 'drawtools', optimize 0 }

program DrawingTools;
{*****}
*
* Program: DrawingTools
* Language: ORCA/Pascal
* By Joe Abernathy
* Copyright 1990, Joe Abernathy. All Rights Reserved.
*
* This program demonstrates how to set up and use the
* QuickDraw II graphics tools.
*
{*****}
uses
    Common, QuickDrawII, ORCASHell;    { Internal tool sets }

const
    screenMode = 320;    { 320 is best for graphics }
    screenHeight = 200;
    modeCopy = 0;        { overwrite background drawing mode }
    modeXOR = 2;         { do not overwrite background }
    maxcolors = 16;     { num colors }

var
    curColor, curSize : integer;
    r : rect;
    maxX, maxY, minX, minY : float;

{*****}
*
* Set up your program here
*
{*****}

procedure Initialize;

begin
    curColor := white;    { pen color }

end; { Initialize }

{*****}
*
* procedure Plot: Plot a point.
* By Mike Westerfield
* Copyright 1989, The Byte Works. Used with permission.
*
{*****}

procedure Plot (h, v : integer);

const
    disp = 60;           { correct for oblong screen }

begin { Plot }
    MoveTo (h, v - disp);
    LineTo (h, v - disp);
end; { Plot }

{*****}
*
* NextPenColor - Changes the pen color
* By Phil Montoya.
* Copyright 1989, The Byte Works. Used with permission.
*
{*****}

procedure NextPenColor;
```


Program listing continued.

```

begin
  curColor := curColor + 1;    { get next color }
  if curColor > white then    { if out of colors cycle }
    curColor := black;
  SetSolidPenPat(curColor);  { set pen to this color }
end; { NextPenColor }

{*****}
*
* Pause - (number of ticks)
*
{*****}

procedure Pause (howlong: integer);

var time : integer;

begin
  time = TickCount();
  while (TickCount() < time + howlong) do
    begin
    end;
end; { Pause }

{*****}
*
* Main program - demo QuickDraw capabilities
*
{*****}

begin

  StartGraph(screenMode);    { Toolbox startup for QDII }
  Initialize;                { initialize our variables }
  SetPenMode(modeCopy);      { drawing overwrite mode }

  Plot (50, 50);             { plot a point }
  NextPenColor;              { change drawing color }
  Plot (52, 52);             { plot again }
  MoveTo (10,10);
  DrawCString ("A painted box:"); { QDII does text }

  SetRect (r, 10, 22, 50, 40); { define rectangle }
  SetSolidPenPat (curcolor + 1); { define pen color }
  PaintRect (r);             { paint rectangle }
  Pause (10);

  ClearScreen(0);

  MoveTo (10,10);            { Animate }
  DrawCString ("Basic animation:");
  for i := 1 to 280 do
    begin
      SetRect (r, i+10, i+22, i+20, i+35); { define rect }
      NextPenColor;                { increment color }
      SetSolidPenPat (curcolor);    { set pen color }
      PaintOval (r);                { paint an oval }
      EraseOval (r);                { Erase it }
    end;

  Pause (10);
  EndGraph;                        { shut down tools }
end.

```

commercial processes that would require support from a team of software engineers, there are three basic techniques — buffering, shadowing, and selective updating — that'll speed up and smooth out your animations.

These techniques are really memory-management systems rather than different drawing methods. This space is too limited for an extensive tutorial, so we'll present them as concepts, with only some of the real-world data you need to implement them. You'll have to rely on research and hard work for the rest. All three of these alternate methods take advantage of the Apple II's ability to operate at 2.8 megahertz (its natural speed), then transfer the image to the screen. (When your Apple draws to the screen directly, it operates at only 1 megahertz, ensuring compatibility with older software.)

Buffering involves creating your image as a data table in your program, writing the table into a prepared data buffer, then copying it directly into screen memory. When you move your data to screen memory (think of it as a "shadow screen"), all you need to know is that it starts at location \$2000 in bank \$E1. Each screen line is \$A0 bytes long, so that you can find any location on the screen with the formula $\$E1/2000 + (\text{LineNumber} * \$A0) - \$A0 + (\text{HorizPosition} * 2)$. Keeping a virgin copy of your background screen on hand is one neat thing you can do with a buffer. This lets you quickly use a memory-to-screen copy as your erase function.

Shadowing is another technique that writes graphics to memory at a speed of 2.8 megahertz. You can access this faster "screen" by drawing to the screen in bank \$01 instead of bank \$E1. For even higher performance, you can use a buffer to write to the shadow screen. A final way to add speed is to update portions of the screen selectively. To employ selective screen updating, you'll need a way of determining when a particular part of the screen needs refreshing. The solution to this often turns out to be a simple array with cells correlating to those portions/citizens of the screen that you want to monitor. Will you write the next hit game with these newly found techniques? That's hard to predict, but with a couple of weekends' exploration, we guarantee you'll get results to be proud of. □

Just before press time we received word of a new animation toolkit under development at Apple. These tools will be aimed at average programmers seeking to add animation. Programmers will define the background as a "stage," objects as "characters," then write "scripts" or "parts" for their characters to follow. Both foreground and background scenery will be supported, allowing a character to move in front of or behind stationary objects. We'll keep you posted on release dates and availability. — eds.

WRITE TO JOE ABERNATHY AT P.O. BOX 66046, HOUSTON TX 77098; VIA AMERICA ONLINE, JOEA17; VIA THE CORTLAND PROJECT, (713) 526-9607, 2400 BPS, SUPPORTING APPLE II, UNIX, AND MACINTOSH; OR VIA INTERNET, JABERNATHY@PRO-HOUSTON.CTS.COM. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

ORDERING INFORMATION

Pascal and C language versions of our graphics programming template and dozens more assorted graphics examples are available from inCider on disk (3.5-inch, 800K). Send check or money order for \$8.50 to GS Basics Source Disk Volume 2, c/o inCider, 80 Elm Street, Peterborough, NH 03458. (No cash or phone orders, please.)

Enhance your
desktop-publishing
experience with *inCider's*

Publish It! Yourself

Cynthia E. Field, *inCider's* Press Room columnist, has designed a distinctive set of templates for use with Publish It! 2.* This collection of ten ready-to-use templates takes the bother out of setting up layouts for a variety of desktop-publishing projects. Plus, each disk is accompanied by a complete documentation booklet. You'll enjoy the ease with which you can produce expertly designed newsletters, brochures, and more!

Business people, teachers, students, hobbyists, club members, and home users alike will benefit from using these trouble-free, hassle-free templates:

Cassette Labels
Newsletters
Certificate Maker
Fold-Out Brochures
Business Forms
Card Designs
Disk Labels
Gift Tags
Reminders
To-Do Forms

SAVE \$10!

Now Only \$29.97!
That's less than \$3.00
per template!

Foreign Airmail, add \$3.95

* Requires Publish It! 2 (or 3)
Publish It! is a product of TIMEWORKS, Inc.

CALL TOLL-FREE 1-800-343-0728
(inside NH: 924-0100)

inCider Special Products
80 Elm St.
Peterborough, NH 03458

121B

REVIEWS

Continued from p. 35

Eight double-sided disks cover the 150-plus scenes through which Jerrod may pass during the course of his travels. The accompanying manual, 88 pages long, gives an excellent overview of the history of the Gold Rush and includes a number of photographs and maps presenting information you can't get during game play. A parchment map shows the western United States with the route you'll follow on two of your journeys, plus a depiction of the United States, Mexico, and South America with the sea route around Cape Horn.

The game's most outstanding feature is the quality of the graphics images. Animation is as realistic as an Apple II can make it; images are detailed; colors are varied and bright. The best thing though, is that there's a three-dimensional quality to the scenes.

The program's parser (the part of the program that interprets the commands you issue) is also advanced: It accepts whole sentences and responds properly as long as you spell key words correctly. For example, you can type either LOOK TREE or LOOK AT THE TREES and get a response. Use either a joystick or the keyboard direction keys to move Jerrod Wilson around his world and through his adventure.

You can save your game at any point in play. If anything happens that you haven't planned, just restore the game and begin play at the point you last saved. Don't save the game if Jerrod has died, however; you restore it and it asks you again if you want to restore the game — an endless loop worse than the Devil's Triangle. You must restore the game while Jerrod is still with us if you're to have any chance of making it.

For the impatient player, screen changes in the program can be maddeningly slow as you travel from one area to another — it doesn't recognize expanded memory, so scenes are loaded into RAM as needed.

The manual can be a little confusing to the novice user. It covers both the MS-DOS and Apple versions. References to the enter and function keys, for instance, may confuse the first-time Apple II user. It's not a fatal flaw.

Gold Rush! is fun. Because it's accurate geographically and historically in its portrayal of the conditions of life in the 1800s, it's also a superb educational game,

suitable for both school and home use.

The story line is believable, and with ships sailing by in the distance, birds flying across the sky, and people walking about, there's plenty of action on screen, too. Children from about age 12 on up should have no problem with the game. Gold Rush! and other simulations like it can even help children who don't respond to more routine methods of teaching, and that's worth everything.

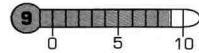
Jerry D. Greer
Bedford, IN

EUROWORKS 3.0

S.A. AU TEUR COMPANY

**P.O. Box 7459, BEAVERTON, OR 97007,
(503) 645-2306**

Foreign-language modification for AppleWorks; 128K Apple II, AppleWorks 3.0, 5.25-inch disk drive; printer recommended; no copy protection; \$24 French-only or Spanish-only; \$39 5-language edition



Writing in a foreign language isn't just a matter of knowing your grammar and vocabulary inside and out — to do a thoroughly professional job, you have to pay attention to accents and special characters, too. That's why a program such as EuroWorks is such a valuable utility. It patches AppleWorks 3.0 so that you can print French, German, Italian, Portuguese, and Spanish characters without touching your printer's DIP switches. In addition, EuroWorks offers eight common symbols every keyboard should provide, including a "cents" sign and symbolic notation for plus/minus, greater than or equal to, less than or equal to, not equal to, degrees, and the British pound sterling. With EuroWorks installed, these special symbols are accessible from USA and foreign character files.

If you're running AppleWorks 3.0 on a GS, it's true that you can access that machine's foreign-language character sets via the Control Panel, but there a couple of disadvantages: First, it's hard to remember which key is where unless you map the characters yourself; and, second, certain characters become inaccessible, having been replaced by those of the foreign character set you switched to. But with EuroWorks installed, you won't need

READER SERVICE INDEX

Reader Service	Page	Reader Service	Page		
52	5th of July Productions	90	71	Nite Owl Productions.....	90
40	Abracadata	65	*	NRI Schools.....	32A
103	Alltech Electronics Co.Inc.....	30	59	Perfect Solutions Software.....	91
*	AppliedEngineering ....9, 51, 57, 59, 61, 67,		*	Preferred Computing.....	45
87	Bible Research Systems.....	92	105	Price Busters	35
8	CDA Computer Sales.....	10,11	128	Programs Plus	22,23
115	Chinook Technology.....	77	128	Programs Plus	24,25
*	Choice Computer Products.....	91	128	Programs Plus	26,27
56	CMS Peripherals, Inc.	92	269	Public Domain Exchange.....	82
154	Compu-Teach.....	36	136	Quality Computers.....	2,3
252	Computer Enhancers.....	92	165	Quality Computers.....	5
288	Computer Friends.....	89	155	Quality Computers.....	4
134	Dayton Computer Supply	90	7	Ramco Computer Supplies.....	91
220	Educational Resources	15	90	Roger Coats.....	21
85	Fas-Track Computer Prods.....	46	240	Sensible Software	20
67	FYI Publishing	90	29	Shreve Systems.....	106
84	Golem Computers.....	31	292	Softdisk	1
27	Gosselin Computer Services	92	127	Softspoken, Inc.....	93
88	Howardsoft.....	17	47	Software Discount Int.....	86
	Howardsoft	17A	18	Sports Software Assoc.....	91
23	International Software	93	3	Springbranch Software, Inc.	92
*	inCider		60	Springbranch Software, Inc	92
	AppleWorks Gs Library.....	87	140	Timeworks.....	CV3
	AppleWorks 3.0 Pak	80	140	Timeworks.....	6
	Publish It! Yourself.....	95	231	Tulin Corp.....	65
43	Island Computer Services	92	297	USA Micro.....	14
175	Laser Computer Inc.....	CV2	*	Utilico	90
222	Learning Service	83	17	VMC Marketing Technologies	92
44	LRO Computer Sales.....	75	189	Zip Technology	CV4
186	Meca Ventures.....	69			
248	Memory Plus Distribution.....	73			
*	Nat'l Education/Learning Comp.....	71			
55	National AW User Group.....	93			
173	New Science Prospects	90			

This index is provided as an additional service. The publisher does not assume liability for errors or omissions.

inCider/A+

Problems with Advertisers: Send a description of the problem and your current address to *inCider/A+*, 80 Elm Street, Peterborough, NH 03458, attn. Rita Rivard, Customer Service Manager. If urgent, call (800) 441-4403.

Problems with Subscriptions: Send a description of the problem and your current and/or most recent address to: *inCider/A+*, Subscription Department, P.O. Box 58618, Boulder, CO 80322-8618. Or call (800) 289-0619, between 9 a.m. and 5 p.m. Mountain time, Monday through Friday. If you have a problem with payment, please have your mailing label and your cancelled check or credit card statement in front of you.

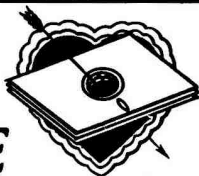
Change of address: Send an old label or a copy of your old address and new address to: *inCider/A+*, P.O. Box 58618, Boulder, CO 80322-8618. Please give eight weeks' advance notice.

Microfilm: This publication is available in microform from University Microfilms International. United States address: 300 North Zeeb Road, Dept. P.R., Ann Arbor, MI 48106. Foreign address: 18 Bedford Row, Dept. P.R., London, WC1R4EJ, England. *Dealers:* Contact Linda Ruth, Direct and Newsstand Sales Manager, *inCider/A+*, 80 Elm Street, Peterborough, N.H. 03458. Call (800) 343-0728.

Back Issues: Send \$4.50, plus \$1.00 postage for each copy to *inCider*, Back Issues Dept., 80 Elm Street, Peterborough, NH 03458. For ten or more copies postage is a blanket \$7.50. To order by telephone using VISA, MasterCard or American Express call (800) 343-0728, or (603) 924-9471 in New Hampshire.

inCider/A+ magazine is published monthly by IDG Communications/Peterborough, Inc. Entire contents copyright 1990 IDG Communications/Peterborough, Inc. No part of this IDG Communications publication may be reprinted, or reproduced by any means, without prior written permission from the publisher. All programs are published for personal use only. All rights reserved.

SAY IT WITH SOFTWARE



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

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

APPLE II GS 3 1/2" DISKS

Print Shop™ IIx 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
- GS196 100 color pictures, holidays and religion* . . . \$9
- GS207 100 color pictures saluting the wonders of nature* . \$9
- GS208 100 fancy new fonts, perfect for every occasion* . . \$9
- GS209 100 bodacious borders for that finishing touch* . . . \$9

*Requires Print Shop™ IIx to use.

Graphics/Graphic Utilities

- GS63 Cheap Paint—full-featured color prit prog (768K REQ.) (SW) \$9
- GS131,GS132 84 fonts for desktop publishing, (2 DISKS) \$18
- GS202,203 Clip Art and borders for home & business (2 DISK SET) (REQ. APPLEWORKS™) . . . \$18

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

- GS117 Flight Simulator, Pinball, Galaxy, plus more games \$9
- GS206 Rush.Hour.GS+more new arcades+puzzles (SW) \$9
- GS211,212,213 Trek Stack: All about Star Trek, The Next Generation. (REQ. HYPERSTUDIO™ 2.0) (3 DISK SET) . . . \$27
- GS216,217,218 Bouncing Bluster—great game with realistic sound/graphics. Best arcade ever! (SW) (3 DISKS) \$27
- GS219 Space Cluster—wild fast-paced, like Crystal Quest™ \$9
- GS220 Space Wizard—fight off space ships as you fly through a 3-D maze . . . \$9
- NEW GS221,GS222 Cosmocade—latest and greatest shoot-'em-up arcade game (2 DISK SET) (SW) . . . \$18
- 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
- 963 70+ b/w pics of holidays and religion* . . . \$5

*Requires Print Shop™ to use.

Games

- 127 Defender—defend the astronauts from aliens . . . \$5
- 814 Monopoly: The popular board game . . . \$5
- 974 Flobynd—great Tetris™ clone. (SHAREWARE) . . . \$5
- 976,977 World of Pinball—14 great pinball games. (SW) (2 DISKS) \$10

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

(IIx disks may be included)
plus 1 Yr. Membership

Only \$39⁹⁵
(plus \$4 s/h)

One Yr Membership (\$20 value):

- Complete fully-indexed directories of software
- Apple directory describing over 5000 programs, OR
- Apple IIx directory describing 1000 programs of new software selections
- 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 US & Canada (\$14 foreign) shipping/handling for orders. CA orders add sales tax. If ordering a 6 disk Special, please check 1 box:

Apple II Membership Apple IIx Membership

Enclosed \$ _____ by Check VISA MC

Card No. _____ Exp. _____

Name _____

Address _____

City _____ State _____ Zip _____



In CA
408-496-0624

2078-C Walsh Ave., #790
Santa Clara, CA 95050

ORDER TOLL FREE 800-331-8125

Circle 269 on Reader Service Card.

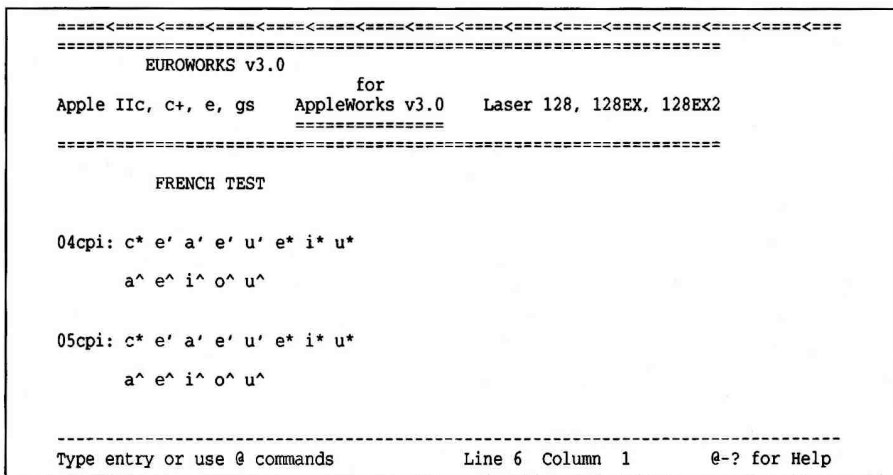
REVIEWS

confusing keyboard reassignments, and you won't have to relinquish any other characters to access foreign accents or special EuroWorks symbols.

Setup is easy. Start by printing the electronic manual (64 pages in 20 AppleWorks word-processing documents). With no index or table of contents, its current format makes for a lot of page flipping, and finding

Tally MT 85/86 or Seikosha SP-1000AP, for instance).

When installation's complete, the fun begins! Entering an accented letter or typing a foreign-language character (such as an N-tilde or an upside-down question mark in Spanish) is a breeze — you use existing keys or type in special combinations. In many cases, you simply type an asterisk (*) and the program figures out



EuroWorks: Print in another language.

particular topics in a hurry is difficult, but the documentation is thorough.

The publisher recommends installing the utility on a clean copy of AppleWorks — a copy you make directly from the original, unmodified program. I had no trouble installing it on a disk already configured with TimeOut Thesaurus and SuperFonts, however. EuroWorks 3.0 requires AppleWorks 3.0; if you use AppleWorks 2.0 or 2.1, get EuroWorks 2.0. EuroWorks 3.0 has special features that work with Beagle Bros' TimeOut UltraMacros, but you don't need the program to run EuroWorks.

You must have at least 14K free on disk. (If your AppleWorks disk is filled to the last sector with TimeOut applications, for instance, be prepared to delete some files.) Be sure to configure EuroWorks' Default Printer Type Code to match your hardware setup.

ImageWriter II and LQ users won't be able to print special EuroWorks symbols or lowercase French, Italian, Portuguese, and Spanish characters in four, five, six, seven, or eight characters per inch. At present, EuroWorks prints only on ImageWriters (I, II, and LQ) or compatibles (Mannesmann

your intent. EuroWorks even includes several data-entry macros to save keystrokes on special character insertions. You won't be able to see special symbols or foreign characters on screen — AppleWorks displays them as American English characters. Nevertheless, text prints as intended when you generate hardcopy.

EuroWorks is an inexpensive package that offers a lot of value for the money, despite its lack of a printed manual. Note that the disk also includes a copy of AW 3.0 Patcher, version 1.4, a freeware utility pack with a number of patches designed to fix a variety of minor but irksome AppleWorks 3.0 bugs. You'll find a fix for the problem that occurs when you delete your default printer after installing a new one, plus a utility that lets you print multiple copies of a database file.

The next time you need to access foreign-language character sets for recipes, vocabulary sheets, exams, newsletters, or correspondence, check out EuroWorks. It's the next best thing to having a dedicated foreign-language computer. □

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

1-800-877-9378

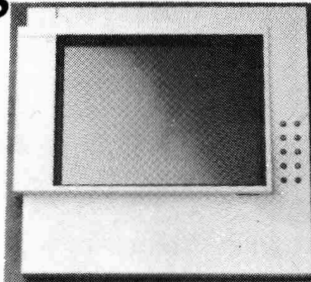
FAX 1-503-484-7499

Learning Services

For Apple® Ile/c • IIGS
IBM w/ CGA

PC Viewer
Model 200S

\$597 With ELMO
HPL355 Classroom
Overhead **\$777**
plus shipping

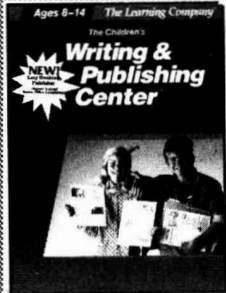


For the Macintosh™
IBM PS/2

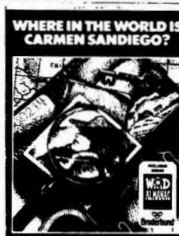
Viewer **NEW**
4800

- Black and White Display
- Most Favored by Educators

1097 With ELMO
HPL355 Classroom
Overhead **\$1297**
plus shipping



Specify Ile or IIGS
Consumer 35⁹⁵
School 59⁹⁵
Lab 109⁹⁵



World



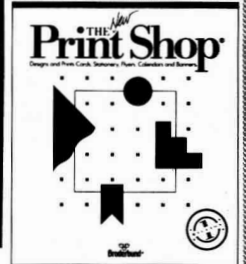
U.S.A.



Europe



Time



Apple
Mac

Home	School	Lab
27 ⁹⁵	41 ⁹⁵	87 ⁹⁵
32 ⁹⁵	44 ⁹⁵	95 ⁹⁵

	Ile	IIGS	MAC
Consumer	29 ⁹⁵	35 ⁹⁵	39 ⁹⁵
School	44 ⁹⁵	52 ⁹⁵	52 ⁹⁵
Lab	95 ⁹⁵	119 ⁹⁵	119 ⁹⁵

5.25" DSDD **DISKS** 3.5" DSDD SONY™
Black 45¢ ea. • \$42 / 100 Blue 89¢ ea.
Color 60¢ ea. • \$55 / 100 DSDD-HD Blue 1.75 ea.

RIBBONS

ImageWriter Black 245
ImageWriter 4-Color 545
Heat Transfer Black 995
Heat Transfer 4-Color 1595

ACCESSORIES

LS 64/80 Extended 80 Col Card 24⁹⁵
Mac Carry Case (extended keybd) 89⁹⁵
Mouse Mat 4⁹⁵ ComputerHand 4⁹⁵

Apple® Ile/c Compatible Color Computer System

Includes **\$549⁹⁵**
Magic Windows
Word Processor plus shipping



PIONEER® LaserDisc Player



Model
LD-V2200

\$779⁰⁰

- Enlarged Wireless Remote
- Full Screen Text Overlay
- LaserBarcode Compatibility

Includes National
Geographic VideoDisc
plus shipping

ORDER TODAY AND SAVE!
TOLL FREE
1-800-877-9378

Mail: Learning Services
PO BOX 10636
EUGENE, OR 97440
Order Your FREE Catalog Today!

**PURCHASE ORDERS
ACCEPTED**
FAX **1-503-484-7499**



LEARNING CURVE

PURSUIT OF KNOWLEDGE

By DAVID D. THORNBURG, Ph.D.

We need more hackers — in all areas of scholarship. We need to find ways to keep kids' intrinsic love of learning alive.

JUST WHAT IS A "HACKER" THESE DAYS? The popular image shows someone bathed in the glow of a video-display screen. Going without sleep or a shower, subsisting on Jolt cola and Twinkies, the hacker spends his or her entire life fathoming the depths of the latest computer game or breaking into yet another electronic network.

FOR LEARNING'S SAKE

That picture's a little behind the times now, though. Although the term "hacker" used to be synonymous with "nerd," today's computerphiles should be known more for single-mindedness than for unkempt appearance and lack of social graces.

Hackers have begun to acquire a better reputation as a group: After all, some of them started taking baths and wearing shoes — and became multimillionaires. In addition, their dedication to the pursuit of knowledge, even if only in the limited realm of computers, stands in stark contrast to the lives of many other young people who have chosen to drop out and fill their emptiness with drugs.

As we look at the challenges facing education today, it seems to me that we need more hackers — not just computer hackers, but hackers in all areas of scholarship. We need to find ways to keep kids' intrinsic love of learning alive well into high school, so that it never gets lost.

The child who's absorbed in a good book has much in common with the youngster who plays Tetris for hours on end: They're both engaged in activities filled with the opportunity to learn and to develop skills.

The poet who stays up all night searching for the perfect word, the songwriter crafting a melody, and the anthropologist piecing together the threads of an ancient civilization are all hackers, too.

Delving into the vast universe of ideas and creating your own map of this uncharted territory is one of the most powerful capabilities of

the human intellect. How can we use computers to ignite children's love of exploration?

FALLING IN LOVE

Let's start with an understanding of the common ground hackers in all areas share.

First, hackers are self-motivated — they spend significant parts of their lives engaged in an activity for no other reason than the pleasure it provides. If the hacker is rewarded with grades or money, so much the better — but it's a true love of the subject that captures the hacker's spirit and keeps him or her entranced.

Second, many hackers were introduced to the thing they love by others — they didn't find it on their own. This suggests that educators can play a significant role by helping students understand why the subjects they teach have the potential for excitement — enticing them to see pleasure in a field they may have associated previously with drudgery.

Third, the hacker is likely to chart his or her own course through a subject. He or she may start at too high a level and then have to backtrack, for instance. If you're teaching a youngster who's learning this way, he or she will expect you to be a resource for solutions, not a critic of the path he or she has chosen.

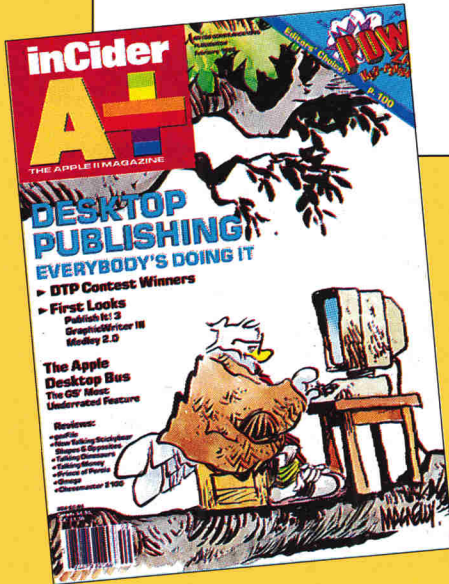
The hacker may develop proficiencies far greater than your expectations — after all, the subject he or she is studying has become an overriding passion. The problem with all this is that it depends almost entirely on the youngster's own motivation.

What do you do with the student whose passion is math, to the total exclusion of writing, for instance? Or, worse yet, the student who's so turned off to school that he or she finds nothing of interest? With students operating at their own pace in a variety of subjects, how can you ensure that you cover the required curriculum in the prescribed period of time?

The current educational agenda in the United States is derived from an industrial-age

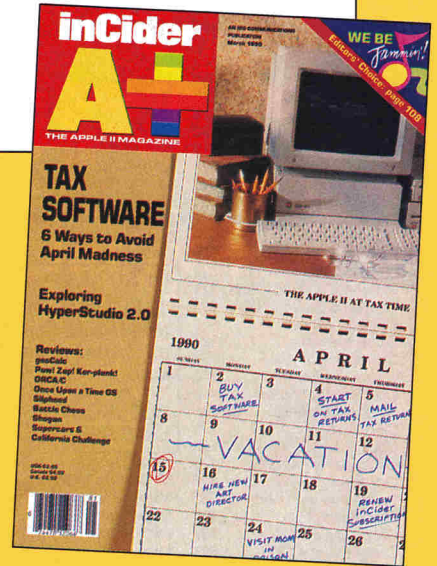
inCider/A+ brings you everything you need to know to unlock the power of your Apple II!

Get the Most from your Apple II



inCider/A+ magazine delivers the best coverage of the Apple II field with:

- Software and hardware reviews
- Ready-to-run program listings
- Off-the-shelf solutions to your computing problems
- In-depth articles to increase your productivity
- Monthly columns-AppleWorks in Action, Learning Curve, and Applesoft Advisor to name a few!
- Hints and techniques...and much, much more!



inCider/A+ has everything an Apple II user needs to know. That's why an inCider/A+ subscription can be the best investment you make for your computing future. Your "Apple II magazine" will keep you informed about all the new products for the Apple II family, and give you hands-on know how to get the most from your machine.

inCider/A+ knows that change never stops in the exciting world of Apple II computing. What's new today may be old tomorrow. And, as an Apple II user, being ready for tomorrow's changes will mean more productivity and efficiency.

For the best in software and hardware reviews, entertainment, education and answers to your most pressing questions—turn to inCider/A+

SAVE 54%! Order now and get a 2 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: 2 years (24 issues) 1 year (12 issues)
() Payment enclosed () Bill me \$43.00 Save 54% \$27.97 Save 40%

Name _____
Address _____
City/State/Zip _____

Mail to:
inCider/A+
P.O. Box 56818
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 \$34.97, Mexico \$32.97, Foreign Surface \$47.97, Foreign Airmail \$82.97. Please allow 6-8 weeks for delivery. Savings based on annual single-copy price of \$47.40.

Software Discounters International



We're The #1 Software Source For Thousands of Computer Owners

USA/CANADA
1-800-225-7638

Order Line Hours: Mon.-Thur. 9:00 AM-9:00 PM
Fri. 9:00 AM-7:00 PM - Sat. 10:00 AM-4:00 PM EST.

- Speedy Delivery
- Deep Discounts
- Incredible Selections
- Free shipping on orders over \$100
- No surcharge on MC/VISA
- Overnight & 2 day shipping available

Algebra 1 1st Semester...\$25	Land of Ys GS 768K...\$29	Silphed GS...\$23
Ancient Art of War...\$29	Laser Force GS...\$19	Skate or Die GS...\$14
Ancient Art of War at Sea 128K...\$29	Last Ninja 128K...\$9.88	Sky Travel...\$34
Andrew Tobias: Managing Your Money 128K or GS...\$95	Last Ninja GS...\$14	Smart Money GS...\$49
Balance of Power 1990 GS\$32	Leisure Suit Larry 128K or GS...\$25	Solitaire Royale GS...\$23
Bannermania...\$23	Life & Death GS...\$32	Space Quest 128K...\$32
Bank St. Writer + 128K...\$49	Life Science...\$6.88	Space Quest 2 128K...\$32
Bard's Tale 2 GS...\$19	Madden Football...\$32	Space Quest 1 or 2 GS...\$32
Battle Chess...\$29	Magic Candle...\$32	Space Rogue...\$32
Battle Chess GS...\$32	Magic Candle 2...Call	Spell It Plus 128K...\$32
Battletech...\$19	Manhunter N.Y. 128K...\$32	Spirit of Excalibur GS...Call
Blackjack Academy GS...\$25	Manhunter N.Y. GS...\$32	Stickybear ABC's...\$24
Blockout GS...\$26	Maniac Mansion...\$23	Stickybear Math 1 or 2 \$24 Ea.
Bridge 6.0 GS or 64K...\$25 Ea.	Marble Madness 128K...\$9.88	Stickybear Numbers...\$24
Carmen S.D.-Europe 128K\$29	Marble Madness GS...\$14	Stickybear Opposites...\$24
Carmen S.D.-Time 128K...\$29	Math Blaster Mystery 128K\$32	Stickybear Reading...\$24
Carmen S.D.-U.S.A. 128K...\$29	Math Blaster Plus 128K...\$32	Stickybear Spellgrabber...\$32
Carmen S.D.-U.S.A. GS...\$32	Math Blaster Plus GS...\$32	Strip Poker...\$19
Carmen S.D.-World 128K...\$25	Math & Me 128K...\$19	S.P.2 Poker 2 GS...\$25
Carmen S.D.-World GS...\$32		S.P.2 Data Females #1 GS\$14

ELECTRONIC ARTS

The ultimate 3D cube mind teaser is EZ to play, difficult to master & impossible to quit.



BLOCKOUT- GS
List \$39.95

SDI Discount Price \$26

Math Rabbit...\$24	S.P.2 Female/Male #2 GS \$14
M. Beacon Typing GS...\$32	S.P.2 Data Females #3 GS \$14
Mean 18 Golf GS...\$29	Super Password 128K...\$9.88
Might & Magic...\$16	Talking Alphabet GS...\$32
Might & Magic 2...\$32	Talking Math & Me GS...\$32
Mines of Titan...\$19	Talking Reading & Me GS\$32
M.L. Baseball...\$25	Tangled Tales...\$19
M.L.B. 89 Team Disk...\$14	Task Force GS...\$25
Mother Goose 128K or GS\$19	Teleworks Plus GS...\$65
Music Studio 2.0 GS...\$44	Test Drive 128K...\$23
My Label Maker...\$14	T.D. 2: The Duel GS...\$29
My Mail List (w/Labels)...\$14	T.D. 2: Europe Scen. GS \$16
Neuromancer 128K...\$9.88	T.D. 2: Muscle Cars GS \$16
Neuromancer GS...\$14	T.D. 2: Calif. Scen. GS \$16
Newsroom...\$23	T.D. 2: Super Cars GS...\$16
N.R. Clip Art 1, 2, 3...\$14	The Immortal GS...\$32
Omega...\$32	Think Quick!...\$32
Oregon Trail...\$25	Third Courier GS...\$32
Overrun...\$32	Times of Lore...\$25
P. I. Front Pack 1 or 2...\$25 Ea.	Tunnels Armageddon GS\$26
Pipe Dream...\$16	Ultima 4 or 5...\$39 Ea.
Pirate 128K or GS...\$29 Ea.	Ultima Trilogy...\$39
Playroom 128K...\$25	U.S. Geography...\$6.88
Police Quest 128K or GS...\$32	U.S. History 1 or 2...\$6.88 Ea.
Pool of Radiance...\$29	VCR Companion 128K...\$32
Prince of Persia...\$23	Vegas Gambler GS...\$26
Print Shop GS...\$39	War in Middle Earth GS...\$32
P.S. Companion GS...\$32	War of the Lance...\$26
P.S. Graphics Library	Wasteland...\$9.88
Party Edition GS...\$23	Wheel Of Fortune Gold...\$9.88
Sampler Edition GS...\$23	Windwalker...\$25
New Print Shop...\$32	Wings of Fury 128K...\$23
P.S. Sampler Graphics...\$16	Wizardry Trilogy...\$32
P.S. Party Graphics...\$16	Word Attack Plus 128K...\$32
P.S. School/Business Gr...\$16	Word Perfect 128K...\$97
Publisher 5 1/4 or 3 1/2...\$89 Ea.	World Class L.B. Golf...\$9.88
Publish It! 3 128K/GS...\$99	World Tour Golf GS...\$14
Qix GS...\$23	Writer Rabbit...\$32
Quest For Clues Book 2...\$19	Zany Golf GS...\$26
Rampage 128K...\$9.88	
Rastan GS...\$23	
Reader Rabbit GS...\$39	ACCESSORIES
Reader Rabbit...\$24	Animation Station...\$65
Read 'N Roll 128K...\$32	Disk Case 5 1/4 or 3 1/2...\$6.88 Ea.
Reading & Me 128K...\$25	Drive Clnr. 5 1/4 or 3 1/2...\$4.88 Ea.
Return of Werdna...\$14	Disks 3 1/2 DSDD...\$9.99 Bx.
Risk...\$25	Disks 5 1/4 DSDD...\$5.49 Bx.
Scrabble...\$25	Wico Ergostick...\$27
Shogun...\$9.88	500XJ Joystick...\$18.88
Silent Service 128K or GS \$14	Suncom Analog+Joystick \$25

Send Money Orders or Checks to:

Software Discounters Int'l., 5607 Baum Blvd. Dept. INC
Pittsburgh, PA 15206

- Fax MC/VISA orders with our fax #1-412-361-4545
- SHIPPING: Continental U.S.A.—Orders under \$100 add \$4; Free shipping on orders over \$100; AK, HI, FPO, APO—shipping is \$5 on all orders. Canada and Puerto Rico—shipping is \$7.50 on all orders. PA residents add 6% sales tax on the total amount of orders including shipping charges.
- Defective merchandise replaced within 60 days of purchase. Other returns subject to 20% restocking charge. You must call customer service for return authorization—412-361-5291. 9:53:30 EST.

CALL OR WRITE TO BE ON OUR MAILING LIST

Circle 47 on Reader Service Card.

LEARNING CURVE

Update: Notebook Computers

Last year Laser Computer (800 North Church Street, Lake Zurich, IL 60047, 708-540-8086) introduced a portable called the PC-3 (see October 1990, p. 82) — shipped with MS-DOS software, but capable of transferring document files to an Apple II or a Mac. Here are a few tips for smooth operation:

- Get a terminal program for your desktop II or Mac.
- Make sure your serial port is connected properly. If you have Apple's Super Serial Card, turn the patch plug upside down. (Check your manual for details.) If you're using a IIc or a Mac, get a null-modem adapter from your local Radio Shack.
- Try your connection out with a small text file you've backed up or don't mind losing, in case the system hangs up.

Laser has now released an updated model, the **PC-4**, with a larger display (four lines of 40 columns), a quieter keyboard, and more built-in software (a spreadsheet and BASIC plus the word processor). The big bonus is that file-transfer software is also included. The PC-4 carries a higher price tag, but if you shop around, you should be able to find one for less than \$300. — **D.T.**

model in which the human mind is seen more as a vessel to be filled than as a fire to be kindled. (See "Paradigm Paralysis," last month's Learning Curve, p. 92.) That approach is manageable, measurable, and teacher-controlled. The only problem with it is that it doesn't give students much that's useful in their lives.

It's true that math fundamentals, vocabulary development, and certain other topics require a base of factual knowledge that will always be important — but unless we present these subjects in context and integrate them with others that ignite passion in our students, we risk failing our future. Some of our brightest students tune out because deep down they know that their subjects deserve far better treatment than they receive in many classrooms.

One of the earliest justifications for educational computing was that it let kids learn at their own pace. Now, with the increased availability of multimedia in the classroom, technology lets students work according to their own learning styles, as well. But for all the lip service we've paid to this area

since the late 1970s, we have yet to provide meaningful access to computers.

Even computer-intensive schools may fail if all they offer is a number of rooms equipped with so-called "integrated learning systems," which promise improved test results by force-feeding information. Better to use computers less "efficiently" — to create measurement apparatus with Broderbund's Science Toolkit, for example, or plot complicated math functions with a program students have written themselves in Applesoft BASIC.

Rather than predigest a curriculum and remove all risk and uncertainty from it, we should present students with open-ended challenges they must solve themselves. Not only does that build their self-esteem, it helps light the fire we see burning in the eyes of intrepid hackers everywhere — a fire that illuminates the love of learning that's the hallmark of every truly educated person. □

WRITE TO DAVID THORNBURG AT 1561 LAUREL, SUITE A, SAN CARLOS, CA 94070. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

Build Your Apple IIGS Software Library

with two new collections from *inCider*.

APPLEWORKS GS PRODUCTIVITY PAK*

Ten ready-to-use templates make easy work of home, business, and school projects:

- Create customized **MEMO PADS**.
- Organize your group's **MEMBERSHIP** records.
- Design eye-catching **NAME BADGES**.
- Use **MERGE DOCUMENT** to create form letters with ease.
- Calculate your tax deduction with **AUTO MILEAGE LOG**.
- Generate an effective **RESUME** and cover letter.
- Plan healthy meals with the **NUTRIDATA** database.
- Automate your checking account with **CHECKBOOK**.
- Analyze your home **BUDGET**.
- Publish a professional-looking **NEWSLETTER**.

Each project includes a blank template and completed sample.

Accessory files illustrate reports, create labels, and even print checks! Special folders contain six public-domain fonts you can add to your System Disk and nearly four dozen graphics. Altogether we've packed more than 100 files onto a 3.5-inch disk and added a step-by-step guide to take you through each project with confidence.

* Requires AppleWorks® GS v.1.1

INCIDER'S ART GALLERY

Apple IIGS users — add flair to your company newsletter, create attractive personal stationery, or perk up a drab homework assignment. In fact, brighten up all your desktop-publishing projects with selections from *inCider's* Art Gallery. This unique collection contains **300 pieces of original artwork** designed exclusively for *inCider*. You won't find it anywhere else!

Now you don't have to be an artist to dress up your projects with unique and attractive illustrations. We've included a wide variety of topics to support your creative efforts. Choose from birds and flowers; wild and domestic animals; home, school and business images; holiday symbols and more!

A four-page Reference Chart provides complete instructions. It also identifies and illustrates each original graphic. Use the artwork as is or build your own customized collection by editing it using AppleWorks GS or another GS paint program.

inCider's Art Gallery is available in two formats: AppleWorks GS format was created specifically for use with AppleWorks GS. Or choose the Apple Preferred format if you plan to import the art into an Apple IIGS paint program.

Save \$10 when you buy both!

Name _____

Address _____

City _____

State/Zip _____

Method of Payment:

Check enclosed (made payable to *inCider* Special Products)

MasterCard Visa American Express

Card # _____ Exp. Date _____

Signature _____

Please send me the following *inCider* Special Products:

AppleWorks GS Productivity Pak at \$29.95

inCider's Art Gallery** at \$39.95

I want to **SAVE \$\$\$** Send me:

Both AppleWorks GS Productivity Pak and *inCider's* Art Gallery** for just \$59.95

** If ordering *inCider's* Art Gallery, please specify format:

AppleWorks GS Apple Preferred

Foreign air mail: Add \$3.95

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

121A

Or for faster service call toll free 1-800-343-0728.

COLORWORKS

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.

BRIGHT IDEAS

By Bill Thompson

MOST DESKTOP PUBLISHERS GO through professional ad houses to get four-color separations, but if you own an ImageWriter, a copy of AppleWorks, and a color ribbon, you can create brightly colored text at home or in school (Figure 1). AppleWorks GS users can create colored text with the flick of a pull-down menu, but with the AppleWorks 1.0 and 2.0 series, you must first set up your

color driver by creating a custom printer from the *Other Activities* menu, then send the proper codes to the printer by hand. With AppleWorks 3.0, you won't need to set up a custom printer, but you do need to enter codes in the *Printer Information* menu.

If you use a version of AppleWorks other than 3.0, select item 7, *Specify Information About Your Printer(s)*. If you've defined three printers already, you'll have to remove one. Also, earlier versions of AppleWorks let you define only one custom printer at a time. Now choose item 2, *Add a Printer*,

then add a custom printer. Figure 2 shows what your printer setup should look like.

If you're using a Super Serial Card or the ports on an Apple IIc or IIgs, leave item 5 alone. If you have a non-Apple serial interface card, check your card's manual for the correct initialization codes if you encounter problems such as *80N* printed on your documents.

Now for the control codes. There are two important things to remember:

- First, close your entries with a caret (Shift-6); if you press Return, AppleWorks will think you're adding another code.
- Second, remember that uppercase and lowercase letters aren't the same to your system. Your ImageWriter interprets *Esc N* and *Esc n* differently.

Now tell AppleWorks how to translate character-per-inch and line-per-inch formatting commands:

1. Select item 6 for the *Printer Codes* menu (Figure 3).
2. Select item 1, *Characters per inch*.
3. Type 5 and press Return.
4. Now type <Control>-N ^ (caret). Don't press Return here.
5. Repeat steps 2-4 to enter the following codes for character sizes. When you see *Escape*, just press the escape key (no spaces). Note upper- and lowercase letters.

10 cpi Esc N
12 cpi Esc E
13 cpi Esc e
15 cpi Esc q
17 cpi Esc Q

After you've entered the characters-per-inch codes, press Escape to go back to the *Printer Codes* menu and select item 2, *lines per inch*. Enter these codes the same way you entered the ones above, and with the same rules:

6 lpi Esc A
8 lpi Esc B

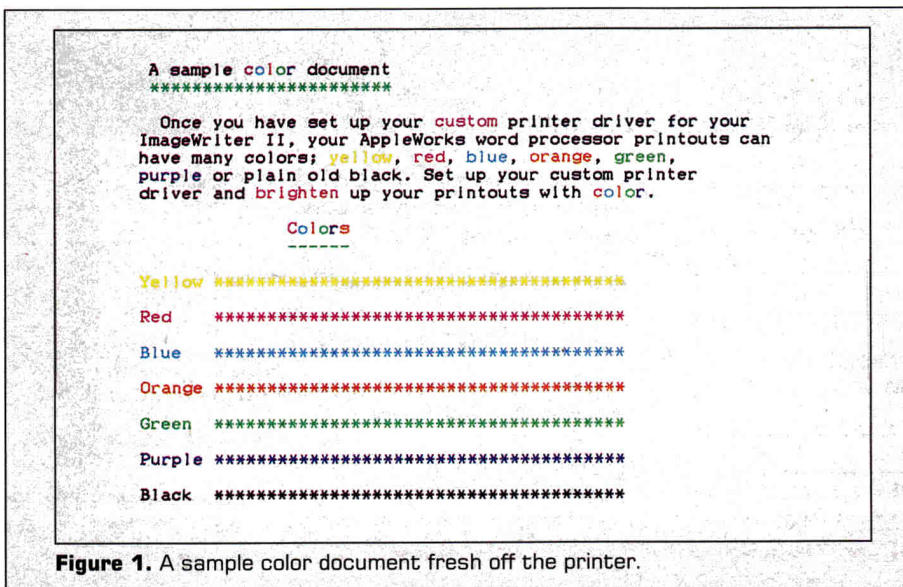


Figure 1. A sample color document fresh off the printer.

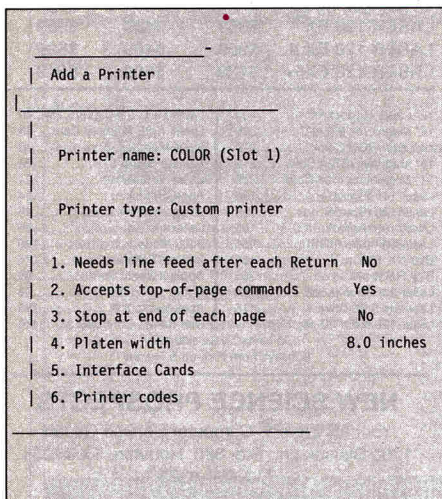


Figure 2. Printer-setup display.

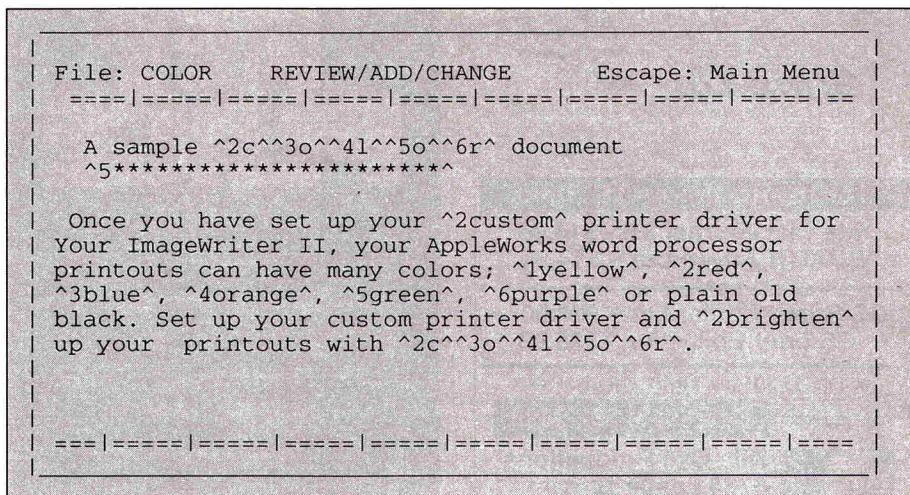


Figure 4. Sample color document on screen.

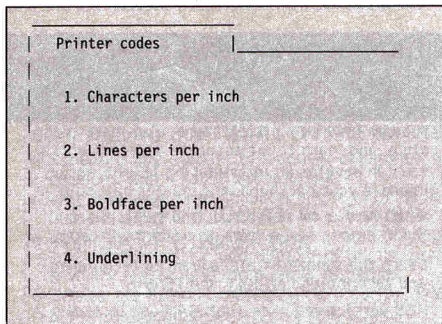


Figure 3. Printer-code menu.

ribbon is in, press the Open apple-P key combination (OA-P), and select your new custom printer driver.

If you use AppleWorks 3.0, just use the *Special Codes* option in the program's *Printer Information* menu:

- 1 Esc K
- 2 Esc KØ

When you type, follow the instructions for color, but instead of Control-B, choose the appropriate *Special Code* from *Printer Options* (OA-O). Remember — a patch of blue or some purple prose livens up any plain-vanilla document. □

Write to Bill Thompson at 1909 Athens Avenue, Yuma, AZ 85364.

Next, press Escape again to go back to the *Printer Codes* menu. Then select item 3, *Boldface*, *Subscript*, and *Superscript*. Enter these codes the same way:

- Boldface Begin** Esc K
- Boldface End** Esc KØ

Boldface Begin turns on the color printing and lets you choose the colors within the document. *Boldface End* turns off color printing. When you want to change the color of a word (or go back to black), press Control-B with the cursor in front of that word. A caret (^) will appear on screen, indicating the point where a color change starts. Decide what color you want, and type the corresponding number, following the caret. Your on-screen document will display these numbers, but your printout won't.

- 1 = yellow
- 2 = red
- 3 = blue
- 4 = orange
- 5 = green
- 6 = purple

Figure 4 is a sample AppleWorks word-processing document with several color changes coded in. Figure 1 represents a printed version of it. To print a color document, make sure your color

Never buy another ribbon!

MacInker Over 140,000 sold since 1982



Free bottle of ink, reservoir cover, ink meter and dispenser

\$45.00

MacInker™, the automatic ribbon re-inker. The Imagewriter MacInker (mod 234IM) re-inks Imagewr. I/II black & single color cartridges. The Universal MacInker re-inks hundreds of different cartridge types (including the Imagewr. LQ) with suitable adapters. Extra dark, dot matrix, lubricated ink yields a truly better than new print quality and helps extend print-head life. Average re-inkings/cartridge is 60-100. With the **Multicolor Adapter (mod M422, \$40.00)** your MacInker can re-ink the multicolor 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.

Imagewriter I/II MacInker (mod 234IM).....	45.00
Multicolor Adapter (mod M422).....	40.00
Epson MacInker (mod 271EP).....	45.00
Universal MacInker.....	75.00
Imagewriter cartridges.....3.15/ea (qty 6)	4-color.....10.00/ea
ImageWriter LQ cartridges.....14.50/ea	LQ 4 Color.....16.90
Extra ink bottle.....3.00/ea	pint.....18.50

Apple Autoswitch - Data Switches - Accessories



4 port 8 pin.....	50.00	MouseTamer*.....	12.50
Apple Autoswitch (4:1).....	149.00	<small>*eliminates interference of cord with mouse)</small>	
BothWay Autoswitch.....	89.00	Accurate Electronic Pedometer.....	15.00

Order Toll Free (800)547-3303

Computer Friends, Inc., 14250 NW Science Park Dr. Portland OR 97229
 tel. (503)626-2291 - fax (503)643-5379

Major credit cards accepted, cod, immediate shipment, 30 days money back guarantee

Slide-On Slide-On Slide-On Slide-On

Battery Kit

- Complete Instructions
- No Solder Required
- Heavy Duty Battery
- 10 Year Shelf Life
- Patent Pending

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.

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.

MARKETPLACE

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.

	Computer	MonoSys	ColorSys
LASER 128	\$335	\$399	\$510
LASER 128 EX	\$369	\$439	\$559
LASER 128 EX II	\$399	\$469	\$589
LASER 128 EXII+	\$439	\$509	\$619

12" Laser Monochrome.....	89	Laser UDC Card (3.5/5.25)....	49
12" Magnavox Mono/Comp.....	96	Laser 128E Memory Card.....	35
14" Laser RGB Color.....	219	256K Memory.....	30
13" Magnavox 8764 Color.....	259	Monitor Stand.....	28
14" Magnavox 1135 Color.....	289	Laser Safeskin.....	24
Laser 145 (Epson).....	166	Apple Safeskin.....	24
Laser 190 (Epson).....	195	Laser Joystick.....	25
Laser 190 (Apple).....	195	Laser Mouse.....	25
Laser 190 (Mac/IIGS).....	255	2400 Modem.....	125
Star NX 1000.....	185	Modem Software.....	75
Star Rainbow.....	255	Apple II Serial Card.....	85
Laser 3.5 Drive (Mac).....	178	Apple II Parallel Card.....	49
Laser/Iie 5.25 Drive.....	115	Appleworks 3.0.....	185
Laser 128 E/EX 20 Mg Hard Drive Kit with Case + Controller.....	480		

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
800-777-8288
School orders welcome

Circle 173 on Reader Service Card.

FOR YOUR INFORMATION ...

You can lower your GOLF score, eliminate that slice, and learn to hit accurate approach shots. You can develop an intimidating TENNIS serve, improve your backhand, and master ball spin.

How?... with GOLF TEACHER and TENNIS TEACHER !!!

Learn the fundamentals, advanced techniques, and terminology of GOLF and TENNIS.

IIGS version requires 1 mB RAM and includes HyperStudio stacks. HyperStudio NOT required. (\$29.95 each. Both for \$49.95)

Macintosh version requires HyperCard software or HyperCard run-time software. (\$35.95 each. Both for \$59.95)

Texas orders add 7.75% for sales tax.

IIGS, Macintosh, and HyperCard are trademarks of Apple Computer, Inc. HyperStudio is a trademark of Roger Wagner Publishing, Inc.

Send check or money order to:

FYI PUBLISHING

P.O. Box 150661, Fort Worth, TX 76108
817-599-3362

Circle 67 on Reader Service Card.

Teacher Designed

Student Tested

EDUCATIONAL SOFTWARE

Apple II Family - Simple Operation - Color - Animation - Sound
Remedial - Personalized - Certificates of Completion - Printouts

Learn Spelling Rules

Study Your Word Lists

SPELLING TUTOR

Teachers Enter Their Own Name, Class Level, & Word Lists

Change a Tedious Task to Fun

MULTIPLICATION TABLES TUTOR

Compete Against The Clock

Study At Home

Buy 2 Get 1 Free

\$49.50 each or three of the same title for \$99.00

The 5th of July Productions
122 Sunrise Drive
North Massapequa, NY 11758
(516) 293-8694

Circle 52 on Reader Service Card.

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
DIABLO HT II M/S	2.25	-
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	
NEC P1, 2, 6	4.50	
OKIDATA 182-192	3.50	4.50
PANASONIC 1080	3.50	4.50
PANASONIC 1124	4.95	5.95
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.

Circle 134 on Reader Service Card.

BACKUP 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.

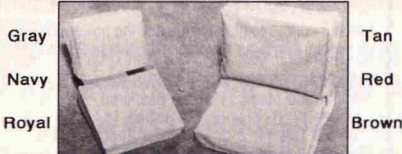
EDD 4.9 PLUS runs on apple compatibles, II+, Iie, and IIGs; price, \$129.95. Daisy chain type or duodisk drives need \$15 cable adapter. Add \$5 shipping (\$8 foreign).

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

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!

10-62 Iigs, RGB Mon & Kbd.....	29.95	10-33 Iie Mono Monitor Only.....	15.95
10-87 Iigs, KSS, RGB & Kbd.....	29.95	10-32 Iie Color Monitor Only.....	19.95
10-96 Iigs, RGB & Kbd (3 pc).....	34.95	10-07 Iie & Iie Mono Monitor.....	24.95
10-65 Iigs Mouse.....	2.00	95-24 Laser 128 CPU.....	15.95
10-67 Iigs Keyboard.....	6.95	10-60 Apple 3.5" Drive.....	6.95
10-80 Iic, Mono Mon & Strnd.....	24.95	10-38 Apple 5.25" Drive.....	6.95
10-16 Iic & Monitor Iic.....	24.95	10-59 3.5" on top 5.25".....	9.95
10-61 Iic & Color Mon Iic.....	29.95	10-37 Imagewriter II.....	15.95
10-17 Iic External Drive.....	6.95	10-82 Imagewriter LQ.....	19.95
10-58 Iie & Iie Color Monitor.....	29.95	10-90 LaserWriter II.....	24.95
10-34 Iie Computer Only.....	15.95	11-25 Personal LaserWriter.....	24.95

Add \$3.00 Shipping & Handling (Check, MO, COD, VISA/MC)

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.

Choice Computer Products

PO BOX 8432, CEDAR RAPIDS, IA 52408
CUSTOMER SATISFACTION IS OUR #1 PRIORITY

RECIPIENT OF APPLIED ENGINEERING'S "TOP TEN DEALER" AWARD
FACTORY INSTALLED / WARRANTED RAM

PC TRANSPORTER.....	245	DATALINK 2400.....	154
SINGLE TRANSDRIVE.....	182	DATALINK EXPRESS.....	175
DUAL TRANSDRIVE.....	273	SERIAL PRO.....	98
IIGS KIT.....	35	PARALLEL PRO.....	70
IIE KIT.....	28	TIMEMASTER.....	70
IBM KEYBOARD.....	98	COLORLINK.....	91
RAMWORKS III 256K.....	126	IIE H.D. POWER SUPPLY.....	56
RAMFACTOR 256K.....	161	IIGS H.D. POWER SUPPLY.....	70
GS RAM II 1MEG.....	126	AE 5.25 DISK DRIVES.....	105
GS RAM ULTRA 256K.....	140	AE 3.50 DISK DRIVES (I and Mac).....	196
GS RAM + 1 MEG.....	162	AE 3.5 CONTROLLER.....	56
RAM EXPRESS II 256K.....	133	CONSERVER.....	70
SONIC BLASTER.....	91	TRANSWARP IIE.....	84
AUDIO ANIMATOR.....	168	TRANSWARP GS.....	245
MAC RAM CLASSIC 1 MEG.....	126	VULCAN 20.....	490
MAC RAM 1 MEG.....	70	VULCAN 40.....	630

OTHER FINE PRODUCTS

KENSINGTON SYSTEM SAVER IIGS.....	75	AMR 3 1/2" DISK DRIVE.....	195
KENSINGTON SYSTEM SAVER IIE.....	75	BEAGLE BROS. TIMEOUT.....	CALL

For the Lowest Prices on all AE Products Call 319-396-2306 (9 am to 9 pm)

MasterCard, Visa, COD, P.O. & Checks Accepted

Prices subject to change

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 (5 1/4 disk) \$109.95 + \$3.00 S&H
IBM PC & Comp. (3 1/2 or 5 1/4) \$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.

COLOR RIBBONS & PAPER

Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

Ribbons: price each	Black	Color	T-Shirt Ribbons
Apple Image, I & II	\$3.75	\$4.50	\$6.50
Apple Image, II 4-Color		\$6.75	\$10.00
Citizen GSX140	\$4.50	\$5.50	\$7.50
Citizen GSX140, 4-Color		*	
Epson MX-80	\$3.75	\$4.50	\$6.75
Okidata 182/192	\$5.50	\$7.50	
Panasonic 1180/1124	\$5.75	\$7.75	
Star NX 1000	\$3.75	\$4.75	\$6.75
Star NX 1000, 4-color		\$6.75	\$10.00

T-Shirt (Heat Transfer) Ribbons

Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

COLOR PAPER

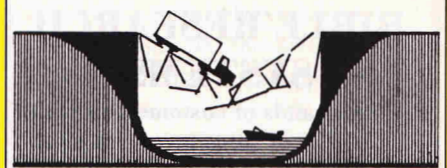
Color Paper	200 sheets assorted	
Bright Pack:	9 1/2 x 11	\$10.90/pk
Pastel Pack:	9 1/2 x 11	\$ 8.90/pk
Color Certificate Paper:	100 sheets	\$ 9.95/pk
Color Banner Paper:	45 ft./roll	\$ 8.95/roll
Holiday Paper:	50 sheets	\$ 6.90/pk

Min. orders: \$25.00. Minimum S&H: \$4.00. Call for other ribbons and supplies. Price and spec. are subject to change w/o notice.

RAMCO COMPUTER SUPPLIES

PO 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.



© Copyright 1987, 1990 Robert A. Wolf III, P.E. & Scott M. Sutton

CAN YOU BUILD A BETTER BRIDGE?

PRE-ENGINEERING SOFTWARE™
presents

BRIDGE BUILDER™

A construction set for the computer that allows players to create real bridge designs and test their designs with a built-in structural analysis package.

For Apple II+ (64k), Iie, Iic, Iic+, & IIGS (emulation mode)
\$36.00

Price includes 65 page manual, 2 disks (specify 3.5 or 5.25), and US shipping charges. Add \$8.00 for outside U.S.

Send check or money order to:

Pre-Engineering Software™
1266 Kimbro Drive
Baton Rouge, LA 70808
(504) 769-3728

Apple is a trademark of Apple Computer, Inc.

Circle 78 on Reader Service Card.

LASER 128

EX/2 3.5 \$439
EX/2 5.25 \$399
EX 5.25 \$369

128 Color System.....\$499

LASER 128 w/RGB monitor, Printer cable, MagicWriter, Copy II+ Amber System...\$399



EX/2 3.5 Color...\$619
EX/2 5.25 Color...\$589
EX Color...\$559

Largest LASER Authorized Repair Center & Educational Dealer in Florida.

LASER 128.....\$329

LASER Amber Monitor.....\$89

New - AppleWorks 3.0.....\$149

Special - Zoom 2400 Modem.....\$99

LASER Mouse for 128 & Iic.....\$45

LASER 5.25 Drive...\$89 Daisy 5.25...\$99 3.5 Drive...\$149

LASER 14" RGB color monitor + green + tilt & swivel...\$219

New - LASER Pat286 IBM-PS/1 compatible w/VGA...\$1495

Apple Iie RAM card w/256K...\$99 Iic or Iic+ w/256K...\$110

Iigs RAM card w/1 meg...\$130 Laser 128 RAM card...\$25

RAM for Laser & Apple...\$24 256K set of 8 chips 1meg set for Iigs...\$60

///LASER Experts 1-800-726-7086

LASER 190A Printer...\$195 ImageWriter Compatible

190M + cable for Iigs, Iic+, Mac...\$235

Call for lowest shipping charge. 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.

Must you be an accountant to do your taxes?

Provides a lot of intuitive insight. Great technical support. Gets the job done!

USA Today, 3/19/90

Supports all Apple II's. Offers a host of time-saving features. Well written user's manual. Toll-free support for questions about taxes & program.

C. Field, InCider/A+, 3/90

Very easy to run, quite instructive & leads you into each step with assurance. I recommend it! Apple Bits User Group

Not with TaxCalc

Prepare your return quickly and accurately with TaxCalc-90.

Using the tax guide you'll learn and use many tax tips written in plain English.

If you need help with the program or your taxes call us toll-free!

\$39.95 + *2 s&h

State Tax Supplements CA, NY, IL, OH, GA, IN \$15 each

Easy and automated with tax theory and all IRS worksheets built-in. Calculates best tax advantages, populates forms, enters tax - FAST! Built-in calculator. Save data to disk.

Calculates 1040-A, B, C, D, E, SE, 2106, 2119, 2441, 3903, 4562 + totals from F, R, 4797, 4868, 4972, 6252. Requires 48K, 1 drive, printer optional. Annual update \$24.95.

Parts & Systems



We Buy, Sell & Trade Popular Computers!

800-227-3971

This Months Specials!

Iigs cpu w/512k-as low as \$289..w/Iie trade-in 800k external (Why buy a clone?).....199.
Iic external power supply..... 29.
II+ extended keyboard..... 12.

Call for catalog!

Shreve Systems

3804 Karen Lane Bossier City, La. 71112 FAX 318-865-2006

School & Government P.O.'s accepted!

Circle 29 on Reader Service Card.



TMS PRO SERIES

Pro 40	\$389	12ms
Pro 52lps	409	<12
Pro 80	540	12
Pro 105	595	12
Pro 105lps	610	<12
Pro 120	705	10
Pro 170	845	10
Pro 210	955	10

800.626.MEGS

- Toll free tech support
- 30 day money back guarantee
- 2 year full warranty
- International power supply
- Selectable SCSI ID switch
- All orders ship Fed Ex
- Whisper quiet fan
- 2 SCSI ports

No Hassle Guarantee

TMS Peripherals

23125 SW 58th Ave.
Boca Raton, FL 33428



TMS PRO REMOVABLE

Pro R45 \$535 20ms, extra carts \$72

CV Technologies GS-Memory board \$89

RAM Chips: 256k 100ns (set of 8) \$25 • 1 Meg 100ns (set of 8) \$66

CV Technologies RamFAST/SCSI w/256K RAM \$179 (with drive \$169)

8am-10pm (eastern) 7 Days • International: 407.482.3821 • Fax: 407.451.9635 • VISA/MC•AMEX•COD • No Surcharge • Prices subject to change

Circle 56 on Reader Service Card.

ATTENTION ROLE PLAYERS

Use our editors to greatly enhance the powers of your characters or get our hint books for complete solutions.

- **CHARACTER EDITORS - \$19.95 each**
Might and Magic (1 or 2), Deathlord, Ultima (2, 3, 4 or 5), Wasteland, Bard's Tale (1, 2 or 3), Space Rogue, Wizardry (1-3), Wizardry 4, Wizardry 5, The Magic Candle, Pool of Radiance, Dragon Wars, Curse of the Azure Bonds, Knights of Legend, Champions of Krynn, Secret of the Silver Blades, Autoduel, Centauri Alliance, Kings Bounty.
- **HINT BOOKS - \$9.95**
Might and Magic, Wizardry (1, 2, 3, 4 or 5), Legacy of the Ancients, Curse of the Azure Bonds, Magic Candle, Knights of Legend, Champions of Krynn.

Commodore and IBM versions also available.
Add \$3.00 for shipping and handling.

GOSSELIN COMPUTER CONSULTANTS

P.O. Box 1083
Brighton, MI 48116
(313) 229-2453



Circle 27 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.

ZIP CHIP

4 MHz — \$89.95

8 MHz — \$119.95

The Zip Chip accelerates the Apple II series (II, II+, IIe, IIc) plus compatibles up to 4-Times normal speed. It uses no slots as it replaces the CPU and is compatible with virtually all software. Accelerates all main memory and up to 2 Meg auxiliary memory. inCider's number 2 product of the year in 1988.

MONEY BACK GUARANTEE — Try it Risk-Free for 30 days with an ironclad, unconditional, no-questions-asked money back guarantee. If dissatisfied for any reason, return it to us for an immediate full cash refund.

SHIPPING FROM STOCK — We ship product from inventory on hand so there is no delay in receiving your Zip Chip.

*LOWEST PRICE GUARANTEE

If you find a nationally advertised lower price for the 4 MHz Zip Chip, we will better it—guaranteed. Send ad with advertised price, publication and date for verification.

Check and money orders to: COMPUTER ENHANCERS
2905 Davison Road, Flint, MI 48506. VISA, MASTERCARD & COD orders call 313-232-1825. Add \$5.00 shipping, insurance & handling. MI residents add 4% sales tax.

Circle 252 on Reader Service Card.

APPLE MEMORY CHIPS

Guaranteed Lowest Price!

- ★ 2MB SIMM (MAC) \$110.00
- ★ 256K Chip Set (Standard) \$19.95
- ★ 256KX4 Chip Set (AE Ultra) \$14.95
- ★ 1MB Chip Set (AE Plus) \$59.95
- ★ Chinook 4000 4 MB card w/1MB \$143.00
- ★ SE 1 MB card for IIc w/256K \$105.00
- ★ SE 1 MB card for IIe w/256K \$99.00

School P.O.'s welcome, call for details.

CALL TOLL-FREE 1-800-776-6260



COD

1031 E. Battlefield
Suite 221 B
Springfield, MO 65807
Phone: (417) 883-6261
FAX: (417) 883-2584

Circle 17 on Reader Service Card.

GSNumerics

for the APPLE IIGS COMPUTER

A COMPLETE MATHEMATICAL PROGRAM for HIGH SCHOOL and UNIVERSITY STUDENTS or WORKING PROFESSIONALS

- 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.

A POWERFUL TOOL FOR TEACHING AT THE HIGH SCHOOL and UNIVERSITY LEVELS

For complete information contact:

Spring Branch Software, Inc. • P.O. Box 342
Manchester, IA 52057 • Phone: (319) 927-6537

Circle 60 on Reader Service Card.

Tax software for less than \$10?

TAXSMITH



Tax software designed "just for you" with the TaxSmith family of tax software:

TaxSmith.Quick contains Form 1040 and Schedules A & B. W-4, IRA, EIC calculations too. For simpler returns at a low, low price. Only \$9.95

TaxSmith.Family - Forms 1040, 2119, 2441, 3903, and Schedules A, B, D For a more complicated return but still at a budget price. Only \$19.95

TaxSmith.Full - Forms 1040, 2106, 2119, 2441, 3903, 4562, 6251, 8582, 8606, 8615, 8814, and Schedules A, B, C, D, E, R, SE. For small businesses, rental property owners and other more complex returns. Only \$49.95

TaxSmith.Pro - Contains Quick, Family, and Full versions. Designed for quickly processing returns. For the professional tax preparer. Only \$74.95

Linked forms, easy to use, IRS acceptable output, much more! Our 6th year! Discounts on future upgrades! Money back guarantee! Requires AppleWorks.

FREE 1991 Tax Planner with every order! Mac versions available too.

"...offers one particularly nice feature: separate templates for clients with differing tax needs." --- inCider
"For the lowest price in tax templates, you can't beat TaxSmith." --- MacUser

1040Works Users: Call for Special Order.



ORDER
TOLL-FREE



(800) 826-7146

TaxSmith is written by Douglas M. Smith, author of "The Cell Block", an AppleWorks tutorial column in SoftDisk magazine. "The world's greatest AppleWorks spreadsheet wizard" - SoftDisk #104

Also available: Mr. Mortgage, AppleWorks-based mortgage analysis software. Save thousands on your next mortgage. 18 templates. Only \$29.95. Call for details.

Double Scorpion Software
Island Computer Services
3501 E. Yacht Drive
Long Beach, NC 28465
(919) 278-7444

Circle 43 on Reader Service Card.

APPLEWORKS ↔ IBM

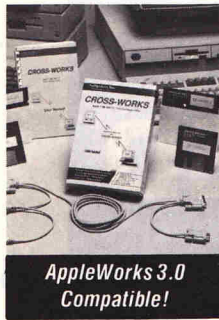
CROSS-WORKS 2.0 can exchange AppleWorks data files with the most popular MS-DOS programs:

NEW! AppleWorks ↔ Microsoft Works
AppleWorks Word Proc. ↔ WordPerfect
AppleWorks Spreadsheet ↔ Lotus 1-2-3
AppleWorks Data Base ↔ dBase III, IV, etc.

In seconds, **CROSS-WORKS** copies the 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 5¼ and 3½ 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.



AppleWorks 3.0
Compatible!

SoftSpoken
P.O. Box 18343
Raleigh, NC 27619

Circle 127 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:
Nutricalc
Auto-mileage Log
Home Construction

**A value-packed offer
at only \$29.97!**

Less than \$3.00 per template!

Foreign Airmail, add \$3.95

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

121C

Data Protection

NAUG recommends Polaroid DataRescue disks for your important data and hard disk backups. DataRescue disks are the only insured storage media for your computer; Polaroid will try to recover all data from disks that are damaged for any reason. Visa/MC accepted.

5.25" — 10 for \$10 (list \$17.50)

3.25" — 10 for \$14.50 (list \$28.50)

s/h: \$3 first box; \$2 each add.; \$8 max.

National AppleWorks Users Group; Box 87453;
Canton, MI 48187; (313) 454-1115

Circle 55 on Reader Service Card.

How to Contact Your Advertising Representative At Incider

DALE STRANG
Associate Publisher/National
Sales Manager

PETER SLINGLUFF
Eastern Sales Manager

DIANE MAGUIRE
Marketplace/Classifieds
Sales Representative

IDGC/Peterborough
80 Elm Street
Peterborough, NH 03458

(800) 441-4403 (603) 924-9471

JAMES BURNS
Western Sales Manager

inCider
2421 Broadway
Suite 200
Redwood City, CA 94063
(415) 363-5230

BACK ISSUES

Back issues of *inCider/A+* can be purchased, subject to availability, for \$4.50 per issue plus shipping (1-9 copies, add \$1.00 per issue; 10+ copies, add \$7.50 per order). Currently, most issues from 1987 to present are in stock. If you wish to purchase back issues, send in a written request with a check, money order, or credit card information to:

***inCider/A+* Back Issues**
80 Elm Street
Peterborough, NH 03458

Or, you may charge your order to your credit card by calling 1-800-343-0728 (inside N.H. call 924-9471).

All foreign orders must be paid in U.S. funds drawn on a U.S. bank.

**FREE -15 DISKS - FREE
FULL OF SOLID GOLD HITS
TRY US!**

Get our Winter 1991 edition of bestsellers. 15/5.25" Apple][disks or 6/3.5" disks for Apple GS or Mac.

Games, Business, Graphics, Education,, Programmers' Utilities, Finance, Desktop publishing, more.

VIRUS FREE!

PAY ONLY \$5.00 FOR SHIPPING

MACINTOSH • APPLE][• APPLE GS

**SMC SOFTWARE PUBLISHERS
ORDER TODAY - CALL**



619 942-9998
since 1985



Circle 23 on Reader Service Card.

EDITORS' CHOICE



PLUMB CRAZY

If you aren't quick with that monkey wrench, the question will be "How long can you tread flooze?"

In keeping with the *inCider* tradition of introducing you to addictive games that cut office productivity, we proudly present **Pipe Dreams** by LucasFilm. The premise is simple: Connect sections of pipe to create a continuous pathway, so that an overflow of flooze doesn't swamp the city. As in Tetris, the computer feeds you the pipe pieces randomly, so you have to plan ahead.

There are seven different types of pipe pieces — two straight lines, one horizontal, the other vertical; four lines that bend to form corners; and one that consists of two lines intersecting to form a cross. You score points for every piece of pipe the flooze flows through, and lose points for every extra piece you leave scattered around. You also earn points for crossing your own path at one of the intersection pieces.

As you move up through the levels, you'll find reservoirs that fill up slowly and give you more time to lay pipe; obstacles such as fire hydrants you have to work around; bonus sections of pipe that give you extra points for redirecting the flow; one-way pipes that let the flooze flow in only one direction; and "end-pipes" you have to use as the last section of your path. The game includes a practice mode that slows down the flow rate — an essential step when you first learn the game. There's also a password option that lets you start a game on a higher level.

Why did we make Pipe Dream Editors' Choice? Because it represents a refreshing change from the sports/war/shoot-'em-up arcade genre? Because of its original concept? Because of the great graphics? Nah. It's just more fun than one person should be allowed to have. Even the off-disk copy-protection code wheel is relatively painless. After having his fingers surgically removed from the GS keyboard, Technical Editor Cameron Crotty explained the addictive challenge: "It's really tough to concentrate on where you're laying pipe — you keep shooting panicky glances at the advancing flooze. When can I take these bandages off? I just *know* I can make it past the 20th level."

Pipe Dreams is available for both the Mac and the GS, but for colorful graphics, the GS version wins hands down. (The only difficulty we ran into arose when the brightness of the color on some levels proved a little hard on the eyes and almost prevented us from seeing clearly what we were doing.) Pipe Dreams is distributed by Electronic Arts (1820 Gateway Drive, San Mateo, CA 94404, 415-571-7171); it's priced at \$29.95 for the GS edition and \$34.95 for the Mac. □

EDITORS' CHOICE SINGLES OUT ONE PRODUCT EACH MONTH THAT THE *INCIDER* 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.

For The
Apple II Family

SWIFTAX Makes It Easy To Prepare Your Own Tax Return (or your money back!)*

Even if you've never prepared a tax return, SWIFTAX™ makes it easy to do your own taxes *and keep more of what you earn*. Here's how:

1. Requires no prior knowledge of accounting.

Step-by-step, line-by-line, SWIFTAX guides you through your Federal tax returns and instructs you on which forms you must complete. The Help Screens make SWIFTAX so easy to use, you may not even need the manual! And a special Help Screen summarizes all the new 1990 tax changes!

2. Your taxes are finished fast!

SWIFTAX has abundant time-saving features like a built-in "pop-up" multi-function calculator, pull-down menus and "Swiftkeys" to provide instant access to any form or schedule. You can even make changes to your completed tax returns at a later date.

3. Your taxes are complete.

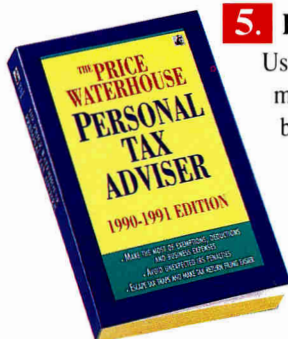
SWIFTAX calculates and completes the most commonly used supporting schedules and forms (17 in all), automatically stores the totals and prints the information onto IRS forms 1040, 1040A, or 1040EZ. Itemized lists (like interest and dividends) are printed out for submission to the IRS. [Forms: 2106, 2441, 3903, 4562, 6251, 8615 and 8814; Schedules: 1, 2, A, B, C, D, E, F, R, SE]

4. Checks your tax alternatives.

SWIFTAX automatically checks your tax alternatives and calculates *the lowest amount* of income tax you must pay.

5. Price Waterhouse Tax Book.

Use this 371-page book to make the most of exemptions, deductions, and business expenses; avoid unexpected IRS penalties and escape tax traps. *Details in each package.*



FREE Tax Book

Great for Tax Planning!

6. Free technical support.

When you register your program, you get free technical support 9:00 a.m. to 5:00 p.m. Monday through Friday for just the price of a phone call.

7. 50% Off Next Year's SWIFTAX!

Every SWIFTAX box contains a coupon for next year's version — at half the retail price!

* 100% Money-Back Guarantee!

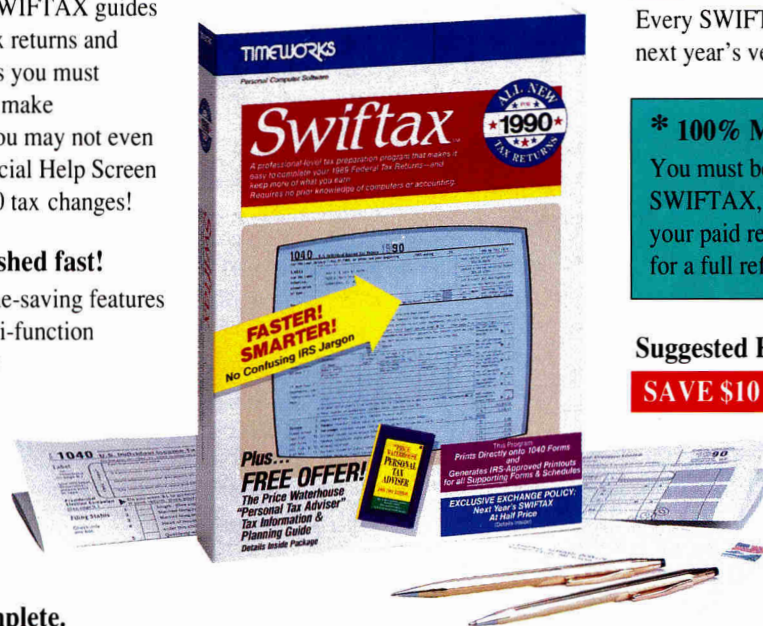
You must be completely satisfied with SWIFTAX, or return it within 30 days with your paid receipt and all included materials for a full refund, no questions asked.

Suggested Retail Price \$69.95

SAVE \$10 - PAY ONLY \$59.95

Order SWIFTAX directly from Timeworks before February 28, 1991 and pay only \$59.95!

For Apple IIc, IIcPlus, IIGS computers and Apple IIe with 128k and an Extended Memory Card.



TIMEWORKS

444 Lake Cook Road, Deerfield, IL 60015-4919

YES, please send me ___ copies of SWIFTAX at \$59.95 each plus \$4.70 S/H. (Total \$64.65). Illinois residents add \$3.90 sales tax. After 2/28/91, order at regular price \$69.95. Includes Swiftax and manual, free technical support, 50% off discount coupon, Price Waterhouse Tax Adviser offer and 100% 30-Day Money-Back Guarantee. 3 1/2" or 5 1/4" Disk

NAME _____

COMPANY _____

ADDRESS _____ Apt _____

CITY/STATE _____

ZIP _____ PHONE _____

VISA Master Card AmEx Check

CARD NO. _____ Exp Date _____

Signature _____ Date _____

Shipping date (January) is dependent upon Congressional approval of final forms. Payment is processed when product is shipped.

PHONE: 1-708-948-9202 or FAX: 1-708-948-9212

© 1983, 1990 Timeworks, Inc. All Rights Reserved

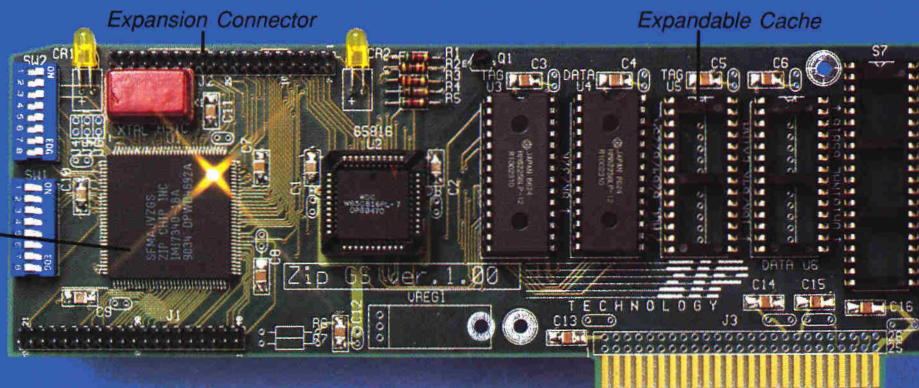
CODE IC291S

Circle 140 on Reader Service Card.

**AVAILABLE
AND SHIPPING NOW**

ZIPGS 8MHz

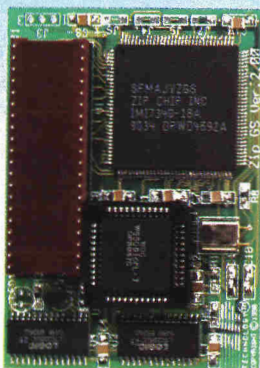
Custom 20MHz
Gate Array
Patent #4794523



Model 1600 ZIPGSX Plus

SUPER SPEED... PLEASING PRICE

Zip Technology once again proves that "good things come in small packages"... Introducing the ZIPGS... The ZIPGS is the lowest cost, highest performance IIGS accelerator. Now available as a (CPU) replacement or a full sized plug-in card.



Imagine your IIGS flying past the MacSE. 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.

THE WAIT IS OVER...

CPU chip Model 1500 & 1525

THREE MODELS AVAILABLE

Model 1500	ZIPChipGS 8MHz/8k Cache memory
Model 1525	ZIPChipGSX 8 MHz/16k Cache memory DMA Compatible
Model 1600	ZIPGSX Plus Board 8 MHz/16k Cache memory DMA Compatible User Upgradeable

Each model features our unique gate array and a special 25 ns RAM cache. Upgrade kits for processor speed, cache size and DMA compatibility also available.

ZIPGS STANDARD FEATURES

- + User upgradeable to beyond 12 MHz
- + 16 User selectable speeds
- + Low Power/Low Heat
- + DMA Compatible
- + 100% Hardware/Software compatible
- + 30 Day Money-Back guarantee
- + Runs faster for less
- + Can speed up virtually all GS memory

The ZIPGS is an engineering masterpiece. Over two years in development and now ready to accelerate your Apple IIGS to unparalleled performance. A look at the ZIPGS will easily show its superior engineering. The ZIPGS has only 4 integrated circuits. Its simple design will insure many years of trouble-free performance.

MONEY BACK GUARANTEE

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

SPECIAL INTRODUCTORY OFFER

Model	Retail	Your Price	Savings
ZIPChipGS Model 1500	\$250	\$199	\$51
ZIPChipGS Plus Model 1525	\$300	\$249	\$51
ZIPGSX Model 1600	\$350	\$279	\$71

Order today. Offer expires 12-31-90

1-800-955-5520

Just add \$6.25 for shipping, handling and insurance. California residents please add sales tax. Check, Visa, Mastercard and American Express accepted.



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

Mac SE, Appleworks GS, GS/OS, Apple II GS are trademarks of Apple Computer, Inc.