

inCider



Apple II / Macintosh

AN IDG COMMUNICATIONS PUBLICATION
April 1990

Where
in Time
Carmen
Sandiego?
Editors' Choice, p. 96

DESKTOP VIDEO

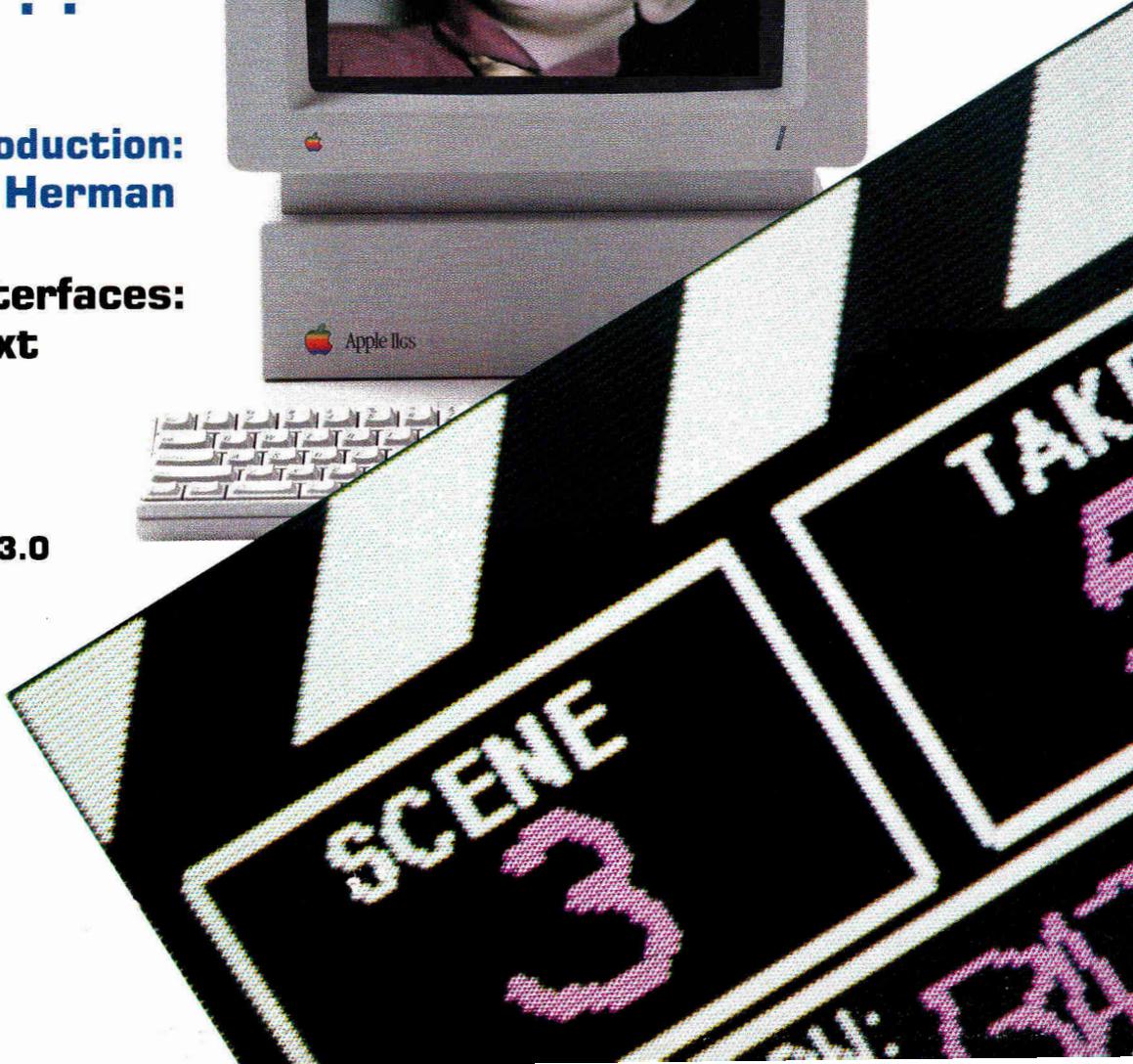
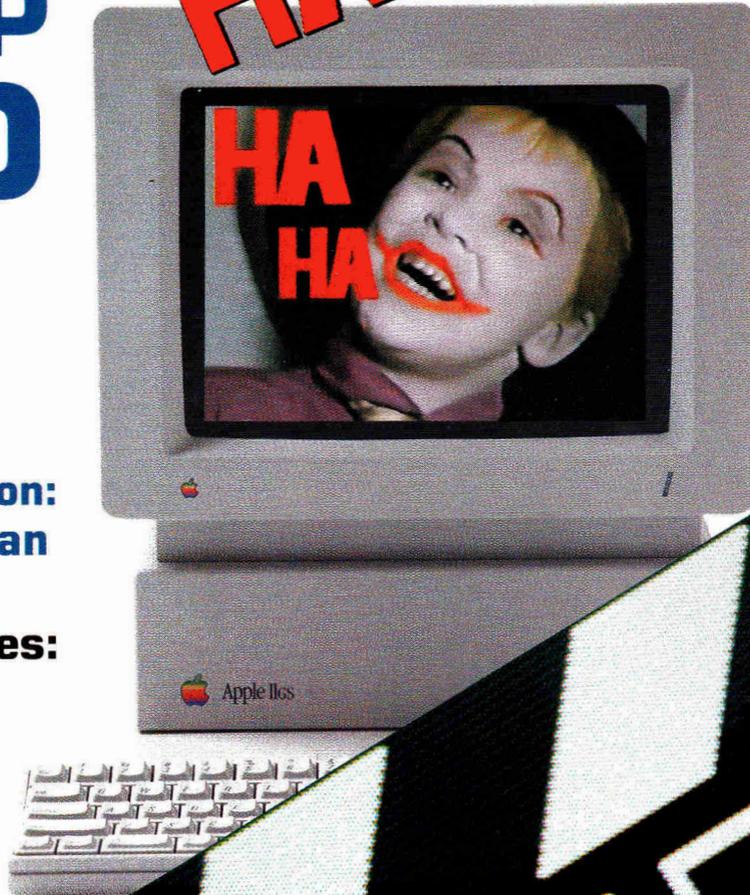
- ▶ **Lights . . . Camera . . . Apple!**
- ▶ **Classroom Production: A Fish Called Herman**

Battle of the Interfaces: Graphics vs. Text

- Reviews:**
- Revolution '76
 - StoryWorks
 - Handwriting Analyst 3.0
 - MasterWrite
 - Qix
 - Bouncing Bluster
 - Solitaire Royale
 - Legend of Blacksilver

USA \$3.95
Canada \$4.50
U.K. £2.50

HA HA HA HA



Let Your Child Play With A Power Tool.



This is one power tool you'll be glad to put in your children's hands. While other kids compete for time on school computers, the LASER 128® enables yours to get ahead at home.

And what an advantage they get. The LASER 128 is Apple®-compatible, so your children gain access to the world's largest library of educational software. Plus thousands of other programs.

The LASER 128 puts you ahead, too. It sells for nearly a third less than an Apple with fewer features.

With savings like that, you can buy a monitor and a printer for a complete setup. And teach your child a

valuable lesson in getting more for your money.

How good of a computer will you get? Let's put it this way. The leading Apple magazine, *InCider*, suggests you "look at today's LASER if you want to see tomorrow's Apple."

Follow their advice. Call 708/540-8911 (in Canada 416/477-2818) for your nearest dealer. Or write LASER Computer, Inc., 800 Church Street, Lake Zurich, IL 60047.

Then let your children play with a real power tool. That is, when you're finished using it.

LASER
Laser Computer, Inc./A Video Technology Company



DEFEND THE PLANET, SAVE SOME MONEY, BUILD A DINOSAUR, AND SEARCH FOR NEPAL.

That's just some of the adventures you'll have with your 3-month, \$19.95 subscription to Softdisk® or Softdisk G-S®. Subscribe now and each month you'll receive a collection of ready-to-run original software for your Apple.

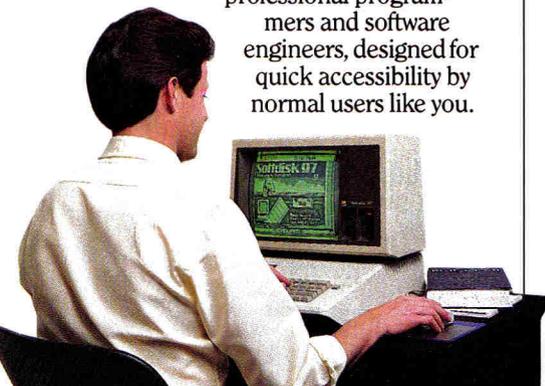
Two 5-1/4" disks or one 3-1/2" disk.

Just think, two disks filled with home-office productivity tools, AppleWorks™ templates, educational software, games, utilities, clip art, professional fonts, and more — delivered to your home.

New software every month!

Every month a Softdisk subscription brings you two 5-1/4" disks or one 3-1/2" disk filled with carefully selected quality software to help you get more value from your personal computer. Moreover, Softdisk programs are *not* public domain!

They are original programs written by professional programmers and software engineers, designed for quick accessibility by normal users like you.



Here's some recent Softdisk Programs:

- Zappa Roidz** — Improve your reflexes as you pilot a space fighter. From issue #93.
- Microbyte Savings & Loan** — Gain control over your finances. From issue #96.
- Dinosaurcerer** — Do-it-yourself dinosaur builder. From issue #97.
- Asia** — Learn geography. From issue #89.
- Easy Money** — Get your investment portfolio in order with this AppleWorks template. From issue #94.
- World Conquest** — Use your best strategy skills to return the planet Reficul to its people. From issue #90.

Different Apple II and IIGs versions.

And Softdisk is available for both the Apple II and the Apple IIGs. Softdisk and Softdisk G-S each contain completely different programs so that a combination order gets you twice the software for less than twice the price!

Free Premium Graphics Collection.

And when you subscribe to Softdisk, you'll receive FREE the Softdisk Premium Graphics Collection • Volume 4 as our way of saying, "Thank you for your order." With 200 all-new original graphics designed to work with Brøderbund's popular Print Shop® programs, Volume 4 contains signs, animals, sports figures, and people . . . plus, maps and symbols!

SOFTDISK PUBLISHING
monthly software

P.O. Box 30008 • Shreveport • LA 71130-0008
(318) 221-8718 • Toll Free 1-800-831-2694

1/3 off regular retail price!

Subscribe now by calling toll-free 1-800-831-2694 or use the attached coupon to start building your library of educational software, games, templates, utilities, and personal productivity programs. You can check out Softdisk for a special three-month trial subscription price of only \$19.95. That's 1/3 off our regular retail price, so order today!

1-800-831-2694

3-Month Softdisk Trial Only \$19.95

- | | |
|---|---|
| Softdisk | Softdisk G-S |
| <input type="checkbox"/> \$19.95 (\$24.95*/\$27.95**) | <input type="checkbox"/> \$29.95 (\$34.95*/\$37.95**) |
| <input type="checkbox"/> 5-1/4" <input type="checkbox"/> 3-1/2" | |
| Softdisk Combo | *Canada/Mexico Price |
| <input type="checkbox"/> \$39.95 (\$49.95*/\$55.95**) | **other (foreign) |
| <input type="checkbox"/> Check or money order to Softdisk Publishing in U.S. funds enclosed. | |

Discover VISA MC American Express

Card # _____ Exp. _____

Signature _____

Name _____

Street Address _____

City / State / Zip _____

Phone (_____) _____

Louisiana residents add 4% state sales tax. IN040

Circle 292 on Reader Service Card.

Look Here First!

Quality Computers 800-443-6697 or 800-966-1508

Attn: Price Hunters:
We'll match any
price! Plus, our
service can't be
beat!

HARD DISKS

RELAX

with Apple SCSI
20 meg. \$579
46 meg. 679
80 meg. 899

+ \$50 for Sierra models



CHINOOK

*w/Apple SCSI
CT20* \$599
CT40* 779
CT20C 599
CT40C 799
CT80* 1,145

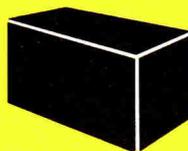


CMS

with CMS SCSI
20 meg. \$599
45 (remov.) .939
60 meg. 749



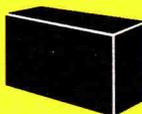
External Hard-Disk Dimension Comparisons



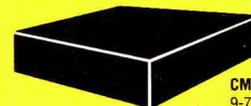
RELAX
4-1/2 x 6-3/8 x
10-3/16



CHINOOK
2-7/8 x 6-3/4 x 8-3/4



RELAX SIERRA
2-1/8 x 5-5/8 x 7-3/4



CMS
9-7/8 x 3-3/8 x
10-1/2

HARDWARE

APPLIED ENG.

RAMWORKS III
256K 139
512K 229
1 meg. 249
ULTRA I
256K 169
512K 229

ULTRA II

256K 179
512K 229
1 meg. 329
ULTRA III
256K 229
512K 279
1 meg. 389

RAMFACTOR

256K 179
512K 219
1 meg. 289
GS-RAM
256K 129
512K 169
1 meg. 249
1.5 meg. 329

GS-RAM PLUS

1 meg. 269
2 meg. 369
3 meg. 469
GS-ULTRA
1 meg. 259
2 meg. 389
3 meg. 499

RAMWORKS EXP.

1 meg. 279
2 meg. 379
RAMFACTOR EXP.
1 meg. 279
2 meg. 379
5.25 Drive 119
Buffer Pro 89
ColorLink 99
Conservet 79
DataLink 2400 ... 174
DataLink Express 179
FastMath 139
Parallel Pro 79
PC Transporter ... 369
PC Trans. (Ile kit) 29
PC Trans. (GS kit) 39
Phasor 139
Power Supply 69
RamCharger 133
RamKeeper 139
ReadyLink 69
Serial Pro 109
Slot Mover 34
Sonic Blaster 98
TimeMaster 78
TransDrive 199
TransDrive (Duo) 299
TransWarp GS ... 289
TransWarp III ... 159
Z80 Plus 119

INGENUITY

GS JUICE +
1 meg. 179
2 meg. 279

KENSINGTON

Antiglare Filter 39
Copy Stand 39
Printer Muffler 43
Security System ... 34
System Saver Ile. . 59
System Saver GS . 69
Turbo Mouse 115

APPLE

AppleMouse Ile .. 119
AppleMouse IIc ... 89
Apple SCSCard . 109
3.5 Dr. (Ile, II+) . 319
3.5 Dr. (GS, IIc+) 329
ImageWriter II ... 459
UDC (3.5, 5.25) ... 69
Ile Enhancement Kit . 59
Video Overlay 439

LASER

3.5 Disk Drive 179
5.25 Disk Drive ... 99
UDC 49
128EX 399
128EX-2 (5.25) ... 419
128EX-2 (3.5) ... 459

MISCELLANEOUS

AMR 5.25 144
Cables (most) ... 14.95
Comp. Eyes Ile ... 99
Comp. Eyes GS ... 199
Diskettes
3.5 (10) 8.95
5.25 (10) 6.95
Disk Holders 12
Joy Sticks
Flightstick 47
Mach II 28
Mach III 36
Mach IV Plus ... 62
Mirage (mouse) ... 39
Modems
Mitac 2400 119
Supra 2400 119
Monitors
12" Amb./Grn. . 99
Magvx. RGB ... 289
Sony KV13111 . 529
Panasonic Printers
1624 449
1191i 249
1124 329
1180 199
Printer Interfaces
Fingerprint GSI 94
Fingerprint Plus 89
Fingerprint SS. . 59
Fingerprint G+ . 59
Grappler 9 Pin . 84
ProGrappler ... 79
SuperWriter 78
SMT 54
Ribbons (black) ... 5
Ribbons (color) ... 10
SMT No Sit Click . 39
Thunderscan 159

HARD-DISK BUYERS' GUIDE

Base your decision to buy a hard-disk on fact, not fiction. The Hard-Disk Buyers' Guide is packed with performance reports and charts on all the top brands. Make the smart move. Get the Hard-Disk Buyer's Guide before you buy. \$6 Shipped overnight (redeemable when you buy a hard-disk from Quality Computers).

SPECIALS

THE DECKED OUT GS

How does your GS match up to this Super System?

AMR 3.5" Disk Drives (2) \$189 ea.

Relax 40 meg. Hard-Disk with Apple SCSI \$679

SupraModem 2400 \$119

Apple IIGS CPU \$875

AE PC Transporter \$369
Installation Kit \$39

Magnavox RGB Color Monitor 80 \$289

Custom Cable \$24

AE Conservet \$79

Cable \$19

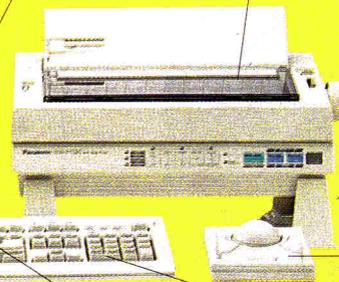
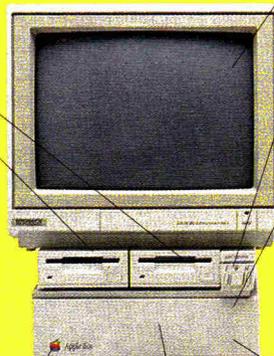
AI GS Juice + 2 meg. \$279

Panasonic 1191i Printer \$249
Superwriter 924 Interface \$78

Media Mate Printer Stand \$18

Kensington Turbo Mouse ADB \$115

Cutting Edge Keyboard \$129



SPECIALS

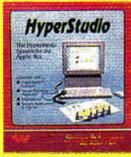
MEMORY CHIPS

Expand your RAM with these high-quality ramchips. Fully Apple IIc, IIe, IIGS compatible. 5 year warranty.
256K \$39/bank
1 meg. ... 100/bank



GS JUICE +
Applied Ingenuity's 1 to 4 meg. DMA compatible memory card.
1 meg. \$179
2 meg. 279
4 meg. 479

HYPERSTUDIO



The hypermedia system for the IIGS. Integrates text, graphics and sound. Comes with paint tools, text editor, sound editor, sound digitizing hardware, and microphone. \$89.00

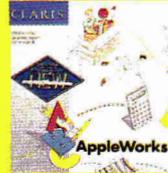
BUSINESSWORKS Bundle



Includes General Ledger, A/P, A/R, Inventory Control, and Payroll functions. Each can be used alone, or fully integrated via the System Manager \$269.00

APPLEWORKS 3.0

Three applications to help you create professional-looking documents! Communicate your ideas clearly and professionally with the word processor. Manage and organize your information quickly and easily in the data base. Perform complex or repetitive calculations in seconds with the spreadsheet. AppleWorks 3.0 is powerful, lightning fast, and easy to learn and use. \$170.00



ATTENTION: CANADIAN RESIDENTS

All of these products, with the same great service, are available to you from **Dandam Software**. Avoid import-export delays.
Laser 128EX/2 w/2-year Canadian warranty \$595 Can.
with color monitor \$995 Can.
Laser 3.5 Drive \$249 Can.
20 meg. Overdrive \$595 Can.
DataLink 2400 \$269 Can.

Dandam is an authorized AE dealer with a large selection of Apple II software.

Call for Free Catalogue:
1-800-265-9576

8408 Wyandotte St., E. • Windsor, Ont. N8S 1T6
(519) 974-3011 • Fax (519) 974-6643

SOFTWARE

BUSINESS	EDUCATION
Alpha Check 32.00	Alge-Blaster 29.95
AppleWorks 3.0 170.00	Alge-Blaster 1 .. 29.95
GS 204.00	Carmen
BeagleWrite 48.95	(World) 25.95
GS 59.95	(Time) 29.95
Book Ends 74.95	(USA) 29.95
BW Bundle 269.00	(Europe) 29.95
BW Payroll 109.00	Designsrs. 24.95
DB Mast. Pro .. 189.95	Geometry 55.95
Dol. & Sense 74.95	Gert's Sec. 25.95
GS Font Ed. 29.95	Gram. Grem. ... 29.95
Labels, Labels .. 28.95	Math Blaster +. . 29.95
MYM 5.0 89.95	Math & Me 25.95
Point to Point ... 59.95	Math Rabbit 25.95
Prgm. Writer 29.95	Read, Rabbit 36.95
ProTerm 79.00	Read, & Me 25.95
Publish It! 2 74.95	Revolution 29.95
Report Card II .. 42.95	Rocky Boots 29.95
Sens. Gram. 52.95	Wrtr. Rabbitt 29.95
Sens. Spell. 79.95	
Swiftax 49.95	
TimeOut Series	GRAPHICS
DeskTools 29.95	Dazzle Draw 33.95
FileMaster 29.95	Dsgn Your Own Home
PowerPack 29.95	Architecture .. 59.95
Thesaurus 29.95	Interiors 59.95
SideSprd. 29.95	Landscape 59.95
MacroTIs. 16.95	Train 35.95
SprdTools. 37.95	Libraries 21.95
Ultramcrs. 37.95	Draw Plus 64.95
Rpt. Writer 45.95	Grphcs. Exch. ... 35.95
Graph 52.95	PaintWorks
SprFonts. 39.95	Plus 32.95
Telecomm 39.95	Gold 45.95
QuickSpell 37.95	Print Magic 25.95
WordPerfect	PrintShop 29.95
IIe 99.95	GS 36.95
GS 104.95	Comp. 25.95
	Libraries 25.95
	UTILITIES & LANGUAGES
GAMES	Bag of Tricks 29.95
Arkanoid II 24.95	Copy II Plus 23.95
Battle Chess 34.95	CrossWorks 69.95
Cal. Games 14.95	Merlin 8/16 75.00
The Duel 24.95	Orca/M 39.00
Hardball 27.95	Orca/C 80.00
Hunt for R.O. 37.95	Orca/Pascal 80.00
HyperStudio 89.00	TML Pascal II ... 84.00
Jack Nicklaus	TML Basic 84.00
Golf 34.95	

Q LABS

RAMUP



Stop the floppy shuffle. RAMUP lets you load several applications on your ramcard at once. Third year as the top-selling ram disk utility. **\$39.95**

REPAIRWORKS



AppleWorks data repair and retrieval program. Reduces or eliminates the need to recreate your work. *inCider Magazine* Editors' Choice. **\$39.95**

EASYDRIVE



The complete hard-disk management system for the Apple II. Makes getting started quick and easy. A must for every hard-disk owner. **\$59.95**

SUPERPATCH



AppleWorks enhancements and modifications. Install over 150 patches on 2.0 and 2.1. Over 100 on 3.0. Installs and de-installs patches as you wish. **\$39.95**

POLICY: VISA, MasterCard, and Discover - no added surcharge.
C.O.D. certified - add \$3.95. If order is split, we pick up freight on balance of items.
Shipping UPS, Airborne, Federal Express and U.S. Mail. Saturday deliveries available.
Prices subject to change without notice.

PRICE MATCHING POLICY is at manager's discretion. All price matched sales are final.

RETURNS: Returns of defective items for replacement accepted within 30 days of ship date. Returns after 30 days subject to a 10% (\$30 minimum) handling fee. Items returned for credit subject to a 15% restocking fee. Software is non-returnable after the original factory seal is broken. Call Quality Computers Customer Service for exceptions and details.

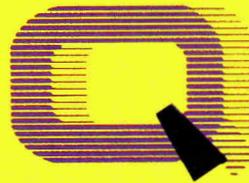
SCHOOLS: Schools are half of our business. We accept school P.O.'s by mail or by fax.

DEALERS: Call

USER GROUPS: Volume discounts on group purchases. Call us for details.

BUSINESS HOURS

Sales: (800) 443-6697 Mon.-Fri. 9 a.m. - 6 p.m. (Eastern)
Technical Support (313) 331-1115 Mon.-Fri. 10 a.m. - 5:30 p.m. (Eastern)
Customer Service: (313) 331-0700 Mon.-Fri. 9 a.m. - 5:00 p.m. (Eastern)



Circle 136 on Reader Service Card.

Quality Computers

POWER FOR PERFORMANCE

15102 Charlevoix • Grosse Pointe, MI 48230 • 313/331-0700
Orders & P.O.'s by FAX 313/331-0663

800-443-6697 or 800-966-1508

ZIMCO

INTERNATIONAL, INC.

85-39 213 Street, Queens Village, NY 11427

FREE SHIPPING ON ALL ORDERS*

Computers:

Apple IIC+	\$520	Color/Switch anlg RGB adapter	\$31
Apple IIE	\$638	RamFactor OK	\$142
Apple IIGS	\$885	RamFactor 256K	\$178
ALL Mac's Available	Call!	RamFactor 512K	\$214
Laser 128	\$365	RamFactor 1 Mg.	\$285
Laser 128EX	\$423	RamFactor Expander Kit	\$21
Laser 128 EX2 w/5.25	\$425	RamFactor Expander 0 Mg.	\$142
Laser 128 EX2 w/3.5	\$475	RamCharger	\$128
		Parallel Pro	\$75

Disk Drives

Apple or Mac or Unidisk 3.5	\$330	Plug-in options for Parallel Pro:	
Apple Hard Disk 20SC	\$692	Buffer Pro 32K	\$78
Apple Hard Disk 40SC	\$999	Buffer Pro 128K	\$114
Apple Drive Cont. Card	\$59	Buffer Pro 256K	\$149
Central Point 3.5" Drive	\$187	Serial Pro (ser. int. & clock)	\$99
Universal Controller Card	\$69	TimeMaster II H.O.	\$71
Applied Engineering		Z-80 Plus	\$107
5.25" Drive	\$115	A/D + D/A Card	\$121
Drive Controller Card	\$52	16 Channel, 12 Bit A/D	\$199
Vulcan 20 Meg Hard	\$500	Signal Conditioner	\$56
Vulcan 40 Meg Hard	\$645	I/O 32 Card	\$64

Hardware

Genuine Apple		GS-Ram OK	\$85
Ic Mouse \$79		GS-Ram 256K	\$121
Ic Mouse \$119		GS-Ram 512K	\$157
Ic Enhancement kit	\$59	GS-Ram 1 Mg.	\$228
Ic Numeric Keypad	\$55	GS-Ram 1.5 Mg.	\$300
SCSI Card	\$119	GS-Ram Plus 0 Mg.	\$128
Super Serial Card	\$99	GS-Ram Plus 1 Mg.	\$271

Additional Hardware

16K Ram Card (2+)	\$35	GS-Ram Ultra OK	\$128
Ext. 80 Col. Card	\$29		
Fan & Surge Prot.	\$29		
Kenington System Saver	\$62		
Koala Pad Plus	\$86		
SMT Par. Printer			
Card/Cable \$59			
SMT Super Serial Card	\$59		
Thunder Scan	\$179		
Street Elec. Cricket IIC	\$125		
Street Elec. Echo IIb	\$122		
Prograppler IIC/IIGS	\$84		
Pro-Grappler II+IIC without buffer	\$79		
with buffer	\$115		
Serial Grapler Plus	\$65		

Joysticks from \$30

Kraft 3-button	\$30
----------------	------

Modems

Apple Personal Modem	\$221
DataLink 2400	\$177
Hayes SmartModem 1200	\$325
Hayes SmartModem 2400	\$467

Monitors

Apple Color Comp.	\$310	GS-Ram Ultra 512K	\$199
Apple Monochrome	\$125	GS-Ram Ultra 1 Mg.	\$271
Apple RGB Analog GS	\$479	RamKeeper IIGS mem. cds	\$135
Magnavox Amber/Green	\$125	Slot-Mover for RamKeeper	\$28
Magnavox RGB 14"	\$269	Extra Gel/Cell for RamKeeper	\$17
		Sonic Blaster	\$92
		TransWarp Accelerator GS	\$285

Printers

Apple ImageWriter II	\$465		
Apple Image Writer LQ	\$1,079		
Epson LX-810	\$195		
FX-850, \$350; FX-1050	\$510		
LO-510, \$337; LO-850	\$542		
Panasonic KXP-1180	\$181		
KXP-1191, \$219; KXP-1124	\$349		
KXP-1592, \$385; KXP-1595	\$345		
KXP-1524	\$535		
Star NX-1000	\$185		
Star NX-1000 Rainbow	\$235		

II+, IIE, IIGS

PC Transporter:			
PCT w/768K (640K IBM)	\$375		
PCT Installation Kit (IIGS)	\$39		
PCT Installation Kit II+, IIE	\$29		
PCT 8087-2 Math Co-proc.	\$185		
TransDrive:			
TD 360K Single-Drive	\$185		
TD 360K Dual-Drive	\$278		
IBM-style Keyboard w/Cable	\$99	Z-Ram Ultra 3 w/ OK	\$214
IBM-style Key'd Cable alone	\$24	Z-Ram Ultra 3 w/ 256K	\$250
Digital RGB Adapter	\$17	Z-Ram Ultra 3 w/ 512K	\$285

Z-Ram Ultra 3 w/ 1 Mg.	\$357
Z-Ram Ultra 2 w/ OK	\$157
Z-Ram Ultra 2 w/ 256K	\$192
Z-Ram Ultra 2 w/ 512K	\$228
Z-Ram Ultra 2 w/ 1 Mg.	\$350
Z-Ram Ultra 1 w/ OK	\$99
Z-Ram Ultra 1 w/ 256K	\$149
Z-Ram Ultra 1 w/ 512K	\$199
65C816 16-Bit Chip (for Z-RU)	\$56
Z-80c	\$114
Ram Express 256K	\$178
Ram Express 512K	\$228
Ram Express 1 Mg.	\$300
DClock (Ram Ex. clock op.)	\$42

II +

Viewmaster 80"	\$114
Pocket Rocket 16K RAM Card	\$71
TransWarp Accelerator (doubles as 16K card)	\$121
Macintosh	\$335

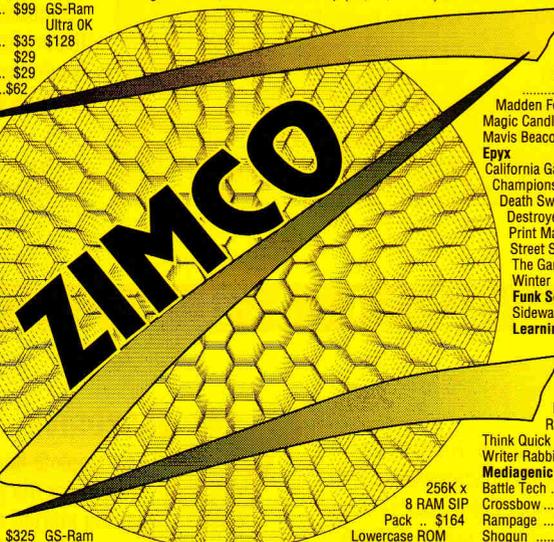
Chips, Drives, Etc.

256K RAM Chips 150ns set/8	\$60
256K RAM Chips 120 ns set/8	\$65
1 Meg RAM Chips (Set of 8)	\$157
128K ZIP memory chips (for PC Transporter)	\$57
65C802 Chip (II+, IIE, and IIC)	\$49

Print Shop:	
PS Companion	\$24
PS Graphics Lib. 1/2/3/Holiday	\$15
PS Bundle w/Graphics Lib.	\$30
Science Tool Kit; Earthquake	\$24
Sensei Geometry	\$48
The Dark Heart Of Uukrul	\$30
Times Of Lore	\$24
Ultima V	\$36
Ultima Trilogy	\$36
VCR Companion	\$30
Carmen San Diego	\$27
Where in Europe (or) USA?	\$27
Where in the World?	\$24
Wings of Fury	\$21
Claris AppWorks 2.1	\$177

Data East	
Platoon (or) Victory Road	\$21
Davidson & Associates:	
AlgeBlaster (or) MathBlaster	\$27
Grammar Gremlins	\$27
Math And Me	\$21
MathBlaster Mystery (or) Plus	\$27
Read 'N' Roll	\$27
Reading and Me	\$21
Speed Reader II	\$38
Spell It	\$27
Word Attack / Plus / French	\$27
Electronic Arts	
Bard's Tale	\$28
Chessmaster 2100	\$34
Chuck Yeager's AFT	\$25
Demon's Winter	\$20
Hunt For Red October	\$25
Madden Football	\$31
Magic Candle	\$34
Mavis Beacon Teaches Typing	\$25
Epyx	
California Games	\$24
Championship Wrestling	\$13
Death Sword	\$19
Destroyer	\$13
Print Magic	\$30
Street Sports Football	\$13
The Games: Summer or Winter	\$30
Funk Software	
Sideways Pro Dos 2.0	\$42
Learning Company	
Children's Writing/Publishing	\$32
Math Rabbit	\$36
Math Rabbit Early	\$21
Math Skills	\$21
Reader Rabbit	\$24
Think Quick	\$27
Writer Rabbit Early Writing	\$27

256K x 8 RAM SIP Pack	\$164
Lowercase ROM chip (II+)	\$17
5 1/4" 1/2 ht. floppy drive	\$107
Disk Controller Card (II, II+, IIE, and IIGS)	\$49
High Output Power Supply (II, II+, and IIE)	\$56
Microprose	
F-15 Strike Eagle	\$25
Pirates	\$29
Mindscape	
Masterype	\$24
Crossword Magic	\$30
Masterype Bundle	\$24
Paperboy	\$24
Monogram	
Dollars & Sense 128K	\$72
Sensible Software	
Sensible Grammar	\$53
Siera On-Line	
Gold Rush	\$24
King's Quest 1, 3 or 4	\$30
Leisure Suit Larry	\$24
Thxtr	\$21
Simon & Schuster	
Star Trek: First Contact	\$18
Typing Tutor IV	\$24
Webster's Spelling Checker	\$36
Sir-Tech Software	
Wizardry I	\$30
Wizardry V	\$32
Software Publishing	
PFS: File/Report Bundle	\$63
PFS: Write w/Spellcheck	\$63
Springboard Software	
Alisa Explorer	\$28
Certificate Maker	\$22
Certificate Lib.	\$17
Dazzle Draw	\$36
The Newsroom	\$21
Sublogic Corp.	
Word Perfect	\$95



PUBLISHER **Paul Boule**
 EDITOR IN CHIEF **Dan Muse**
 MANAGING EDITOR **Eileen T. Terrill**
 SENIOR EDITOR **Paul Statt**
 SENIOR TECHNICAL EDITOR **William Kennedy, Ph.D.**
 REVIEW EDITOR **Lafe Low**
 COPY EDITOR **Joseph J. Fatton**
 EDITORIAL ASSISTANT/ **Janet Cote**
 SPECIAL-PRODUCTS COORDINATOR
 WEST COAST EDITOR **Jeff Cable**
 CONTRIBUTING EDITORS **Joe Abernathy, Cynthia E. Field, Eric Greenstad, Owen W. Linzmayer, Scott Mace, Tom Sherman, Ruth K. Witkin**
 FIELD EDITOR **Babs Cringely**

DESIGN

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

ADVERTISING

ASSOCIATE PUBLISHER **Dale Strang**
 NATIONAL SALES MANAGER **(800) 441-4403**
 EASTERN SALES MANAGER **Peter Shingluff (800) 441-4403**
 MARKETPLACE/CLASSIFIEDS SALES REPRESENTATIVE **Diane Maguire (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) 328-3470**

MARKETING SERVICES/PROMOTION

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

CORPORATE PRODUCTION

MANUFACTURING MANAGER **Sue Gross**
 TYPESETTING MANAGER **Lindy Palmisano**
 TYPOGRAPHER **Heidi N. Thomas**

IDG COMMUNICATIONS/PETERBOROUGH

PRESIDENT **Roger J. Murphy**
 EXECUTIVE VICE PRESIDENTY **Stephen D. Twombly**
 PUBLISHING DIRECTOR
 VICE PRESIDENT **Dennis S. Christensen**
 MANUFACTURING/OPERATIONS
 DIRECTOR OF TECHNOLOGY RESEARCH **Jeffrey D. DeTroy**
 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, AND COLLECTION **William M. Boyer**
 AUDITS AND STATISTICS **Cecile Giguere**
 FOUNDER **Wayne Green**

inCider's BBS (bulletin-board system) on line 24 hours: (603) 924-9801



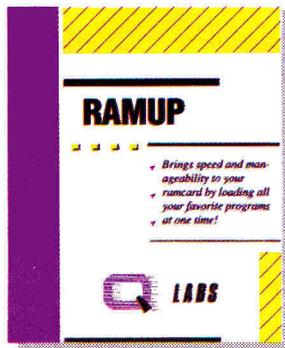
inCider (ISSN #0740-0101) is published monthly by IDG Communications/Peterborough, Inc., 80 Elm Street, Peterborough, NH 03458. Phone: (603) 924-9471. Second-class postage paid at Peterborough, NH, and additional mailing offices. (Canadian second class mail registration number 9590.) Subscription rates 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 80329-8618. (Send Canadian changes of address to: *inCider*, P.O. Box 1051, Fort Erie, Ontario L2A 5N8.)

NO EXTRA CHARGE
MasterCard/VISA/Discover

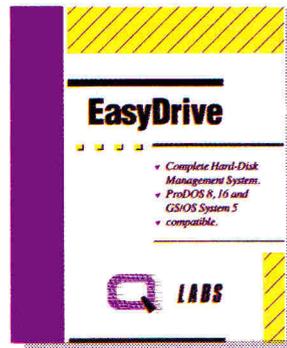
Call 1-800-227-6647
Inquires, Tech Support & New York :
Call 1-718-479-7888

*Free shipping offer valid in continental US only. Add handling & insurance to all orders. We carry everything for your Apples, MAC's or IBM's. We cannot guarantee weather or prices; both tend to change. Call for current prices & sale flyer. Minimum restocking fee 20% for non-defective merchandise. (Incider/A+ 3/90)

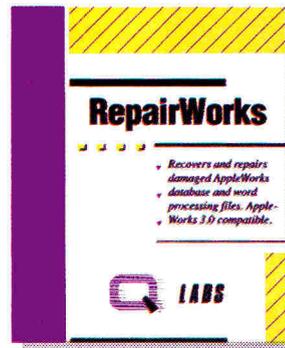
4 Steps to a Better Apple.



1.



2.



3.



4.

Step 1. Manage Your RAM.

How do you take the top-selling ramdisk utility and make it better? You tear it down and rebuild it. That's what we did with RAMUP. The new, improved RAMUP 4.3 is packed with impressive features like backup/restore, Tree Surgeon, autoloader, partition, and more. RAMUP 4.3 gives you a work station of disks that automatically load to your ramcard. You flip from program to program like turning pages. No more floppy shuffle. Get RAMUP 4.3. Find out what speed and manageability are all about. **\$39.95**

Step 2. Tame Your Drive.

Setting up a hard-disk can be tedious, frustrating work. But, with new EasyDrive 1.7, you can tame your drive. EasyDrive is the easy-to-use, hard-disk manager that automatically installs itself onto

your hard-disk, then goes to work installing your favorite software. Upon installation, complete hard-disk management is at your fingertips with EasyDrive's launcher, file maintenance, image backup/restore, optimizer, and more. EasyDrive 1.7 also comes with an informative guide to ProDOS. Get control of your drive with EasyDrive. **\$69.95.**

Step 3. Save the Lost.

In a perfect world a program like RepairWorks wouldn't be necessary. Unfortunately the world isn't perfect. But, RepairWorks can soften the blow of cruel fate when it involves your damaged AppleWorks files. RepairWorks examines those damaged files and removes the offending problems, reducing or eliminating the need to recreate your work. If you can't afford to lose your data, you can't afford to be without RepairWorks. **\$39.95.**

Step 4. Do It Your Way.

There are few areas in life where you can do things your own way. Now, running AppleWorks is one of them. SuperPatch 6.1 will install and de-install over 100 interesting, useful, and compatible patches to AppleWorks making it run the way you want it to. SuperPatch includes: time/date display, error tone customization, cursor modifications, plus hundreds more! Have your way with SuperPatch. **\$39.95.**

Q Labs products are available from:
Quality Computers, Roger Coats,
Silicon Express, Golem Computers,
Dandam Software,
or your favorite dealer.

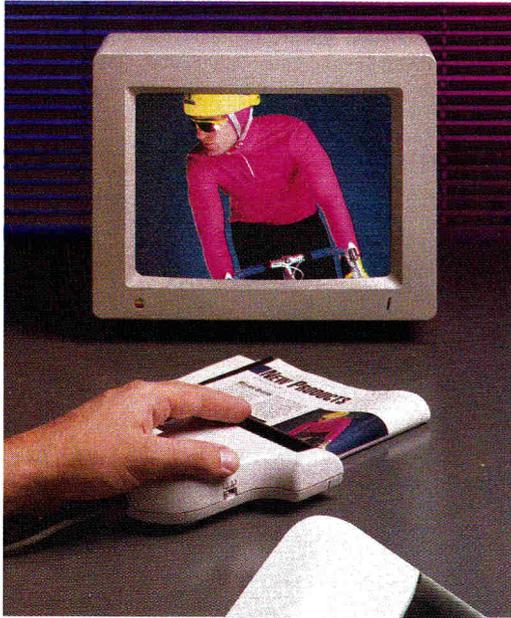


DIVISION OF QUALITY COMPUTERS

1066 Maryland • Detroit, MI 48230
(313) 331-0941 • Tech. Support (313) 331-1115

Dealer inquiries welcome.

Nothing beats a *Quickie*



Simulated image.

- Scans images at up to 400 DPI in seconds
- No cartridge to swap
- Bound materials scan as fast as single pages

Your work comes alive! Now you can integrate crisp, clean line art, text, and vivid halftones into your newsletters, reports, flyers and other projects — all scanned in just seconds with Quickie. It's the scanner you'll want for every application.

No more waiting around. Quickie goes right to work on anything — even bound books — and transmits image-to-CRT as fast as you scan it in.

Quickie's unique yellow-green image recognition system overcomes the red-blindness that's so common with ordinary hand scanners.

You get unequaled sharpness and control with four resolutions (400 / 300 / 200 / 100 DPI), four encoding modes (B&W and three halftone) and at least 16 shades of gray.

Just import your images into any leading Apple II painting, drawing, or graphics program, and presto! — You can create vivid color images that illustrate, captivate, and entertain.

So contact your dealer or call today. At only \$299, Quickie is unbeatable. Vitesse, Inc. ■ 13909 Amar Road, Suite 2A ■ La Puente, CA 91746. VISA, MasterCard accepted.



Fast, Smooth, Uncomplicated

(800) 777-7344
(818) 813-1270
(818) 813-1273 FAX

Dealer inquiries invited.

Circle 254 on Reader Service Card.

Quickie

Scanner shown actual size

Scan width 4.13 inches
400 / 300 / 200 / 100 switchable DPI
Four encoding modes: B&W and three halftone
16-step gray scale
Real-time display shows image as you scan
Built-in scanner view window
Double rollers for accurate alignment
Specifications subject to change without notice.

APRIL

1990 • Vol.8 No. 4

p. 44



ARTICLES

44 Desktop Video: Making Movies with Your Apple II Part 1

Say hello to Hollywood! In the opening installment of our two-part video special, *inCider* takes a gander at the Apple II hardware, software, and accessories you'll need for high-quality home movies and animation. You're producer, director, and star of the show—Apple makes it easy, and lots of fun for adults and kids alike.

51 A Fish Called Herman

Reading and writing take on new dimensions when kids take the director's chair in a Dazzle Draw classroom video project for all ages.

57 Environmental Issues

What can a graphics environment offer a diehard fan of AppleWorks Classic? Energy conservation, for starters—maximum ease of use with a point-and-click interface. You'll also get fonts, paint software, pull-down menus, module integration—all in one box. For activists thinking of making the switch, *inCider* presents profiles of GEOS and AppleWorks GS.



p. 57

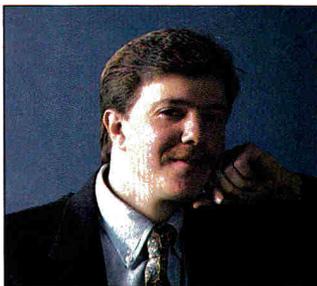
Cover Photographed • Ed Justice

COLUMNS

inCider's View • Dan Muse	
Renaissance Machine	8
Status Report • Paul Statt	
Goldberg Visions	22
AppleWorks in Action • Ruth Within	
Room at the Desktop	62
Press Room • Cynthia E. Field	
Benchtop Publishing	68
Speaking of Graphics • Roberta Schwartz and Michael Callery	
That Old Brush Magic	74
Learning Curve • David D. Thornburg	
Real-World Connections	84

DEPARTMENTS

Letters to the Editor	12
What's New	
Hardware, Software, Resources, Games, Bits, Updates	18
Apple Clinic	
GS/OS Blues: Version 5 Woes, IIC RGB Video	24
Reviews	
Revolution '76, StoryWorks, MasterWrite, Handwriting Analyst 3.0, At a Glance	30
Game Room	
Qix, Bouncing Bluster, Solitaire Royale, The Legend of Blacksilver, Tip Sheet	36
Hints & Techniques	
Print Run: Envelope Addresser, Clip-Art Loader	86
Editors' Choice	
Thief of Time: Where in Time Is Carmen Sandiego?	96



INCIDER'S VIEW

RENAISSANCE MACHINE

By DAN MUSE * EDITOR IN CHIEF

The moral is if you want to do only one thing with a computer, you're probably not Apple II material.

I PROBABLY DON'T HAVE TO TELL YOU, but sometimes life in the Apple II world can be a little discouraging—especially lately.

I didn't realize how frustrating things were getting, though, until I attended the January Consumer Electronics Show (CES) in Las Vegas. I've attended CES twice a year (there's a spring show in Chicago) for the last five or six years. It's always been one of my favorites. It's where you get to see the latest in electronics, whether it's digital-audio tape (DAT), high-density television, Nintendo, Sega, computer games. . . . You name it, it's at CES: everything from cellular telephones to porno movies. (I'm not too proud to admit that I've even peeked into the adult-video section once or twice, but only in the name of journalism.)

In addition to all the other electronics goings-on, CES is where software companies bring out their newest games. To be frank, the Apple II now takes a back seat to MS-DOS, the Amiga, and in some cases even the Commodore 64/128. But although the Apple II game market isn't exactly bursting at the seams, enough new products are coming out to keep things interesting. Britannica, Accolade, Taito, California Dreams, and others still ship new games for the Apple II. The truth is, however, that if you want a computer *only* for game playing, the Apple II isn't the computer for you. While I like a good game as much as the next person, I don't think many Apple II owners buy their computers strictly for games.

Although you may find more games for the Amiga, for instance, Amiga users can't get the educational and productivity software you and I take for granted. And even though the Amiga is the leader in video, desktop-video experts tell us the Apple II is the second choice, ahead of the Macintosh and MS-DOS machines. The Apple II—and the IIGS even more so—is a renaissance computer, as well-rounded as a computer can be.

I've always known how versatile the Apple II is, but as Apple allows the machine to atrophy, that's easy to forget. I was reminded recently, though, by *inCider's* transition to a Macintosh II-based desktop-

publishing system. We now have about a half dozen Mac IICxcs in the office, coexisting with about twice as many Apple IIs. I thought I'd be tempted to forsake the Apple II in favor of the new IICxcs. To do what we need to do technologically to produce *inCider*, we need a heavy-duty page-layout program such as Quark Xpress. But all things being equal, I'd rather have a IIGS.

The Mac systems we have run between \$8000 and \$10,000 apiece. My GS with two disk drives (a 3½- and a 5¼-inch), a hard-disk drive, a TransWarp GS accelerator card, and a System Saver switch/protector unit costs less than half the price of the Mac. Through our AppleTalk network, I have access to the same printers as the Macs, so if I want a laser-printed document, it's no problem.

My GS also provides me with something Mac owners simply can't get—the choice of using either text-based or graphics-based programs. For some things, such as desktop publishing, the Apple (Mac) interface is a must. For spreadsheets, databases, and word processing, give me AppleWorks. Or if I'm in the mood for a graphics-based interface, AppleWorks GS is finally coming into its own.

I guess the moral is if you want to do only one thing with a computer, you're probably not Apple II material. But if you're like me and thousands of other Apple II users who want to write letters; prepare budgets; maintain a mailing and telephone list; publish newsletters and invitations; teach kids math, reading, or geography; dabble in painting/drawing programs; spruce up videos with computer-generated graphics; prepare business presentations; and play a couple of games, the Apple II does it all.

Unfortunately, the flexibility of the Apple II is becoming too much of a secret these days. Apple doesn't seem to want to pass along the message, so it's up to you and me. I promise to continue to pester Apple and third-party software companies about supporting the Apple II, but only if you promise to do the same thing. It's up to us to convince Apple and those II developers to revive this renaissance machine. □

"It's a dynamite little modem. Now there is no excuse not to go to 2400 bps."
PC Magazine 6/28/88

"Real bargains ... operated at least as well as higher priced competitors, and throughput ... proved identical."
CompuServe Magazine 1/90

"DYNAMITE LITTLE MODEM."

JOHN C. DVORAK
PC MAGAZINE
6/28/88

"Get one!" *MacInTalk* 6/89

"It performed as well as a much more expensive modem." *AmigaWorld* 10/89

"It's inexpensive, Hayes™-compatible, and works fine." *Macworld* 11/88

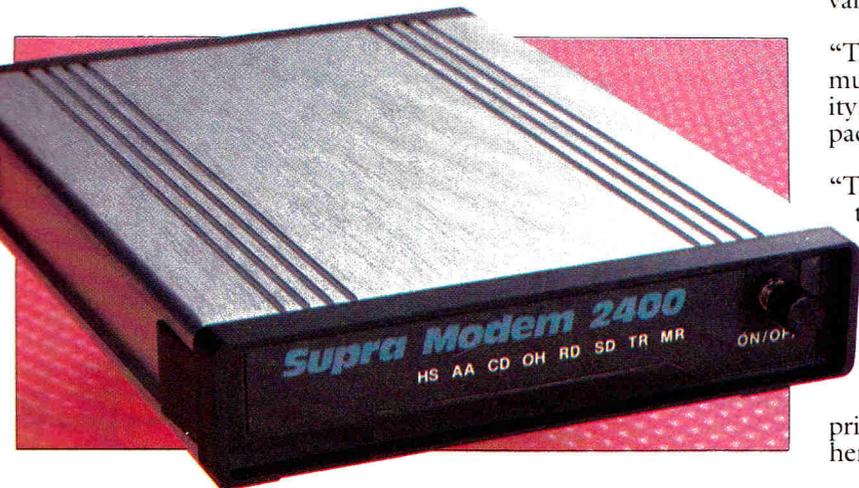
"I can highly recommend the Supra 2400 modem as providing excellent value for the price." *ST Informer* 2/88

"The SupraModem 2400™ has the multiple benefits of Hayes compatibility, reliability, affordability, and compact physical size." *A+ Magazine* 7/88

"The SupraModem 2400 remains the best buy among the low-cost modems examined here." *inCider, The Apple II Magazine* 1/89

"The notably small package, virtually indestructible case, front panel switch, and clear speaker combined with a very attractive price ... make this modem a keeper here." *Denver PC Boardwatch* 7/88

"The SupraModem is a fantastic deal." *ST-Log* 7/88



SupraModem 2400™

SupraModem 2400™ \$149.95
external for virtually all computers

SupraModem 2400 Plus™ \$199.95
external with MNP 5 & V.42bis
for virtually all computers

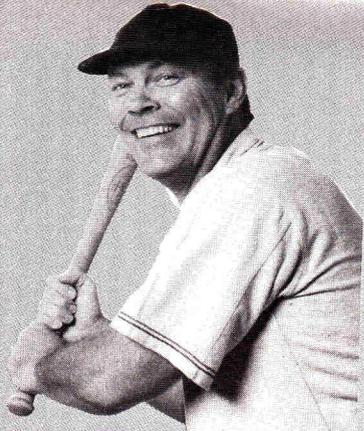
SupraModem 2400i™ \$119.95
internal with software
for IBM™ PC & compatibles

SupraModem 2400zi™ \$179.95
internal for the Amiga® 2000

Available from your local dealer, or call:

 **Supra Corporation**
1-800-727-8772

Circle 104 on Reader Service Card.



GRAND

You'll be batting

APPLIED ENGINEERING

- Timemaster HO
\$67
- Z-RAM Ultra 1, 256K
\$144
- Z-RAM Ultra 2, 256K
\$189
- Z-RAM Ultra 3, 256K
\$254
- GS-RAM Ultra, 256K
\$159
- GS-RAM Ultra, 1 Meg
\$234
- GS-RAM PLUS, 1 Meg
\$239 (limited quantity)
- RamWorks Basic, 256K
\$119
- RamWorks III, 256K
\$135
- RamWorks Expander
512K **\$129**
- 1 Meg **\$174**
- 2 Meg **\$274**
- Color Link RGB Option
\$94
- Ram Factor, 256K
\$169
- Ramcharger
\$129
- 16K Ram Card
\$74
- Viewmaster 80
\$119
- Transwarp II (II+, //e Accelerator)
\$124
- Phasor (II+, //e Stereo Card)
\$124
- DataLink 2400 (Internal Modem)
\$174
- DataLink Express
\$181
- GS RamKeeper (GS Battery B/U)
\$139
- Slot Mover
\$31
- Ram Express, 256K (//c+)
\$186
- Ram Express Clock Option
\$44
- Sonic Blaster (GS Stereo Card)
\$94

IF YOU DON'T SEE IT, CALL US!

APPLIED ENGINEERING

- Audio Animator (GS MIDI Interface)
\$174
- Parallel Pro (Parallel Card w/Cable)
\$74
- Buffer Pro, 32K (for Parallel Pro)
\$81
- Transwarp GS (GS Accelerator)
\$289
- PC Transporter (640/768K)
\$359
- PC Transporter GS installation kit
\$37
- PC Transporter //e installation kit
\$29
- IBM Style Keyboard
\$101
- TransDrive:
5.25 Single **\$189**
5.25 Dual **\$286**
5.25 Add-On **\$109**
- Vulcan 20 Meg Int HD
\$579 (specify computer)
- Vulcan 40 Meg Int HD
\$729 (specify computer)
- Vulcan 100 Meg Int HD
\$1299 (specify computer)
- ReadyLink Terminal Software
\$59
- Conserver (GS Surge Protector & Fan)
\$77
- Fastmath (Math co-processor)
\$129
- Serial Pro (Serial Card w/Clock)
\$101
- Power Supply (//+, //e)
\$58
- Ext. 80 col card (//e)
\$54

LASER

- Laser 128 Computer
\$349
- Laser 128EX Computer
\$389
- Laser 190 A Printer
\$189

BEAGLE BROS

TIMEOUT SERIES:
Macro Tools
Macro Tools II
\$16



Desktools
Desktools II
Filemaster
GS Font Editor
Power Pack
Program Writer
SideSpread
Thesaurus
\$29

Ultra Macros
Spread Tools
\$34

Quickspell
Superfonts
Telecomm
\$39

Beagle Compiler
\$41

Report Writer
BeagleWrite (//e, c)
\$44

Graph
\$49

BeagleWrite GS
\$57

WE CARRY OVER 550 ITEMS NOT LISTED PLEASE CALL FOR COMPLETE CATALOG

GLEN BREDON

- Prosel 8
\$37
- Prosel 16
\$54

SALVATION by Vitesse

The ultimate backup utility. Easy-to-use, full-featured, phenomenal backup utility for your GS.

List \$49.95
NOW \$29

Matt

HOT GAMES

ACCOLADE
Jack Nicholas Golf
\$31

CALIFORNIA DREAMS
Tunnels of Armageddon
\$25

MEDIAGENIC
Battlechess
\$31

MICRO REVELATIONS
Xenocide (GS)
\$31

PBI SOFTWARE
Alien Mind
\$27

VICTORY SOFTWARE
2088 The Cryllan Mission
\$39

Catch what's on



DISKETTES

SONY 3.5
Diskettes
Pack of 10
\$15

CHIPS

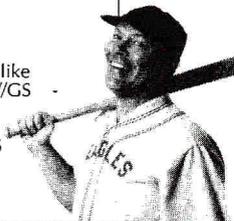
All Memory Chips Carry a LIFETIME Warranty!

CHIPS:

(set of 8) 256K, 120ns,
for 256K memory boards like
GS RAM & Apple Memory
Card
\$29

(set of 8) 1 Meg
100ns or faster
for 1 Meg memory boards like
GS RAM plus & RAM Pro //GS
\$100

(set of 2) 256K X 4
for memory boards like GS
RAM Ultra
\$25



ORDERS ONLY:

1-800-438-2883

FAX: 1-619-274-2440

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

Authorized Applied Engineering Dealer

Roger Coats

P.O. BOX 171466
SAN DIEGO, CA 92117

Circle 90 on Reader Service Card.



...BARNEY BUCKS...

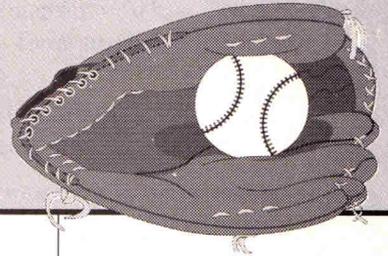
with every \$100 (in product) ordered, you'll receive ONE BARNEY BUCK redeemable for valuable merchandise.

Get even more! \$300 orders receive FIVE BARNEY BUCKS; \$500 orders receive NINE BARNEY BUCKS.

Details available with every order.

SLAM DEALS

1,000 with these



SOFTWARE

ADDITIONAL TITLES IN STOCK
(Sorry, no software refunds)

ABRACADTA
Design Your Own Home Series:
Architecture
Interiors
Landscape
\$47 ea (//, e, c)
\$59 ea (GS)

Design Your Own Train
\$34

APPLE COMPUTER GS/OS v5.0
\$41

BRITANNICA
Designasaurus (GS) \$28
Jigsaw (GS) \$23

BRODERBUND
Printshop GS \$37
VCR Companion \$30
Where in Europe/Time/USA/
World is Carmen SD \$28
Wings of Fury \$23

CENTRAL POINT SOFTWARE
Copy II Plus \$24

CHECKMATE TECHNOLOGIES
Proterm v2.1 \$79

CLARIS
AppleWorks 3.0 \$174
AppleWorks GS \$194

INTUIT Quicken (//e, c, GS)
\$32

JEM SOFTWARE MiniPaint-GS
Paint Program, VERY Powerful
\$19

MEDIAGENIC
PaintWorks Gold (GS) \$49
Music Studio (GS) \$49

Q LABS
RamUp (RAM Disk Utility) \$29
RepairWorks (Repair AW Files) \$29
Easy Drive (Program Selector) \$54
Super Patch \$29

PYGRAPHICS (specify computer)
Music Writer (Limited Edition) \$79
Music Writer (Special Edition) \$199
Music Writer (Professional) \$399

ROGER WAGNER
Graphics Exchange \$29
Hyperstudio \$89
Macromate \$29
Merlin 8/16 \$77
SoftSwitch \$34

STONE EDGE TECHNOLOGIES
DB Master Professional \$189

SOFTWARE

TIMEWORKS
Graph It! \$44
Publish It! 2
(II Desktop Publishing) \$79
Swiftax \$44

APPLIED INGENUITY

GS Juice+, 1 meg
\$169

Inner Drive, 20 Meg (Pro DOS/DOS
Compatible, specify computer)
\$469

Inner Drive, 40 Meg (Pro DOS/DOS
Compatible, specify computer)
\$599

Over Drive 20 Meg (Pro DOS/DOS
Compatible, specify computer)
\$499

Over Drive 40 Meg (Pro DOS, DOS
Compatible, specify computer)
\$699

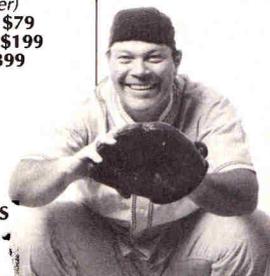
APRICORN

Apricord //c (Parallel Interface)
\$49

Apricord 8
(Parallel Interface
//c+, Mac, GS)
\$59

No Slot Clock Pro
\$37

RamPro GS 1 Meg
(Lifetime
Warranty!)
\$159



AMR

AMR 20 Meg HD w/SCSI (//e, GS)
\$519

AMR 30 Meg HD w/SCSI (//e, GS)
\$589

AMR 45 Meg HD w/SCSI (//e, GS)
\$649

AMR 60 Meg HD w/SCSI (//e, GS)
\$749

AMR 3.5 Drive (//e, c+, GS, Mac,
PC Transporter)
\$189 **FREE SHIPPING**

AMR C3 3.5 Disk Controller Card
\$44

AMR 45 Meg Removable Media
w/SCSI (//e, GS)
\$989

45 Meg Removable Cartridge
\$99

HARDWARE

Supra 2400 Baud External Modem
\$109

Numeric Keypad (//e)
\$49

Numeric Keypad (//c, //c+) 
\$99

Meiji 5.25 1/2 Height Drive (//+, //e)
\$80

HARDWARE

Meiji 5.25 1/2 Height Drive (//c, GS)
\$95

Meiji 5.25 1/2 Height Drive (//c, GS)
Daisy Chainable
\$119

Meiji 5.25 1/2 Height TransDrive
5.25 Single \$139
5.25 Dual \$209
5.25 Add-on \$99

Thunderscan (e, c, GS Scanner)
\$149

AB Switchbox (Ser/Par)
\$29

ABCD Switchbox (Ser/Par)
\$39

AB Switchbox (Mini 8)
\$38

ABCD Switchbox (Mini 8)
\$48

//e Fan and Surge Protector
\$34

GS Sound System
2 Speakers & 15 watt amp
\$119

Prairie Pwr System, Battery
Pack (8 HR, UPS) & Case
\$119

Apple //e Enhancement Kit
\$68

Cables (all types, 10 ft)
\$15

CH Mach III Joystick
\$35

CH FlightStick
\$47

ImageWriter II Printer
\$459

FingerPrint GSI vII
\$84

Computer Eyes:
Black and White \$99
Color \$199

KENSINGTON

Kensington System Saver GS
\$69

Turbo Mouse ADB (GS, SE, II)
\$109

don't miss out on
**ROGER'S DEAL
OF THE MONTH**

QUICKIE
by Vitesse

Finally a hand-held scanner
for your GS. Gives the ability
to scan virtually anything
with ease. Includes
software and cabling.

list \$299
NOW \$199

BARNEY'S DOG DAY SPECIALS

Look for Barney's Bone next to a
price point. Order that product
on any Wednesday between 11-
2PM(PST) You pay UPS Ground
Shipping, We Ship it 2nd-day AIR!

**Roger
Coats**

P.O. BOX 171466
SAN DIEGO, CA 92117



**PRICE QUOTES &
TECHNICAL SUPPORT**
1-619-274-1253
8am - 5pm PST
Monday-Friday

• Dunn and Bradstreet Number Upon Request • *FREE Second Day Air Upgrade on Dog Day Special Product Only • F.O.B. San Diego

• You'll never sit on the bench when you're on our team! Thanks, Roger & Barney

WE ACCEPT SCHOOL PURCHASE ORDERS





BUSINESS IS BUSINESS

I CAN'T AGREE WITH DAN MUSE'S editorial in January about the value of Apple IIs in schools ("Journalist, Teach Thyself," p. 8). I've been an Apple II user for ten years, but last year I sold my last Apple II and reinvested my money in a machine known to the world simply as a clone.

Reid and Hume's article that displeased you so much came close to hitting the nail on the head. You didn't attempt to deflect their most damaging statement, that the Apple II "has almost nothing to do with computers that grownups see on the job every day." It's the truth. I have yet to find a business that uses Apple IIs. If I do find a business that does, it won't earn any respect from me, for that reason.

Teaching schoolchildren to use Apple IIs is like teaching them to crawl. The knowledge they gain might be useful to an extent, but not directly applicable. If children were taught to deal with the C:\> prompt now, maybe businesses wouldn't have so much trouble teaching it to their employees 20 years from now.

I agree that the majority of educational software is junk, but this applies to all educational software, not just Apple software. If you weren't so busy defending yourselves, you'd notice that children rarely sit in front of those educational games for more than ten minutes.

Brian Witt
Appleton, WI

Brian, like Reid and Hume, you miss the point. We're not talking about "teaching schoolchildren to use Apple IIs," but teaching them using Apple IIs. If you're teaching students multiplication tables, you want to make sure they learn how to multiply; you're not worried about teaching computer skills. The Apple II is sturdy, reliable, and colorful, and there's a huge base of software for

it. It's a great tool for teachers.

It's ironic that you're criticizing the Apple II for using old technology, but you expect the C:\> prompt to be relevant 20 years from now. In 2010, promise you'll write to an MS-DOS magazine and complain about PC clones. —eds.

INCOME TAXES REVISITED

NO SOONER DID MY INCOME-TAXES column ("The Taxman Cometh I," AppleWorks in Action, February 1990, p. 60) appear than the letters began to arrive.

Albert W. Brunot of Swampscott, Massachusetts, sent along two terrific formulas to correct those in error in the column. Simply replace the existing formulas with these:

Formula 13 (Social Security Owed) in B58:
`@IF(B9<400,0,@IF(B4>48000,0,
.1302*@MIN(48000-B4,B9)))`

This formula calculates self-employment tax on income of \$400 or more, taking into consideration the FICA amount already paid by the taxpayer.

Formula 20 (Taxable Income Over Top of Schedule) in K28:
`@IF(B52>J30,.05*@MIN
(F3*11200,B52-J30),0)`

Copy this formula to K33, K38, and K43, keeping every cell but J30 an absolute (No Change) reference. J30 is relative. This formula calculates the surcharge when taxable income exceeds the top amount in the respective schedule.

Ruth K. Witkin
Plainview, NY

QUICKER SPELLING

CONCERNING "LIFE WITH APPLE-Works" (December 1989, p. 90), speeding up the spelling checker in AppleWorks 3.0—speeding up all of AppleWorks

3.0, for that matter—may be easier than you think. Think RAM!

If you have 512K or more of RAM, use a copy utility to load all the files on your AppleWorks 3.0 disk, including custom and main dictionaries. Copy your copy program to memory as well. Transferring files from a 3½-inch disk to RAM is quick and easy; moving files from 5¼-inch disks will take some time for swapping, but you'll get back the extra minutes you spend copying at the start of the day when you come to spell-check a multipage document later.

At the end of your session with AppleWorks 3.0, return to the copy utility and copy the custom dictionary file, with your changes, from RAM to a permanent disk. If someone has a better way of doing this, please let me know.

Gary Lauterbach
Bradley, CA

Randy Brandt of JEM Software (P.O. Box 20920, El Cajon, CA 92021) has, as he often does, a better way. Spell Copy (\$12.50 postpaid) copies dictionaries automatically to RAM on bootup and can also modify AppleWorks if you don't want to keep your dictionaries on the startup disk. —eds.

NO FORMULA, PLEASE

HOW CAN I MOVE A COLUMN OF figures in an AppleWorks spreadsheet without also moving the formulas? That is, how can I remove the formulas from a column of figures? Once a year I have to carry over a column of more than 500 numbers, each computed by a formula, into a new column. Do I have to retype all those entries?

C.H. Causey
San Diego, CA

Stop typing and copy that column to the clipboard, not within the spreadsheet. When you copy them into

the new spreadsheet from the clipboard, just choose values only. —eds.

MHZ AND OTHER PAINS

IN "THE GOOD, THE BAD, AND THE Bow-Wows" (December 1989, p. 68), you state that the clock speed of the Apple IIgs is 2.6 megahertz. The correct speed is 2.8 megahertz.

This isn't a petty complaint. Can we depend on you to bring us facts, not speculation? If you don't know or are unsure, do your homework. How much of your other information is incorrect?

Brian Poole
Lake Havasu City, AZ

Between 2.5 and 2.8 percent of the information in inCider is incorrect. According to Michael Fischer in The Apple IIgs Technical Reference (Osborne-McGraw Hill, 1987), "The 65816 in the IIgs performs 2.8 million operation cycles per second. Some of these cycles are used in servicing the various support circuitry in the IIgs, reducing the effective speed of the IIgs to 2.5 million cycles [MHz]." —eds.

LIQUID CRYSTAL

WHERE CAN I FIND AN LCD screen for an Apple IIc or Laser computer?

Junior Tully
Elkview, WV

Roger Coats (P.O. Box 17166, San Diego, CA 92117, 619-274-1253) sells a liquid-crystal diode display that works with any Apple II or Laser compatible. —eds.

BEAGLE BUDDIES

I'VE USED AN APPLE IIE IN BUSINESS for several years. I do almost all my work—managing the day-to-day administrative duties of a trucking company—with AppleWorks and most of the TimeOut programs. I couldn't disagree more with Phil Shapiro's letter. ("Deliver Us," Letters to the Editor, November 1989, p. 10).

Apparently, he doesn't do business with any of the other "care nothing" software compa-

nies. But you don't need to look at the bad guys to realize Beagle Bros stands out as the best there is.

About a year ago when AppleWorks 2.1 came out and I needed to update a lot of the TimeOut features, I had a problem with UltraMacros. I talked to Beagle Bros on the phone and on AppleLink (now America Online). I got immediate response: Randy Brandt called and sent me a copy of the updated version with no request for money and no proof of purchase. I've never heard of customer service like that from any software publisher.

As great as AppleWorks is, it would still be a fairly average integrated program if it weren't for supporters like Beagle Bros. Without that company, we'd have died of boredom long ago. Those guys have a knack for making work fun.

Thomas E. Carlton
Burlingame, CA

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

LOWEST PRICE DIRECT FROM MANUFACTURER



5 1/4" APPLE® II DISK DRIVE

- Apple® II Series & Laser 128 series compatible
- Speed adjustable
- Brushless direct drive motor
- 48 hrs factory burnt-in

Apple IIc/IIgs cable installed — \$7.00 extra
Unidisk Port option — \$23.00 extra



5 1/4" DRIVE FOR PC TRANSPORTER®

You can use our drive with PC Transporter to run MS-DOS programs on your Apple II like they do on IBM compatibles.
Single-drive system \$169
Dual-drive system \$259
Half-height drive \$115
(Add to single-drive to make dual-drive system.)

NOW AVAILABLE—HARD DISKS FOR ALL APPLE II'S (YES, EVEN THE IIC®)

- 20 MB SCSI Hard Drive for IIe/IIgs \$619
- 30 MB SCSI Hard Drive for IIe/IIgs \$719
- 20 MB SmartPort Hard Drive for IIc \$719

ALSO AVAILABLE:
EXTERNAL 3.5" 800 K Drive for Apple IIgs



6-MONTHS WARRANTY

SEND MONEY ORDER OR CHECK TO:
KINSON PRODUCTS CORP.

482-484 Sunrise Highway,
Rockville Centre, NY 11570.
For inquiry please call: (516) 763-0906
Fax: (516) 763-0938

Visa MasterCard
No COD Order
Accept School's P.O.

TOLL FREE PHONE NO.
FOR ORDER ONLY
1-800-433-6224 (OUTSIDE NY)
1-800-553-6224 (INSIDE NY)
Please call between Eastern time
8:00 A.M. — 6:00 P.M.

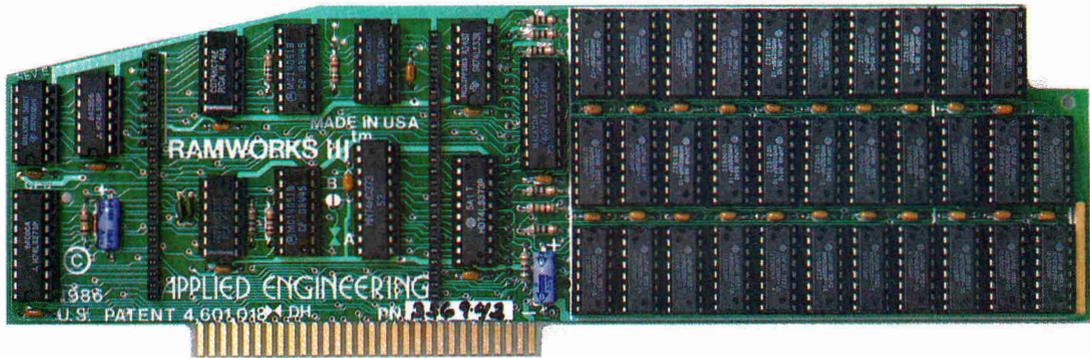
Shipping: UPS ground: \$6.00 per drive
except \$10.00 per drive for dual-drive.
Fed-Express (next day air): \$9.00 per drive
except \$18.00 per drive for dual-drive.
NY Resident: Please add 8% sales tax.

Circle 131 on Reader Service Card.

Apple is a trademark of Apple Computer. PC Transporter is the trademark of Applied Engineering.
IBM is the trademark of IBM Corp.
Terms: 15% restocking fee on non-defective goods. No return w/o RMA. No refund on shipping.

RamWorks® III

Patented Performance from the Recognized Leader



The Best Selling, Most Compatible, Most Recommended, Most Expandable Card Available.

The AppleWorks Amplifier.

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. Naturally, you'd expect RamWorks III to expand the available desktop, after all Applied Engineering was a year ahead of everyone else *including Apple* in offering more than 55K and we still provide the largest AppleWorks desktops available. But 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. With a 265K or larger RamWorks III, *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 records available from 1,350 to over 22,000. *Only* RamWorks increases the number of lines permitted in the word processing mode from 2,250 to over 22,000. *Only* RamWorks expands the maximum clipboard limit from 250 to 2,042 lines. 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 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.

RamWorks, nothing comes close to enhancing AppleWorks so much.

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. Popular programs like AppleWorks, Pinpoint, TimeOut series, HowardSoft, FlashCalc, ProFILER, Managing Your Money, SuperCalc 3a and VIP Professional to name a few (and most hardware add on's like ProFile and Sider hard disks). RamWorks is even compatible with software written for Apple cards. 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 while leaving expansion slots 1 through 7 available for other peripheral cards.

RamWorks III is compatible with all Apple Iie's, enhanced, unenhanced, American or European versions.

Highest Memory Expansion.

Applied Engineering has always offered the largest memory for the Iie and

RamWorks III continues that tradition by expanding to 1 full MEG on the main card using standard RAMs, more than most will ever need (1 MEG is about 500 pages of text)...but if you do ever need more than 1 MEG, RamWorks III has the widest selection of expander cards available. Additional 512K, 1 MEG, or 2 MEG cards just snap directly onto RamWorks III by plugging into the industry's only low profile (no slot 1 interference) fully decoded memory expansion connector.

It Even Corrects Mistakes.

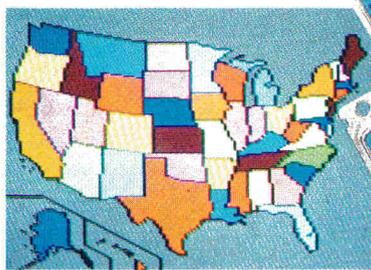
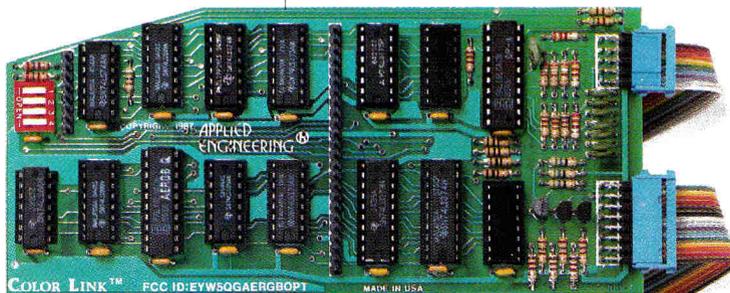
If you've got some other RAM card that's not being recognized by your programs, and you want RamWorks III, you're in luck. Because all you have to do is plug the memory chips from your current card into the expansion sockets on RamWorks to recapture most of your investment!

The Ultimate in RGB Color.

RGB color is an option on RamWorks and with good reason. Some others combine RGB color output with their memory cards, but that's unfair for those who don't need RGB *and* for those that do. Because if you don't need RGB Applied Engineering doesn't make you buy it, but if you want RGB output you're in for a nice surprise because the RamWorks RGB option offers better color graphics plus a more readable 80 column text (that blows away any

composite color monitor). For only \$129 it can be added to RamWorks giving you a razor sharp, vivid brilliance that most claim is the best they have 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 new 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.

*ColorLink™
RGB Option*



like the product so much that I am buying one for my own system." inCider magazine said "RamWorks is the most powerful auxiliary slot memory card available for your Iie, and I rate it four stars..For my money, Applied Engineering's RamWorks is king of the hill."



Steve Wozniak, the creator of Apple Computer

"I wanted a memory card for my Apple that was fast, easy to use, and very compatible, so I bought RamWorks."

Apple experts everywhere are impressed by RamWorks' expandability, versatility, ease of use, and the sheer power and speed that it adds to any Iie.

Quality and Support of the Industry Leader.

RamWorks III is from Applied Engineering, the largest, most well supported manufacturer of Apple peripherals and the inventor of large RAM cards for the Apple. With our 5 year warranty and outstanding technical support, you're assured of the most trouble free product you can buy.

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
- Expansion connector for possible future expansion to 16 MEG

- Can use 64K or 256K RAMs
- Powerful linear addressing 16 bit coprocessor port
- Automatic AppleWorks expansion up to 3017K desktop
- Accelerates AppleWorks
- Built-in AppleWorks printer buffer
- 100% compatible with all standard Iie software
- RamDrive™ and ProDrive™ the ultimate emulation software included free
- Memory is easily partitioned allowing many programs in memory at once
- Compatible RGB option featuring ultra high resolution color graphics and multiple text colors with cables for both the new Apple and standard IBM type monitors
- Self diagnostics software included
- Lowest power consumption (U.S. Patent #4601018)
- Takes only one slot (auxiliary) even when fully expanded
- Socketed and user upgradeable
- Software industry standard
- Advanced Computer Aided Design
- Used by Apple Computer, Steve Wozniak and virtually all software companies
- Displays date and time on the AppleWorks screen with any ProDOS compatible clock
- Much, much more!

RamWorks III with 256K	\$184
RamWorks III with 512K	\$219
RamWorks III with 1 MEG	\$289
RamWorks III with 1.5 MEG	\$399
RamWorks III with 3.0 MEG	\$609
Ram Expander + 1 MEG	\$240
Ram Expander + 2 MEG	\$380
65C816 16 Bit Card	\$159
ColorLink RGB Option	\$129

RamWorks III. The industry standard for memory expansion of the Apple Iie. ORDER YOUR RamWorks III TODAY. See your dealer or call (214) 241-6060, 9 a.m. to 11 p.m., 7 days, or send check or money order to Applied Engineering.

MasterCard, Visa and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10.00 if outside U.S.A.

AE APPLIED ENGINEERING®
The Apple enhancement experts.

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice.

True 65C816 16 Bit Power.

RamWorks III has a built-in 65C816 CPU port for direct connection to our optional 65C816 card. The only one capable of linearly addressing more than 1 MEG of memory for power applications like running the Lotus 1-2-3™ compatible program, VIP Professional. Our 65C816 card does not use another slot but replaces the 65C02 while maintaining full 8 bit compatibility.



Endorsed by the Experts.

A+ magazine said "Applied Engineering's RamWorks is a boon to those who must use large files with AppleWorks...I



EDUCATIONAL

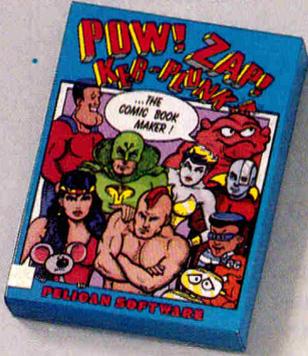


YOUR SINGLE SOURCE SUPPLIER FOR COMPUTER SOFTWARE • DISKETTES • ACCESSORIES

USA/CANADA TOLLFREE
1-800-624-2926

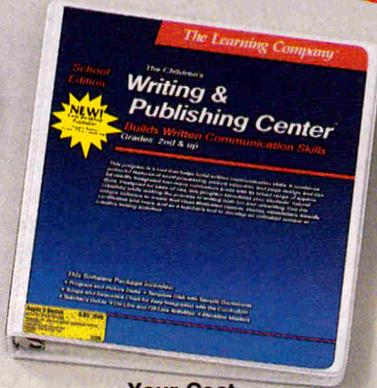
RESOURCES™

IN ILLINOIS CALL
708-884-7040



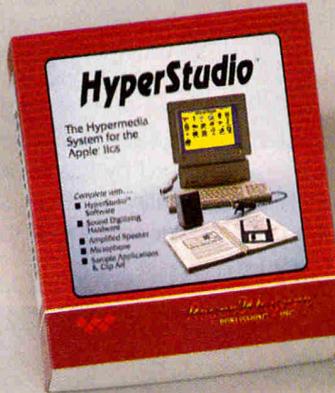
Your Cost
\$29⁹⁵

APL
Iigs Compatible
Lab Pack (5) **\$85.95**



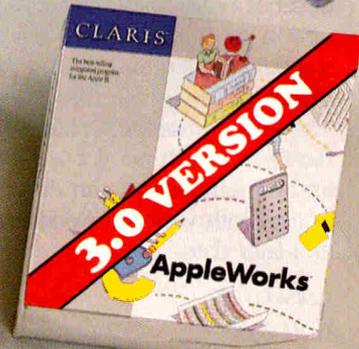
Your Cost
\$55⁹⁵ \$69⁹⁵

APL/Iigs IBM
Lab Pack **\$97.95** APL/Iigs **\$118.95** IBM
Home Version **\$32.95** APL



Your Cost
\$89⁹⁵

Iigs



Your Cost
\$169⁹⁵ \$199⁹⁵

APL 128K Iigs 1.25 Meg

LASER SYSTEM

Computer/190A Printer/Monochrome Monitor
Includes Free Copy II Plus!

\$695⁰⁰

Laser EX-add \$55.00
Color Monitor-add \$170.00
Printer Cable-add \$19.95
Monitor Stand-add \$24.95

Call for lowest component pricing!



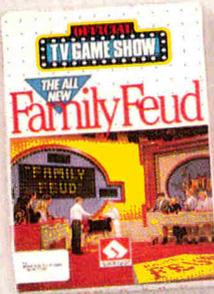
Your Cost **\$23⁹⁵** APL/IBM/Mac

**SAVE
UP TO
50%
EVERYDAY**



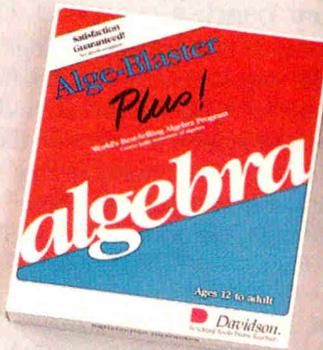
Your Cost
\$31⁹⁵

APL/IBM (5.25" or 3.5")
Lab Pack (5) **\$79.95**
Certificate Collection **\$13.95**



Your Cost
\$8⁹⁵

APL



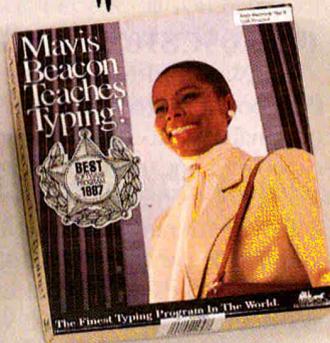
Your Cost
\$29⁹⁵

APL (128K)/IBM (512K)
School Version \$ 41.95
Lab Pack (5) **\$119.95**



Your Cost
\$17⁹⁵

APL/IBM



Your Cost
\$26⁹⁵ \$32⁹⁵

APL Iigs/IBM/Mac

Lab Pack APL **\$109.95**
Lab Pack IIGS/IBM/Mac **\$127.95**

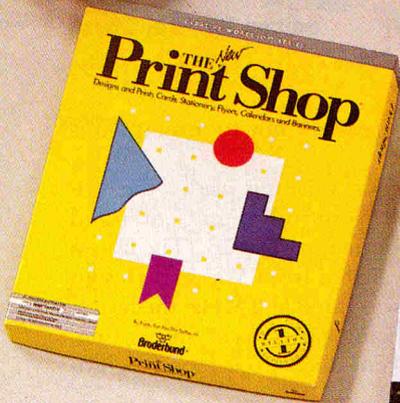
**DON'T SEE IT HERE? WE HAVE IT!
CALL FOR A FREE
120 PAGE CATALOG**

MAIL SCHOOL P.O.'S TO: **EDUCATIONAL RESOURCES**



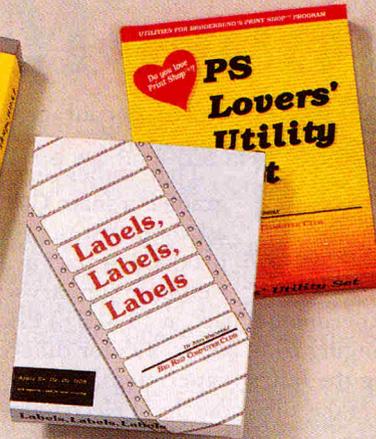
2360 HASSELL ROAD
HOFFMAN ESTATES, IL 60195

Educational Resources Carnival Of Values



Your Cost
\$29⁹⁵ \$35⁹⁵

APL IBM
Add \$10.00 for School Versions



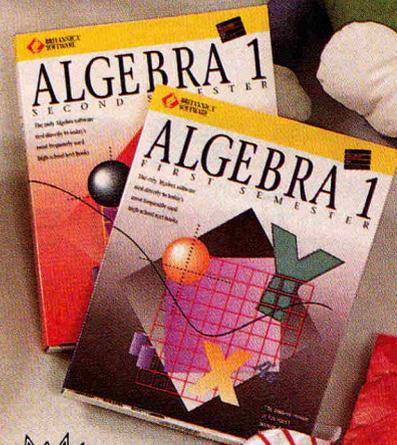
Your Cost
\$25⁹⁵

APL/IIGS
P.S. Lovers' Utility Set \$25.95



Your Cost
\$69⁹⁵

APL
IIGS Compatible
Lab Pack (5) \$244.95



Your Cost
\$44⁹⁵

APL/IIGS/IBM

LOWEST RIBBON & ACCESSORY PRICES



(Quantities of 6)

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		

* Available in Most Colors: Red, Green, Blue, Purple & Yellow Or For Quantities Less Than Six - Add \$1.00 Each.

Call If You Don't See It!

DISKETTES/PAPER

Diskettes - 5 1/4", DS/DD (multiples of 50)	\$.35
Diskettes - 3 1/2", DS/DD (multiples of 10)	.69
Color Diskettes (10 Pk., Asst.) 5-1/4"	6.95
Color Diskettes (10 Pk., Asst.) 3-1/2"	14.50
Color Paper, Asst., 250 Sheets	10.95

ACCESSORIES

Computer Eyes, B/W IIGS	\$102.95	PC Viewer 400 AV APL/IIGS/IBM/MAC	\$695.00
Computer Eyes, Color, IIGS	199.95	System Saver IIGS	68.95
Thundercan	159.95	Transwrap IIGS	289.95
Vulcan 40 Meg Hard Drive	724.95	80 Col. Printer Stand	19.95
PC Viewer 200S APL/IBM	647.00	Mouse Pads	4.95

64K/80 Column Card

\$19⁹⁵

Allows you to use all the new 128K programs at a price you can't afford to miss!



BEAGLE BROS.

APL/IIGS Compatible Products!

Beaglewrite	\$46.95	Timeout Sidespread	\$27.95
Beaglewrite IIGS Only	57.95	Timeout Reportwriter	42.95
Beagledraw IIGS Only	53.95	Timeout Graph	42.95
Timeout QuicksPELL	42.95	Timeout Thesaurus	27.95

Compatible With Appleworks 2.0 & 3.0!

TUTOR-TECH

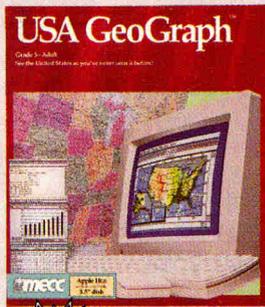
\$139⁹⁵

APL 128K/IIGS compatible
Gives you the power to develop and exchange Apple II stacks.



Your Cost
\$28⁹⁵

IIGS/IBM requires echo board
Lab Pack (5) \$67.95



Your Cost
\$64⁹⁵

APL
IIGS Compatible



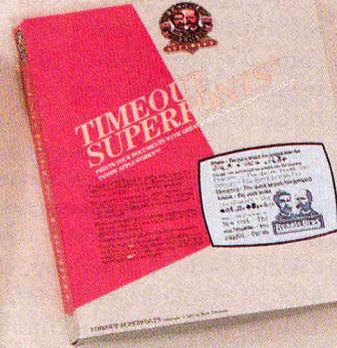
Your Cost
\$26⁹⁵

APL/IBM/IIGS Compatible
School Version \$33.95
Lab Pack (5) \$87.95



Your Cost
\$28⁹⁵

IIGS
1.2 mb required



Your Cost
\$36⁹⁵

APL

Checks and School P.O.'s welcome.
\$50 minimum on charge cards.

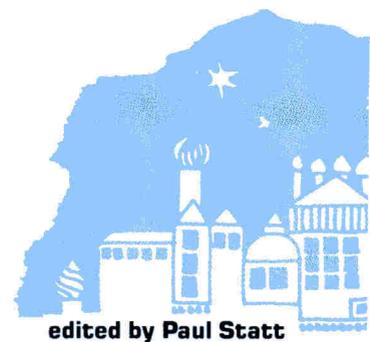
Add 5% shipping with a \$3.00 minimum.
Free shipping over \$300.00 (Continental U.S. only)
Canada add 10% with a \$5.00 minimum.

ORDER NOW!

1-800-624-2926

FREE 120 PAGE CATALOG

WHAT'S NEW



edited by Paul Statt

Faster TransWarp



HARDWARE

inCider encourages readers not to attempt this operation.

That rather serious warning aside, the upgrade is a snap. Call Western Design Center and ask for its fastest production 65C816. (The fastest production part available from Western Design Center in January was rated at 9 MHz; the fastest experimental part, at 13 MHz.) Pricing varied as of this writing, ranging from \$35 to \$95 for different microprocessors, including the fastest experimental parts.

Make sure your local electronics store carries a crystal oscillator—not merely a crystal—rated at four times the speed of the new microprocessor. If you have a 9-MHz 65C816, get a 36-MHz crystal oscillator. If you have a 10-MHz 65C816, get a 40-MHz crystal oscillator. These parts aren't common, but you should have no trouble ordering one. The cost should be \$5 or less.

Now look at your TransWarp GS. If the ROM chip located in the center of the card reads "Version 1.5" or higher, you're ready. Earlier versions require an upgrade to the card.

Carefully replace the microprocessor on the TransWarp GS with the faster part. Pull off the crystal oscillator and replace it with the one that's four times faster than your new microprocessor. Reinstall the card, and you should be ready to go.

It sounds easy because it is. The hard part was figuring it out in the first place. For this, we're grateful to Bill Heinemann of Interplay Productions and Bill Mensch and Andrew Hall of Western Design Center. Thanks, guys. —J.A.

A recent advance in technology allows the Apple IIGS to run nearly 500 percent faster than it did out of the box. The **TransWarp GS** card elevates the stock machine from 2.8 to 7 megahertz (MHz), but you can now push the board's speed limit to a blazing 13 MHz with a **replacement microprocessor and a new crystal oscillator**.

Speed of operation can refer to a lot of things where computers are concerned, but we're talking here about the native ability of the microprocessor to carry out individual instructions. The measure of this speed is rendered in megahertz; the traditional Apple II operates at 1 MHz.

That seems fast enough for most things on the IIe and IIc, so why does the IIGS, with its 2.8-MHz rating, seem slower? It's being asked to do more in maintaining the lush desktop environment. Megahertz ratings don't tell the whole story when you're comparing Apples with other computers, but as a general rule, the standard IIGS operates at about one-third the speed of a good IBM clone or Macintosh.

The speed of a computer is determined by its microprocessor. In the case of the Apple II, that's the 65xxx-series chip sold by Western Design Center (2168 East Crown Road, Mesa, AZ 85213, 602-962-4545). You could swap the microprocessor for a faster replacement and build a faster machine, but things aren't that simple. The IIGS is hard-wired to run at the speed of the original 65C816; the only way around this limitation (at least for now) is the TransWarp GS accelerator card, which is designed to allow speed upgrades.

Because Western Design Center now makes faster 65C816 microprocessors that can replace the standard TransWarp GS chip, it's now possible to build a faster IIGS. For legal, not technical, reasons, you can't upgrade your TransWarp GS yet through any authorized channel.

But you can do it yourself. You'll need to buy a faster microprocessor from Western Design Center and a faster crystal oscillator from a good electronics store—your local Radio Shack probably won't have it.

Before you do anything, call Applied Engineering (P.O. Box 5100, Carrollton, TX 75011, 214-241-6060) and ask if the TransWarp upgrade is commercially available. That's by far the best way to speed up your TransWarp.

If you choose to perform your own TransWarp GS upgrade, you'll void your Applied Engineering warranty. You may also void warranties on other peripherals or the computer itself. If you make a mistake and fry a chip, which is entirely possible, the cost of correcting the situation will come from your wallet.



QUOTES

"Apple is making it clear that it views the Macintosh as the system for the future, and already many schools are choosing to buy Macintoshes, particularly for students in higher grades. Apple barely promoted the Apple II this Christmas [1989], angering

suppliers of Apple II software.

"The transition is occurring even today," said Delbert W. Yocam. "At some point we'll have to make the final move."

Andrew Pollack,
The New York Times, December 29, 1989,
in an article that noted Apple was losing its
dominance in the low-priced computer market



Moscow Nights

The International Computer Club (ICC) of the Union of Soviet Socialist Republics will hold the first International Computer Forum (ICF) from June 14 to 17 at the World Trade Center in Moscow.

Vladimir Federov, who heads the Apple special-interest group of the ICC, says he would like to hold "a special Apple II/Mac forum, if there are enough interested people from the USA, Canada, etc. I'd like to better understand the typical Mac and Apple II user."

Keynote speakers and panelists in Moscow promise to include leading Soviet scientists (even a Nobel Prize winner or two), officials of the Soviet government, and representatives of some of the "world's leading hardware and software companies. The program will also feature a demonstration

of the software of the best Soviet programmers," according to Federov.

Al Martin, editor and publisher of our friendly rival *The Road Apple*, will be there, and he has generously agreed to report on the conference for an upcoming issue of *inCider*.

If you register before April 15, the cost of the ICF is only \$520 (\$250 for a second person). You must transfer that amount to the following account of the ICC: 18000550/002 in V/O Sojuzinraschet of the Bank for Foreign Economic Relations of the USSR, Serpushovski Val, 8, Moscow, USSR. The ICC is located at Center Proyezd Serova, 4, Moscow, USSR, 921-09-02 (which is also its fax number from 1500 to 500 UTC, 10:00 a.m. to midnight, EST). *inCider* also has a limited number of registration forms. —P.S.

ZIP WINS ROCKET SUIT

Last November the Los Angeles Superior Court ruled that Zip Technology (Los Angeles, CA) did indeed have an exclusive patent on the memory-cache system technology used in the company's Zip Chip and in the Rocket Chip made by Bits and Pieces Technology (Westlake Village, CA) to accelerate microcomputers. The court ordered Bits and Pieces to immediately stop its business and close down operations. A company spokesperson stated that Bits and Pieces doesn't plan an appeal.

Dick Stivers, president of Zip Technology, said he was obviously pleased, not least because the settlement of the suit means that Zip can now complete "our refocus and reorganization plan,

which includes two new manufacturing facilities with heavy production capabilities that should allow us to fulfill our heavy backlog" by January 1990. Release date for the IIGS Zip Board was set for February 1990.

Still in question was the deal under which Bits and Pieces had licensed Rocket Chip technology to Applied Engineering for use in its TransWarp II accelerator. Bruce Benesh at Applied Engineering said the settlement between Zip and Bits and Pieces shouldn't affect Applied, but Stivers said Applied has been advised to "terminate completion of the [TransWarp II] project." No agreement had been reached at press time.

—P.S.

The word around January's Consumer Electronics Show in Las Vegas, Nevada, was *games*. Nintendo games, Sega games, MS-DOS games—and, yes, folks, Apple IIGS games.

Britannica is as busy as ever rounding out its Fanfare line of GS entertainment titles with *Task Force*—an arcade-action kill-the-bad-guys-before-they-kill-you game from the talented programmers who brought you PBI Software's *Alien Mind* and Fanfare's *Gnarly Golf* and *Great Western Shootout*.

Britannica's also cooking up a sequel to the popular puzzle game *Jigsaw* (*Editors' Choice*, December 1988, p. 136.) *Jigsaw Deluxe* will feature even more pictures and more options than the original.

Accolade has taken a bit longer than originally planned with some of its GS titles, but *Blue Angels*, *Third Courier*, *Grand Prix Circuit*, *European Challenge*, and *Jack Nicklaus Presents*

the *International Courses* should all ship soon. Taito is busy working on *Puzznik*, *Qix*, and *Rastan* for the GS and continues to show a knack for furiously addictive puzzle and arcade-action games with captivating play and fabulous graphics.

Interplay is following up the superb GS version of *Battle Chess* with an

news from CES

Apple IIe and IIc version, for those who didn't care to plunk down two grand for a platinum computer. The Interplay people also talked about their unique cross-format upgrade policy: If you've purchased one version of an Interplay game, you can upgrade to another version in a different format for \$15—so you're not sunk if you change the flavor of your computer.

New World Computing was in the Electronic Arts booth showing an Apple II version of *King's Bounty*, a nicely animated adventure. An Apple II version of *Nuclear War*, a tongue-in-cheek game of black humor, is also possible.

Electronic Arts may be producing an Apple II (hopefully GS) version of *Ski or Die*, an alpine version of the outrageously radical *Skate or Die*. EA also announced a major affiliated-label agreement with Parker Brothers to do a computer version of *Trivial Pursuit*. Unfortunately, the electronic *Trivial Pursuit* will be available only for IBMs and compatibles—at least for now. Stay tuned. —L.L. ▶



GAMES

MORE
HYPertext

Multimedia is the word, and Scholastic Software is bringing it to schools with its new **Scholastic Hyperscreen**. Hyperscreen enables students, teachers, and administrators to create visually engaging interactive presentations, reports, and lessons.

With Hyperscreen you can design and link text, images, and sound. By using as many as 15 on-screen "buttons," you can display another screen,

tic, as well.

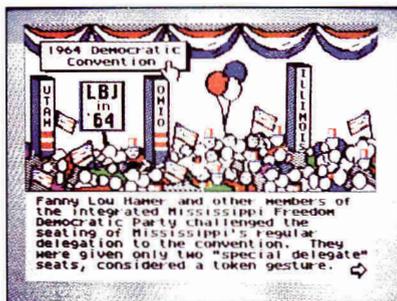
"Scholastic Hyperscreen was developed in response to teachers' desires for multimedia tools compatible with all Apple II computers," according to publisher Peter Kelman. "Whether they're designing custom presentations for an entire class or for an individual student, teachers can adapt the flexibility of this program to develop a wide range of challenging and stimulating interactive learning experiences."

Scholastic Hyperscreen comes on three 5¼-inch disks or one 3½-inch disk and works with the Apple II Plus, IIe, IIc, IIgs, and IIc Plus computers. Including *User's Guide* and *Teacher's Guide*, Hyperscreen costs

\$99.95 (\$499.95 for an AppleTalk or Corvus network version). Call or write Scholastic's Inquiry Department at P.O. Box 7502, 2931 East McCarty Street, Jefferson City, MO 65102, (800) 541-5513, for more information, or circle number 350 on the Reader Service card. —P.S.



SOFTWARE



play a musical selection, read some text, or even control an external videodisc player.

Hyperscreen includes high-resolution graphics backgrounds, clip art, borders, fonts, sound, and a complete set of drawing tools on disk. If that's not enough, you can purchase **Graphics and Sound Booster Packs** from Scholastic

●The playbook and roster for **John Madden Football** (Electronic Arts, \$24.95) just got



UPDATES

a lot bigger: The **National Football League Players Association Players Disk** not only has the stats for the teams and players of the 1987 and 1988 NFL seasons, it also includes

86 new defensive plays and 22 offensive "trick plays."

●Spring Branch Software (Manchester, IA) has fixed a couple of bugs in its popular math program **GS Numerics**, but the big improvement is that this huge program now fits into a puny 587 kilobytes.

THE BOOK
ON ULTRAMACROS

If you think that Beagle Bros' TimeOut UltraMacros could probably do even more for AppleWorks than it does now, you're probably right. But quit complaining; buy Mark Munz's **UltraMacros Primer** and get to work.



The *UltraMacros Primer* can help a rank beginner tame the powerful AppleWorks programming animal that UltraMacros is, but it's also full of information for the old hand: How about a chart of important AppleWorks memory locations for PEEKing and POKEing?

Mark Munz works for Beagle Bros, but you may have seen his UltraMacros tutorials in *The AppleWorks Forum*, from which some of the material in the *UltraMacros Primer* was taken. It's the only book available about this particularly handy programming language "for the rest of us."

If you've ever wondered how far you could push AppleWorks just by taking advantage of UltraMacros' ability to memorize keystrokes, invest \$19.95 (plus \$2 shipping) in the *UltraMacros Primer*, from the National AppleWorks Users Group, P.O. Box 87453, Canton, MI 48187, (313) 454-1115, or circle number 352 on the Reader Service card for more information. It's as easy as programming gets. —P.S.

RESOURCES

HEBREW
WORD
PROCESSOR

While a text-based word processor is almost always faster than its graphics-based cousin, the slower program has the edge when it comes to printing and displaying non-Roman characters—and that's only one of the advantages of Davka's *HaSofer*, a bilingual word processor for the Apple IIgs.

HaSofer is the Hebrew word for *scribe*, and this one is competent in Hebrew and English. Hebrew text reads from right to left, English from left to right, but *HaSofer* can print in either direction, or in both directions in the same document—

perfect for students and teachers. It uses the Apple point-and-click interface, with pull-down menus, keyboard equivalents, search and replace, and formatting by ruler. It even includes two different Hebrew fonts.

Davka is the leading developer and supplier of software for Hebrew-language and Judaic studies, offering more than 100 programs. *HaSofer* requires 512K and a 3½-inch disk drive; it sells for \$199. For more information, call or write Davka at 845 North Michigan Avenue, Suite 843, Chicago, IL 60611, (312) 944-4070, or circle number 351 on the Reader Service card.



SOFTWARE

—P.S.

■Fruition Publications (Box 103, Blawenburg, NJ 08504) hopes to publish an annual disk of **HyperStudio** (Roger Wagner Publishing) stacks to promote the use of hypermedia in schools and libraries. Call (609) 466-3196.

■We're still looking for **Applied Engineering's** Mac product.

■Military employees will have a hard time finding Apple computers—they're no longer sold in stores of the **Army and Air Force Exchange Service**. According to *The Pentagonian* (Washington, D.C.) in November of last year, "The



APPLE BITS

decision was based on Apple's plans to target the small-business market versus the home-computer market." Warranties will be honored by Apple.

■Some analysts blamed Apple's disappointing stock performance at Christmas on poor **Apple II and Mac SE** sales.

■Abracadata's (Eugene, OR) **Find Noriega!** for the Apple II got mentioned in *The Wall Street Journal* shortly after the U.S. invasion of Panama. We're still looking for the game.



UPDATES

●Kula Software (Honolulu, HI) just sent us the 1989 **Kula Index**, which we look forward to every January. We also noted the **A+ Memorial Index** among lots of other neat books, indexes, and software. Write to Kula for a catalogue.

●Applied Engineering (Carrollton, TX) is not only shipping its easy-to-use telecommunications software **ReadyLink**, it's also offering it at half price—\$49—to registered DataLink modem owners.

IIe KEYBOARD \$44.95

Apple Compatible Cards and Products



SALE!

JE864 Pictured

16K RAM Card (Language Card) - Expand from 48K to 64K.
JE860 For Apple II and II+\$34.95

Extended 80-Column Card - Doubles display & memory capacity.
JE864 For Apple IIe.....\$39.95

Disk Drive Controller Card - Capable of handling 2 drives.
JE875 For Apple II, II+, IIe and IIGS\$34.95

Parallel Printer Card - Compatible with most dot matrix printers.
JE880 For Apple II, II+, IIe and IIGS\$39.95

12" Monochrome Green Monitor - Cable Included.
AMON For Apple II, II+, IIe and IIc.....\$99.95

No-Slot Clock - Plugs into your motherboard -10 year battery
IB137 For Apple IIe and IIc.....\$39.95

Apple II, II+ & IIe Replacement Keyboards



AKB

• All the same keys as the original II/II+ and IIe • Includes Cursor Control (AKB2E only) • Software Compatible

AKB Apple II/II+ Replacement Keyboard\$44.95
AKB2E Apple IIe Replacement Keyboard ...\$44.95

APPLE DRIVES \$79.95

5.25" Half Height Disk Drives for Apple II, II+, IIe & IIc



• Direct drive • 160K storage • 40 tracks • Quiet • Works with Apple & compatible controllers (JE875, see left) • Complete with connector

JE1027 Disk II Compatible (for II, II+ and IIe)\$79.95

JE1028 Unidisk Compatible (for IIc).....\$79.95

AAM Adapts II/II+ Drives to Apple IIc (S20-pin to DB19-Pin) \$4.95

ZOOM 300 Baud Modem



• Apple II/II+/IIe compatible • Hayes command compatible • Auto-dial/auto-answer • Includes call progress monitor, speaker, Zoom communication software & manual

ZM300.....\$49.95

Apple Cooling Fan For Apple II, II+ and IIe



• Line surge suppression • Two AC outlets • Snaps on the side
APF.....\$24.95

Switching Power Supply For Apple II/ II+ /IIe

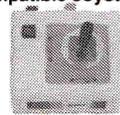


• 110V/220V • +5 @ 5A, +12 @ 2.5A, -5 @ .5A, -12 @ .5A
KHP4007.....\$44.95

JOYSTICK \$16.95

Apple II, II+, IIe and IIGS Compatible Joystick

• Auto-centered joystick with fine-tuning • Accurate and stable performance • Easy to operate • Long life variable resistor control • Durable construction • 5 foot cord



AJS.....\$16.95

ZIP CHIP — Increase the Speed of Your Apple —

• Apple II/II+/IIe/IIc compatible • Easy to install • Replaces the microprocessor • Lifetime Warranty

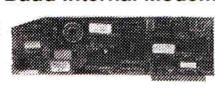
ZIP 4MHz., \$139.95

ZIP8 8MHz., \$179.95



Prometheus 2400 Baud Internal Modem

• Apple II/ II+/ IIGS • Hayes command compatible • Auto-dial/auto-answer • Includes II Talk communication & word processing software



2400A 2400/1200/300 Baud \$149.95

LocalTalk™ for AppleTalk™ Networking Applications

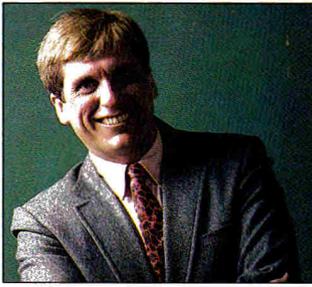
Part no.	Description	Price
AT8	8-pin DIN Connector (1mgWtr. II/LQ, LsrWtr. II NT/NTX, Apple II, II+, IIe or IIGS with AppleTalk Card)	\$19.95
AT7	6 foot AppleTalk Extension Cable	\$4.95
AT6	AppleTalk Coupler (Connects Two Cables).....	\$4.95

1355 SHOREWAY ROAD
 BELMONT, CALIFORNIA 94002
 24 HR. ORDER HOTLINE (415) 592-8097
 Telex #176043 FAX (415) 592-2503
 Technical Assistance FAX (415) 592-9075



\$50.00 Minimum Order - U.S. Funds Only
 CA Residents Add 6.25%, 6.75% or 7.25% Sales Tax
 Shipping - Add 5% plus \$1.50 Insurance
 (May vary according to weight)
 Send \$2.00 Postage for a FREE 48-page Flyer
 Prices Subject to Change ©1990 Jameco Electronics
 APPLE, APPLE II, II+, IIe, IIc, IIGS and Macintosh are registered trademarks of APPLE Computer, Inc. 4/90

Jameco Also Carries a Wide Selection of IBM and Macintosh Compatible Products!



STATUS REPORT

We need goofy ideas. Seriously. Apple sure tries to supply plenty of them.

GOLDBERG VISIONS

By PAUL STATT * SENIOR EDITOR

"TECHNOLOGICAL VISIONS ARE BOLD AND fantastic schemes ranging from the improbable to the edge of the impossible. They are the means which technologists for the past five hundred years have used to express the most extravagantly fanciful aspect of their innovative activity. As creations of the technological, not the literary or popular, imagination they are essentially an exaggerated form of the element of play...."

—George Basalla, *The Evolution of Technology*, Cambridge University Press, New York, 1988

"Knowledge navigation," Apple President John Sculley's video vision of the future, makes sense now. I used to think Sculley was merely silly.

Knowledge Navigator: The Video is certainly ridiculous: A 21st-century professor fumbles through a day's work in minutes by telecommunicating—without a modem and without a fuss—with an on-line database that includes full-color maps and videos and doesn't seem to cost a penny, and with a willing colleague, whom he cajoles into lecturing his students for him.

The joke is supposed to be that the professor employs his "knowledge navigator" to avoid his mother's nagging; the subtler humor is that he avoids doing any work at all. It's a silly film, but now I interpret it as "an exaggerated form of the element of play." The Knowledge Navigator's not meant to be real; it's a Rube Goldberg computer.

As George Basalla, a historian of technology at the University of Delaware, explains, Goldberg's drawings expose "the absurdity of an industrial civilization that creates complex machines to accomplish trivial ends and that naively believes that all human problems can be resolved by technology." So, too, the Knowledge Navigator: The parts are real—the on-line database, the video teleconference, the graphics interface—but they're combined in a wildly intricate fashion, with disregard for cost or reason, to perform some simple task.

Personal computing is thick with examples of absurdly complex solutions to simple problems. You probably recall at least one night spent struggling to connect with a friend across town via a willful

modem, or coaxing a recalcitrant printer to address an envelope, only to mutter, "Wouldn't it be easier to call on the phone?" or "Can't I just type this?"

It would be easier, but that's not the point. You've got *vision*, and so do John Sculley and Apple. We need goofy ideas. Seriously. Apple sure tries to supply plenty of them: desktop publishing, knowledge navigation, multimedia.

Inventors invent for the fun of it, Basalla thinks. But "the belief that necessity spurs on inventive effort is one that has been constantly invoked to account for the greatest part of technological activity," and it is nowhere more persistent than among the folks who sell computers. Your kids need a computer to make the honor roll, they say. Your business needs one to escape the IRS. You need to shop for plane tickets on line or the airline's going to lose your luggage. But Invention is rarely the child of Necessity; more often it's Play that forgets to protect itself and bears an Invention.

Using the evolution of life as a metaphor for the evolution of technology, Basalla says that no technology ever came into existence to meet needs; it's "the accumulation over time of small variations that finally yielded novel artifacts." Leonardo da Vinci, Rube Goldberg, and now John Sculley inspire the diversity that evolution requires. Economics provides the selection.

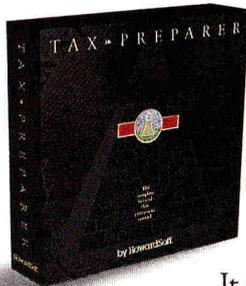
And where does that leave Apple's "visions"? Desktop publishing, for one, isn't new—we've had typewriters and printing presses for years. Desktop publishing evolved; Sculley never spoke the words, "Let there be DTP." Multimedia is as old as the first book with pictures; knowledge navigation is nothing but the process of learning. Thus old ideas evolve.

Apple's Rube Goldberg approach to research and development is daring, but also fun: Combine the mundane parts of today's computer into a laughable computer of the future. Whether Apple meant to or not, its film pokes fun at the whole enterprise of computing. But Apple's visions, like Goldberg's, "reflect the great pleasure taken in playing with technological possibility for its own sake," as Basalla says. That pleasure distinguishes Apple still. □

"I can't afford a tax return that isn't accurate. Neither can you."

SERVING APPLE II USER SINCE 1979.
Supporting Apple II, II+, IIe, IIc, IIc+, IIgs.

I prepare taxes. Lots of them. And I know taxes. Backwards and forwards. But the tax laws have become so complex in the last couple of years that it was taking me hours to prepare even simple returns when investments were involved. So last year after putting other tax software to the test I decided to computerize my practice with HowardSoft's Tax Preparer.[®]



Before buying Tax Preparer, I was skeptical, because it cost less than \$300, with annual updates under \$100 a year...cheap enough for individuals. But once I saw it I knew it was just about as professional as tax software can get.

It was the only package that took no short cuts to accuracy: it transferred hundreds of numbers among IRS forms, computed dozens of worksheets, and recomputed AGI as often as necessary to get an accurate return. And all automatically.

"HowardSoft's attention to detail made all the difference."

Its execution of the Passive Activity Rules was nothing short of brilliant. I didn't have to complete a single IRS worksheet myself. And my lack of computer knowledge wasn't a problem because the program is intuitive to use, and comes with the most complete reference manual I've seen.

But the biggest lifesaver was the hidden automation. I had forgotten to report the self-employment tax for one taxpayer. But when I went back and checked the return, I found that Tax Preparer had already generated and completed the required Schedule SE and reflected it in the return. I also overlooked the new law that requires some taxpayers to file Form 8606 for their IRA; but the returns where this situation existed had a form generated and completed by Tax Preparer automatically! These and the other automatically-generated forms are quite a difference from tax software with "diagnostics" that tell you to prepare

another form; if it's needed, Tax Preparer just takes care of it itself.

The final printed product really capped it off. The printing was so automatic that we printed all returns for the day while we were closing up the office. The printouts were IRS-ready, complete with automatically cross-referenced supporting statements.

I couldn't have gotten through last tax season without it. In spite of the new laws, Tax Preparer let me handle more clients in less time, without the usual errors and headaches. It was easy! I hate to admit it, but I'll bet plenty of individuals can do their own returns with it."

"Tax Preparer recomputed AGI as often as necessary to get an accurate return."

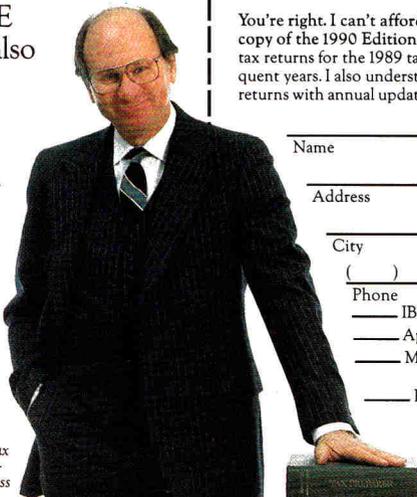
So, look. You can keep doing it the hard way, and risk an inaccurate return. Or buy a package that helps with the arithmetic but not the tax regulations.

But why risk it? Just fill out the coupon, or pick up the phone. See for yourself why Tax Preparer has been featured over the past 10 years in such diverse places as the Wall Street Journal and Business Week, PC Magazine and PC World, A+ and InCider, the Today Show and Goodmorning America. You'll get the tax software that gives you just what you need, at a price you can afford.

Tax Preparer by HowardSoft.[®]

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

For more information, call (619) 454-0121. (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.)



You're right. I can't afford NOT to use Tax Preparer this year. Please send me my copy of the 1990 Edition of Tax Preparer. (I understand that I can prepare official tax returns for the 1989 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/year.)

Name _____

Address _____

City _____ State _____ Zip _____

() _____

Phone _____

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

_____ Apple II family @ \$250 \$ _____

_____ My check is enclosed. (Include 7% sales tax for California addresses.)

_____ Please charge to my Visa MasterCard

Acct No. _____

Signature _____

HowardSoft, Tax Preparer, Tax Preparer: Partnership Edition, Tax Preparer: California Edition, and Real Estate Analyzer are trademarks of Howard Software Service; IBM of International Business Machines Corporation; Apple of Apple Computer, Inc.



GS/OS BLUES

Even if your application works with GS/OS v.5.0.2, it won't necessarily take full advantage of the system's features.

By **WILLIAM P. KENNEDY, Ph.D.**

VERSION 5 WOES

I'VE TRIED UNSUCCESSFULLY TO install the "latest system files" for the newest GS/OS version 5.0 onto several applications' disks. Each time I get the message that I need more disk space. What's wrong?

Tim Hohn
Fruitvale, ID

I CAN'T GET GS/OS VERSION 5.0 installed on my AppleWorks GS System Disk (version 1.0). I'm disappointed particularly after reading the article "System 5.0 Update" (November 1989, p. 65), in which the author, Jeff Cable, describes how much faster everything works, especially AppleWorks GS, when using the new operating system. Any suggestions? Can I remove some of the GS/OS files so that the rest will fit on the AppleWorks GS system disk?

Glen Pierce
Vancouver, WA

The problems you're having with Apple's latest version of the GS operating system (GS/OS version 5.0) seem to be rather common; I've gotten a number of similar inquiries in the last couple of months. Hard-disk-drive owners haven't had many problems other than software incompatibility, because a hard drive has plenty of storage space to accommodate

larger system files. Installing the latest GS/OS on individual 3½-inch disks, unfortunately, can be somewhat complicated. Don't even consider using 5¼-inch disks.

First, version 5.0.2 is the very latest edition of GS/OS. Version 5.0 had some disastrous bugs, particularly in BASIC.SYSTEM. If you purchased 5.0, you should obtain the updated version, GS/OS v.5.0.2, free from your dealer. Installing GS/OS v.5.0.2 on your applications' system disks is initially complicated by the fact that not all applications work with the new operating system, particularly those that worked with pre-GS/OS systems. Test compatibility by starting up your GS with the GS/OS System Disk. Then launch the application from the Finder desktop. If it runs, keep reading. If not, forget about

installing GS/OS v.5.0.2.

Second, ask the question, "Is my application 8- or 16-bit?" Programs that run on any Apple, including a IIe or IIc, are 8-bit and don't use GS/OS at all. You can update the 8-bit operating system, ProDOS, on those disks. Simply delete PRODOS from your application disk, copy the file named P8 in the SYSTEM subdirectory of your GS/OS System Disk to the application disk, and, finally, rename that copied file to PRODOS. If BASIC.SYSTEM is also on your application disk, replace it with the file on your GS/OS System Disk.

Even if your GS application (16-bit program) works with GS/OS v.5.0.2, it won't necessarily take full advantage of the system's features. The perfect example is ExpressLoad. That GS/OS v.5.0.2 feature greatly accelerates application loading speeds—but only if the application is specifically designed by the software manufacturer to use ExpressLoad. Take note, Glen: AppleWorks GS 2.0 uses ExpressLoad; earlier versions don't. Although you'll see some improvements in the performance of those earlier versions of AppleWorks GS when updated with GS/OS v.5.0.2, faster module loads won't be among them.

Furthermore, some applications include essential, application-specific GS/OS tools, drivers, or other

Table. Contents of GS/OS v.5.0.2 System Disk.

Volume: /SYSTEM.DISK/ 1,547 Used Blocks; 46 Free Blocks		
Pathname	Blocks	File Type & Description
SYSTEM*	2	Folder; contains most of GS/OS required files
CDEVs**	2	Folder; Control Panel devices for minimum operation
CDEV.DATA**	25	Unknown; list of Control Panel settings
ALPHABET**	10	CP Document; display language translations
DIRECTCONNECT**	11	CP Document; direct-connect printers
GENERAL**	8	CP Document; general system parameters
KEYBOARD**	10	CP Document; keyboard settings
MODEM**	12	CP Document; modem-port settings
MONITOR**	11	CP Document; monitor configuration
MOUSE**	8	CP Document; mouse speed and click rate
PRINTER**	12	CP Document; printer-port settings
RAM*	16	CP Document; RAM-disk configuration
SLOTS**	13	CP Document; slot assignments
SOUND**	10	CP Document; audio pitch and volume settings
TIME**	17	CP Document; time and date
DESK.ACCS**	1	Folder; Apple on menu bar

Continued

INCLUDES A MONEY BACK GUARANTEE

NEW! VERSION 3!

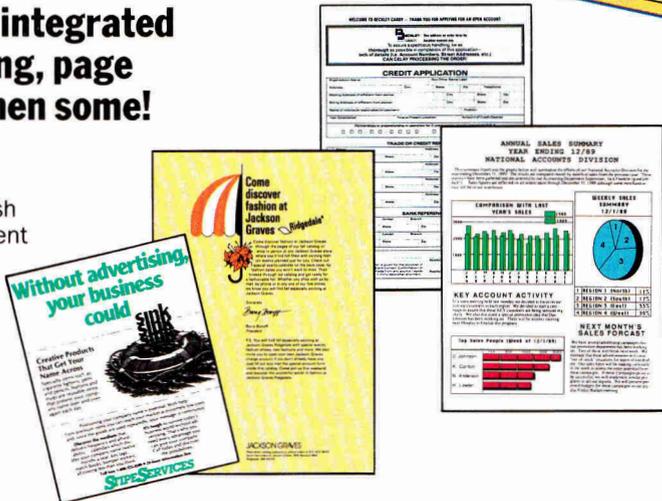
"★★★★★"
"The Star Performer."
InCider
Nibble

Publish-It! 3

"Excellent!"
Home Office Computing
"A Real Winner!"
Personal Publishing

PUBLISH IT! 3—A full-featured, fully integrated desktop publisher with word processing, page layout, typesetting, graphics—and then some!

For all its state-of-the-art ability, PUBLISH IT! 3 is incredibly easy to learn. PUBLISH IT! 3 combines the familiar MacIntosh User Interface, our Quick-Start Mini-Manual, a full complement of Help Screens, and the practical **WYSIWYG (What-You-See-Is-What-You-Get)** display—all designed to get you up and running in less than one hour!



New Version 3.0 Features:

- **Creates & Prints Color Documents:** Add a color ribbon to your Image-Writer—or any other printer with color capability—and your documents now print out in color!
- **Improved Operation:** Faster keyboard response time; a GOTO page command; improved graphics importing capability; enhanced layout tools.
- **Expanded PostScript Support:** Allows you to work with PostScript commands and print PostScript files to disk.
- **AppleWorks 3.0 Compatibility**
- **Imports Super Hi-Resolution Graphics** from popular drawing programs.
- **PrintShop IIGS Graphics Support**
- **Cut, Copy & Paste Groups:** Automatically moves or copies groups of objects within your document.
- **Custom Guides** make it even easier to position text & graphics.

- **Built-in Fonts:** Choose from over 1280 possible type-style combinations! Opt for bold, white, italic, underlined, outlined, shadow, & superscript or subscript characters. Type sizes range from 9 to 72 point.
- **Premium Quality Printouts:** PUBLISH IT! 3 uses a special high density (72 x 120) printout format that gives you superior quality printouts on your dot matrix printer.
- **Built-in Word Processor:** All the features necessary for everyday word processing, plus most of the sophisticated ones found in more expensive programs.
- **Text Importing:** Load documents from APPLEWORKS, BANK STREET WRITER* or any other program with an ASCII format.
- **Includes over 200 Professionally Drawn Graphics & Illustrations**

- **Built-in Graphic Toolbox:** Draw lines, boxes, circles, rules and more. Plus, choose from a wide variety of built-in line and fill patterns, or create your own.
- **Graphics Importing:** Directly import and resize graphics and illustrations from any standard Apple double-high-resolution drawing and graphics programs—including PRINTSHOP and DAZZLE DRAW.* Then crop and size them to fit.
- **Kerning and Leading**
- **Automatic Text Flow and Word Wrap:** Flows text from column to column, or page to page.

For Apple IIe (enhanced), IIc Plus, IIGS, and Laser Computers.
Suggested Retail Price . . . **\$129.95**
Update from PUBLISH IT! 2 . . . **\$29.95**
(For current PUBLISH IT! owners only !)

Additional Features:

- **Macintosh User Interface:** Pull-down menus, icons, scroll bars and dialogue boxes help you learn and use the program quickly. Your display screen shows you exactly what your final product will look like when you print— **What-You-See-Is-What-You-Get**.
- **Flexible Page Layout:** With your mouse or joystick, and keyboard, you can overlap, reposition, resize, and reshape the text, columns & graphics. Change your layout or experiment—almost effortlessly!

Circle 140 on Reader Service Card.

At your dealer, or order from Timeworks. Send in this coupon, or call Customer Service:
1-708-948-9202 FAX: 1-708-948-7626

YES! Send me PUBLISH IT! 3. I've enclosed \$129.95 + \$3.70 (postage & handling). Total: \$133.65.

YES! Send me PUBLISH IT! 3 Update. I've enclosed the TITLE PAGE FROM MY PUBLISH IT! MANUAL, and \$29.95 + \$3.70 (postage & handling). Total: \$33.65.

Illinois residents, please add 6.5% sales tax.

- Disk Size: 5¼" 3½"
- Payment: Check Visa MC Amex

Card Number _____

Signature _____

Exp. Date _____

Name _____

Address _____

City/State/Zip _____

Mail to:

TIMEWORKS

Customer Service Dept.

444 Lake Cook Rd., Deerfield, IL 60015-4919

1-708-948-9200

*Reg. Trademarks of their respective companies. ©1988 Timeworks, Inc. All Rights Reserved.

DOING MY TAXES
CAN BE FUN?

FAST TOO,
WITH 1040WORKS,
THE APPLEWORKS
TAX PROGRAM

No need to spend a lot for conventional tax software when you can do the same job with your own copy of AppleWorks, using Personal Financial Services' tax templates. 1040Works or 1040Works-X convert your AppleWorks into a comprehensive tax-preparation program that calculates Form 1040, computes and prints all IRS schedules plus forms for employee expense, child-care, children's taxes, passive losses, alternative minimum tax, much more. Calculates depreciation, too. Includes manual, financial organizer, utilities and optional time-saving custom macros (for those of you with macro programs). Accepts data from financial management software.

HOW DOES IT WORK?

1040Works and 1040Works-X are data files that set up AppleWorks' spreadsheet as tax schedules and forms. Modules load like any other files; no hardware or software modifications needed. Just fill out the on-screen tax forms. Both programs calculate each form, advance totals to Form 1040, figure your income and tax, print out most forms in IRS-approved, ready-to-file format. Uses standard AppleWorks commands. *inCider* magazine, *GS Buyers Guide* and *NAUG Forum* compared it to \$250 software. (Latest *inCider* review, March 1989.)

WHICH VERSION IS FOR ME?

1040Works requires an Apple II or compatible with 128K RAM and any version of AppleWorks (including 3.0). If you have a computer such as the Apple II GS with at least 256K RAM, you can use 1040Works-X, which takes advantage of the larger AppleWorks Desktop to do the job even faster and more conveniently. (Runs with Three Easy Pieces on an Apple III, too.) CAUTION: WILL NOT WORK WITH CLARIS CORP.'S NEW APPLEWORKS-GS SOFTWARE.

HOW DO I ORDER?

Our software is sold only by mail; not available in stores. Fill out the form below and send it to us with a personal check (or money order). COD orders cost \$4 more. Sorry, we are unable to accept payment by credit card.

1040Works (128K) @ \$24.95 _____

1040Works-X (256K-up) @ \$27.95 _____

On a 3.5 disk, add \$3.00 _____

SOFTWARE TOTAL _____

In NY add state/local tax _____

For COD shipment, add \$4.00 _____

TOTAL \$ _____

Name: _____

Street/Apt#: _____

City/State/Zip: _____

Mail to: **Personal Financial Services**
PO Box 1401, Dept. L
Melville, NY 11747
Tel: (516) 757-3201

APPLE
CLINIC

Continued

CTLPANEL.NDA**	43	New Desk Accessory; Control Panel
DRIVERS*	1	Folder; device drivers for GS/OS and Toolbox
APPLEDISK3.5**	12	Device Driver; standard 3.5" 800K disk drive
APPLEDISK5.25**	14	Device Driver; standard 5.25" 140K disk drive
CONSOLE.DRIVER*	15	Device Driver; text screen and keyboard
IMAGEWRITER	47	Device Driver; Print Manager's driver
MODEM**	6	Device Driver; current modem
PRINTER**	6	Device Driver; current printer
PRINTER.SETUP**	1	Binary; default printer and port drivers
ERROR.MSG*	11	Load File (generic); all GS/OS error messages
EXPRESSLOAD**	25	GS/OS System; fast launches specially prep'd files
FONT*	1	Folder; GS/OS system fonts
COURIER.10	6	Font
COURIER.12	7	Font
FASTFONT**	57	Binary; preshifted Shaston-8 for QuickDraw
FONT.LISTS	3	Binary; list of fonts for Font Manager
GENEVA.10	6	Font
GENEVA.12	7	Font
HELVETICA.10	6	Font
HELVETICA.12	7	Font
SHASTON.16	12	Font
TIMES.10	6	Font
TIMES.12	7	Font
VENICE.14	9	Font
FST*	1	Folder; file system translators
CHAR.FST*	5	GS/OS FST; character translator
PRO.FST*	47	GS/OS FST; ProDOS translator
GS.OS*	90	GS/OS System
GS.OS.DEV*	6	Load File (generic); GS/OS device manager
P8*1	32	ProDOS version 1.8 for 8-bit applications
START*2	208	GS/OS Application; Finder version 1.3
START.GS.OS*	26	GS/OS System; GLoader and GQuit
SYSTEM.SETUP*	1	Folder; boot initialization files and routines
CDEV.INIT*	6	Temporary Init. File; Control Panel devices
RESOURCE.MGR*	19	Permanent Init. File; resource file manager
SYS.RESOURCES*	20	GS/OS System; system resources for toolbox
TOOL.SETUP*	1	Permanent Init. File; TS2 loader
TS2*	79	Load File (generic); ROM 01 patches
TS3*	17	Load File (generic); future ROM patches
TOOLS*	2	Folder; toolsets not in ROM
TOOL014*	49	Tool; Window Manager
TOOL015*	35	Tool; Menu Manager
TOOL016*	29	Tool; Control Manager
TOOL018*	43	Tool; QuickDraw Auxiliary
TOOL019*	15	Tool; Print Manager
TOOL020*	20	Tool; LineEdit
TOOL021*	26	Tool; Dialog Manager
TOOL022*	8	Tool; Scrap Manager
TOOL023*	27	Tool; Standard File
TOOL025**	14	Tool; Note Synthesizer
TOOL026**	10	Tool; Note Sequencer
TOOL027*	27	Tool; Font Manager
TOOL028*	13	Tool; List Manager
TOOL029*	6	Tool; ACE tools
TOOL034**	75	Tool; TextEdit
PRODOS*	4	P8 Application; cold-boot GS/OS launcher
ICONS**	1	Folder; desktop icons
FINDER.ICONS**	22	Icons; for Finder
FINDER.ICONS.X**	12	Icons; add'n'l Finder icons for GS with 768K or more
FTYPE.MAIN**	5	File Type Names; used by Finder
FTYPE.AUX**	7	File Type Names; add'n'l names for 768K or more GS
BASIC.SYSTEM**	21	P8 Application; BASIC ProDOS interpreter version 1.3
BASIC.LAUNCHER**	3	P8 Application; launches BASIC programs from Finder
APPLETALK**	1	Folder; AppleTalk network files (distributed empty)
TUTORIAL	1	Folder; used by documentation to teach file handling may be deleted from disk at any time
BUDGETS	1	Folder
HOME	1	Folder
CY.1990	1	Unknown
CY.1991	1	Unknown
OFFICE	1	Folder
FY.1990	1	Unknown
FY.1991	1	Unknown
GRAPHICS	1	Folder
AD	1	Unknown
FLIER	1	Unknown
LETTERHEAD	1	Unknown
MASTHEAD	1	Unknown
LETTERS	1	Folder
MR.MERRITT	1	Unknown
MS.BACHTOLD	1	Unknown
TO.FAMILY	1	Folder

Continued

Continued

DAD	1	Unknown
MOM	1	Unknown
TO.FRIENDS	1	Folder
DARRYL	1	Unknown
MOLLY	1	Unknown

* Minimum GS/OS boot folders and files

** May be deleted if disk/RAM space absolutely required and not used by GS/OS application

*1 P8 (ProDOS) required only for 8-bit applications and routines

*2 Boot another GS/OS application in volume directory by renaming Start (to Old.Start, e.g.)

software utilities not found on the GS/OS System Disk. Without them, your application might launch correctly, but lack a commonly used font, for example, or possibly "crash" at some inopportune moment. For those reasons and others, I generally recommend you purchase updated versions of your applications, if available. Updates are usually free or obtained for a nominal fee.

Those of you who insist on forging ahead and updating your current versions to GS/OS v.5.0.2, good luck. I haven't had much luck with the System Tools Installer program, particularly when space on the target disk is at a premium. Rather, I've found it's easier to make a copy of the System Disk, compare its files with those on the disk you want to update, remove extraneous files from that new System Disk, and copy the original application's special system and program files. Refer to the accompanying Table for the contents of the GS/OS System Disk and pay particular attention to those files that are essential versus those you can remove to allow additional disk space for your application.

For Glen's benefit, here's the process I used to create a new AppleWorks GS System Disk for a system with 5 $\frac{1}{4}$ - and 3 $\frac{1}{2}$ -inch disk drives and an ImageWriter II printer:

1. Copy the GS/OS version 5.0.2 System Disk, then start up the Finder desktop.
2. Delete the BASIC.System, BASIC.Launcher, AppleTalk, and Tutorial files and folders from the volume directory of that new System Disk.
3. Delete the P8 and Fonts files and folders from the System subdirectory; delete TOOL34 from the System/Tools folder; and delete SCSI.Mgr, Unidisk3.5, and ImageWriter from the System/Drivers folder on that new System Disk.
4. Copy the following files and folders from the original AppleWorks System Disk to your new System Disk: System/Tools/TOOL32, System/Drivers/ImageWriter.CL, System/Fonts, and Icons/AWGS.Icon.
5. Rename that new System Disk to AWGS.System.5 or some equivalent so that you'll be reminded that it's specific for AppleWorks GS.
6. AWGS.System.5 just fits on an 800K disk with

about 2K to spare. If you need additional space for other printer drivers, for example, try deleting more "nonessential" files, such as ExpressLoad, as indicated in the Table. Also, I suggest you use the Installer program on the System Tools disk to install those additional devices, such as printers, because they often require more than just one driver file.

IIC RGB VIDEO

WHERE CAN I FIND AN RGB interface for the Apple IIc? I have a Magnavox monitor that will accept both TTL-digital and -analog inputs.

**Ewald Quick
Dearborn, MI**

Telemax (780 Lorraine Drive, Box 339, Warrington, PA 18976, 215-343-3000) makes the only Apple IIc RGB video interface I'm aware of. For \$149, the company will send you a module that plugs directly into your IIc's video-expansion connector and supplies TTL-digital RGB video through a nine-pin connector commonly found on IBM PC and PC-clone video interfaces. Telemax will also include a cable, although yours will work just fine.

The folks at Telemax aim to please; for instance, on request, they'll "pad" the TTL-digital video signals to 1 VDC at 75 ohms so that you can use a GS-like analog RGB monitor with your IIc. Best bet: Give the support people at Telemax a call and tell them which monitor you'd like to connect to your IIc. Then let them configure the RGB interface to best suit your needs.

APPLE CLINIC IS A FORUM FOR ANSWERING YOUR QUESTIONS ABOUT APPLE II HARDWARE AND SOFTWARE. ADDRESS YOUR CORRESPONDENCE 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.

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.

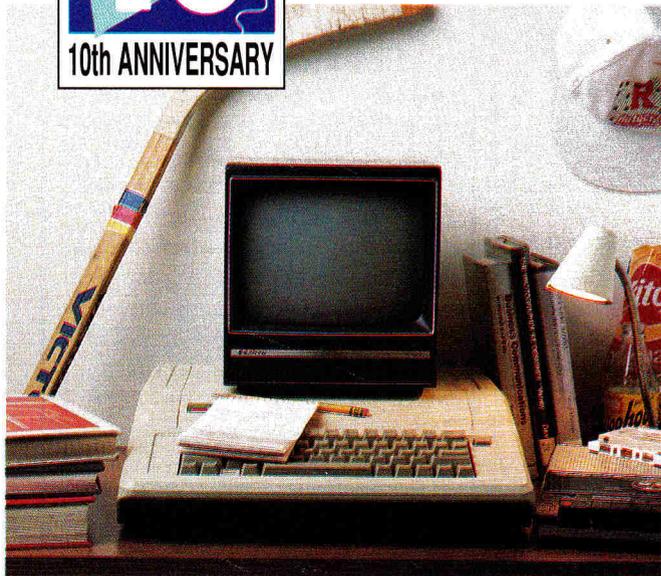
335 East Big Beaver, Suite 207
Troy, MI 48063
(313) 528-1950

Circle 240 on Reader Service Card.



CDA Computer Sales

"The world's oldest and largest Apple® II computer mail order company"



1980

1990

Delivering Complete Ready-to-Run Systems for over a Decade

Apple IIGS Entry System

Complete System Includes:

- Apple IIGS 1 Meg CPU w/Keyboard & Mouse
- AppleColor RGB Monitor
- Apple 3.5" Disk Drive
- ImageWriter II Printer w/cable
- Color Rainbow Ribbon
- 3.5" Diskettes - Box of 10
- Dust Covers for CPU, Monitor, Printer and 3.5" Disk Drive
- Package of Paper - 500 Sheets
- Mouse Pad

Sugg. List \$2989 Package #9080

CDA System Price \$2199

Apple IIGS Power System

- Apple IIGS 1 Meg CPU w/Keyboard & Mouse
- AppleColor RGB Monitor
- Apple 3.5" Disk Drive
- 20Mb Vulcan Hard Drive
- ImageWriter II Printer w/cable
- Color Rainbow Ribbon
- 3.5" Diskettes - Box of 10
- Dust Covers for CPU, Monitor, Printer and 3.5" Disk Drive
- Package of Paper - 500 Sheets
- Mouse Pad

Sugg. List \$4054 Package #9081

CDA System Price \$2749

ImageWriter II Package

Complete Package Includes:

- ImageWriter II 220 cps Printer
- Printer Cable
- ImageWriter II Black Ribbon
- ImageWriter II Rainbow Ribbon
- ImageWriter II Dust Cover
- Package of paper -500 sheets

Apple IIE Package with Grappler Plus Printer Interface Card Package #8924 **\$549**

Apple IIGS Package #8922

Apple IIC - Package #8923

CDA Package Price \$475

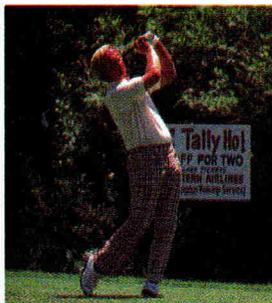
CDA's 10th Anniversary Sweepstakes

1st Prize - an all-expense paid vacation to Vail, Colorado. Enjoy one full week of skiing, golfing, horseback riding, hiking, or rafting — the choice is yours.

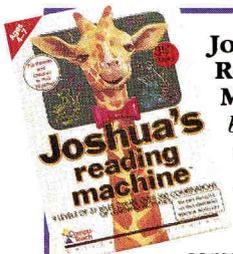
2nd Prize - Macintosh Plus Computer

3rd Prize - \$500 CDA Gift Certificate

Make a purchase with CDA, or send in the official entry coupon, and your name automatically will be entered into the "CDA 10th Anniversary Sweepstakes."

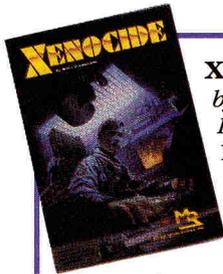


CDA Now Offers a 180 Day Guarantee!



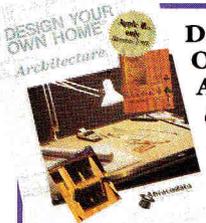
Joshua's Reading Machine

by *Computeach*
 Joshua the giraffe combines two complete reading packages in one — Joshua's Tinker Tales and 37 Mother Goose Rhymes, Children's Songs, and Aesop's Fables. Ages 4-7 IIGS **\$34**



Xenocide

by *Micro-Revelations*
 Xenocide, the arcade game that gives you the task of destroying the 3 moons orbiting the planet Talos IV, in hopes of killing a vicious alien race that has been spreading throughout the galaxy. IIGS **\$29**



Design Your Own Home Architecture

by *Abracadabra*
 Now you can draw floor plans, side view building plans & structural details in a fraction of the time it would take to draw them by hand. Simple, yet powerful. IIGS **\$59**

Monthly Software Specials

- AppleWorks GS V1.1 \$192
- AppleWorks V3.0 (5.25 & 3.5) \$172
- HyperStudio V2.0 (GS 3.5") \$ 85
- Publish It III (5.25 & 3.5) \$ 76
- ProTerm V2.1 (5.25 & 3.5) \$ 76
- Timeout Superfonts (3.5 or 5.25) \$ 36
- Designasaurus (GS 3.5") \$ 26
- PrintShop GS w/Library \$ 36
- Crystal Quest (GS 3.5") \$ 26
- Where in Time is Carmen SanDiego (3.5 or 5.25) \$ 26

Apple Computers

- Apple IIGS w/1 Meg \$895
- Apple IIc Plus \$499

Monitors

- Apple Color RGB \$465
- Apple Color Composite IIe \$339
- Apple Color Comp. IIc, IIGS .. \$312
- Apple Monochrome \$135
- Magnavox Amber \$ 99

Floppy & Hard Drives

- Apple 3.5 Disk Drive \$349
- Apple 3.5 UniDisk IIe/IIc \$319
- UniDisk 3.5 Controller \$ 59
- Apple 5.25 Disk Drive \$259
- AMR 3.5 Disk Drive \$187
- Apple 5.25 Controller \$ 59
- Applied 5.25 Disk Drive \$118
- Applied Vulcan HD/20 \$599
- Applied Vulcan HD/40 \$759
- Applied Vulcan HD/100 \$1299
- CMS 20 Meg w/SCSI \$495
- CMS 30 Meg w/SCSI \$549
- CMS 60 Meg w/SCSI \$709

Printers

- ImageWriter II w/Cable \$459
- Olympia NP-30 w/Cable \$289
- Epson LX-810 \$209

Printer Interface Cards

- Apple Super Serial \$109
- Orange Grappler 9 Pin \$ 79
- Grappler Plus \$ 69
- Fingerprint GSI Plus \$ 95

Digitizers & Scanners

- ComputerEyes IIGS \$199
- ComputerEyes IIe \$ 99
- ThunderScan \$159

Modems

- Applied DataLink 1200 \$135
- Applied DataLink 2400 \$175
- DataLink Express \$189
- Practical 1200 SA Mini \$ 85
- Practical 2400 SA \$185

Memory Upgrades

- We sell only pure Applied Engineering Memory Cards. Complete w/5 yr warranty
- GS-RAM 256K \$119
 - GS-RAM 512K \$149
 - GS-RAM 1 Meg \$199
 - GS-RAM 1.5 Meg \$259
 - GS-RAM Ultra 256K \$169
 - GS-RAM Ultra 512K \$189
 - GS-RAM Ultra 1 Meg \$249
 - GS-RAM Ultra 2 Meg \$349
 - GS-RAM Plus 1 Meg \$249
 - GS-RAM Plus 2 Meg \$349
 - RamKeeper \$139
 - RamKeeper Slot Mover \$ 32
 - RamWorks III 256K \$139
 - RamFactor 256K \$169
 - RamFactor 512K \$209
 - RamFactor 1 Meg \$259
 - RamExpress 256K \$189
 - Applied Ingenuity Ext. 80
 - Column Card w/64K IIe \$ 49

Chip Sets

- Upgrade your Apple or Applied IIe, IIc or IIGS memory card.
- 256K Chip Set 120ns \$ 32
 - 256K Chip Set for RamPak & GS-Ram Ultra \$ 32
 - 1Mb Chip Set GS-Ram+ \$ 79

Sound & Music

- Apple MIDI Interface \$ 79
- Opcode 1x3 Interface \$ 99
- Applied Sonic Blaster \$ 94
- Applied Audio Animator \$174
- Applied Phasor \$124
- Street Electronics Echo IIB \$105
- Street Electronics Echo IIC \$129
- Bose Roommate Speakers \$199

Power/Surge Protection

- 6 Outlet Surge Protector \$ 29
- Applied Eng. Heavy Duty Power Supply for IIe/II+ \$ 59
- Kensington Sys. Saver GS \$ 69
- APC 200w UPS Batt B/U \$295
- Applied Eng. Conserver \$85

Input Devices/ Joysticks

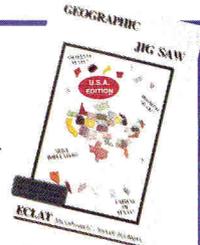
- Apple IIc Mouse \$ 79
- Apple IIe Mouse w/Card \$119
- CH Mach II Joystick \$ 29
- CH Mach III Joystick \$ 35
- CH Flight Stick \$ 47

Time & Accelerators

- TransWarp GS \$289
- TransWarp III \$149
- Zip Chip 8Mhz \$159
- Zip Chip 4Mhz \$125

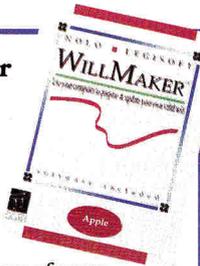
Geo-Graphic Jigsaw

by *ECLAT*
 Solve the High Resolution Jigsaw puzzle using the 50 states. Then answer the questions — spelling, nickname, and capital of each state. Different levels can be set from easy to difficult. Ages 6-up IIGS **\$30**



WillMaker

by *Nolo Press*
 WillMaker allows you to write & update a legal will in the privacy of your own home at a low cost. The manual explains the basics of writing a will and contains an overview of probate avoidance and tax planning **\$35**



No-Slot Clock

by *SMT*
 The only real-time clock/calendar that does not require the use of a slot — it is easily installed in any 28 Pin ROM socket. Maintains time in excess of 10 years. 3 yr warranty **\$30**



US/Canada 800-526-5313 — Outside US/in NJ (201) 832-9004

CDA COMPUTER SALES

10

10th ANNIVERSARY

Official Entry Coupon

Name _____

Address _____

State _____ Zip _____

One CDA Plaza, P.O. Box 533, Califon, New Jersey 07830

CDA's 30-Day Money Back Guarantee. If for any reason you're not 100% satisfied, return the item within 30 days (software excluded).

New! 180 Day Guarantee. All products are guaranteed for 180 days to be free of defects or CDA will repair the item *free of charge*.

Shipping Information UPS Ground - add 3% (\$3.50 min); UPS Blue 2-day service - add 5% (\$5.50 min.); Alaska, Hawaii, PR, APO/FPO - add 6% (\$6.50 min) Foreign orders call or fax for rates: FAX # (201) 832-9740

Hours - Mon-Fri: 9am-10pm EST, Sat: 9am-5pm EST

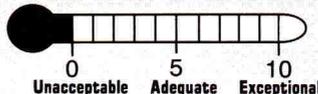
CDA Computer Sales, One CDA Plaza, P.O. Box 533, Califon, NJ 07830

All prices subject to change without notice. CDA is not an authorized Apple Dealer. Product names are trademarks or registered trademarks of their respective companies. Apple and the Apple logo are registered trademarks of Apple Computer Inc.

Entry Coupons must be post marked on or before 10/31/90. Winners selected at random by attorneys of CDA. Odds of winning depends on the number of entries. Winners responsible for taxes. All prizes will be awarded. Winner will be notified by mail. If unable to contact winner, an alternate will be selected by random drawing. Employees of CDA & suppliers not eligible. Dates subject to change at discretion of CDA. Contest is open to US residents except where prohibited by law.

REVIEWS

INCIDER'S RATINGS



REVOLUTION '76

BRITANNICA SOFTWARE,
345 Fourth Street, San Francisco, CA 94107,
(800) 572-2272, (415) 546-1866

Historical simulation;
1.2-megabyte Apple IIgs, RGB monitor;
two 3½-inch drives recommended; \$49.95



For whatever reason, American history never grabbed me the way ancient history did. Somehow, the thought of scruffy Minutemen taking potshots at the British redcoats never seemed as inspirational or as heroic as the epic battles between the Normans and the Saxons. Nor did the Revolutionary War as a whole bring with it the pageantry of the Crusades, the glory of Alexander's Greece, or the grandeur of Caesar's Rome. It wasn't until I sat down for a session with Revolution

'76 that I began to appreciate the difficulty of the struggle for our nation's independence and the ramifications of something as "trifling" as the Boston Tea Party.

INDEPENDENCE DAY

Read the well-written player's reference manual before starting Revolution '76, because the depth of the game prohibits jumping in with both feet. Once you start the game, you're treated to a rousing patriotic tune and

a picture of the Boston Tea Party; then the work begins.

The Second Continental Congress is in session and you must appoint heads of the treasury, the foreign-affairs department, the army, and the navy right away. You'll make your selections from an array of actual politicians of the era, representing all the various factions and regions of the original colonies. Each politician's attributes are rated from poor to excellent.

You'll get an immediate lesson in politics and an appreciation for the fragile balance of the period if you neglect to appease all quarters. Select too many radical party members and the moderates will protest and possibly withdraw their support for your fledgling government. Ignore a geographic region when handing out positions of leadership and you'll find yourself with a rapid increase in Tory activity in the slighted area.

Few aspects of government are ignored in the early going. You must make decisions and establish policies to shape your emerging leadership. You determine when to declare independence from England, how to deal with the slave population in the colonies, how to implement economic reforms, and when to establish an executive branch to facilitate the governing process.

In each case you have a number of directions to take—and in each case your decision has an immediate effect on the game. For instance, something that seems as simple as declaring your independence will alienate moderates if poorly timed. The longer you wait, however, the longer you do without the backing of European countries who refuse to recognize vassal colonies.

After you've completed your "opening moves," your tasks will double. Having established your government, you must now make it work. You need to raise money to fund the Continental Army and the navy. You have to ►



“Elegant, innovative, flexible and in all aspects the leader of the field.” — Incider Magazine

Accolades continue to pour in. Vulcan hard drives were recently awarded FIVE stars by Incider Magazine, a rating reserved for products judged “excellent and remarkable”. Incider went on to say, “*The Vulcan sets a new performance standard for hard drives . . . Applied Engineering has done it again.*”

Hard drives tremendously boost your productivity. The Apple II’s operating system, hardware and memory-gobbling software take on a new agility and finesse with the addition of a hard drive.

Speed? The IIGS Buyer’s Guide put it this way, “*Everything this drive does is fast. TimeOut modules, installed in AppleWorks and configured as disk-based, came up as fast as if they were memory-based. Graphics load almost immediately. Even that damnable lie, ‘One Moment Please’ suddenly delivers its promise. We recommend the Vulcan wholeheartedly.*”

And Incider said, “*The Vulcan walks all over the competition. Twelve seconds to the GS Finder; 10 seconds to AppleWorks GS. Sounds good doesn’t it? It is. That sizzling speed is achieved thanks to a high-quality internal tracking unit.*” Vulcan incorporates an ultra-fast 16-bit data bus controller, not the less expensive 8-bit others use.

Features? As Nibble Magazine said, “*AE drives support more operating systems and have more features in the supporting software.*” And Incider added, “*Applied Engineering has put together the most complete set of utilities to date for an internal hard drive that leads the market.*” And since Vulcan’s made by Applied Engineering, you’re assured of full compatibility with current and future AE products.

Power? Vulcan’s high-efficiency power supply is rated in excess of 70 watts, *nearly double* the capacity of other hard drives. The power supply components are heatsinked to the aluminum case for cool operation and long life. To harness all that power, Vulcan incorporates an ultra-quiet, flush mounted cooling fan, keeping the temperature inside the Vulcan, and inside your Apple lower than before.

Flexibility? Choose a Vulcan from 20, 40, 100 — all the way to 200 MEGs. Upgradeable Vulcan grows as your needs grow. And we don’t mean by daisy-chaining additional hard drives. When you upgrade Vulcan, you pop one out and *replace* it with another.

Only Vulcan lets you use virtually any operating system: GS/OS (v5.0 is included), ProDOS 8, DOS 3.3, CP/AM or Pascal 1.3. Vulcan supports them all with sixteen partitions

(access four simultaneously). Choose slot 1, 2, 4, 5, 6 or 7. Even pseudo-slot to slot 7 from elsewhere. Vulcan works on 110/220 VAC, even European 115/230 VAC at 50-60 Hz.

Ease of Use? Incider says, “*The true test of a hard drive lies in its ease of use and maintenance. In that respect, the Vulcan brings together a more complete package than any of its current competitors.*” Vulcan simply pops in; replacing the Apple power supply under your computer’s hood. Our built-in firmware automatically installs itself as a Desk Accessory for write protection and partitioning. The software we provide lets you easily park heads, back up and reformat.

Order today! To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days.

AE Applied Engineering®

The Apple enhancement experts.

A Division of AE Research Corporation.

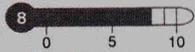
(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders.

AT A GLANCE

GeoCalc (by Tim Walsh, March 1990, p. 30), Berkeley Softworks, 2150 Shattuck Avenue, Berkeley, CA 94704, (415) 644-0883; 128K Apple IIe, IIc, IIc Plus, IIgs; \$69.95

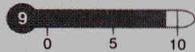


GeoCalc is another GEOS (Graphic Environment Operating System) program making inroads into the arena of productivity software for the Apple II. It includes a separate graph generator (geoChart) for the GEOS environment and is packaged much like geoFile—with four disks, a copy of GEOS, and an interrupt-manager card.

In most respects, geoCalc behaves like a normal spreadsheet; it's just a bit slower. The loss of speed is a result of the updating and redrawing of geoCalc's bit-mapped graphics screens. The advantages of operating in a point-and-click graphics environment outweigh the sacrifice in speed, though.

A full range of mathematical, statistical, financial, scientific, trigonometric, logical, and user-defined functions are included. Choosing any of these functions for placement in a cell is as easy as clicking on the *Choose Function* option from the Formula menu.

ORCA/C (by Ron Berntson, March 1990, p. 36), Byte Works, 4700 Irving Boulevard NW, Suite 207, Albuquerque, NM 87114, (505) 898-8183; 1-mega-byte Apple IIgs, one 3½-inch drive (second 3½-inch drive recommended); \$150



ORCA/C gives you a choice of two environments for program development—the Macintosh-style desktop and the 80-column text screen. The C beginner should start with the desktop; at its simplest level, you'll use it for entering and editing program code, and as a word processor for programming it serves nicely. The desktop also includes special features for editing code, and the screen updates swiftly.

Continued

handle the Tories—tolerating them, prosecuting them, or persecuting them.

You'll deal with privateers, too. Encourage them and you guarantee that British naval power will be harassed, but doing so will deplete the manpower available for your own militia and navy. You'll also send a statesman to European countries with which you hope to form alliances. Will you choose Benjamin Franklin or John Adams?

By now you're probably a bit overwhelmed by the complexity of *Revolution '76*—and you should be. After all, did you think establishing a new country would be a simple task? Fortunately, though, the depth of *Revolution '76* doesn't translate into a difficult game to play. Thanks to a layered programming approach featuring a multiwindow interface, all aspects of the game are presented in logical order and are clearly defined. A game turn consists of a number of phases, ranging from political to economic to military. The events of previous turns help dictate the course of action you must take in subsequent turns.

You make all your choices with the mouse. Click on the mid-Atlantic section of the map to activate it, slide the pointer over to the dollar-sign icon, and click—you've just raised the taxes in that region. Playing *Revolution '76* is that easy; playing it well is more difficult.

THE REDCOATS ARE COMING

Though it should be obvious by now that *Revolution '76* is much more than just a war game, probably no other aspect has as much impact on the outcome of the game as the battles fought during the course of play. Winning boosts morale, encourages support from your European allies, swings borderline moderates over to the cause, brings in added revenue, and gains new recruits for both the regular army and the local militia. Losing brings about the opposite result.

Combat is fought in the abstract; your decisions are strategic as opposed to tactical. You must decide how to allocate and supply your troops and which general to put in charge; you'll always know where the redcoats are heading and in what number. With a little experience, you'll soon get a feel for the type of force, the level of training, and the numbers of supplies necessary to make you victorious.

Keep in mind when dealing with the combat side of *Revolution '76* that this war—at least in its early stages—consisted of hit-and-run tactics. You can't afford to squander your man-

power in the first military confrontations and expect to still have a large army in the latter stages of the game. Retreat if you're badly outnumbered and fight only when you stand a good chance of winning.

INTO THE FRAY

One word of warning: The game's a tough play if you have only one 3½-inch drive. The amount of disk swapping required with a single drive is mind-boggling. You can alleviate that by turning the sound off, but the music and sound effects help establish the mood of the game and are definitely a loss if eliminated. A better solution is to hook up a second drive.

You can install *Revolution '76* on a hard drive if you have one. The program uses off-disk copy protection by asking you to select the correct word from a random page, paragraph, and sentence in the *Historical Perspective* booklet that accompanies the game.

Revolution '76 succeeds on all counts. It truly simulates all aspects of the American Revolution; it challenges your military, economic, and diplomatic savvy; it's esthetically pleasing as it takes full advantage of the GS' capabilities in graphics and sound. Not only did *Revolution '76* entertain and challenge me more than any other recent GS program, it also did more to aid my understanding of the birth of our country than did any of my high-school or college American-history courses. That's quite an accomplishment for a piece of software.

Jim Trunzo
Leechburg, PA

STORYWORKS

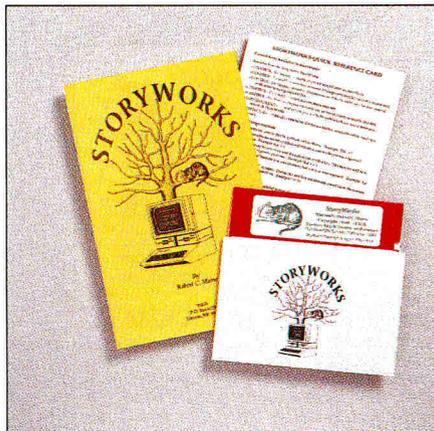
**TEACHERS' IDEA AND INFORMATION EXCHANGE,
P.O. Box 6229, Lincoln, NE 68506,
(402) 483-6987**

Construction kit for multimedia
AppleWorks files;
64K Apple II, AppleWorks Classic; \$49.95



It seems there's no end to AppleWorks' adaptability. Thanks to an innovative new classroom program from the Teachers' Idea and Information Exchange (TI&IE), this versatile 8-bit package, running on a mere 64K, is venturing into the hottest new area of technological development currently on the market—*hypermedia*. StoryWorks, by Robert C. Moore, lets you construct a "stack"—a complete file combining text, sound, and simple ▶

line graphics—within AppleWorks. Create individual segments of a lesson or test with the word processor and assign a number to each with AppleWorks' *Set a Marker* command; add one or more Hypertext-style "buttons" to join segments. Students jump from segment to segment by activating a button—pointing and clicking with a mouse or typing a specific key.



"Hypermedia" for the 64K Apple II.

The HyperCard metaphor is appropriate because StoryWorks—like its Macintosh cousin—is a powerful information-management system that doubles as a specialized program launcher. StoryWorks lets you create branching worksheets, tests, seating charts, and stories complete with sound effects; when students read a StoryWorks file, they can select an embedded button for immediate access to related topics, glossaries, bibliographies, or sets of questions.

Learning follows a nonlinear path as youngsters select topics of interest; they can review subjects as needed and explore files in any order that makes sense to them. The advantage for teachers is that StoryWorks' tools facilitate the creation of lessons customized for particular classroom needs—even automatic calculation of test scores.

Over the years, TI&IE has collected and published a variety of AppleWorks word-processor, spreadsheet, and database applications designed to facilitate the educational process. The group is a nationwide organization of teachers, administrators, librarians, and computer coordinators who exchange ideas for using AppleWorks files and templates to streamline classroom and administrative procedures; in terms of creativity and innovation, StoryWorks has to rank at the top of the list.

The StoryWorks construction kit consists of eight AppleWorks word-processor files. The file titled *A.First.Look* briefly explains how the program works; others, such as *The.Civil.War*, *Civil.War.Quiz*, and *Treas.Mystery*, give you a glimpse of the program in action. Eighty *.Column* demonstrates incorporation of simple diagrams into a StoryWorks file.

Another special template, called *Stack-Starter*, simplifies the process of creating StoryWorks files, each containing several related segments, linking buttons, and transfer directives. StoryWorks files can read text, follow directives issued within AppleWorks, and generate a variety of sound effects, linking individual segments of text with a variety of sounds to create a single multipart story. (Unlike HyperCard, StoryWorks can't incorporate bit-mapped graphics or link text and sound with video images.) Each StoryWorks segment can be up to 2700 words long.

The button system is useful for amplifying electronic lessons with optional in-depth information. For example, if you decide to write a stack about the solar system, you could list each planet by name, followed by a letter enclosed in braces (for example, *Mercury {M}*). Students reading the stack could learn more about Mercury simply by typing the letter *M*. Students who are already knowledgeable about Mercury could go on.

StoryWorks comes with 26 sound effects, each associated with a letter of the alphabet. A special "sound sampler" file on the StoryWorks disk lets you audition them. Most are tones simulating an outer-space or shoot-'em-up motif. You'll hear a laser gun, a spaceship, a falling bomb, and a UFO flying overhead; remaining beeps and buzzes make a distinct arcade-like impression, with names like *Zap!*, *Whoops!*, *Oh No!*, and *Rebound* (which sounds like a bouncing ball).

Pressing Control-S at the main menu toggles the sound on or off. When running the program on an Apple IIGS or a IIe equipped with an accelerator card, set system speed to *Normal* to hear the sounds as the author intended them—otherwise the tones may seem abbreviated or high-pitched.

StoryWorks includes an instruction manual with well-written guidelines for designing stacks and a quick-reference card with a summary listing of control keys, special target symbols, and keyboard options you won't be able to use as buttons.

Directions for creating new stack files are ►

AT A GLANCE

Continued

Once you've mastered some C, you might want to switch to the text-screen environment. It's somewhat less "user friendly" than the desktop, and it doesn't include many of the desktop's debugging features. Many experienced programmers prefer the text environment, however, because it's faster and you can customize it. It's useful to have the choice.

Pow! Zap! Ker-plunk! (by Carol Holzborg, March 1990, p. 32), Pelican Software, 768 Farmington Avenue, Farmington, CT 06032, (203) 674-8221; 128K Apple II family; color monitor and printer recommended, mouse optional; speech requires Echo Board or Cricket speech synthesizer on Apple IIe/IIc; \$39.95 (retail); \$49.95 (school); \$19.95 (add-on art disks)



Creating a comic book with *Pow! Zap! Ker-plunk!* is simple. Youngsters begin by selecting a background from any of seven categories, each containing a range of choices—street scenes, a zany spaceship interior, outdoor settings, a principal's office, and a template for a newspaper masthead, to name a few.

Youngsters start building their comic panels by adding various components. They can choose graphics from a selection of categories—heroes, heroines, creatures, villains, funny characters, and special effects, for instance. They can also insert speech bubbles and text boxes to spice up the presentation.

Next, kids press the spacebar to view the clip-art choices within that category. The arrow keys (or the mouse) move the graphic to a desired location.

Youngsters can print their stories or comic panels in six different formats—miniature, tall, short, skinny, standard, and poster size. They can print the text of the accompanying stories in one of four font choices (small, medium, fancy, or slant), but they can't mix fonts within a story. □

End

GOLEM COMPUTERS

PRESENTS

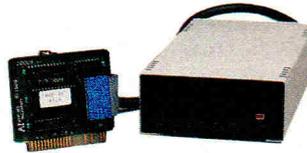
Hot Disks!

Keep your Soda Cool
in a Koozie- **FREE**
with Orders Over
\$50.00

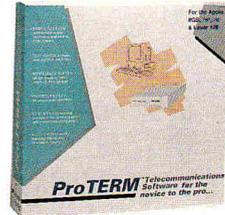
OVERDRIVE INGENUITY

An external Hard drive which is fast and powerful. The fastest hard drive in its class, with speeds of 40K/Bytes/sec non-native mode & native mode driver speeds up to 120K/Bytes/sec. Supports multiple operating systems, such as ProDos, Dos 3.3, MS-Dos, IIGS, Ile, II+ & Laser 128.

20MB \$440.
40MB \$525.



\$77.

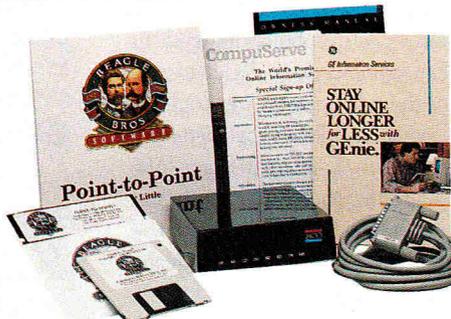


ProTERM CHECKMATE

Look at some of the things you can do with ProTERM. Logon to remote systems with as little as 1 keystroke. •Capture every word that crosses your screen. •Use the built-in text editor to read, edit and transfer AppleWorks files as well as text files. Transfer files with the largest selection of transfer protocols.

TELINK GOLEM

\$149.

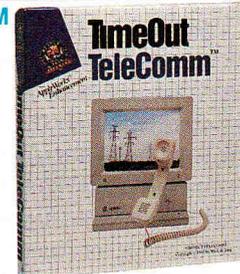


If you're looking for a reliable, easy-to-use, low-cost 2400 baud Hayes-compatible modem you can stop looking. Compare the TeLink to any other modem on the market. You won't find a better value at any price. Because we've taken the best technology, and rolled it all into a neat package. We started with the best modem chip set you can buy, the Rockwell RC224AT. What that means for you is simple. You'll have better connections, more of the time, with exceptional data accuracy for fast, reliable communications. We understand what it means to have your modem work with any software, the first time, just like Hayes. That's why we made sure that TeLink is more than just "Hayes compatible." The result? The TeLink is compatible with every Hayes AT Command, every Hayes Dial Command, and every Hayes S-Register. TeLink has an on-board non-volatile memory to store your modem setup and frequently called numbers. We also have superior call progress tone detection, phoneline impedance matching a quality speaker and high-power amplifier.

TELECOMM

BEAGLE
BROS.

\$43.



TeleComm is a Beagle Bros. TimeOut application that links AppleWorks to your modem. You never have to leave AppleWorks to log-on to your favorite bulletin board or information service. Interface AppleWorks with the world! TimeOut TeleComm's wide selection of file transfer protocols insures you are supported by all information services.

UTILITY/LANGUAGE

- APPLIED ENGINEERING
- READY LINK 71.
- BEAGLE BROS. Timeout Graph 52.
- Designworks Accessories (IIGS) 35.
- SEVEN HILLS Font Factory 45.
- Timeout-Superfonts, Quickspell, Telecom 45.
- Timeout-Filemaster, Sidespread, Power Pack, DeskTools II, Thesaurus Desktools 31.
- Timeout-Reportwriter 48.
- Timeout-Ultramacros, Spreadtools 35.
- Timeout-Macrotols, Macrotols II 27.
- Point In Point 68.
- GS Font Editor, Program Writer 31.
- Performance Pack 73.
- Style Pack 86.
- Decision Pack 99.
- BIG RED COMPUTER
- PS Lovers (IIGS, IIe/IIc) 27.
- Labels, Labels, Labels 27.
- BYTE WORKS ORCA/C, Pascal (IIGS) 88.
- ORCA/Desktop (IIGS) 38.
- ORCA/IM 1.1 42.
- CENTRAL POINT Copy Two Plus 25.
- CHECKMATE TECHNOLOGY Proterm 79.
- MICOL Advanced BASIC (IIGS) 54.
- Q LABS EASY DRIVE 95.
- RAMUP 30.
- Repair Works, SuperPatch 30.

- ROGER WAGNER Merlin 8/16 (PRO DOS) 79.
- Softswitch (IIGS) 40.
- Graphix Exchange (IIGS) 32.
- Hyper Studio (IIGS) 89.
- Macromate (IIGS) 33.
- SEVEN HILLS Font Factory 27.
- Disk Access 32.
- TERRAPIN Logo Plus 90.
- TML Pascal II (IIGS), Basic (IIGS) 83.
- Source Code Library (IIGS) 44.
- Speech Toolkit (IIGS) 66.
- VERSACAD CAD Apple 46.
- CAD Apple Professional 260.
- VITESSE Salvation 32.

BUSINESS

- BEAGLE BROS. BeagleWrite GS 62.
- BeagleWrite Picture Manager 31.
- BeagleWrite Font Library GS (IIGS) 25.
- APPLEWORKS 3.0 COMPANION 27.
- BRODERBUND Bank Street Writer Plus 47.
- On Balance 39.
- CLARIS Appleworks GS V1.1 195.
- Appleworks V3.0 170.
- DAC SOFTWARE DAC-Easy Accounting 60.
- MANZANITA Payroll 109.
- Business Works (ProDos) 267.
- SENSIBLE SOFTWARE
- Sensible Speller IV 68.

- Sensible Grammar Checker 79.
- SEVEN HILLS Graphics Writer III 40.
- STONE EDGE 32.
- DB MASTER PROFESSIONAL 89.
- TIMEWORKS Swift Tax 33.
- Publish It 2 27.
- Font Pack I, II, Symbols & Slogans, People, Places & Things 32.
- 4 in 1 Portfolio 90.
- Design Ideas, Education 83.
- Graph It 46.
- WORDPERFECT 66.
- Wordperfect (IIGS), (IIe/IIc) 260.

HOME/PERSONAL

- ABRACADATA Design Your Own Home 62.
- Architecture (IIGS), Interior (IIGS) 31.
- Landscape (IIGS) 31.
- Libraries 25.
- ACTASOFT Alpha Check 27.
- BEAGLE BROS. Beagle Draw GS 47.
- Beagle Draw GS Clip Art (IIGS) 39.
- BRODERBUND The Print Shop 195.
- The Print Shop (IIGS) 170.
- The Print Shop Library (IIGS)-Sampler, Party 60.
- The Print Shop Library 1, 2, 3 109.
- DAZZLE DRAW 267.
- ELECTRONIC ARTS Deluxe Paint II (IIGS) 68.

- Instant Synthesizer (IIGS) 55.
- INTUIT Quicken 85.
- MECA Managing Your Money 89.
- MECC Calendar Crafter 33.
- MEDIAGENIC/ACTIVISION 47.
- Paintworks Plus (IIGS) 74.
- Paintworks Gold (1.25MB Req.) 46.
- Draw Plus (IIGS), Music Studio (IIGS) 66.
- Paint, Write, Draw Bundle (IIGS) 59.
- MINDSCAPE Certificate and More 80.
- NOLO PRESS Willmaker 27.
- UNLIMITED SOFTWARE 47.
- Things You See Everyday (IIGS) 39.
- Old Fashioned Variety (IIGS) 110.
- LIFE SCIENCES (IIGS) 53.
- A World of Symbols (IIGS) 33.

EDUCATION

- BARRON'S Study Program For SAT V2.0 32.
- BRITANNICA Jigsaw (IIGS) 25.
- Algebra 1, First Semester 40.
- Algebra 1, Second Semester 32.
- BRODERBUND Science Tool Kit 49.
- Science Tool Kit Module 1, 2, 3 42.
- Science Tool Kit 27.
- VCR Companion 47.
- Where in Europe, Where in USA 23.
- Where in Time 15.
- Where in the World (IIGS) 40.

FOR FAST SERVICE 1-800-248-0363

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

GOLEM COMPUTERS

P.O. BOX 6698
WESTLAKE VILLAGE, CA 91360

Special of the Month!
GS JUICE PLUS 1MB
INGENUITY
\$140.

EDUCATION

- Where in the World
- Geometry (IIGS)
- The Play Room (IIGS)
- Where in USA (IIGS)
- DAVIDSON & ASSOCIATES**
- Read & Roll. Word Attack Plus
- Word Attack Plus - Spanish, French
- Math & Me. Reading & Me
- Math & Me (IIGS). Reading & Me (IIGS)
- Spell It Plus. Grammar Gremlins
- MATH BLASTER MYSTERY**
- Math Blaster Plus. Alge Blaster Plus
- Student Organizer
- DESIGNWARE** Spellicopter, Math Maze
- Designasaurus (Ile/Ilc)
- Designasaurus (IIGS). Revolution 76 (IIGS)
- Grammar Examiner, States & Traits
- The Body Transparent, European Nations
- ELECTRONIC ARTS**
- Mavis Beacon Teaches Typing (IIGS)
- Mavis Beacon Teaches Typing (Ile/Ilc)
- FIRST BYTE** (for IIGS) (768K Req.)
- Mathtalk, First Shapes, Kidtalk
- Speller Bee. Smoothtalker
- Mathtalk Fractions, First Letter & Words
- HARDCOURT, BRACE, JOVANOVIH**
- Computer Prep for the SAT
- ILS SOFTWARE**
- Computer Preparation SAT, GRE, ACT
- LAWRENCE PRODUCTIONS:**
- McGee (IIGS)
- MECC** World Geograph (IIGS)
- U.S. GEOGRAPH (IIGS)**
- Oregon Trail (Ile/Ilc)
- Oregon Trail (3 1/2")
- MINDSCAPE** Crossword Magic
- PASSPORT DESIGN** Master Track Pro
- Master Track Pro (IIGS)
- Master Track Jr. (IIGS)
- PYWARE**
- Music Writer Level 1 (IIGS)
- Music Writer Level 2 (IIGS)
- Music Writer Level 3 (IIGS)
- THE LEARNING COMPANY**
- Reader Rabbit (IIGS)
- Writer Rabbit, Think Quick,
- Rocky's Boots (Ile/Ilc/IIGS)
- Math Rabbit, Reader Rabbit, Gertrudes
- Secrets, Magic Spells (Ile/Ilc/IIGS)
- CHILDREN'S WRITING PUBLISHING CENTER (Ile/Ilc, IIGS)**
- UNICORN SOFTWARE (IIGS Only)**
- All About America, Read A Rama
- Math Wizard, Animal Kingdom
- WEEKLY READER** Sticky Bears - ABC's,
- Basketbounce, Bop, Math, Math II,
- Numbers, Shapes, Opposites, Reading
- Sticky Bears - Basics, Drawing, Music,
- Music Library, Parts of Speech,
- Printer, Reading Comprehension,
- Spellgrabber, Town Builder, Typing,
- Word Problems
- Car Builder, Codes & Hyphens,
- Exploring Tables & Graphs-Level I, II,
- Map Skills, Math Word Problems,
- Punctuation Rules, Reading
- Comprehension, Vocabulary Devel.
- Shapes (Talking, IIGS)
- Opposites (Talking, IIGS)
- ABC's Talking (IIGS)

ENTERTAINMENT

- 24. **ACCOLADE** Mean 18 (GS)
- 53. Blue Angels (IIGS)
- 27. Grand Prix Circuit (IIGS) Heat Wave (IIGS)
- 27. The Third Cousin (IIGS)
- 30. Jack Nicklaus Golf (IIGS)
- Test Drive II (GS), Hardball (GS)
- 29. Test Drive (Ile/Ilc), Bubble Ghost (IIGS)
- 29. California Challenge (IIGS)
- 24. The Super Cars (IIGS), Muscle Cars (IIGS)
- 29. European Challenge (IIGS)
- 29. 4th & Inches, Serve & Volley (IIGS)
- 29. **ARTWORX** Strip Poker (GS)
- 29. Bridge 6.0
- 29. **BRITANNICA** Gnarley Golf (IIGS)
- 26. Laser Force
- 25. **TASK FORCE (IIGS)**
- 32. Great Western Shoot-Out (IIGS)
- 31. **BRODERBUND** Wings of Fury
- 25. Prince of Persia
- Dark Hart of Ukukul
- 32. Ancient Land of YS (IIGS)
- 25. Ancient Art of War at Sea
- 25. **CASADY & GREENE**
- 27. Crystal Quest (IIGS)
- 27. **CINEMAWARE** King of Chicago (IIGS)
- 27. Defender of the Crown (IIGS)
- Rocket Ranger (IIGS)
- 26. Three Stoges (IIGS)
- 17. **ELECTRONIC ARTS** Bard's Tale (IIGS)
- 33. Cribbage King/Gin King (IIGS)
- 30. Reach for the Stars (IIGS)
- 30. Cartooner (IIGS)
- 96. Bard's Tale II (IIGS)
- 82. Bard's Tale II, III
- 20. Hunt For Red October (IIGS)
- 23. Hunt for Red October (Ile/Ilc)
- 33. John Madden Football (Ile/Ilc)
- 165. Keef the Thief (IIGS)
- 300. Tomahawk (IIGS), Zany Golf (IIGS)
- 120. Halls of Montezuma (IIGS)
- Marble Madness (IIGS), Yeager's AFT
- 80. Skate or Die (IIGS)
- 200. Chessmaster 2100 (Ile/Ilc, IIGS)
- 400. **LIFE & DEATH (IIGS)**
- 36. **F.T.L.** Dungeon Master (IIGS)
- MASTERTRONICS**
- War in Middle Earth (IIGS)
- 30. Barbarian (IIGS)
- 26. **MEDIAGEN/ACTIVISION**
- Battletech
- The Quest for Excalibur
- Neuromancer (IIGS)
- 30. Battlechess (IIGS)
- 40. **MICROPROSE** Pirates (Ile/Ilc, IIGS)
- 33. Red Storm Rising
- MICRO REVELATIONS**
- Xenocide (IIGS)
- 24. **MINDCRAFT** Magic Candle
- Keys of Maramon (IIGS)
- MINDSCAPE** Balance of Power (IIGS)
- Paper Boy, Paper Boy (IIGS)
- 30. Captain Blood (IIGS)
- 30. Hostage (IIGS)
- 30. **ORIGIN** Omega (IIGS)
- Ultima Trilogy, Ultima IV, V
- Windwalker, Times of Lore
- Tangled Tales
- 30. Space Rogue
- 30. **PELICAN** Pow Zap! Kerplunk!
- 30. **POLARWARE**
- All Dogs Go To Heaven
- 30. **SIERRA** On-Line King's Quest I, II, III

- Gold Rush (IIGS), Black Cauldrun (IIGS)
- 27. Thexder (Ile/Ilc, IIGS)
- 32. King Quest I, II, III, IV (IIGS)
- 32. Space Quest I,II (IIGS)
- 32. Leisure Suit Larry (Ile/Ilc, IIGS)
- 32. Police Quest (IIGS), Manhunter NY (IIGS)
- 32. Silpheed (IIGS)
- 22. Dragon's Keep
- 32. Manhunter San Francisco (IIGS)
- 16. **SIR-TECH** Wizardry 5
- 16. Return of Werda
- 32. Wizardry Trilogy
- 25. **SPECTRUM TETRIS (IIE, IIGS)**
- 27. **SSI**
- 22. Adv. D & D - Pool of Radiance (IIGS)
- 20. Adv. D & D - Pool of Radiance (Ile/Ilc)
- 20. Adv. D & D - Curse of Azure Bonds (Ile/Ilc)
- 20. Adv. D & D - War of the Lance (Ile/Ilc)
- 20. Adv. D & D - Dungeon Master Asst. I, II
- 23. **SUBLOGIC** Flight Simulator II
- 24. Scenery Disks: 1 thru 6
- 32. **TAITO** Arkanoid II (IIGS)
- 30. Bubble Bobble (Ile), Qix (IIGS)
- 27. Rastan (IIGS)
- 24. **THREE-SIXTY SOFTWARE**
- 32. Dark Castle (IIGS)
- 28. Warlock (IIGS)
- 28. **VICTORY SOFTWARE**
- 34. 2088: The Cylonian Mission (IIGS)
- 187. **HARD/FLOPPY DISK DRIVES**
- AMERICAN MICRO**
- 3 1/2" Drive (IIGS, Ilc+)
- 592. **CHINOOK** Apple SCSI, Software
- CT-20 (Ile, IIGS)
- 715. CT-40 (Ile, IIGS)
- 1075. CT-80 (Ile, IIGS)
- 592. CT-20C (Ile/Ilc+)
- 785. **CT-40C (Ile/Ilc+)**
- APPLIED ENGINEERING**
- 587. Vulcan Hard Drive 20MB
- 734. Vulcan Hard Drive 40MB
- 111. 5 1/4" Drive (Ile/Ilc, IIGS)
- 286. Trans Drive Dual
- 195. Trans Drive Single
- 486. **INGENUITY**
- 612. InnerDrive 20MB (Ile, IIGS)
- 612. InnerDrive 40MB (Ile, IIGS)
- 612. InnerDrive 100MB (Ile, IIGS)
- 44. 440. Overdrive 20MB (Ile, IIGS, Laser)
- 525. Overdrive 40MB (Ile, IIGS, Laser)
- 530. C Drive 20MB (Ile Inter)
- 655. **C DRIVE 40MB (IIC INTER)**
- 150. **VCR** Hard Disk Backup
- 285. **Falcon 10MB (Laser, Ile)**
- LASER COMPUTER**
- 90. External Disk Drive (5 1/4" Laser)
- 95. External Drive (1/4" Ilc/Ile)
- 185. External Disk Drive (3 1/2" Laser)
- 45. Universal Disk Controller
- 125. External Disk Drive (5 1/4" Daisychainable)
- 178. **APPLIED ENGINEERING**
- 163. Audio Animator
- 214. Ram Works III 512K (Ile)
- 214. Ram Works III 1MB (Ile)
- 235. GS-RAM PLUS 1MB
- 338. GS-RAM PLUS 2MB
- 440. GS-RAM PLUS 3MB
- 235. GS-Ram Ultra 1MB
- 235. GS-Ram Ultra 512K
- 147. Trasnarp III (II+, Ile)

- 209. Ram Express 512K (Ile+)
- 260. Ram express 1MB (Ile+)
- 106. Serial Pro (II+, Ile, IIGS)
- 73. Parallel Pro, Timemaster HO
- 367. PC Transporter 768K
- 39. Installation Kit (IIGS)
- 31. Installation Kit (Ile)
- 139. RamKeeper
- 95. Sonic Blaster
- 289. Transwarp GS
- 102. **CHECKMATE** Memory Saver (IIGS)
- 84. Multi-Ram GS OK
- 105. **MULTI-RAM RGB OK (IIE)**
- 200. **DIGITAL VISION** Computer Eyes (IIGS)
- 116. Computer Eyes (Ile)
- 165. **INGENUITY** GS Juice Plus 1MB
- 240. GS Juice Plus 2MB
- 155. C Keeper 256K (IIGS)
- 312. C Keeper 1MB (Ile)
- Call **MEMORY DRAM**
- ea. 76. **ORANGE MICRO**
- ea. 76. Grapler 5 pin, Grapler +
- 79. **THIRDWARE** Fingerprint GSI (IIGS)
- 153. **THUNDERWARE** ThunderScan

MODEMS

- 178. **APPLIED ENGINEERING** Datalink 2400
- 183. **DATALINK EXPRESS EXT. W/SOFT**
- 66. MNP Option
- 120. **SUPRA** 2400 External
- 180. 2400 External w/cable/software

COMPUTERS

- 370. **LASER COMPUTER** Laser 128E
- 410. Laser 128EX
- 445. Laser 128EX/2 (5 1/4" Drive)
- 490. Laser 128EX/2 (3 1/2" Drive)

MONITORS

- ea. 105. **LASER COMPUTER**
- Amber, Green Monitor
- MAGNAVOX**
- 260. RGB/Composit (CM8762)

ACCESSORIES

- 73. **APPLIED ENGINEERING** Converter
- 150. **APPLIED INGENUITY** GS Keyboard
- Call **BLANK MEDIA** (Bulk)
- 50. **CH PRODUCTS** Flight Stick
- ea. 34. Mach III w/fire Button (Ile/Ilc, IIGS)
- 69. **KENSINGTON** System Saver (IIGS)
- 115. Turbo Mouse ADB (IIGS)
- 34. Anti-Glare Filter (IIGS)
- 258. **KURTA** IS/GS Tablet w/Stylus
- 45. **LASER COMPUTER** Mouse
- 55. Expansion Box
- ea. 16. Cables - Parallel, Serial, RGB, Modem
- 20. Joystick
- 27. Monitor Stand
- 92. **PASSPORT DESIGN** MIDI Interface IIGS
- 8. **IMAGEWRIER** (Black, Red, Brown, etc.)
- ea. 4. **VITESSE QUICKIE (IIGS)**
- 203.

PRINTERS

- LASER COMPUTER**
- 235. 190A (ImageWriter I Compatible)
- 340. **PANASONIC** KX P1124 (80cps/24pin)
- 195. KX P1180 (192 CPS/38 cps NLO)
- 259. KX P1191 (240 cps/48 cps NLO)
- 320. KX P1124

FOR CUSTOMER SERVICE CALL 1-805-499-7785 Monday thru Friday 9 a.m. to 5 p.m. - Pacific Time

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. Personal and company checks, allow 10 working days to clear. Specify computer type, if to back order or to send refund. California residents add 6.25% sales tax. Include phone number with order. All sales are final. Defective items will be replaced or money refunded, at our discretion. Call for Return Authorization number. We are not responsible for suitability or compatibility. Restocking fee of 15% will apply. Shipping and handling: Continental U.S.: Software: add \$5.00; Hardware: add 5% (\$6.00 min). APO, FPO Alaska, Hawaii, Puerto Rico and Canada. Software: add \$8.00 min. Hardware: add 10% (\$10.00 min).

INTERNATIONAL ORDERS WELCOME

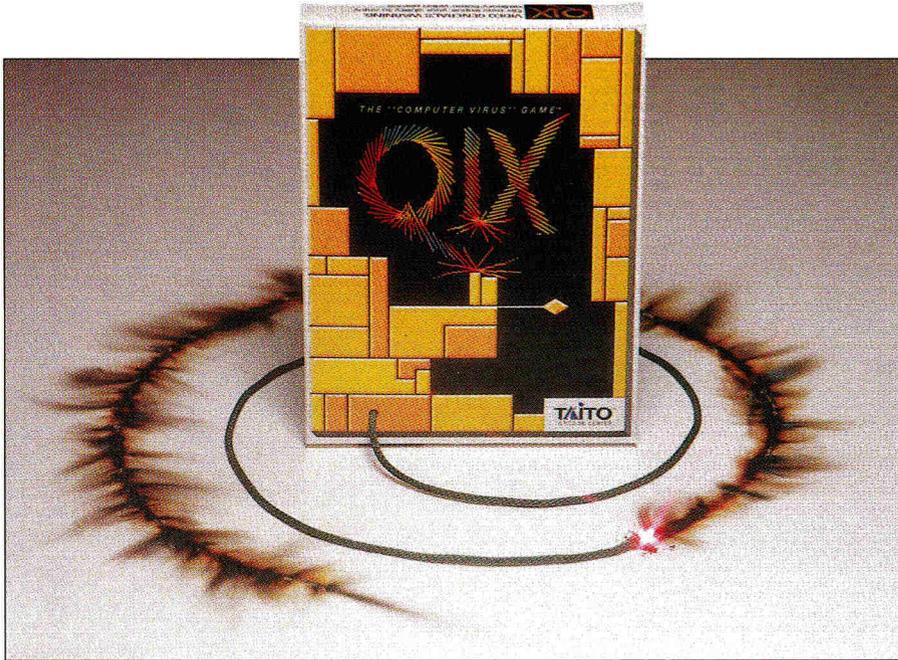
ALL ITEMS SUBJECT TO AVAILABILITY. PRICES AND STIPULATIONS SUBJECT TO CHANGE WITHOUT NOTICE.
1111 Rancho Conejo Blvd. #407 **IN CALIFORNIA CALL 1-805-499-0197** Newbury Park, CA 91320

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

ORDERS ONLY 1-800-248-0363 • FAX (805) 498-7689



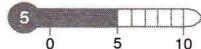
GAME ROOM



QIX

TAITO,
267 West Esplanade, North Vancouver, BC,
Canada V7M 1A5, (604) 984-3344

Arcade action;
128K Apple II, joystick required; \$29.95



The Qix is an evil and terrifying computer virus," according to Taito, but it looks like a handful of digital pick-up sticks living on your screen. The Qix moves, but doesn't grow.

Your job is to isolate the Qix virus in as small a corner of the screen as you can. You're a single point of light, moving along the perimeter of the display. You have to leave the safety of that area and draw rectangles that limit the Qix's wanderings—but you do so at great peril. If the virus touches you, you die—it's a pretty serious sickness. You don't have all the time

in the world, either. Qix has no time limit, but Sparxes and Spritzes—young virus offspring—are chasing you all the while, so you have to keep moving.

I hear that some engineering students at MIT and Cal Tech have developed algorithms for playing Qix—don't send 'em to me, guys. What probably intrigues the members of the Loyal Order of the Pocket Protector, aside from Qix's "computer-crime simulation," is that there are—we won't deny it—numerous strategies for isolating the Qix and avoiding the Spritz. I never calculated a winning strat-

egy or really cared to, however, which is odd, because I usually enjoy strategy games.

The range of Qix strategies seems pretty limited: Don't try to box out the entire screen at once; do it a bit at a time. The best way to beat Qix, I found, is to pile boxes on each other like presents under the Christmas tree. Your point of light is never far from safety.

Maybe my joystick hand was too slow. Some players like the combination of strategy and speed—Qix is like a hair-raising game of chess in which you have to move in five seconds or lose your turn. It just made me nervous.

If calculating strategies in the face of destruction is your idea of fun, Qix is fun. I didn't enjoy the experience. Perhaps it's because Qix wastes a lot of time between games on title screens and introductions. Game play is fast, but it really annoys me to wait while lights spin above the board.

Qix's joystick-calibration schemes never seem to quite cut it. Perhaps my Suncom joystick—which never gave me trouble in any



No cure for what ails you.

joystick-dependent game, such as Prince of Persia—is unusual for whatever reason. I sure wish I could have switched to a mouse.

I expected to like Qix more than I did. It's a good game, but not great. I got bogged down in the details of playing it and never got out—maybe the forthcoming GS version will help.

Paul Statt
inCider staff

MOST GAMES WEAR OUT AFTER A FEW WEEKS. OURS LASTS 1,500 YEARS.

Finally there's a game that's still an adventure years after you buy it: *Where in Time is Carmen Sandiego?*™

Unlike your typical fly-it, drive-it, stomp-it game, this brand new release in Brøderbund's award-winning series relies on your most important reflex: Your nimble mind.

As a detective you must solve ingenious crimes that have been committed by the devious and cunning Carmen Sandiego gang. They can be anywhere in the last 1,500 years. And you don't have much time.

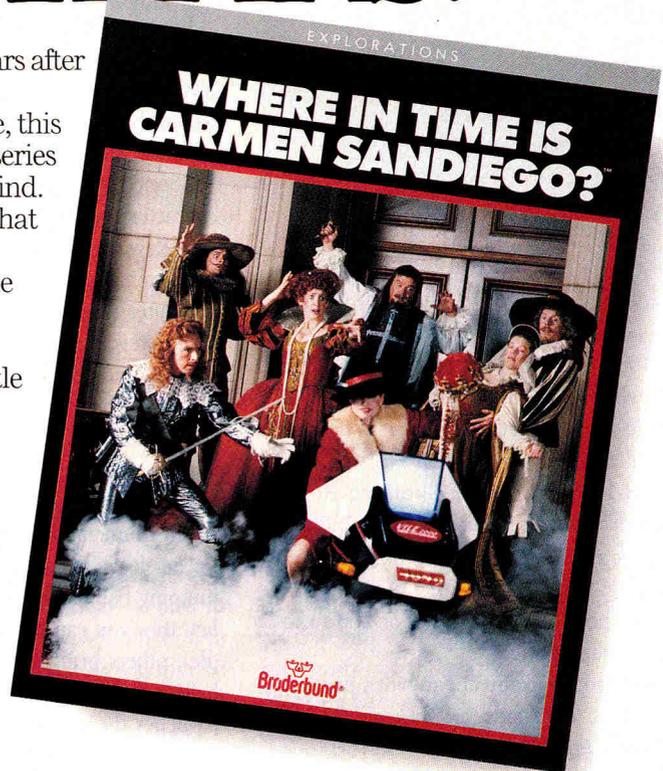
With a Chronoskimmer 325i, you hurtle back through the ages. Pursuing Carmen through Medieval Europe. The Incan Empire. Imperial Japan. And on and on. The more cases you crack, the tougher they get.



Our graphics give you the most arresting scenes ever put on a computer screen.

Running on Apple® or IBM® PC/Tandy® *Where in Time is Carmen Sandiego?* also comes with the *New American Desk Encyclopedia* and a poster of the whole gang to keep you hot on the trail.

So see your dealer or call Brøderbund at 800-521-6263. For \$44.95 (suggested retail), get the adventure game that beats them all. Time after time.



Brøderbund®

TIP SHEET

Arkanoid fans, rejoice. Thexder fans, rejoice. Bard's Tale, Questron II, and Last Ninja fans, rejoice, too—**Cheatmaster's** here.

Cheatmaster's a simple-to-use program that'll go a long way toward making life a little easier when you play the games mentioned above.

The Arkanoid and Thexder cheats install as classic desk accessories (CDAs).

When you're down to your last vau in Arkanoid, for instance, press Control-Open apple-Escape for salvation: The CDA menu appears, where you can select *Arkanoid helper*, then go back to the game. You won't see your extra ships right away, but after you lose that last vau, they'll show up.

The Thexder cheat gives your energy level a much-needed boost—you can toggle into an easy mode in which you lose energy points in increments of one instead of two.

The Bard's Tale and Bard's Tale II cheats simply let you enhance the various attributes of your characters.

For Questron II, you can change the quantity of any weapon, piece of armor, or miscellaneous item you're carrying.

In The Last Ninja, you can give yourself a virtually unlimited supply of shuriken stars, smoke bombs, and lives for any saved game.

The Cheatmaster package requires a GS with 768K and at least one 3½-inch drive. You can get Cheatmaster directly from the author, Martin Hill, for \$20 (U.S.). Write to 32 Chelford Road, Toronto, Ontario, Canada M3B 2E5.

If you play any of these games regularly, it'll be the best 20 bucks you've ever spent—it's worth it for the Arkanoid cheat alone.

Remember, keep those hints coming. Write to Tip Sheet, c/o *inCider*, 80 Elm Street, Peterborough, NH 03458. □

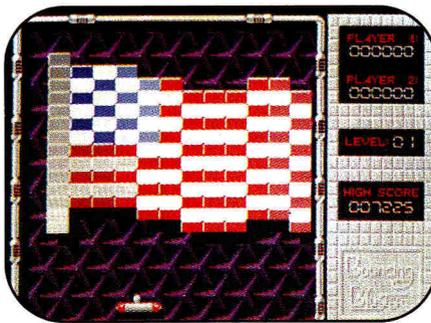
—L.L.

BOUNCING BLUSTER

J.M. VALLAT & J.F. DOUE,
25 Rue Bossuet, 77150 Lesigny, France
 Arcade action;
 512K Apple IIgs; \$15 (100 French francs)
 shareware



This is the first time a shareware product has graced the pages of Game Room, but we'll take great games wherever we find them. When Bouncing Bluster arrived in the mail from France, we were mildly amused. When we started it up, recovering Arkanoid addicts Paul Statt and I were instantly hooked.



Hooked on the irresistible challenge.

Bouncing Bluster has the same basic premise as Arkanoid or Breakout: You break your way through a wall of bricks by bouncing a ball with a paddle. It's simple—simple and furiously addicting.

Bouncing Bluster has many of the same characteristics as Arkanoid and Arkanoid II: The Revenge of Doh. You'll find bricks that produce pills or capsules that give you certain attributes when you catch them, bricks that take a few hits to destroy, bricks you can't destroy, and bricks that regenerate after a few seconds. There's also an assortment of monsters who float about the screen, getting in your way and sending your ball bouncing in all sorts of crazy directions.

But Bouncing Bluster has a few extra tricks up its sleeve, too. Some capsules give you a jumping ball (at the click of your mouse, but beware—you can jump right over your paddle); others bring instant death, stealth (five balls, but only one is "real"), mystery, reverse (switches the direction in which your paddle responds to your mouse movements), and x-y moves (up and down as well as left and right). Some of them will help you; some will hinder you. You'll run into invisible bricks (basically the same as the normal kind, but you just can't see them) and teleport bricks,

which zap your ball to any of the other teleport bricks on screen when you hit one of them.

Like Arkanoid II, Bouncing Bluster also includes a construction set. You can create your own "boards," as levels are referred to in Bouncing Bluster, and save them in groups called *scripts*. Complete documentation for the construction set and the Bouncing Bluster game is included on disk as an AppleWorks file. Because the developers are French, the documentation may not be in perfect English, but it's good enough to get you by.

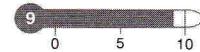
Sure, Bouncing Bluster is shareware. So it crashes occasionally and it's not as slick as something you'd pay \$40 or \$50 for, but if you send your \$15 to J.F. Doue at the address noted above, you'll get updates. Besides, for 15 bucks you can't beat it. Bouncing Bluster is just the ticket for hopeless Arkanoid addicts.

Lafe Low
inCider staff

SOLITAIRE ROYALE

SPECTRUM HOLOBYTE,
2061 Challenger Drive, Alameda, CA 94501,
(415) 522-3584

Card-game simulation;
 512K Apple IIgs (768K recommended); \$34.95



Solitaire's the name given to any of a number of card games you play by yourself. You play alone, but the romantic names of the games—such as Pyramid, Klondike, and Reno—let you imagine you're struggling against the same piles of cards as did the ancient Egyptians, the gold rushers, and Nevada gamblers.

According to the short but informative history of the game included with Solitaire Royale, the rules of Patience—as it's sometimes called—were first written in the 18th century. Cheating was probably easier in the old days of solitaire. It was certainly easier than it is now in the computer version.

Solitaire Royale offers eight grownup games, three simple games for children, four full decks of attractive cards, and only two ways to cheat—peeking under a pile and taking a move back.

You can't take a card from the bottom of a pile in the "tableau" and move it to the "foundation." (I just learned that there are names for the piles of cards in solitaire.)

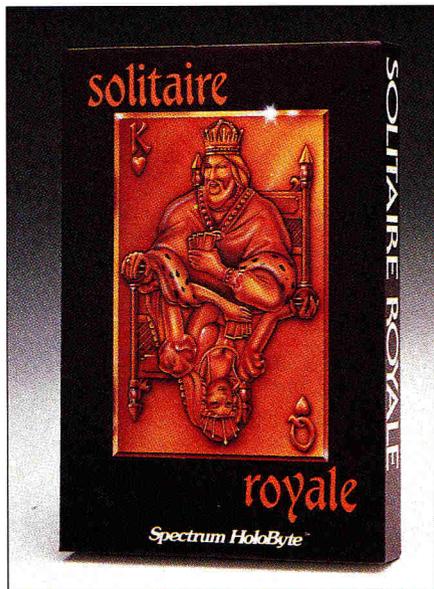
You'll win less often than you do playing

old-fashioned solitaire, but the good news is that you'll have many more chances to play. Solitaire Royale deals fast and keeps the cards in neat piles, even if you have a cat in the house.

Perhaps the ease of dealing and playing is what kept me going for hours: Solitaire Royale is as hard to quit as Shanghai (Editors' Choice, June 1987, p. 112).

In fact, it looks and plays a great deal like Activision's mah-jongg simulation. Both games were produced by Brad Fregger, who has an eye for the addictive.

The eight games included here—Pyramid, Klondike, Canfield, Golf, Corners, Reno, Calculation, and 3 Shuffles and a Draw—should provide hours upon hours of stimulating entertainment.



A new format for an old favorite.

I'd never heard of 3 Shuffles and a Draw, but I was able to get the hang of it with some excellent help from the program. There's no need to read the instructions—which is high praise, especially in an unprotected game.

Rounds of Solitaire Royale are purely games, but adventurous teachers might give some bright sixth-graders a crack at some of them. For instance, 3 Shuffles and a Draw is ever so mildly educational.

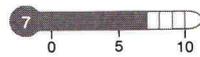
Solitaire is a classic game of the struggle of order against chaos. Solitaire Royale keeps the game itself neat, and lets you concentrate on the fun.

Paul Statt
inCider staff

THE LEGEND OF BLACKSILVER

EPYX,
limited quantities available
through mail-order dealers

Fantasy role-playing;
128K Apple II; \$39.95



Bantross is a cruel and more-than-occasionally hazardous world. Danger is all around you, so you can't take things lightly. You'll have to master the skills and purchase the weapons you'll need to deal with various foes. The game features a marvelous interface; whether you command your character with a joystick or the keyboard, simple menus are always available to offer a variety of combat and exploration options.

The journey through Bantross begins with a dream. Aylea, Princess of Thalen, begs for your help. She has selected you to battle the evil Baron Taragas. Taragas has not only kidnapped her father, the king; he has also discovered *blacksilver*—the stuff of which magic is made. Blacksilver will give Taragas the power to conquer the kingdom of Thalen today and all of Bantross tomorrow.

Aylea tells you that only one hero can succeed and defeat Taragas. She drops a feather into your hand as you sleep—the key to the start of your adventure. When you awaken, it becomes your destiny to rescue the king of Thalen and destroy Taragas.

Plan your route carefully before traveling. Stay on the grassy plain if possible; the denizens of the plain aren't quite as vicious as those in the swamps, forests, and deserts. With 82 species of creatures to encounter, you'll soon learn the ones to avoid at all costs. You should also map your progress; you'll want to keep track of where the 16 cities, five dungeons, and an assortment of castles and temples are located.

Look for the castle where the wizard Seravol resides. You and the wizard may be able to help each other in some way; you might also get your hands on some gold. As you may be bereft of substantial equipment, it's a good way to purchase protection and armament.

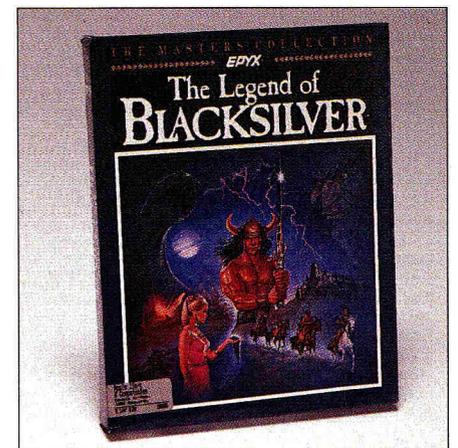
You'll visit temples and archives in your travels, too. Temples are great for donating money to "the Brotherhood," who in turn can alleviate some of your physical pain by returning hit points to you. You'll also find ways to improve your character's attributes by play-

ing with the Gamemaster. These arcade-style games are fun, and you should consider brushing up on your skills at various times throughout your quest.

There are all sorts of shops in the towns where you can spend your cash on games of chance, magic, weapons, and armor. Some towns have manufacturing shops—such as a coppersmith's—where you can earn a fair wage for a day's work.

Take extreme care in the dungeons; they're the "pits." Dungeons range from four to 12 levels in depth. The creatures are as varied and villainous as you'd expect and there are vast amounts of treasure waiting to be found. And keep in mind that the deeper you travel into a dungeon, the more bountiful the treasures become and the more perilous your quest.

The game screen keeps you informed of your current status—hit points, number of food units, and number of gold pieces. When your food or hit-point level is dangerously low,



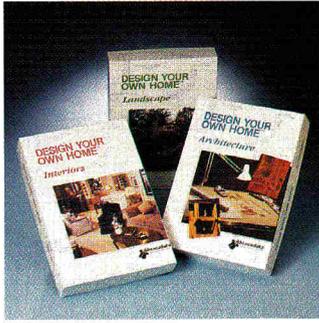
In quest of might and magic.

the screen flashes to alert you: You'd better find food or a temple of healing.

The Legend of Blacksilver is a highly enjoyable fantasy that will offer you hours of gaming. Perhaps it isn't on a par with Ultima V or Might and Magic, but it will certainly win its way into your library as one of the better adventures on the market.

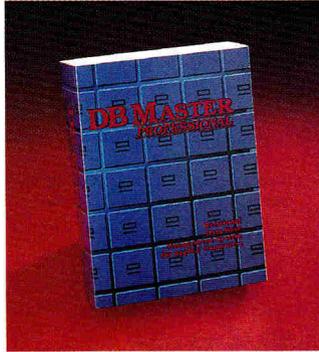
Hartley Lesser
Cupertino, CA

Editor's note: Epyx is no longer marketing and distributing its own titles. Previously released Epyx titles, such as The Legend of Blacksilver, should remain available through various mail-order distributors until further notice. □



Draw floorplans, elevations, structure details using architecture shapes, scales and overlays, calculates distances, angles and areas.

Design-Your-Own Home, Architecture, Landscape or Interiors by Abracadata. . . . \$59.00
IIIGS version only



This is a powerful relational database manager. It's easy to use and can convert Appleworks files, so getting started is a snap.

DB MASTER PROFESSIONAL (GS) by Stone Edge. . . . \$189.00-Apple IIIGS



Can't find the right word? You need a Thesaurus! Just place the cursor on any word in Appleworks and get a list of alternates.

TimeOut Thesaurus by Beagle Brothers \$29.00

PROGRAMS PLUS

FAX: 203/381-9043
 Inquiries: 203/378-3662
 75 RESEARCH DRIVE
 STRATFORD, CT 06497

1/800/832-3201 (USA)
1/800/344-7753 (Canada)

Apple Compatible Computers

Laser Computer, Inc.

Laser 128 Cables (Parallel, Serial, RGB or Modem)	16.
Laser 128 Mouse	45.
Laser 128 Disk Drive or Laser Amber Monitor	99.
Laser 128 800K 3.5" Drive w/ Controller	215.
Laser 190A Printer w/ Serial Interface	239.
Laser RGB Monitor	315.
Laser 128 Computer	385.
Laser 128EX Computer	439.
Laser 128EX II Computer (5¼)	459.
Laser 128EX II Computer (3½)	509.

Backup Utilities

Applied Ingenuity	
VCR Backup	135.
Apple	
GS/OS v5 (GS)	45.
Central Point	
Copy II Plus v9.0	25.
Glen Breton	
Dos.Master or Pro.cmd	25.
ProSel 8 (5¼)	39.
ProSel 16 (3½)	59.
Vitesse, Inc.	
Salvation(GS)	35.

Entertainment Software

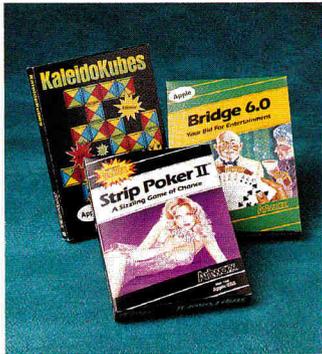
Accolade	
European Roadways(GS), Muscle Cars (GS)	13.
California Challenge Disk(GS) or Supercars(GS)	13.
International Course Disk(GS) or Mini-Putt(GS)	13.
Test Drive or Bubble Ghost(GS)	24.
Serve & Volley(GS)	27.
Mean 18(GS) or Hardball(GS)	29.
4th & Inches(GS) or Test Drive III(GS)	29.
Heatwave(GS) or FastBreak(GS)	29.
Jack Nicklaus Golf(GS) or Blue Angels(GS)	34.
Third Courier(GS)	34.
Activision	
Rampage	24.
Blackjack Academy(GS)	27.
Sky Travel(II & GS)	34.
Artworx	
KaleidoKubes(GS)	SPECIAL 14.
Bridge 6.0 or Strip Poker III(GS)	SPECIAL 27.
BlueLion	
Ticket to Washington D.C.	32.
Britannica	
Laser Force(GS) or Gnarly Golf(GS)	18.

Great Western Shoot-Out(GS)	18.
JigSaw(GS) or Task Force(GS)	24.
Broderbund	
Down Hill Challenge(GS)	22.
Wings of Fury(AP & GS) or Prince of Persia	24.
Ancient Art of War or Ancient Land of Ys(GS)	31.
The Dark Heart of Uukrul or VCR Companion	34.
California Dreams	
Vegas Gambler(GS), Vegas Craps(GS) or Triangol(GS)	27.
Tunnels of Armageddon(GS)	27.
Casady & Greene, Inc.	
Crystal Quest(GS)	31.
Cinemaware	
King of Chicago(GS)	17.
Defender of the Crown(GS) or Sinbad(GS)	34.
Three Stooges(GS) or Rocket Ranger(GS)	35.
Data East	
Batman, Heavy Barrel, or Robo Cop	23.
Datasoft	
Tomahawk(GS) or Hunt for Red October	27.
Hunt for Red October(GS)	35.
ECLAT	
Geographic Jigsaw(AP or GS)	30.
Electronic Arts	
Marble Madness(GS), World Tour Gold(GS) or Strike Fleet	15.
Music Construction Set(GS) or Skate or Die(GS)	15.
Cartooners(GS) or Bards Tale II	18.
Zany Golf(GS), King's Bounty or Earl Weaver Baseball	26.
Bards Tale III, Bards Tale II(GS) or Madden Football	33.
Cribbage/Gin King(GS)	44.
Instant Synthesizer(GS)	55.
FTL	
Dungeon Master(GS)	27.
Infocom	
Zork Trilogy or Leather Goddesses of Phobos	14.
Beyond Zork(AP or GS) or Battle Tech	34.
Zork Zero, Journey(AP or GS) or ShoGun	34.
Interplay	
Neuromancer	20.
Neuromancer(GS), Battle Chess(GS) or DragonWars(AP or GS)	32.
Leisure Genius	
Monopoly, Clue, Risk, or Scrabble	27.
Melbourne House	
Barbarian(GS)	25.
War in Middle Earth(GS)	30.
Micro League Sports	
Micro League Baseball w/ General Manager & Stat	24.
Microprose	
F-15 Strike Eagle or Silent Service(AP or GS)	14.
Micro Revelations	
Xenocidal(GS)	SPECIAL 30.

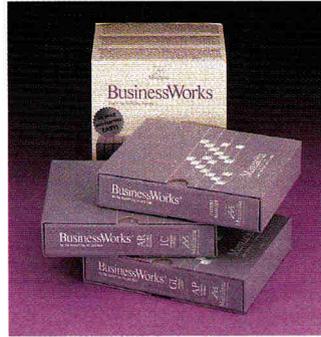
Miles Computing	
Magic Candle	36.
Mindscape	
Gauntlet or Paperboy(AP or GS)	25.
Super Star Soccer(GS) or Hostage(GS)	27.
Balance of Power(AP & GS)	29.
Gauntlet(GS) or Super Star Ice Hockey(GS)	29.
Captain Blood(GS) or Arcade Mega Hits	29.
Shadow Gate(GS), Uninvited(GS), Deja Vu II(GS)	32.
Balance of Power 1990(GS) or Deja Vu(GS)	32.
Origin Systems	
Times of Lore(AP & GS) or WindWalker	27.
Space Rogue, Knights of Legend or Omega(AP or GS)	34.
Ultima Trilogy(I, II & III), Ultima IV or Ultima V	39.
PBI Software	
Sea Strike(GS)	29.
Strategic Conquest(GS)	35.
The Tower of Myrarglen(GS) or Alien Mind(GS)	39.
Share Data	
Concentration, Card Sharks	9.
Family Feud, Wheel of Fortune or Sports Jeopardy	9.
Jeopardy II or Wheel of Fortune III	10.
Sierra On-Line	
Mother Goose(AP or GS)	19.
Thexder(AP or GS) or Silpheed(GS)	24.
Leisure Suit Larry(AP or IIIGS)	26.
Gold Rush(AP or GS) or Black Cauldron(GS)	26.
Kings Quest IV(AP or GS)	32.
Kings Quest I, II or III (AP or IIIGS)	32.
ManHunter New York(AP or GS) or Police Quest(AP or GS)	32.
Software Toolworks	
Chessmaster 2100 or Life & Death(GS)	33.
Chessmaster 2100(GS) or Keep the Thief(GS)	33.
So What Software	
Sonix(GS)	35.
Spectrum Holobyte	
Soko-Ban	23.
Tetris(AP & GS)	25.
Strategic Simulations	
AD&D Pool of Radiance	30.
Battle of Napoleon or The Azure Bonds(GS)	33.
Sublogic	
Jet	27.
Flight Simulator II	32.
Taito	
Arkanoid	10.
Renegade(AP & GS), Arkanoid II(GS) or Rastan(GS)	24.
Bubble Bobble(AP & GS) or Oix(AP & GS)	24.
Three Sixty	
Warlock(GS) or Dark Castle(GS)	35.
Victory Software	
2088 The CrylIlan Mission(GS)	45.

**Now on Compuserve-
 GO PP Genie-GOPP**

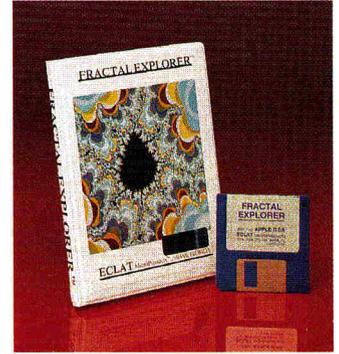
Stock, Speed, Support, Price



Three exciting games for your Apple II computer. Bridge, Strip Poker, and Kaleidokubes all combine lively graphics and mind challenging strategy. Bridge 6.0 or Strip Poker \$27.00 Kaleidokubes \$14.00



The complete accounting package for the Apple II family. Includes: G/L, A/R, A/P, Inventory and System Manager. Payroll module available separately. Powerful and easy to use. BusinessWorks Bundle by Manzanita Software \$269.00



An entertaining fractal program with dazzling color effects. Informative and educational. Includes on-line help and 16 color display. Uses Mandelbrot and Julia fractal sets. Fractal Explorer (GS) by Eclat \$28.00

PROGRAMS PLUS FAX: 203/381-9043 Inquiries: 203/378-3662 75 RESEARCH DRIVE STRATFORD, CT 06497

1/800/832-3201 (USA)
1/800/344-7753 (Canada)

Virginia Real Software Anchorman 29.

Utilities and Languages

Absoft
AC/BASIC (16-bit BASIC Compiler for GS) 79.
Big Red Computer
PS Lovers' Utility Set(AP or GS) 27.
Nicol Systems
Micol Advanced Basic(GS) v3.0. 89.
Roger Wagner
SoftSwitch(GS) 39.
Merlin 8/16 (Ile, IIc, IIGS) 75.
So What Software
Hyper Launch(GS) 29.
Call-Box(GS) 69.
The Byte Works
ORCA/Disassembler(GS) 32.
ORCA/DeskTop(GS) 34.
ORCA/M Assembler(GS) 59.
ORCA/Design Master(GS) 59.
ORCA/Pascal Desktop Debugger(GS) 80.
ORCA/C Desktop Debugger 80.
TML Systems
TML Source Code Library II(GS) 35.
TML Speech Toolkit(GS) 45.
TML Basic(GS) or TML Pascal II(GS) 82.
Zedcor
ZBasic 4.0. 39.

Graphics Packages

Abracadata
Architecture Library 1, 2, 3 or 4(AP or GS) 21.
Interiors Library 1, 2(AP or GS) or Landscape Library 1. 21.
Design Your Own Train. 35.
Design Your Own Home: Architecture, Interiors or Landscape. 47.
Design Your Own Home: Architecture(GS) or Interiors(GS) SPECIAL 59.
Design Your Own Home: Landscape(GS) SPECIAL 59.
Activision
Draw Plus. 20.
Paintworks Gold(GS) 45.
Paint/Write/Draw. 80.
Baudville
Award Maker Plus(AP & GS) 35.
816/Paint. 45.
Beagle Bros.
Beagle Draw(GS) 52.
Berkeley Softworks
GEOS, GEOCalc or GEOFile. 45.
Broderbund
Print Shop Graphics Library I, II, III or Holiday Ed. 16.

Print Shop Graphics Library Sampler Edition(GS) 24.
Print Shop Graphics Library Party Edition(GS) 24.
Print Shop Companion. 25.
Print Shop(AP or C+). 29.
Dazzle Draw or Print Shop(GS) 39.
ECLAT
Fractal Explorer(AP or GS) SPECIAL 28.
Electronic Arts
DeluxePaint II(GS) 65.
DeluxeWrite w/ Deluxe Paint II(GS) 85.
Lynx Computer
Supergraphix 256 w/ music(GS) 69.
Roger Wagner
Graphic Exchange(GS) 35.
So What Software
Iconix(GS) 29.
Spinnaker
Newsroom Clip Art Collection Vol. 1, 2 or 3. 14.
Certificate Maker Library #1. 19.
Fonts For Springboard Publisher(GS) 19.
Certificate Maker or Newsroom. 26.
Springboard Publisher 2.0(AP or GS) 79.
Thunderware
ThunderScan Apple (IIGS, Ile, IIc) 165.
Vitesse, Inc.
Quickie(GS) 215.

Communication Software

Applied Engineering
ReadyLink. 69.
Beagle Bros.
TimeOut TeleComm. 45.
Point-to-Point. 59.
Checkmate Technology
ProTERM (IIGS, Ile, IIc) 85.
Compuserve
Compuserve Starter Kit. 24.
L & L
GBBS. 79.

Accelerators/Ramcards/Z-80/80 Column Cards

Apple Computer
Apple IIe Enhancement Kit. 65.
Apple IIe Extended 80 Col. Card. 89.
Applied Engineering
PCTransporter InstallationKit IIE. 35.
PCTransporter InstallationKit GS. 45.
ViewMaster 80 (II+). 129.
GS-Ram 256K. 135.
RamWorks Basic 256K. 135.
RamWorks III 256K. 149.
Ramkeeper. 155.
TransWarp III Accelerator. 159.

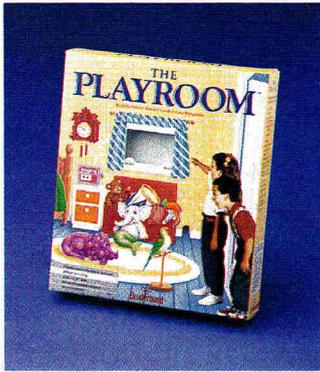
GS-Ram 512K. 155.
RamWorks III 512K. 179.
Z-Ram Ultra 1 512K. 185.
Z-Ram Ultra 2 256K. 185.
GS-Ram Ultra 512K. 189.
RamFactor 512K. 205.
GS-Ram 1MG. 209.
Ram Express 512K, Z-Ram Ultra 2 512K. 219.
RamWorks III 1MG. 235.
GS-Ram Ultra 1MG. 245.
GS-Ram Plus 1MB, RamFactor 1MG or GS-Ram 1.5MG. 259.
Z-Ram Ultra 2 1MG. 275.
TransWarp Accelerator(GS) 305.
Z-Ram Ultra 3 1MG. 345.
GS-Ram Ultra 2MG or GS-Ram Plus 2MG. 349.
PC Transporter (768K) 379.
GS-Ram Plus 3MG. 459.
Applied Ingenuity
CKeeper w/ 256K. 159.
GS Juice Plus 1 MB. 199.
CKeeper w/ 1 meg. 325.
GS Juice Plus 2MB. 339.
GS Juice Plus 4MB. 639.
Chinook
C-Ram w/ 256K(C & C+). 159.
C-Ram w/ 512K(C & C+). 195.
C-Ram w/ 1MB(C & C+). 269.

Harris Laboratories, Inc.
GS Load Card. 55.
GS Sauce Card. 85.
Zip Technology
Zip Chip 4 MHZ. 129.
Zip Chip 8 MHZ. 159.

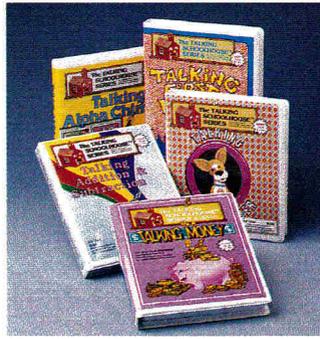
Printer Interface Cards

Apple
SCSI Card. 115.
Apple Super Serial Card. 119.
Applied Engineering
Parallel Pro (II+, Ile, IIGS) 85.
Serial Pro (II+, Ile, IIGS) 119.
Orange Micro
Grappler Plus (Ile or IIGS) 75.
Grappler 9 pin. 79.
SMT
No Slot Clock. 30.
Thirdware
Upgrade Kit (FingerPrint I & II) 30.
Finger Print GSi VerIII (Includes Desktop Accessories-IIGS) 89.
Finger Print Plus (Specify Cables: Parallel, Serial, or ImageWriter(II, II+ & Ile) 89.
Xetec Inc.
Superwriter 924(GS,C+&C) 79.

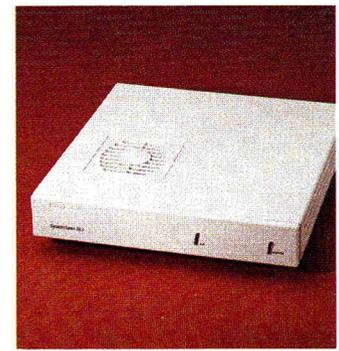
Your Apple Plus is PROGRAMS PLUS



A set of games and activities built around the theme of a child's playroom. Educational and fun. Comes with plush toy mouse and keyboard stickers. **The Playroom by Broderbund \$27.00**



Capture the full power of the //gs with this series of 14 programs which use perfect human voice and stunning graphics to teach basic skills. No speech board or any additional hardware is required. **Talking GS Series by Orange Cherry \$42.00 each**



A combination surge suppressor and cooling fan for your //gs. Comes in apple platinum for a clean look. Has an eight foot power cord and four electrical outlets. **System Saver GS by Kensington \$69.00**

PROGRAMS PLUS

FAX: 203/381-9043
 Inquiries: 203/378-3662
 75 RESEARCH DRIVE
 STRATFORD, CT 06497

1/800/832-3201 (USA)
1/800/344-7753 (Canada)

Business Software

Abracadata	
Electronic Drawing	32.
Everybody's Planner	69.
ACTAsoft	
Alpha Check v3.0	32.
Addison-Wesley	
Wordbench (AP + GS)	99.
Beagle Bros.	
Timeout MacroTools or MacroTools II	19.
Beagle Write Desk Accessories or Font Pack/ 1 or 2	23.
Beagle Write Picture Manager	25.
Beagle Bros. Clip Art/ Vol 1 & 2(GS)	29.
Timeout SideSpread, FileMaster, or DeskTools	29.
Timeout Thesaurus, DeskTools II or PowerPack	SPECIAL 29.
GS Font Editor or Program Writer	29.
Timeout UltraMacros or SpreadTools	37.
Beagle Bros. Desk Accessories(GS)	37.
Timeout SuperFonts or QuickSpell	45.
Timeout ReportWriter or Beagle Write	48.
Timeout Graph	52.
Beagle Write(GS)	59.
Broderbund	
On Balance	39.
Bank Street Writer Plus(AP or C+).	50.
Claris	
Apple Works v3.0	175.
Apple Works(GS)	209.
Dac Software	
Dac-Easy Accounting	65.
Intuit	
Quicken v1.5	39.
Manzanita	
BusinessWorks Payroll (AP & GS)	109.
BusinessWorks Bundle AP & GS (Sys. Manager, G/L, A/P, A/R, Inventory)	SPECIAL 269.
MECA	
Managing Your Money 4.0 (AP & GS)	95.
Mecc	
Calendar Crafter School(GS)	59.
Micca Soft	
Invoicer w/ A/P & Sales Tracking/ Inventory	139.
Milliken	
Medley(GS)	79.
Monogram	
Dollars and Sense	79.
Nolo Press	
Will Maker	39.

**Now on Compuserve-
 GO PP Genie-GOPP**

Sensible Software	
Sensible Grammar ProDos (3.5" & 5.25")	55.
Seven Hills Software	
Font Factory(GS)	25.
Disk Access	32.
Graphicwriter III(GS)	85.
SoftSpoken	
Cross-Works	SPECIAL 55.
Stone Edge	
DB Master Professional	SPECIAL 199.
Timeworks	
People, Places and Things (IIe & GS), Design Ideas (IIe & GS), Symbols and Slogans (IIe & GS), Education Graphics (IIe & GS), Font Pack 1 or 2 (IIe & GS)	27.
Graph It! or Swiftfax	45.
Art Portfolio 4 in 1	69.
Publish-It 3.0(IIe & GS)	74.
Word Perfect Corporation	
WordPerfect(GS)	109.

Educational Software

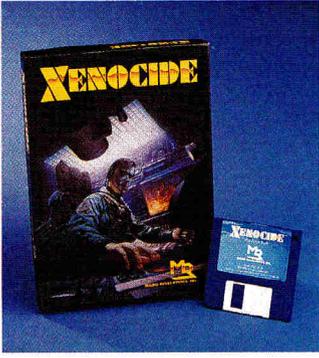
Activision	
Music Studio 2.0(GS)	45.
Barron's	
Computer SAT Revised Version	34.
Britannica	
Designasaurus(GS) or Revolution '76(GS)	29.
Algebra 1: 1st & 2nd Semester	48.
Broderbund	
Where in the World is Carmen San Diego?	25.
Science Tool Kit Module I, II or III	26.
Where in the USA is Carmen San Diego?	29.
Where in Europe is Carmen San Diego?(AP or C+).	29.
Where in the World is Carmen San Diego?(GS)	29.
Where in Time is Carmen San Diego(AP or C+).	29.
Playroom	SPECIAL 31.
Science Tool Kit Master Module	55.
Geometry(GS)	55.
The Family Software Library	69.
ByteWorks	
Ugly Ducking(GS)	32.
Compu-Teach	
Joshua's Reading Machine(AP or GS & C+).	27.
See the U.S.A. or Once Upon A Time II	30.
Once Upon A Time(GS Talking)	35.
Davidson & Associates	
Math Blaster Plus(GS) or Word Attack Plus(AP or GS)	29.
Alge-BlasterPlus(AP or GS) or Math Blaster Plus	29.
Grammar Gremlins or Read 'N' Roll	29.
Spell-It Plus(AP or GS)	29.
or Math Blaster Mystery(AP or C+).	29.
Talking Math & Me(GS) or Talking Reading & Me(GS)	29.
Talking Math Blaster Plus(GS)	29.
Word Attack Plus Spanish or French	29.

First Byte/Electronic Arts	
The Rhyming Notebook	29.
Grade Busters Corp.	
Grade Busters 4,5,6	42.
Grade Busters 1,2,3	75.
Great Wave	
Kidtime II (//GS)	24.
Learning Company	
Magic Spells(GS), Math Rabbit or Gertrudes Secrets(//GS)	24.
Reader Rabbit, Magic Spells or Math Rabbit(GS)	24.
Think Quick or Writer Rabbit	30.
Writer Rabbit(GS) or Think Quick(GS)	30.
Reader Rabbit(GS)	36.
Writing and Publishing Center(AP or GS)	47.
Lawrence Productions, Inc.	
McGee	29.
Mindscape	
Crossword Magic	34.
Orange Cherry	
<i>GS Talking Series:</i>	
Animals, Dinosaurs, Numbers, First Write, First Reader, School Bus, Alpha Chimp, Colors & Shapes, Reading Railroad, Addition & Subtraction, ABC's, Speller, Clock or Money	SPECIAL 42.
Pelican Software	
Monsters & Make BelievePlus or POW! ZAP! KER-PLUNK!	29.
Roger Wagner	
HyperStudio GS	95.
Sensible Software	
Report Card II(IIe & GS)	37.
Simon & Schuster	
Speed Reading Tutor IV or Typing Tutor IV Plus	27.
Typing Tutor IV Plus(GS)	29.
Software Toolworks	
Mavis Beacon Typing	28.
Mavis Beacon Typing(GS)	33.
Spinnaker	
Facemaker: Golden Edition or Kidwriter	27.
Atlas Explorer	32.
Kidwriter Gold(GS)	35.
Terrapin	
Terrapin Logo Plus	79.
Tom Snyder Productions	
Reading Magic Library: Jack and the Beanstalk or Flodd, the Bad Guy	19.
Weekly Reader	
New Talking Alphabet (3½) or New Talking Opposites (3½)	30.
New Talking Shapes (3½)	30.

Modems

Anchor Automation	
2400E	155.

Stock, Speed, Support, Price



Fight your way through an alien landscape. Terrific sound and graphics make this a fun and exciting adventure for young and old alike. Multiple levels and styles keep the fun alive.
Xenocide by Micro Revelations. \$30.00



A fast and powerful hard drive for the Apple IIe, IIc or IIgs. Will run ProDos, GS/OS, and DOS 3.3 (with DOS master sold separately). Available in 20 and 40 megs.
Overdrive by Applied Ingenuity. CALL



CROSS-WORKS converts files both ways between Appleworks and Microsoft Works, WordPerfect, Lotus 1-2-3, dBase III/IV and ASCII on IBM PC and compatibles. Includes cable for direct serial port connection (no modem needed).
CROSS-WORKS by Softspoken. \$55.00

PROGRAMS PLUS

FAX: 203/381-9043
 Inquiries: 203/378-3662
 75 RESEARCH DRIVE
 STRATFORD, CT 06497

1/800/832-3201 (USA)
1/800/344-7753 (Canada)

Applied Engineering
 DataLink Modem 2400B (Int II+, IIe or GS). 175.
 DataLink Express Modem. 189.
Practical Peripherals
 Practical Modem 2400 SA. 179.
Prometheus
 Pro Modem 2400A (Single Card). 129.
Supra Corporation
 SupraModem 2400 (Hayes Compatible). 115.

Accessories

Advanced Gravis
 Advanced Gravis' JoyStick(AP & GS). 39.
 MouseStick ADB(GS). 69.
Apple Computer
 Apple Mouse IIc. 85.
 Apple Mouse IIe. 129.
Applied Engineering
 TimeMaster II H.O. 85.
 Conservator(GS). 85.
 Sonic Blaster(GS). 109.
 IBM Style Keyboard. 119.
 Audio Animator(GS). 179.
Applied Ingenuity
 Keyboard X(GS). 135.
Big Red Computer
 Labels, Labels, Labels. 27.
CH Products
 Hayes Mach III Joystick. 33.
 Hayes Flight Stick. 49.
 Roller Mouse ADB(GS). 119.
Cutting Edge
 EADB-105 Extended Kybd w/ Macromate(GS). 129.
Digital Vision
 Computer Eyes GS. 195.
Kalamar
 Kalamar roll top 3 1/2 (holds 45). 14.
 Kalamar roll top 3 1/2 (holds 90). 21.
 Kalamar roll top 3 1/2 (hold 135). 31.
Kensington
 Mouse Pocket (Reg. or ADB) or Mouseway (Mousepad) 8.
 Apple IIe, IIc or GS Dust Cover Imagewriter II Cover. 9.
 Apple Security System. 34.
 AntiGlare Filter GS. 39.
 Printer Muffler 80. 43.
 System Saver (Platinum or Beige). 59.
 System Saver II GS. SPECIAL 69.
 New Turbo Mouse (Reg. or ADB). 109.
Kraft
 Kraft Universal 3 Button Joystick (IIe, IIc). 34.
Koala Technologies
 Koala Pad Plus w/ Graphics Exhibitor. 84.
Kurta
 IS ADB Tablet w/ stylus(GS). 289.
Lynx Computer
 Turbo Trackball (IIe or GS). 59.

Mouse Systems
 A+ Mouse (IIc). 63.
 A+ ADB Mouse (II GS). 83.
MouseTrak
 MousePad 7"x 9" Size. 7.
 MousePad 9"x 11" Size. 8.
 MousePad L/F (Low Friction). 9.
Practical Solutions
 Cordless Mouse. 109.
RC Systems
 Double Talk. 187.
Ribbons
 Available colors: black, blue, brown, green, orange, purple, red, yellow, silver or gold
 ImageWriter Ribbon-color. 4.
 Laser 190A Ribbon. 5.
 Seikosha Ribbon. 6.
 ImageWriter II-4 Color Ribbon. 9.
 ImageWriter Ribbon-Black six pack. 20.
 ImageWriter Rainbow Pack (6 Colors). 20.
Street Electronics
 Echo IIB (AP & GS). 105.
 Echo IIC (IIC & IIC+). 129.
Triad Venture
 GDL Graphic Disk Labeler-GS v2.0. 25.

Printers

Apple
 ImageWriter II. 459.
Brother
 M-1109AP (ImageWriter Compatible). 225.
Laser Computer, Inc.
 Laser 190A w/ Serial Interface. 239.
Seikosha
 Seikosha SP 1000 (ImageWriter Compatible). 229.

Disk Drives & Hard Disk SubSystems

American Micro Research (Micro Sci)
 Micro Sci C3 Controller. 52.
 A.5 Half Height (II+ & IIe) or A.5C Half Height (IIc). 135.
 A5D Half Height 5 1/4" Drive (II GS Daisychain). 155.
 AS800K 3.5 Ext. Drive. 185.
 AMR 800K Drive Bundle. 235.
 AMR D20/APS 20MB HD w/SCSI(IIe & GS). 569.
 AMR D60/APS 60MB HD w/SCSI(IIe & GS). 799.
 AMR 45MB Removable(AP & GS). 1079.
Applied Engineering
 Transdrive Half Height 360K. 119.
 Transdrive 360K Single. 219.
 Transdrive Dual 360K. 329.
 Vulcan 20(AP or GS). 615.
 Vulcan 40(AP or GS). 769.
 Vulcan 100(AP or GS). 1369.
Applied Ingenuity
 OverDrive 20(AP or GS). SPECIAL 399.
 Inner Drive 20(AP or GS). 469.

CDrive 20 Internal C & C+ or OverDrive 40(AP or GS). 569.
 Inner Drive 40(AP or GS). 619.
 CDrive 40 Internal C & C+ Inner Drive 100(AP or GS). 689.
 1200.

Chinook
 CT-20 Hard Drive(AP & GS). 505.
 CT-20c Hard Drive IIc. 619.
 CT-40 + Hard Drive(AP & GS). 619.
 CT-40c Hard Drive IIc. 775.
 CT-80 Hard Drive(AP & GS). 965.

CMS
 SCSI Rom Upgrade. 25.
 "SDUSeries - Stack" Platinum IIe, II GS 20 MB w/ SCSI II card. 529.
 30 MB w/ SCSI II card. 549.
 60 MB w/ SCSI II card. 709.

First Class
 D2 20MB HD(IIe & GS). 489.
 DF2 Compact 20MB HD(IIe & GS). 535.
 D4/T 40MB HD(IIe & GS). 869.
 DF4 40 Compact MB HD(IIe & GS). 895.
 D7/T 70 MB HD(IIe & GS). 965.
 DF7 Compact 70 MB HD(IIe & GS). 989.

Laser Computer, Inc.
 Universal Disk Controller. 45.
 Laser DiskDrive(GS). 95.
 Laser 800KB Drive. 189.
 Laser 800KB Drive Bundle. 215.
OHIO Kache
 Multi-Kache SCSI Option. 69.
 Multi-Kache w/1 meg. 379.

OUR POLICY

- VISA and MASTERCARD accepted. No surcharge. Your credit card is not charged until we ship.
- If we must ship a partial order, shipment that completes is sent free.
- All shipments insured; no additional charge.
- Upon receipt and approval, personal and company checks clear the same day for immediate shipment.
- No sales tax except orders shipped within CT, add 8% tax.
- COO maximum \$1000, cash or certified check. COO orders ship via UPS Blue Label unless UPS Ground delivers next day.
- 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.
- For Purchase Orders or Corporate Purchases please call our business office, 203-378-1926, 9am-5:30pm EST. Purchase Orders accepted at our discretion.

SHIPPING

- Continental U.S.: Add \$7.00 minimum per order to cover Federal Express Standard Overnight Service, unless UPS ground delivers next day. Some areas require an additional day. (UPS ground service available at reduced rate per customer request.)
- All (instock items) ordered by 5:30pm Eastern Time Monday thru Friday will ship that evening for overnight delivery, barring computer failures or other catastrophes.
- 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.

Your Apple Plus is PROGRAMS PLUS

Making Movies with Your Apple II: Part 1

Say hello to Hollywood! You're producer, director, and star of the show—Apple makes video creations easy, and lots of fun for adults and kids alike.

PRODUCTION

DESKTOP
VIDEOP

DATE

4/10

SCENE

1

TAKE

3

By **WILLIAM P. KENNEDY, Ph.D.** * **GUY WRIGHT**

CHANCES ARE IF YOU OWN AN APPLE II YOU ALSO OWN A videocassette recorder (VCR) or camcorder (camera and cassette recorder). Chances are also good, though, that you haven't yet tied your Apple and your video machines together. Why not? Unlike most other personal computers, your Apple II is well suited for "desktop video" production. You and your Apple II can transform those messy vacation tapes or classroom teaching aids into exciting, near-professional-quality video productions.

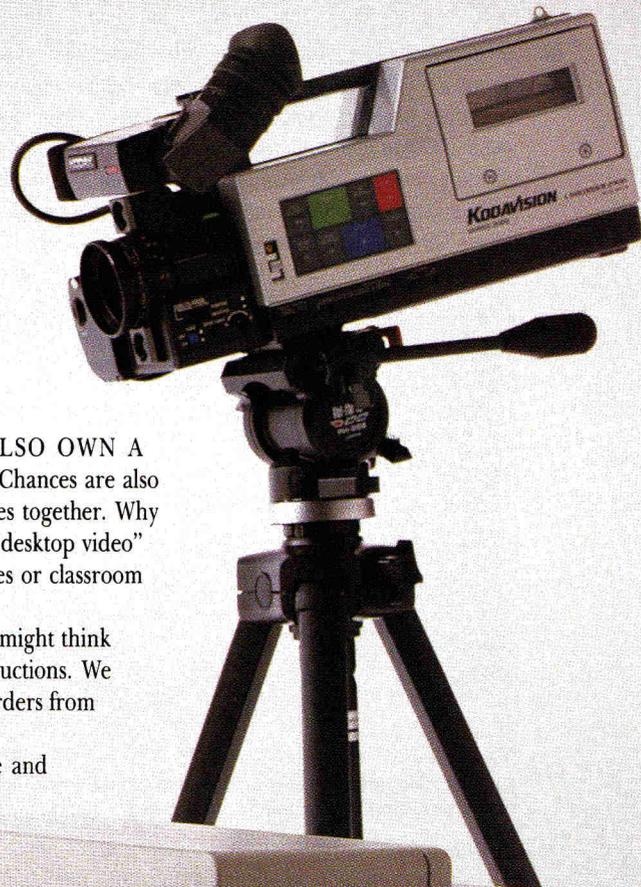
Whether or not you're aware of the Apple II's desktop-video prowess, you might think it isn't worth the effort and money required to make your own video productions. We had that same attitude until we actually tried producing our own video (on orders from the chief).

Sure, it's a pain to test video equipment and decide which pieces to use and when to use them. And it's difficult to picture how your final product will look, let alone understand how the video and computer images interact with each other. But the features and add-ons you'll need, even for rather elaborate desktop-video productions, aren't very expensive. In this and an upcoming installment, we'll give you an introduction to desktop video—how to and how *not* to. Now you don't have any excuses. In fact, you'll find that Apple II desktop-video production is surprisingly easy and unquestionably fun.

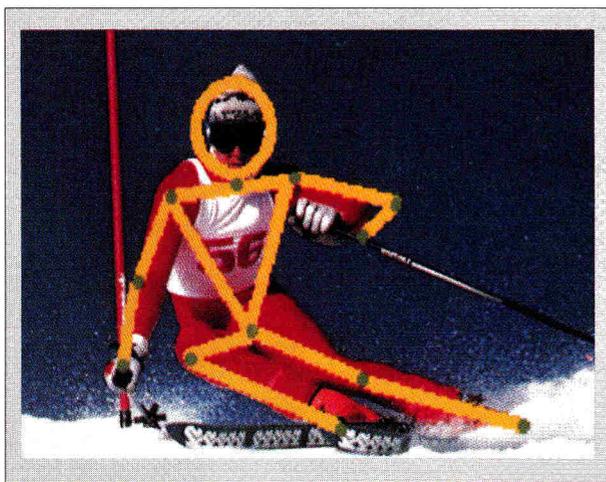
VIDEO BASICS

The term *desktop video* has many connotations, but we can define it here simply as any recorded audio-visual (A/V) production of computer-generated A/V or A/V enhancement or a production that includes it. At minimum, desktop video means recording on videotape what you see on your Apple monitor—your favorite Apple II pictures produced with a paint program, for example.

All you need is a cable running from the video-out connector at the back of your Apple II (the one you normally ►



use to connect a monitor) to the video-input jack on your VCR. Set your VCR to *record* and use its pause button to stop and start recording while you select and view your Apple graphics masterpieces. Add a sound track coming from either the Apple or an audiocassette. You've just finished your first desktop-video project: Now others can enjoy your work—most of your friends have VCRs, but not necessarily Apple IIs.



Apple's Video Overlay Card lets you add graphics and animation to a video background.

Creating and recording computer-graphics sequences and animations is even more challenging and fun. (See "A Fish Called Herman," p. 51 in this issue, for a good example.) Apple II desktop video means everything from inserting electronic titles into your education videos to incorporating special digital A/V effects into your home version of *Star Wars*. The list of possibilities is endless.

Note, however, that except for the simplest videos such as the examples above, the best desktop videos include a fair amount of editing: transferring and merging selected A/V segments from computer or tape to some final "master." And, unless you have very low expectations about the quality of that final tape, you'll need to know something about equipment and what you have to do to produce a high-quality, trouble-free video.

In this installment we'll construct an Apple II-based system with the hardware and software best suited for even the most elaborate desktop-video creation. Building on this foundation, we'll describe how to produce your own video in May's part 2.

A VIDEO PRIMER

A video picture is electricity in motion. Your monitor or TV needs many different electrical signals to position its "gun" precisely and "spray" (literally) millions of minute points of light onto the screen—30 or more times per second, so that your eyes and brain perceive a fluid, apparently "live" display. The most important electrical signals of the many required to produce a video image are the actual picture and the synchronization (*sync*, for short) pulses that communicate, at minimum, where the picture is to appear on screen.

The complexities of a video signal also demand that each device, from camera to computer to monitor, adheres to a common set of electronic rules or standards. In the United States and a few other countries, a common standard for broadcast television was established by the National Television Standards

Committee (NTSC). Your Apple II generates NTSC-compatible video. That means that to produce desktop video, your equipment must also be able to accept and generate NTSC-compatible video.

Almost all video-recording equipment incorporates another special sync signal called the *control track*, which adjusts playback speed "on the fly," because tape slippage and speed variations are common in most tape drives.

LIGHTS, CAMERA...

Before you launch into your own production, keep in mind some limitations. First realize that the quality of a video production is fragile; each subsequent link in the video chain can't improve on its source, and the final picture is only as rich as the poorest component in the chain. Consumer-type video cameras, recorders, and so on are nowhere near as good as professional, pricey broadcast equipment. Don't expect broadcast-quality video and you'll be pleasantly surprised.

The first link in the desktop-video chain is hardware. In general, purchase the best equipment your budget can afford. Four heads in your VCR or camcorder are better than two, for example. And don't forget to *maintain* your equipment—check cables for worn spots, and clean the tape heads and drive mechanisms in your VCR regularly, for instance. It's interesting, however, that except for the very cheapest, VCR tapes are of fairly consistent quality; purchase the most reasonably priced.

Table. Shopping list for Apple II desktop-video system. Prices of hardware vary and increase with additional features and accessories.

HARDWARE	APPROXIMATE COST
4-head VCR with flying erase heads, video/audio dubbing, freeze frame, frame search, stereo sound	\$450
camcorder with zoom/macro lens, low light requirement, fade control	\$1000
Apple IIcs, IIe, IIc, or IIc Plus system GS provides more video options at higher resolution	\$2500
Video Overlay Card	\$549
audio tape deck	\$100
audio mixer	\$40
accessories microphone, cables, video- and audiocassettes, lights	\$50
SOFTWARE	RETAIL PRICE
Art & Film Director	\$79.95
Home Video Producer	\$49.95
VCR Companion	\$49.95
Fantavision/Fantavision GS	\$49.95/\$59.95
Video Title Shop	\$29.95
Take One!	\$59.95

The accompanying **Figure** shows a suggested desktop-video system; the **Table** includes a shopping "wish" list. Basically, you'll use a camcorder (or separate camera and VCR) and audiocassette (or reel-to-reel) recorder (the *slave* elements) to store live A/V events.

You then edit those events together with Apple II-generated A/V enhancements and special effects (titles, graphics, and so on) onto videotape in a second VCR, the *master*. Keep in mind that the master is, by necessity, a videocassette recorder, although the slave can be any of a variety of video sources: a camcorder (as depicted in the **Figure**), another VCR, or a video-disc player or video camera, for example.

Audio effects for typical desktop productions are secondary to video; degree of precision in timing and editing incidental or background music or even voice-over narration isn't critical. In terms of equipment, audio is the simplest and least worrisome link in the desktop-video chain. And because audio isn't as complicated as video—particularly as it doesn't require sync signals—you can readily mix and tape several sound sources, including special effects from your Apple II or a microphone for voice-overs, onto a master audio tape and eventually onto the master videotape. An audio *mixer* (about \$40 from Radio Shack) is the only special equipment you might consider, although it's not essential; it adjusts individual source volumes for desktop-video productions.

If you don't already own a VCR or camcorder, you'll be hit

with a barrage of special features as manufacturers attempt to prove that their equipment is better than the competition's. Many of these bells and whistles aren't necessary, but there are a few critical features you should look for—without them desktop-video production can be difficult or even impossible.

One of these features, particularly important for the master recorder, is "*flying*" *erase heads*. They let you perform nearly seamless video editing by tracking those sync pulses we mentioned earlier and starting a new recording at just the right moment—just the right place on the tape. Without flying erase heads, transitions between scenes will "break up" the picture. It can take several seconds to stabilize, resulting in a less-than-satisfying visual experience.

Another feature you'll find almost essential for the master is audio and/or video insertion, or *dubbing*. Audio dubbing lets you change the sound in a prerecorded scene without altering the video. Similarly, video dubbing retains the original audio portion of a scene. Dubbing is particularly important because it removes the need for additional "generations" of tape. (We'll talk more about dubbing in next month's installment.) If you can afford them, *jog-shuttle* controls, *fade to black*, and *fade to white* are useful video features you can't simulate very well with a basic Apple II desktop-video system. *Freeze-frame* and *frame-search* features are also useful. You'll need freeze frame if you want to transfer a video frame into your Apple with digitizing software and hardware; just don't expect miracles. Frame search helps you find ▶

Further Reading

MUSIC/SOUND HARDWARE

- Phasor**, Reviews, March 1987, p. 24
- Slotbuster II**, Reviews, April 1987, p. 93
- FutureSound**, Reviews, March 1989, p. 32D
- Sonic Blaster**, Editors' Choice, May 1989, p. 108, and Reviews, June 1989, p. 36
- Sound Ace**, Reviews, June 1989, p. 36
- DoubleTalk**, Reviews, November 1989, p. 30

MUSIC/SOUND SOFTWARE

- Instant Music**, Editors' Choice, October 1987, p. 144
- Personal Musician**, Reviews, February 1988, p. 97
- TML Speech Toolkit**, Reviews, March 1988, p. 40
- Diversi-Tune**, Editors' Choice, September 1988, p. 112
- Music Writer**, Reviews, June 1989, p. 40
- Master Tracks Jr.**, Reviews, June 1989, p. 110
- Instant Synthesizer**, Editors' Choice, July 1989, p. 108, and Reviews, September 1989, p. 28
- Master Tracks Pro GS**, Reviews, January 1990, p. 100
- Jam Session**, Editors' Choice, March 1990, p. 108

ARTICLES

- "**Making Music**," August 1987, p. 38
- "**The Power of Speech**," December 1987, p. 97
- "**Apple Serenade**," May 1988, p. 70
- "**Sound Digitizer**," July 1988, p. 90
- "**GS Sound Update**," September 1988, p. 105
- "**Face the Music**," October 1989, p. 54

VIDEO HARDWARE

- ThunderScan**, Reviews, January 1988, p. 26
- ComputerEyes GS**, Reviews, July 1988, p. 33

VIDEO SOFTWARE

- Animate**, Reviews, April 1987, p. 30
- Fantavision GS**, Editors' Choice, February 1988, p. 120
- ShowOff**, Reviews, December 1988, p. 33
- Video Title Shop**, Reviews, January 1989, p. 28
- Home Video Producer**, Reviews, January 1989, p. 30
- VCR Companion**, Reviews, January 1989, p. 33
- Slide Shop**, Reviews, March 1989, p. 78
- Cartooners**, Reviews, June 1989, p. 106
- Art & Film Director**, Reviews, July 1989, p. 28

ARTICLES

- "**The Apple/VCR Connection**," February 1987, p. 117
- "**Video Magic**," March 1987, p. 51
- "**Make the Videodisc Connection**," April 1987, p. 58
- "**Digitize to the Max**," July 1987, p. 40
- "**Hi-Res Animator**," October 1987, p. 130
- "**The Medium Is the Message**," August 1989, p. 60
- "**Roll Video**," May 1989, p. 42
- "**Reel-World Images**," July 1989, p. 40
- "**Ilc Videotapes**," Apple Clinic, March 1990, p. 26

Apple II desktop-video system

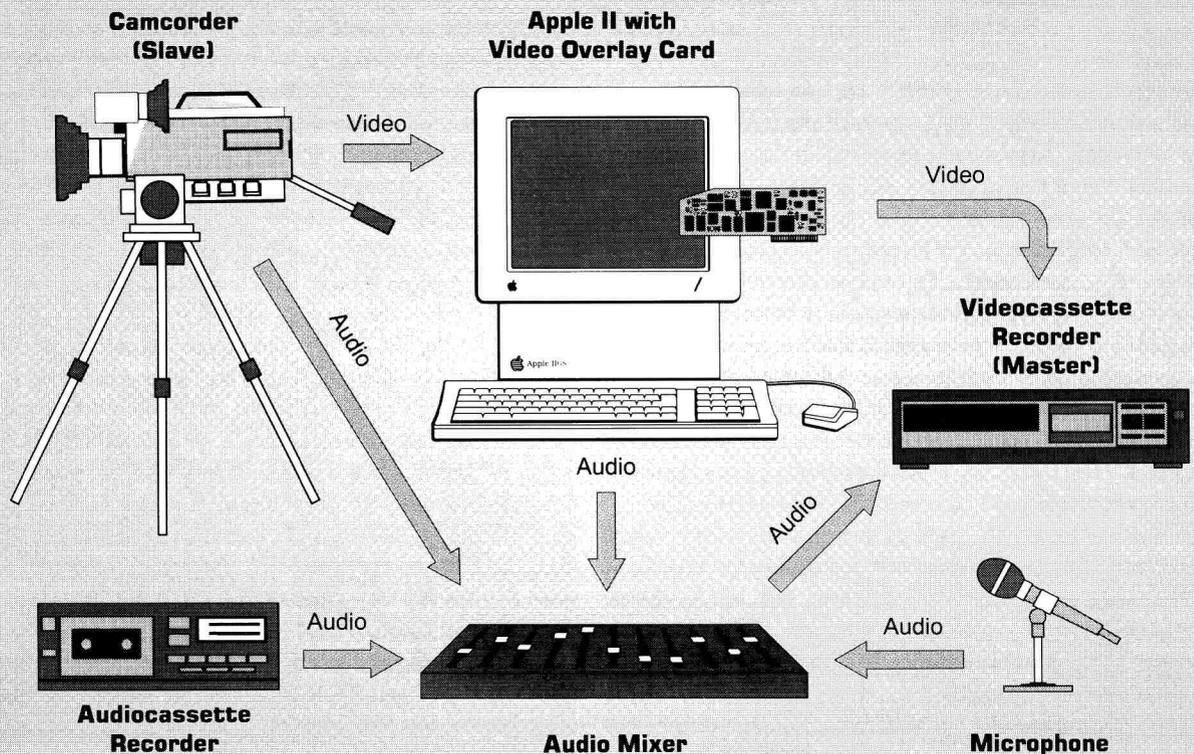


Figure. Components and connections of the basic desktop-video system described in the text. Not all components are essential; the most rudimentary desktop-video system includes the Apple II and a videocassette recorder only. An editor/controller device, not shown here, is also recommended, although not essential.

the beginning and ending frames of a video sequence as you edit. Both features are helpful, if not essential, when finding and displaying the video background onto which you're creating overlay text, graphics, or animation with an **Apple II Video Overlay Card** (more on that later).

What about video formats—VHS, beta, and 8-millimeter? Your camcorder and VCR don't have to share the same format; in fact, beta, 8mm, and certain others generate better video than VHS. But VHS is the most common, and by having a consistent format, you can "load up" the features on your camcorder and purchase a relatively inexpensive (and featureless) VCR. For desktop-video editing, then, use the camcorder to record live events, but then use it again as the master to rerecord the material from the VCR (now the slave); that's the opposite of the configuration shown in the **Figure**.

Another important, but not critical, piece of desktop-video equipment is an *external controller* to start and stop taped portions at precise locations. Controllers are relatively inexpensive (around \$200) and make video editing a great deal easier. They work by electronically "marking" one or more scenes on the slave videotape, then cueing up those scenes automatically on the slave and inserting them on the master for precise editing.

That's a process not easily reproduced with the play, record, and pause controls on the typical VCR or camcorder. Few camcorders and VCRs can be controlled externally, so shop carefully.

One commercially available system uses the GS' modem and printer ports to control up to two VCRs. Unfortunately, the system works only with specific machines and is primarily used for video presentations, not editing. We can't recommend any current Apple II-based editor/controllers, but let's hope one will appear soon.

An Apple II Video Overlay Card is a central feature in a desktop-video system because it serves two purposes: First, it lets you combine two video sources into one. That's something you can't do by twisting two wires together as you might with two audio sources; the video syncs from each source will conflict and destroy the picture. The Overlay Card *genlocks*, or automatically synchronizes, the video from your VCR or camcorder with the Apple's so that you can display computer text and graphics over a live or recorded scene. For instance, you might have an Apple-animated character appear to tweak the prerecorded nose on your face.

The Video Overlay Card includes software through which you control the level of mixing between the video source and the Apple's screen, and choose a *key color* (the color your video picture should "show through") from the 16 available. That software complicates the recording process, however: You must exit your current program to run the Overlay software and change the card's settings—unless you have a GS and you're running an application that lets you access the Overlay's new desk accessory (NDA), which you'll find under the apple menu on the main menu

bar. Even the NDA interferes with the screen, however, by displaying the control setting—so that you can't alter the Overlay Card "on the fly" during a recording for smooth special effects.

It's too bad Apple didn't hard-wire controls directly to the Video Overlay hardware, as you find on some genlock boards for other computer systems. At least the company could have provided technical documentation so that you could program your own software controls.

Nonetheless, the second, and perhaps best, reason for using the Overlay Card, despite its drawbacks, is that it greatly improves the video quality coming from your Apple II. The card generates a signal closer to NTSC standards than the Apple's native system; it nearly eliminates the washed-out horizontal color bleeds and warped edges endemic to Apple II video recordings.

There are also a number of hardware options you can add to your Apple and your video equipment to further embellish your desktop-video productions: stereo and sound-digitization cards for computer-generated audio special effects, video-digitization hardware/software systems for converting live images to computer graphics you can alter with a drawing or painting program, and so on. The list is almost inexhaustible; your finances, however, probably aren't. So be creative and try using whatever hardware you've acquired for other purposes. It might just work. (For more information from the pages of *inCider* on audio and video hardware, see the accompanying sidebar, "Further Reading.")

... ACTION

As mentioned earlier, you can record on videotape anything you'd normally view on the Apple monitor, including simple text screens such as those from an AppleWorks document, pictures you've created with any of the many paint programs available for the Apple II, or even computer animations designed with special software.

The simplest and most popular form of desktop video is *titling*—inserting Apple-generated text frames into your video to document the proceedings. You can type *Billy's Birthday* or *Produced and directed by . . .* on your Apple screen or create screens with any of a variety of graphics programs. Then simply record that screen onto your videotape before the appropriate video sequence. Better yet, combine the title frame with live action or a "real" frame with the Video Overlay Card.

Graphically rendered text is more appealing than simple com-

puter text for titling. You can use a variety of colors, for instance, and, more importantly, you can vary text size to create a more readable screen. You can also add borders and icons to the graphics text. Special titling software—such as **Video Title Shop** from Datasoft, **VCR Companion** from Broderbund, or **Home Video Producer** from Epyx—is recommended over generic text or graphics programs because of the ease of use you find in software dedicated to a single purpose.

The next level of desktop-video production is rendering a sequence of Apple screens with or without live video pictures—also known as *presentation video*. Many Apple II software packages are available to help you prepare a presentation or computer slide show by pre-arranging your Apple screens on disk in a selected order and then loading and displaying them automatically. Rather than manually loading text or graphics screens within or outside their applications and then manipulating the record and pause buttons on your VCR, you can plan and prepare the computer show in advance and record the sequence all at once. Indeed, reviewing the sequence on the computer screen before recording is preferable to later video editing. (See "A Fish Called Herman," p. 51, for one such project.)

Advanced presentation software improves that automatic screen-load and -display process by letting you create special graphics and title screens. It also lets you select a variety of screen *transitions*—the ways in which the computer moves from one screen or frame to another. VCR Companion from Broderbund is currently the *crème de la crème* of presentation-software packages. Styled after Broderbund's familiar Print Shop program, but unlike it or most other presentation software, VCR Companion is designed specifically for video recordings; for example, its titling utilities use well-defined fonts that minimize color bleeding. VCR Companion also offers some of the best screen transitions available.

Desktop video is at its best when incorporating Apple animation, and there's a wealth of special software available. **Art & Film Director** from Epyx is perhaps the best, although it can be quite complicated to use and runs only on an Apple IIGS. (Not only is the program difficult to use, it's also difficult to buy. At press time, Epyx, now strictly a software developer, was looking for a company to take over sales and support of the program.) Using Art & Film Director, however, is worth the effort: Its animations are the crispest and cleanest around. And it's set up to give you the look and feel of real movie making, the mark of an excellent video production, script and all. Other animation options include **Fantavision** and **Fantavision GS** from Broderbund and **Take One!** from Baudville. (See the sidebar "Further Reading" for a list of reviews and features focusing on video and animation software.)

CUT TO THE CHASE

This is a good place to "take five" and give you a chance to set up and play with your own Apple II desktop-video system. Next month, we'll stop *talking* about video and get down to some serious video *production*. Roll 'em . . . □

WILLIAM P. KENNEDY IS *INCIDER'S* SENIOR TECHNICAL EDITOR AND THE AUTHOR OF OUR COLUMN APPLE CLINIC. GUY WRIGHT IS A CONTRIBUTING EDITOR TO *AMIGA PLUS* MAGAZINE AND HAS BEEN A PRODUCER/DIRECTOR FOR CABLE-TELEVISION STATIONS. WRITE TO THEM C/O *INCIDER*, 80 ELM STREET, PETERBOROUGH, NH 03458.

PRODUCT INFORMATION

Apple II Video Overlay Card

Apple Computer
20525 Mariani Ave.
Cupertino, CA 95014
(408) 996-1010
\$549

Art & Film Director, \$79.95
Home Video Producer, \$49.95
Epyx
limited quantities available
through mail-order dealers

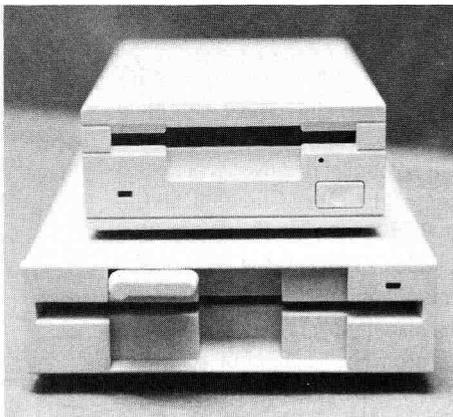
Fantavision, \$49.95
Fantavision GS, \$59.95
VCR Companion, \$49.95
Broderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 492-3200

Take One!

Baudville
5380 52nd St. SE
Grand Rapids, MI 49508
(616) 698-0888
\$59.95

Video Title Shop

Datasoft
19808 Nordhoff Place
Chatsworth, CA 91311
(800) 245-4525
\$29.95



5 1/4" DISK DRIVES FOR APPLE

1 Year Warranty
Parts & Labor
100% Compatible
Super Quiet
Adjustable Speed
Control

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

3 1/2" Disk Drive AMR For Apple IIc+ & IIGS

Shipping & handling \$5.50

\$199.00

ZIP CHIP 4 Mhz.....\$125.00 8 Mhz.....\$158.00		Extended 80 Column Card With 64K For Apple IIe 100% Appleworks Compatible \$38.95 5 Year Warranty		UNIVERSAL Disk Controller Run 800K Disc Drives on your II+ and IIe \$64.95	
CHECKMATE PRODUCTS					
PRO TERM \$79.95		MultiRam RGB IIe 0K to 1 Meg. from \$121.00		800K DISK DRIVE 3 1/2" for II+, IIe, MAC, LASER 128 \$179.00	
MultiRam IIe 0K to 768K from \$88.50		MultiRam IIc 0K to 1 Meg. from \$105.00		Disk Controller Card For Apple II, II+ & IIe \$34.95 5 Year Warranty	
Memory Saver GS \$109.00		MultiRam GS 0K to 2 Meg. from \$95.00		CPM Card for Apple II+ & IIe 5 Year Warranty \$34.95	
AI Juice Plus GS					
0K to 4 Meg. from \$65.00					
Super Expander IIe 1 Year Warranty					
W/Appleworks Expansion S-ware					
0K to 1 Meg. from \$52.50					
256K RAM..... Call					
Green or Amber Monitor... \$99.00					
MINI DIN 8 Switch Box A/B..... \$24.95 A/B/C/D .. \$29.95		5 Amp Power Supply \$49.00 Apple II, II+ & IIe		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		MINI A/B Switch Box Serial or Parallel \$24.95		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	
II+ Owners					
16K Card \$34.95					
128K Card \$64.95					
80 Column Card \$48.95					
Plus Works \$49.00					
5 Year Warranty					
LASER 190A Printer \$225.00		LASER 128 EX Three Times the Speed of a IIe Built in Memory Expansion Board \$445.00		Numeric Keypad For Apple IIe \$34.95	
EPIC 2400 Baud Modem \$99.00		Prices subject to change without notice		RF Modulator II+ & IIe \$15.95	
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

Most Items +\$4.00 for Shipping - C.O.D. + \$2.75

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!

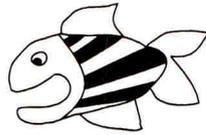
10 a.m. to 5 p.m.
M.S.T.
Mon - Fri.

University & School P.O.
Accepted

20% Restocking charge
on returned items

We Ship
2nd Day Air
Continental US Only

A Fish Called



Reading and writing take on new dimensions when kids take the director's chair in a classroom video project for all ages.

STUDENTS BECOME READERS BY READING, AND THEY become writers by writing. The new California Language Arts Framework says it, research documents it, and educational programs across the country echo it. But in an age of eyes and ears glued to "the tube," how do we get students to try harder—to practice reading and writing? Can we turn television's hypnotic attraction to our advantage?

One way to do just that is through "talking video books"—**Dazzle Draw** story slide shows, complete with text, created on the Apple II and recorded on videotape with student narration. Young people from preschool through junior high plunge willingly into writing and reading when computers and video team up. Productions can range from one-time-only projects to four-week, 18-session courses. Experience has shown that the most important element is the willingness to try.

HARDWARE/SOFTWARE NEEDS

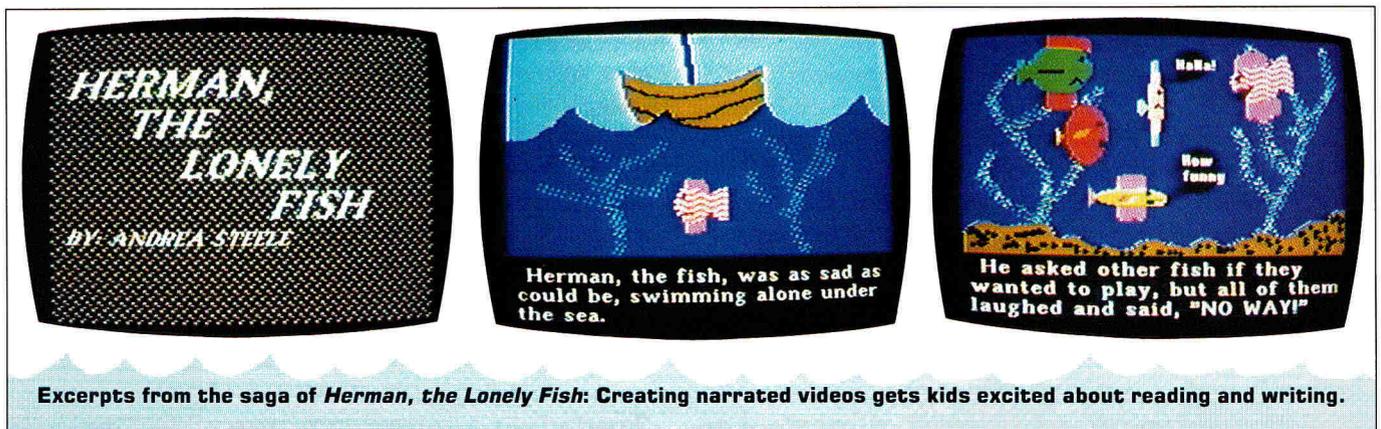
A little planning and preparation up front when you assemble your equipment will pay off later. Most items are readily available. You'll need an Apple IIGS, IIC, IIC Plus, or IIE with color monitor and mouse, plus the program **Dazzle Draw**, from Broderbund. Set aside some clean data disks (either 3½- or 5¼-inch) you'll designate later as Slide Show disks.

Your VCR/monitor setup must have audio and video inputs. For sound, use a tape recorder with microphone and line-out or headphone-out jack, or a microphone mixer with microphone and line-out jack. You'll also need two male RCA connecting cables, quarter-inch and eighth-inch RCA adapter plugs (**Figure 1**), and videotape.

As a prelude to producing talking video books, students will need to become familiar with **Dazzle Draw** and its Slide Show module. For kindergarten, that may mean following the teacher's directions and creating colorful "snowflake" patterns with the program's mirror and paintbrush tools. For upper primary grades, students may create individual, group, or class pictures; fourth- through eighth-graders are often quite successful at independent work. Should you have the opportunity for an extended series of sessions, see the accompanying sidebar for a suggested guide to introducing **Dazzle Draw** in grades 4 and up through a series of one-hour sessions.

TURN THE PAGE

Start your movie-making session by formatting a data disk with the Slide Show option. (Be aware that formatting destroys any picture currently on screen, as well as the clipboard contents.) Just choose *Make Slide Disk* from **Dazzle Draw**'s File menu and follow the screen prompts. (If you don't see the prompt, "Would you like to make a



Slide Show disk for a 3½-inch disk?" you're using an older version of the program, which uses only 5¼-inch disks.)

Next decide on the number of "pages" for your book. If the total number is seven or fewer, you can use Dazzle Draw's *Easy File* system (the only file system in earlier versions of the program). Include in your page total a cover or title page if you like, plus a blank page (the black, unused screen), which you'll need when you set up the Slide Show loop later on. For eight or more pages (up to 46), you'll need Dazzle Draw's *Professional File* system (available only in the updated program). More on these two filing systems later when we discuss saving pictures.

The cover page, and any other pages without story text, such as young children's picture books, should be full screens. Use Dazzle Draw's scroll bar to allow painting on the entire screen. Click and drag it to the top or bottom to access the whole display. Choose *View Picture* from the Goodies menu to see whether you're using the full screen.

For pages with story text, make sure the scroll bar is at the top before making pictures. If you accidentally create a picture without

must enter your text in one shot. Now *Capture* (Edit menu) the finished text and center it by clicking and dragging with the mouse.

If you're using Dazzle Draw's *Easy File* system, saving pages is simple. Choose *Save* from the File menu and click on *Picture*. When you see

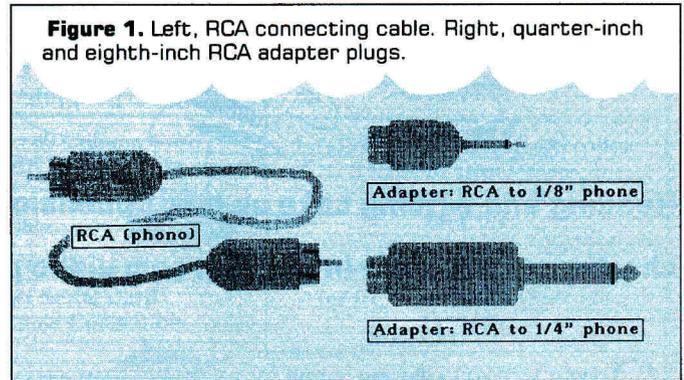


Table 1. Professional File timing options.

1 = 1 second	6 = 20 seconds
2 = 2 seconds	7 = 30 seconds
3 = 5 seconds	8 = 45 seconds
4 = 10 seconds	9 = 60 seconds
5 = 15 seconds	0 = wait

the scroll bar at the top, you can *Capture* it, *Cut* it, click and drag the scroll bar to the top, and then *Paste* it back. (Look for these options on the Edit menu.)

After you finish drawing an image on a page that will have text,

Table 2. Professional File transition options.

1 = random	6 = right to left
2 = no fade	7 = scroll left
3 = top down	8 = scroll right
4 = bottom up	9 = dissolve
5 = left to right	0 = random/weird

click and drag the scroll bar to the bottom. You'll find an unused black strip; click on the text tool and type your script there. Plain 24-point *Serif* font looks best when transferred to videotape. If you need to fit in more text, use the program's 18-point *Modern* font in boldface. In this smaller size, boldface will make the letters clearer on the videotape recording.

For younger students, the teacher may want to type in the text. For students, writing and editing on paper before typing is often helpful. Dazzle Draw's text tool isn't a word processor; you can't edit, so you

the prompt "Save Picture as," type in the name and click on *Okay* to save it on the 5¼-inch Slide Show disk you prepared in advance. Remember, the *Easy File* system limits your book to seven pages.

For *Professional File* users, saving pages requires several steps. First, insert the 3½-inch Slide Show disk you prepared in advance. Now choose *Save* from the File menu, but instead of saving at this time, click on *On Line*. Your computer will list the disk(s) in your system's drive(s), one of which will be */Slideshow*. Click on *Prefix*, */Slideshow*, and *Okay* to tell the computer what disk to look for (*/Slideshow*).

Now respond to the prompt "Save Picture as" by typing in the name of the picture and clicking on *Okay* to save the image to the 3½-inch Slide Show disk. Note that you have to set the prefix only the first time you save; from then on it will remain that way until you change it or reboot.

You can create pages in any order, but as you do, save them under names that include page order in the titles—*page.1*, *page.2*, *P1*, or *P2*, for instance. And if more than one student is using a slide disk, use names or initials, too, such as *Stephen.P1*. (Page names are for reference only and don't affect the actual images on your slides.) Name the black page *Black* to avoid confusion later on.

Once you've finished your pages, load each one and *View* it to check for misspellings or incomplete pictures. This step avoids rebooting Dazzle Draw to make corrections. Should any text require corrections, remember that Dazzle Draw isn't a word processor; you'll have to *Capture* the text area and *Clear the Section* (Edit menu), then retype the words.

ON WITH THE SHOW

Now boot the Slide Show disk; you're going to set up the order of your pages, the transitions between them, and the timing from one page to the next.

As Dazzle Draw's manual notes, "You'll be prompted on how to set up the order, transition, and timing of your Slide Show." For the *Easy File* system, that's fine, and the prompts are easy to follow. The *Professional File* system is quite another matter, however.

To set the order of the pages, use the up- and down-arrow keys to

move the highlighted block to the first book page, the picture named *Black*. Press the spacebar to select it; the name will appear on the right-hand side of the screen. Now move to the next picture in book-page order and press the spacebar to select it. Continue until all the pages you want are in order.

Now press Return to move to the *Timing/Transitions* screen (Figure 2), where you'll see the names of pages in the order in which you set them up. To the right of each page name are two columns—the first for timing, the second for transition. Timing is preset at one second. Press 0 (zero) and the timing will change to *wait*. On this setting, you control when to move on to the next page by pressing the spacebar. (For other timing settings not used in this application, see Table 1.)

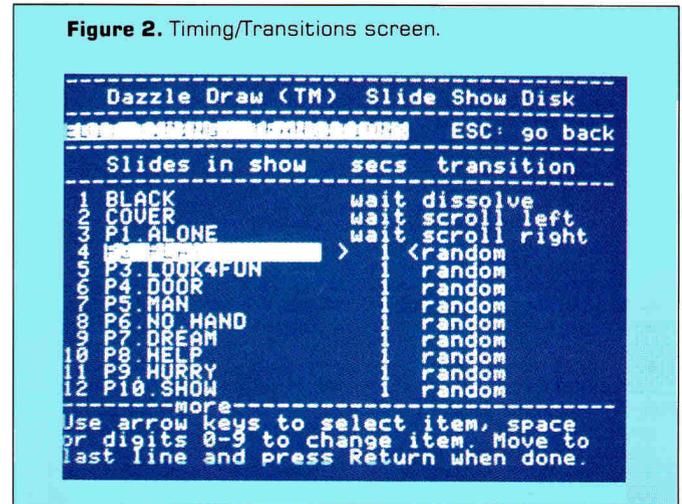
Press Return to move to the transition column. Set the *Transition Into* the picture named on the left by pressing a number, 0 through 9. (See Table 2.) For the *Black* page, choose 9 (*dissolve*) and press Return. Transitions that seem to work particularly well are 7 (*scroll left*) and 8 (*scroll right*). Others are faster, and less like turning pages, but may also be effective. You might try rotating through a sequence of 3, 4, 5, and 6 (*top down*, *bottom up*, *left to right*, and *right to left*).

Repeat the timing/transition process for each page. Now press Return to save all that information to the Slide Show disk. Should you need to change any of the setup information, press Escape to return to that menu.

IN STUDIO ONE

Your show is now ready to videotape. Connect the computer and the audio equipment to your VCR. Use a cable with male RCA plug ends (Figure 1) to connect the computer's video-out to the VCR's

video-in. If you're using a GS, the video-out plug is in the back, between the keyboard and monitor plugs, and shows an icon of a monitor screen. The IIe's video-out plug is at the back of the CPU with the cable to the monitor; the IIc and IIc Plus are similar. Unplug the computer monitor to make the connection.



Now turn on the VCR and set it to *Video*; you should see the computer picture on the TV monitor. You may need to switch the input to *Line*, *AUX* (*auxiliary*), or *External Source* to see the computer picture. Check your VCR manual.

A Dazzle Draw Tutorial

Session 1

1. Disk handling/care
2. Booting Dazzle Draw options screen: Choosing *Easy* or *Professional File System*
3. Using mouse/pull-down menus
4. Tools: paintbrush (choosing size, shape, color)/undo function
5. Tools: flood fill/scroll bar
6. Goodies: *View Picture/Clear Picture*
7. Ending the session: Crown: *Quit Dazzle Draw*

Session 2

1. Review disk handling and care/booting
2. Review tools: paintbrush/flood fill/scroll bar
3. Review Goodies: *View Picture/Clear Picture*
4. Tools: shapes (make an abstract art picture), *View/Clear*
5. Tools: lines (make a spider web using corner, then spiral), *View/Clear*

6. Student independent painting/art time

7. Ending the session: Crown: *Quit Dazzle Draw*

Session 3

1. Review disk handling and care/booting
2. Review: Create a picture with paintbrush, flood fill, shapes, and lines
3. Tools: spray paint (add to review picture) and *View/Clear* (Goodies)
4. Goodies: Mirrors (use with paintbrush)
5. Assignment: Write name with horizontal *Mirrors* on
6. Edit: *Capture* (*Capture name*, *Invert/Flip*)
7. Ending the session: Crown: *Quit Dazzle Draw*

Session 4

1. Boot Dazzle Draw
2. Review tools (paintbrush, flood fill, shapes, lines) and Goodies (*Mirrors*, *View, Clear*)

3. Slide scroll bar to the top/create a picture (10 minutes)

4. Slide scroll bar to the bottom
5. Tools: text (choose *Modern* or *Serif*/type 1-2 sentences that go with the picture)
6. Edit: *Capture* sentences and center with mouse/*View, Clear*
7. Ending the session: Crown: *Quit Dazzle Draw*

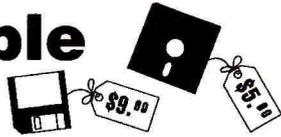
Session 5

1. Boot Dazzle Draw
2. Student independent picture time (15 minutes)
3. File: *Save* (Saving pictures on 3½-inch Slide Show disk: Choose *Save*, click on *Prefix*, set *Prefix* to */Slideshow*, click on *Picture*, name the picture, click on *Okay*)
4. Create and *Save* another picture
5. File: *Delete* pictures from the Slide Show disk
6. Ending the session: Crown: *Quit Dazzle Draw* □



—S.P.

Quality Software at Affordable Prices



APPLE IIgs 3 1/2" DISKS

Print Shop™ Holiday Graphics

- GS61,62** 200+ holiday color & b/w graphics & borders for Print Shop™ (2 DISK SET) **\$18**
- GS30** Color pictures for Print Shop™ plus customize your startup screens **\$9**

Education

- NEW GS139 Geometry Primer:** basic geometric figures, related calculations . **\$9**
- NEW GS147 Night Sky:** find your lucky star & learn about astronomy **\$9**

Desk Accessories

- GS2,GS3,GS4** DAs: Picsaver, Notepad, Calendar, melting screen! (3 DISK SET) . **\$27**
- GS85** Control Panel NDA: Get to Control Panel from Apple menu, + 20 other DAs . . . **\$9**
- NEW GS121** D.T. Painter: fully-functional color paint program as a DA, more . . . **\$9**

Games

- GS27** Bounce-It!: IIgs adaptation of the Little BrickOut™ game (SHAREWARE) . . . **\$9**
- GS36,GS37** Play the treacherous fairways of 12 courses (REQ. MEAN 18™) (2 DISK SET) . **\$18**
- GS58** F1 Race: Formula one racing game (SHAREWARE), Mastermind ★ **Best Seller** **\$9**
- GS86** Wheel: Vanna's game is now on the IIgs! ★ **Best Seller** . . . **\$9**
- NEW GS104** Lotto.GS lottery number generator, Poker **\$9**
- GS106** Play Quodomino arcade game & Colossal Caves adventure game **\$9**
- NEW GS117** Flight Simulator, Galaxy, Pinball, plus more games **\$9**
- NEW GS149 Senseless Violence:** the best new arcade games, **Incider Editor's Choice** (NEED SYSTEM 5.0 OR NEWER) **\$9**
- NEW GS150 Romulan.GS:** 18 games, Worm, Shooting Gallery, plus more! . . . **\$9**
- NEW GS151** Orbzone—like Asteroid™, + Othello, (REQ. SYSTEM 5.0) **Editor's Choice** **\$9**

Graphics / Graphic Utilities

- GS63** Cheap Paint—full-featured color painting program (768K REQ.) (SHAREWARE) . **\$9**
- GS88** Viewer: View super hi res graphics quickly and easily. **\$9**
- GS133,134,135** 60 color pics: King Tut, Earthshine, Seascape, Blast.Off (3 DISKS) **\$27**
- NEW GS136,GS137** Adults-only slide show of 44 beautiful ladies (2 DISK SET) . . . **\$18**
- NEW GS138** Anishow—view animated files. Includes 5 animation shows . . . **\$9**
- NEW GS141,142,143** Illusion, Mindscape, + 75 graphics, w/display utility (3 DISKS) . **\$27**
- NEW GS144 Nucleus:** stunning animated display of graphics and sounds **\$9**

Music

- GS64,94** Sit back and enjoy 28 slide shows with Rock 'N Roll tunes (2 DISK SET) **\$18**

Utilities

- NEW GS146 Photonix:** fast disk copying utility & anti-virus, verify, format **\$9**
- NEW GS124** Font.Edit.8 & Font.Doctor: create custom fonts, change existing ones **\$9**
- NEW GS126** Utility Works Launcher: bypas the Finder and directly launch any application (SHAREWARE) **\$9**

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

- ANY 10 DISKS FOR ONLY** **\$59.95**

APPLE II 5 1/4" DISKS

Business

- NEW 846,847,850** Appleworks™ templates: 32 spread-sheets & dbases for home/biz/sports (3 DISK SET) . . **\$15**
- NEW 869** Mail.List, catalog books, print labels . . **\$5**

CAD / Communications

- 310,311,312** CAD & graphing package (NEED YOUR OWN PRINTING PACKAGE) (3 DISK SET) **\$15**
- NEW 903** Eve Terminal: powerful yet simple, w/one-letter commands & instructions on disk . . **\$5**

Education

- 194** Genealogy program: Trace your Family Tree . **\$5**
- 863** Aircraft almanac w/full-color hi res graphics . **\$5**
- NEW 887,888,889** Spanish story, or write your own, with dictionary (3 DISK SET) **\$15**
- NEW 890 Talking Calculator**—four functions, no speech card necessary! **\$5**
- NEW 892 JoyPaint:** fully-functional paint program. Uses a joystick (or Koala Pad). Paints in 8 colors, 8 patterns, font tool, pens, airbrush, etc. (128K REQ.) . **\$5**
- NEW 894** Advanced Astronomy for the serious star gazer **\$5**

Games

- 813** Pinball games: Flip-It, Super Blast, Max's Madness, more **\$5**
- 814** Monopoly: Apple II version of the popular board game ★ **Best Seller** **\$5**
- 874** Make your own Word Search puzzle, prints puzzle and answers **\$5**

Passion

- 190,800** X-Rated graphics and games for adults only (2 DISK SET) **\$10**

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 IIgs Membership

Enclosed \$ _____ by Check VISA MC

Card # _____ Exp. _____

SPECIAL!

Any **6** disks
plus **Directory**
1 Yr. Membership
(IIgs disks may be included)
Only
\$39⁹⁵
(plus \$4 s/h)

- Includes:**
1. Choice of Apple II or IIgs directory.
 2. Quarterly magazine
 3. Special discounts!

Name _____ 2078-C Walsh Ave., #780
Address _____ Santa Clara, CA 95050
City _____ State _____ Zip _____ DEALER INQUIRIES INVITED

TO ORDER: 800-331-8125 In CA 408-496-0624

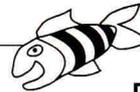
If you're using an audio tape recorder, connect the cassette's line-out RCA plug (if there is one) to the VCR's audio-in with another male RCA cable (Figure 1). If there's no line-out, connect the headphone-out to the VCR's audio-in with the cable; use the correct adapter plug for the cassette-headphone end (Figure 1).

Put a cassette tape into the audio recorder, and set it to *Record*. The tape lets the recorder access the microphone, sending the sound to the VCR. The cassette tape itself has no other function in this process. You can play a second cassette in the background to provide music while recording the voice.

If you have a microphone mixer, plug in the mike and connect the mixer's line-out RCA plug to the VCR's audio-in with a male RCA cable. If the line-out requires a quarter-inch phone plug, use the correct adapter (Figure 1).

It's book-taping time. If you're using a GS, enter the Control Panel before taping, choose *Display*, and set the screen border color to *Black*. The border goes onto the tape, and blue can conflict with the page illustrations. If you're using a tape recorder to send sound to the VCR, make sure a cassette is in and the machine is in *Record* mode. If you're using a microphone mixer, make sure it's turned on and ready.

Boot the Slide Show disk, and the book will automatically begin with the *Black* picture. With that screen showing, put the VCR into *Record* and begin videotaping. Press the spacebar to advance pages. As each picture comes onto the screen, a student reads the text into



PRODUCT INFORMATION

Dazzle Draw
Broderbund Software
17 Paul Drive
San Rafael, CA 94903-2101
(415) 492-3200
\$59.95

the microphone. If the book is composed of pictures only, students can still come to the microphone and describe the images. After the last page, press the spacebar to return the Slide Show to the *Black* picture, completing the loop. Stop the VCR. That's all there is to it.

If you plan to record more than one book on the same videocassette, allow a few extra seconds to run on the closing *Black* picture of each book to ensure that you won't tape the next book over the end of the preceding one. If the book is a group project and a number of students will be reading into the microphone, have them line up and file past the microphone as their page appears on screen.

IT'S A WRAP

Using computer and video technology to inspire kids to read and write—that's what talking video books are all about. To quote sixth-grader Andrea Steele, whose book *Herman, the Lonely Fish* is highlighted here, "It was fun! It made you feel good when you were done. You knew that you did it all by yourself." □

STEPHEN W. POLITZER IS AN ELEMENTARY-SCHOOL ASSISTANT PRINCIPAL. HE'S BEEN A TEACHER FOR TEN YEARS AND HAS WORKED WITH STUDENTS AT ALL LEVELS, PRESCHOOL THROUGH ADULT. WRITE TO HIM AT 102 MEDITERRANEAN AVENUE, HAYWARD, CA 94544. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

CompuServe Now Available
at **Radio Shack**



Meet An Apple A Day.

The largest group of Apple® users in the world shares its problems and solutions online every day in CompuServe's Apple Forums. And you can join them.

Find out which Apple software lives up to its claims, how to best use AppleWorks™ and other programs, and access new graphics and sound capabilities on Apple II GS.™ Get support from Apple software authors and hardware vendors.

Want to learn more about educational software? Browse our vast library of programs. Any games fans

in the house? Visit a CompuServe Apple Forum for software and support. There's no better way to get more out of your Apple.

To join CompuServe, see your computer dealer. To order direct or for more information, call 1 800 848-8199. In Ohio and Canada, call 1 614 457-0802. If you're already a member, type GO APPLE at any ! prompt.

CompuServe®

An H&R Block Company

SAVE UP TO 70%

CALL FOR YOUR FREE CATALOG TODAY!

1-800-BUY-WISE Ext. 24

ASK ABOUT EXTRA SAVINGS WITH OUR COMPUTER DIRECT CREDIT CARD!

1200 BAUD EXTERNAL MODEM

Features Include:

- 100% Hayes Compatibility
- RS232C/DB25 Connector
- DB9 Pin Adapter
- Telephone Cable
- 1200/300 bps Asynchronous
- Full or Half Duplex
- Auto Dial/Auto Answer
- Standard 9 Volt Battery



LOWEST PRICE EVER!
\$49⁹⁵
 List \$199.95

AC Adapter Sold Separately for \$4.95

NO ONE CAN SELL THIS PRINTER FOR LESS! 180 CPS PRINTER

WITH NLQ

LIFETIME WARRANTY ON PRINTHEAD

No Jam Tractor Feed



- 2 Year Immediate Replacement
- Dot Addressable Graphics
- Italics, Elite, Pica, Condensed
- Centronics Parallel Port
- 8K Printer Buffer
- NLQ Selectable from Front Panel
- Pressure Sensitive Controls
- Includes One FREE Ribbon

GREAT BUY!
\$149⁹⁵
 List \$299.00

2400 BAUD EXTERNAL MODEM

Made in the USA!

- 100% Hayes Compatible
- Tone & Pulse Dialing
- Built-in Speaker with Volume Control
- Buffer that Holds 40 Characters
- Uses RS232 Interface (Cable Required)
- For All Computers
- 2400 bps Bell 212A
- 5 Year Warranty



JUST REDUCED!
\$96⁹⁵
 List \$349.95

SOFTWARE

Alf's U.S. Geography List \$14.95
 by Vision Software.....**\$10.95**

Letter-Go-Round List \$9.95
 by Hi Tech Expressions.....**\$6.95**

U.S. History List \$19.95
 by American Education Computer....**\$13.95**

Word Munchers List \$39.95
 by MECC.....**\$28.95**

SEE OUR COMPLETE SELECTION OF SOFTWARE IN OUR DISCOUNT CATALOG!

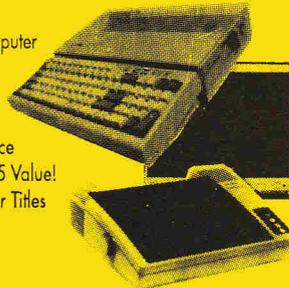
ACCESSORIES

The Ergostick List \$39.95 **\$26.95**
Professional Mouse FOR APPLE IIc & LASER 128 List \$99.95.....**\$49.95**

OPEN UP A WHOLE NEW WORLD FOR YOUR FAMILY COMPLETE APPLE* COMPATIBLE LASER 128 COMPUTER SYSTEM

System Includes:

- LASER 128 Personal Computer
- NLQ 180-II Printer
- 12" Hi-Res Monochrome Monitor
- LASER 128 Printer Interface
- FREE Software - A \$19.95 Value!
- Your Choice of 8 Popular Titles



* APPLE IIe/IIc COMPATIBLE

FANTASTIC BUY!
\$569⁹⁵
 List \$1048.95

SPEED UP YOUR APPLE with the ZIP CHIP

4 MHz
\$129⁹⁵ List \$149.95

Saves You Time Plus...

- Gives your Apple II speed equivalency of PC/AT® - 40% faster
- Doesn't use a card slot
- Easy to install
- Compatible with virtually all Apple and Laser Hardware and Software

EVEN FASTER!
 8 MHz ZIP CHIP
\$169⁹⁵ List \$199.95

LASER 128 COMPUTER APPLE IIe/IIc COMPATIBLE

Everything Is Built-in!

- 128K RAM
- 5.25" Disk Drive
- Serial Port
- Parallel Centronics Port
- RGB Port
- Serial Modem Port
- 40/80 Column Text
- Hi-Res Graphics
- Joystick/Mouse Interface



LOWEST PRICE EVER!
\$359⁹⁵
 List \$499.95

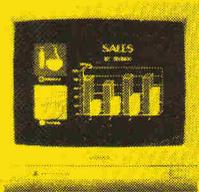
5.25" DOUBLE SIDED/DOUBLE DENSITY DISKS

As Low As **19¢ ea** COLOR - As Low As **39¢ ea**
 MADE IN THE USA! Blue, Green, Yellow, Orange & Red

100% Certified • Lifetime Guarantee

5.25" DSHD DISKS As Low As **45¢ ea**
 3.5" DSDD DISKS LOTS OF 10 **59¢ ea**

MAGNAVOX 13" COLOR RGB



Model No. CM8762

OUR LOW PRICE
 ONE YEAR LIMITED WARRANTY **\$234⁹⁵**
 List \$399.95

Prices do not include shipping charges. Call to get your lowest delivered cost. We insure all shipments at no extra cost to you! All packages are normally shipped UPS Ground. 2nd day and overnight delivery are available at extra cost. We ship to all points in the US, Canada, Puerto Rico, Alaska, Hawaii, Virgin Islands and APO-FPO. Monitors only shipped in Continental US. Illinois residents add 6.5% sales tax. Prices and availability subject to change without notice. Not responsible for typographical errors or omissions. *Computer Direct will match any current (within 30 days) nationally advertised price on exact same items. Shipping and sales tax not included. Verification required.

FAX Ordering 708-382-7545 Outside Service Area, Please Call 708-382-5058

COMPUTER DIRECT, INC.

22292 N. Pepper Road
 Barrington, IL 60010 Exp 4-30-90

"We Love Our Customers"

Environmental

ISSUES

By MARC APFELSTADT

What can a graphics environment offer a diehard fan of AppleWorks Classic? Energy conservation, for starters—maximum ease of use with a point-and-click interface. For activists thinking of making the switch, *inCider* profiles GEOS and AppleWorks GS.

IF THERE'S A DIVIDING LINE BETWEEN GROUPS OF APPLE USERS, IT PROBABLY SEPARATES those who prefer a graphics-based environment from those who want to work primarily with a text-based system. Currently on the market is a range of powerful software that can satisfy the needs of either type of Apple enthusiast, so the problem is deciding which segment of the II population you fall into.

The roots of Apple II computing are solidly in the 8-bit text environment. As our computers gained features like MouseText, however, even text screens took on some fairly sophisticated graphics-like features, while users of earlier text-based products had to learn completely different sets of commands for each program ("Let's see, was it Control-D to *delete* the word, or to move *down*? Oh, yeah, *do* format the *disk*!").

Of course, there are a number of single programs that can meet your needs if you're primarily a "single-function" computerist who does only word processing or spreadsheet manipulation. It's also worthwhile to look at integrated ►



packages that let you learn one set of commands and do a variety of tasks. **AppleWorks 3.0** is the standard against which integrated text programs are measured, and it's adept at carrying a somewhat consistent set of commands from one module to another. (See "AppleWorks 3.0: A New Classic," August 1989, p. 44, and "Life with AppleWorks," December 1989, p. 90, for details.)

The 16-bit GS introduced a whole new concept of the II environment, following the Macintosh's tradition of standardized graphics interface and commands. What are the benefits of "going graphic"? First, you can use customized fonts to create a sophisticated finished product. In addition, you can incorporate pictures right into your documents and preview the finished product without guesswork—no more physical cut and paste. Related to that is the visual ease of menu structures and built-in support for the mouse as a pointing device. For many people, the point-and-click interface is the most natural link between mind and computer.

What are the potential problems of a graphics interface? To begin with, software that must update a picture-screen image will be inherently slower than a text-based program. Adjusting thousands of memory locations takes more time than adjusting a few hundred, and the screen is just a special display of a reserved set of memory locations in the computer. As a result, graphics programs often feel more sluggish in general. Another possible drawback is the use of graphics representation for file storage. When you get a file structure that contains multiple folders and layers of folders, finding the one you want can be time-consuming. Finally, for some people, using a mouse just doesn't feel natural.

For II users ready to make the transition, two sophisticated graphics environments furnish productivity capabilities and integrated data exchange. Berkeley Softworks' **GEOS** (Graphic Environment Operating System) is an 8-bit program that provides all Apple users with a graphics-based interface, while **AppleWorks GS** brings a solidly functional group of program modules to the 16-bit machine and its Mac-style environment. (For further reading, see "AppleWorks GS: Worth the Wait?" March 1989, p. 34; "Ten Tips & Hints," June 1989, p. 52; "A New Environment," Reviews, September 1988, p. 31; and "Brave New GEOS," June 1989, p. 67.)

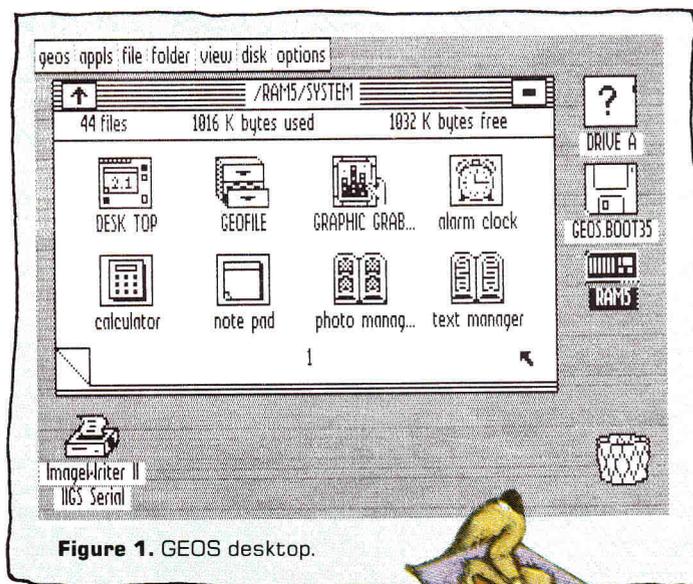


Figure 1. GEOS desktop.

SMOOTH OPERATOR

GEOS is a fairly recent addition to the multifaceted 8-bit software arena—and it's an important one. In fact, it's a whole new operating system, treated as an overlay on the ProDOS file-storage standard. It's ProDOS compatible, with the following exception: An extra single data block of header information, outside the standard ProDOS file definition, provides quick access to certain file information for fast updating of menu-screen graphics. Copying the file from one place to another within GEOS moves both the file and the header block, while copying the file from ProDOS moves only the main file blocks, leaving the header information behind.

In addition, several standard ProDOS-disk check-and-repair routines will flag the header blocks as "unused disk blocks marked used" and remove them, rendering the file inaccessible to either GEOS or ProDOS. This feature was a conscious choice on the part of the software's authors, and it doesn't weaken the system in any way as long as you understand what *not* to do. On the positive side, GEOS gains a significant speed enhancement for certain functions as a result. One tip on data integrity: Configure dedicated GEOS disks and label them as such, and avoid mixing information between GEOS and ProDOS.

What exactly is GEOS? To begin with, GEOS is an integrated system of programs for the 128K IIe, IIc, IIc Plus, or IIgs. The product line includes the main GEOS module, with geoPaint, geoWrite (with geoSpell), an array of desk accessories, and the GEOS desktop equivalent, plus the spreadsheet program **geoCalc** (reviewed in March 1990, p. 30), the database manager **geoFile** (February 1990, p. 30), and the versatile page-layout application **geoPublish** (February 1989, p. 88).

Figure 1 shows the GEOS desktop, from which all programs are launched. As you can see, the graphics interface (displayed in double hi-res) lets you integrate text with graphics material, but the highest-quality printout is forced into graphics mode (excellent, but slow). In all fairness, printouts from GEOS are often much faster than equivalent page counts from GS-specific programs.

The desktop shown in **Figure 1** serves as the basic file manager for the system. If you've run other GS or Apple IIe/IIc desktop software, GEOS might take just a bit of getting used to. As a port from the Commodore GEOS environment, some features work differently on Apple systems.

For example, pull-down menus stay down until you click to select an option or click outside the menu area. (With GS software, menus roll back up when you release the mouse.) In addition, the file-selector system is set up like a stack of file cards. By clicking on the corners, you can scroll through the files in sets of eight, but you can see only eight at a time.

While the GEOS desktop is somewhat different from the Finder and similar program launchers, it's certainly cleanly implemented and efficient. There are a few minor limitations on large systems, however. The desktop can look at only one device at a time for catalogs or file lists, and a single system can access a maximum of four storage devices. In practice, GEOS grabs the first four valid devices it finds, working down from slot 7. While there are procedures to change the active devices, you're still faced with a maximum of four at any one time. On most systems, that restriction won't pose a problem. (S6 D1, S6 D2, and a RAM disk would be a typical setup.)

In a parallel limitation elsewhere within the system, a number of

GEOS fonts are present, but only the first eight in the Font subdirectory are available for use. To change the usable fonts, the suggested method is to make up individual "application disks" containing the eight fonts you plan to use; you can then run the application from a disk on which the fonts are available.

The printer icon in the lower left corner of **Figure 1** is one sign of forethought and planning in this environment: Your choices for printer, RAM expansion, and pointer device are stored as part of the system configuration. That way each new application you boot already knows how to access your system's equipment.

In addition, the software offers a large variety of options for printers and interfaces. If you've ever felt locked in and constricted by the ImageWriter/Super Serial Card combination, GEOS can certainly ease your mind. The system software currently supports more than 25 common printers and a variety of interfaces.

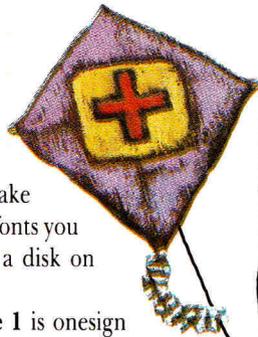
One of the first questions you ask about any complex environment is "How fast is it?" GEOS is, in fact, disk-based in its most basic implementation; much of your work will involve disk access for storage of temporary files. The code is efficiently written, however, and the program is bearable on a two-drive system. The recommended procedure is to assemble a GEOS "work disk," containing the applications you use most frequently. Omitting unused modules preserves disk space for file storage.

For optimum use, a 1-megabyte memory-expansion board lets you run several application programs from RAM. In fact, when you run GEOS from a RAM disk, you'll think you're moving between components of a single program instead of switching applications.

Another aspect of the environment also contributes to GEOS' integrated feel: GEOS programs use a standardized clipboard format, so that you can pass information back and forth easily among modules. In addition, you can assemble clipboard "scraps" of information or illustrations you use often and save them as "albums" or libraries for easy access.

Printed output from GEOS surpasses that of many IIe-based font programs. **Figure 2** shows a representative sample from an ImageWriter II, utilizing the software's various stylistic features. As an added bonus, you can use your printer's built-in type styles in draft and near-letter-quality modes. Many of the formatting options of graphics mode are dropped, but the chance to use text-based output is a true advantage when you need the speed for large print runs. Incidentally, GEOS supports the LaserWriter, with an added twist: At least one commercial vendor, **LaserDirect**, will accept GEOS files on disk and mail LaserWriter-printed output back to you. If you need it in a hurry, the company even offers Federal Express or UPS return shipment, so there's no need to invest in hardware megabucks to get top-quality final output. **Figure 3** shows another document printed on a laser printer; you can see just how much difference the output device can make.

What about using information from other programs? The public-domain programs **BIN.to.GEOS** and **GEOS.to.BIN** convert fonts and graphics images from any of the thousands available for GEOS in the Commodore environment. In addition, GEOS offers translators to import data from AppleWorks and text-file formats, as well as graphics from Springboard's Newsroom and Broderbund's Dazzle Draw and Print Shop. On the whole, these built-in conversion utilities are efficient. One caution: The current AppleWorks trans-



This is a sample of Geol-write printed output. BSW typeface is shown here in plain, bold, *italic*, underline, super and sub script. There are eight fonts provided with the system, but Berkeley Softworks has a utility to allow conversion of any font or graphics file downloaded from the massive libraries of Commodore GEOS files available.

Figure 2. GEOS' ImageWriter output.

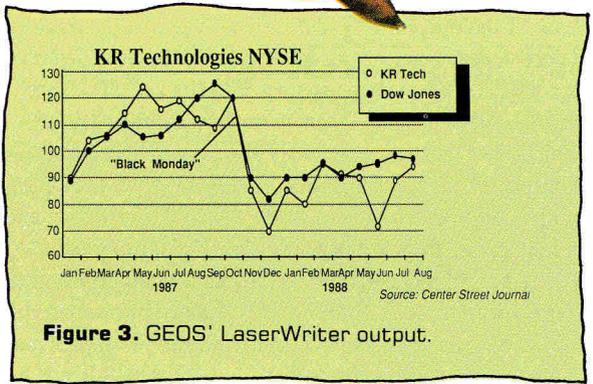


Figure 3. GEOS' LaserWriter output.

lator doesn't handle files from version 3.0 well. Save your data as a text file and import it into GEOS.

What's missing? Really only two things. The first is true export capability. While you can get anything *into* GEOS format, it's virtually impossible to share information with non-GEOS users. If you enter your document under GEOS and need it in IBM or Mac format (or ProDOS, for that matter), you'll have to retype it or try to scan it from printed output. Exported files lose many of their special features, such as fonts and graphics; perhaps it would be counterproductive to offer an export option at this time.

The other major function not currently available is a telecommunications module. Berkeley offers a file compactor/translator, which compresses files for modem transmission by ProDOS communications packages. If you're on the receiving end, you "detranslate" the file, restoring the critical extra information block necessary for GEOS to use the file.

On the whole, the niche for GEOS would seem to be IIe and IIC owners who want to run an "integrated graphics environment" without investing a lot of time and money in new hardware. GEOS makes a fine stand-alone environment for certain users of IIe and IIC systems with at least 512K of RAM—those who aren't concerned with sharing information through on-line systems or with other hardware configurations.

While you can't have multiple documents open at the same time, ►

the clipboard makes data transfer among modules relatively seamless. The interface is powerful yet easy to negotiate. Given its comparatively low cost, GEOS is an appropriate option, particularly as an entry-level system, for many users. It certainly gives you the opportunity to run some of the latest developments in software technology, even if your equipment isn't a GS.

RIGHT OUT OF THE BOX

AppleWorks GS has now been around for almost two years and offers IIGS users a multifaceted 16-bit environment. The package's various component modules (word processor, spreadsheet, database manager, graphics program, page-layout software, and communications utility) can easily meet the needs of many users, and a broad base of user support is available from dealers and on-line networks. Like GEOS, AppleWorks GS is graphics-based, with the added benefits of color display and printout support. In addition, as a standard GS program it fits most of Apple's Human Interface Guidelines for command structures and sports a user interface compatible with almost all standard GS software.

Version 1.1 of the program, a major upgrade, benefits from the release of the operating system GS/OS System 5.0.2. A significant enhancement in speed of graphics display makes the program much more feasible as a solitary productivity platform. Boot time is significantly reduced, and screen redrawing is much faster in most instances. The new system software also permits access to extra font characters for foreign languages. The new version of AppleWorks GS offers an updated edition of the ImageWriter driver and can also import files from the new AppleWorks 3.0 program.

Given the common practice of enhancing 8-bit AppleWorks Classic with utility programs, is AppleWorks GS limited by comparison? Not really; in fact, many users have asserted during CompuServe's on-line discussions of the subject that AppleWorks GS is not just six modules, but seven. What's the extra function? All the new and classic desk accessories (NDAs and CDAs) you can add. With everything from alarm clocks to "meltdown" (a screen-saver utility) available from vendors and public-domain libraries, the concept is certainly valid. In fact, installing your favorite accessories on the boot disk is much like running AppleWorks Classic with Beagle Bros' **TimeOut** modules; just add the features, enhancements, and utilities you use regularly.

How does AppleWorks GS stack up against AppleWorks 3.0 and GEOS, its closest 8-bit rivals? One big advantage is AppleWorks GS' flexibility in printed output. Specifically, the wide variety of GS fonts available within the program, coupled with high-quality print drivers, produce the most professional-looking output, even on an ImageWriter II. (Figure 4 shows a sample from letter-quality mode.) Of course, as print quality goes up, speed goes down; AppleWorks GS can prove to be a slow way to handle mailing labels, for example. To get maximum use out of AppleWorks GS, an accelerator board with substitute microprocessor, such as Applied Engineering's **TransWarp GS**, is a must. (See "Fast Company," Editors' Choice, March 1989, p. 104; "Breaking the Speed Limit," August 1989, p. 50; and "Faster TransWarp," What's New, p. 18 in this issue, for details.) Even graphics print speed picks up. Your GS calculates graphics information "on the fly" during the printing process, but those pauses between printhead passes virtually disappear when you use an accelerator. And when you combine TransWarp GS with

System 5.0.2 software, the gain in speed is particularly significant.

AppleWorks GS is perhaps the most integrated program currently available; unlike GEOS, it even lets you keep multiple documents open at the same time. (Figure 5 shows a sample screen with both word-processing and graphics windows open.) What about the size of those files? The documentation's only reference to restrictions says that file size is "limited by system memory." In practical terms, the more expanded memory you add, the larger your files can be. As a point of interest, AppleWorks GS files may sometimes be larger than equivalent files in AppleWorks Classic. The reason is the extra information regarding font data, region coordinates, and sizes; graphics data always take up more space than text.

In fact, the optimum system to run AppleWorks GS would probably have 2 megabytes of RAM or more, and either two 3½-inch drives or a hard disk. Cutting to a single 3½-inch drive would instigate massive amounts of floppy shuffling, and operating the software with 1 megabyte of RAM would leave a surprisingly small work area for your files. You could get more usable RAM by loading only one

PRODUCT INFORMATION

AppleWorks 3.0 , \$249	TimeOut DeskTools , \$49.95
AppleWorks GS 1.1 , \$229, \$29 upgrade from 1.0	FileMaster , \$49.95
Clarix Corp. 5201 Patrick Henry Drive Santa Clara, CA 95052-8168 (408) 727-8227	Graph , \$89.95
GEOS , \$69.95	MacroTools , \$25
geoCalc , \$69.95	MacroTools II , \$25
geoFile , \$69.95	QuickSpell , \$69.95
geoPublish , \$99.95	ReportWriter , \$79.95
Berkeley Softworks 2150 Shattuck Ave. Berkeley, CA 94704 (415) 644-0883	SideSpread , \$49.95
LaserDirect	SpreadTools , \$59.95
6831 West Howard Ave. Milwaukee, WI 53220 (414) 543-9923	SuperFonts , \$79.95
Publish It! 3	Telecomm , \$69.95
Timeworks 444 Lake Cook Road Deerfield, IL 60015-4919 (708) 948-9200 \$129.95	UltraMacros , \$59.95
	Beagle Bros 6215 Ferris Square Suite 100 San Diego, CA 92121 (619) 452-5500
	TransWarp GS
	Applied Engineering P.O. Box 5100 Carrington, TX 75011 (214) 241-6060 \$399

or two of the modules into memory, but in a way that defeats the purpose of having a fully integrated environment.

How do the individual modules measure up? AppleWorks GS' graphics program is relatively powerful for producing flat-plane drawings with color fill. One interesting feature is the program's ability to mix "paint" segments with "object" segments (movable and sizable), but it lacks some of the fine points you find in stand-alone paint programs—3-D rotation and scaling, for instance. Trade-offs are inevitable if an integrated package is to fit into a single computer; on the whole, you can perform a significant portion of your artwork here. You could handle details with a dedicated program and import the screen image as an alternative.

Here's a big plus: AppleWorks GS is the one integrated package that comes equipped with telecommunications features. The software maintains a directory of frequently dialed numbers as part of a communications document, and each number can have its own

distinct array of parameters (baud, parity, and so on).

Two features of fully implemented telecommunications packages are lacking, though. The first is *terminal emulation*—the ability to make your GS mimic another kind of computer when talking to a remote machine. You need this feature most often when dealing with minicomputers such as the VAX; if the software can pretend to be a standard terminal, then you may be able to edit text in a page-oriented mode instead of line by line. With AppleWorks GS, you can log onto a VAX just fine, but with an “unknown” terminal specification you can’t use full-screen text editors.

The other feature that would be a nice addition is *log-on scripting*. In essence, you can instruct some terminal programs to follow a prescribed set of steps, answering prompts and logging onto a remote site automatically. In the most powerful setups, the software is semi-intelligent, reacting to prompts and branching to new instructions based on the information received. With AppleWorks GS’ communications module, on the other hand, you must enter all commands and respond to the host computer’s prompts. One option to meet this need in lieu of a change in the program might be a macro desk accessory. (A *macro* is a comparatively short string of keystrokes that substitutes for a longer series.) Still, the communications module does offer a sign-on function for many of the major networks and bulletin boards. For most people, it’s certainly adequate.

AppleWorks GS also contains a page-layout module, for moderately sophisticated desktop-publishing projects that can include information from all the other modules. While the program lacks the full palette of features found in Timeworks’ **Publish It!** and certain other dedicated page-design programs, it does provide a means to combine text and graphics elements into a single printed page.

The program offers some unique aspects, as well. Specifically, many desktop-publishing products let you import clip art, but you can’t change the size of the images. With AppleWorks GS, however, you can resize in a number of ways. The software also offers linked text flow among multiple regions, the option of using both left and right master pages, and support for headers and footers.

One feature missing is the ability to wrap text around graphics objects. While you can specify foreground and background placement, text won’t adjust automatically to surround pictures. The only way to work around this problem is to create multiple linked text regions and place them manually against the graphics.

The update documentation explains this process clearly in a step-by-step format.

What else has changed? Database file format in the most significant shift—different enough that you must use a special conversion program to



**AppleWorks GS print samples
in the highest quality mode.**

Figure 4. ImageWriter II letter-quality with AppleWorks GS.

import files from version 1.0. In general, you can’t move database files from 1.1 back to 1.0. If you share files with someone who is still using version 1.0, encourage him or her to upgrade to the new release. The speed enhancements and bug fixes alone are well worth the expense.

THE BOTTOM LINE

Is the lure of the graphics interface strong enough to make an AppleWorks Classic fan try either GEOS or AppleWorks GS? If you’re running a IIe or IIc and want sophisticated font-based output, GEOS is definitely less expensive than the comparable combination of AppleWorks 3.0, TimeOut SuperFonts, TimeOut Graph, Publish It!, and related clip art. The ability to mix text and graphics freely and easily, coupled with a lower price for the whole shootin’ match, makes GEOS very competitive. If you want to get disk information to non-GEOS users, however, or if you do a lot of telecommunications work or were hoping to get multiple windows on your desktop from a graphics-based program, GEOS isn’t going to meet your needs.

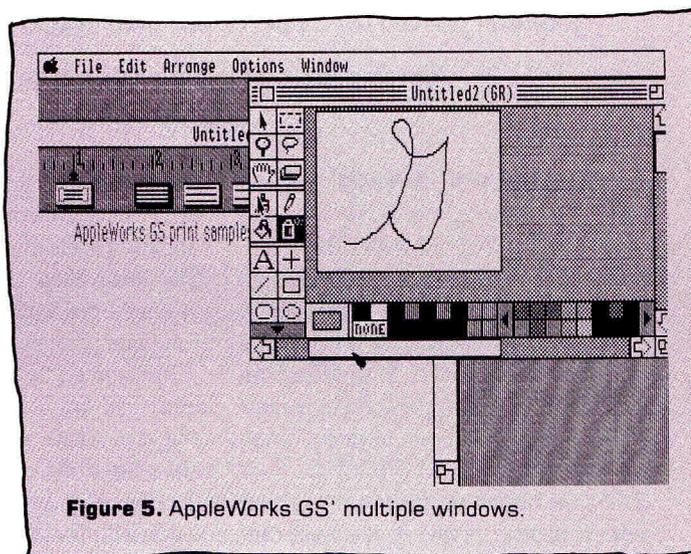


Figure 5. AppleWorks GS’ multiple windows.

AppleWorks GS is the logical solution if you have a GS and if color, graphics, and font-based output are more important than print speed. Don’t ignore the advantages of an established network of support, either: Compared with GEOS, AppleWorks GS shares a fairly standard format for uploaded files and public-domain data, and you’ll find a wider range of accessories, advice, and special-interest groups on the various on-line services and bulletin boards. Most significant for GS users: The basic modules right out of the box, although slower than either AppleWorks 3.0 or GEOS, include a great combination of features that will make immediate use of the full potential of your machine. □

MARC APPELSTADT IS A PROFESSOR OF MUSIC AT THE UNIVERSITY OF NORTH CAROLINA/GREENSBORO. WRITE TO HIM AT 2119 TARRYWOOD DRIVE, GREENSBORO, NC 27408. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU’D LIKE A PERSONAL REPLY.

ROOM AT THE DESKTOP

With a little perseverance, some creative formatting, and a few graphics, you can use AppleWorks' basic text tools to produce an attractive, informative newsletter.

By **RUTH K. WITKIN**

IF YOU THINK YOU CAN DO DESKTOP publishing only with software designed specifically for that purpose—well, think again. A case in point: the front page of *The Babyshoes Gazette*, shown in **Figures 1, 2, and 3**, a publication produced with AppleWorks by parents in Abner County and given to sitters caring for their children.

It's not the fanciest publication around, but it gets the message across at minimum cost. You can also update it quickly and easily—again, at minimum cost. The key to success is three-column formatting and careful positioning of the paper so that each column prints at about the same distance from the top of the page.

THE FRONT PAGE

The front page also features these post-printing elements (none of which is required to complete the template):

- *Vertical lines between columns and between graphics in the middle column.* I cut these lines out of a magazine and pasted them in with *art wax*, which lets you lift and shift to your heart's content. Clearly, you can also draw these lines with a black felt-tip pen.

- *Gazette title.* I pasted over (by hand) the AppleWorks-produced title with one printed in *los.angeles.24* (with shadowing), one of Beagle Bros' **TimeOut SuperFonts**.

- *Three Print Shop graphics (babyshoes, baby, and kids).* I imported these graphics to an AppleWorks file from Broderbund's program **The Print Shop** via **TimeOut Paint**. After printing from AppleWorks, I pasted them by hand into position.

Formatting's the thing this month, so you won't find lots of detail on how to enter or edit text. That's something I'll assume you know how to do really well. Again, a reminder that I'm using AppleWorks 3.0, which makes a difference in tabbing to the bulleted paragraphs and in using boldface.

Start up AppleWorks and create a new word-processor file. Name it **BABYSHOES**. You should now see the Review/Add/Change screen with the cursor in line 1 column 1.

ENTERING AND EDITING TEXT

Figures 1 and 2 contain the text, line numbers, and "blots," which show you where to press Return. Sure, it's a lot of typing, but you need enough text to fill three columns. Press Open apple-Z (OA-Z) to keep the blots visible as you work.

Before you type anything, modify the tab ruler so that the bulleted paragraphs (lines 24 through 35) can start at the proper place: Press OA-T to start the Tab command and hit Return to confirm *Modify current*. Press the right-arrow key three times to move the cursor along the ruler to *Column 4*. Now type **L** to set a *Left tab* stop. Press Escape to leave the tab ruler.

To be sure your results match mine, press the spacebar only *once* between sentences. Here are some other helpful hints:

- In line 5, hold down the equal-sign key until the cursor reaches line 6 column 46. In line 10, hold down the equal-sign key until the cursor reaches line 11 column 46.

- In line 7, type the sentence **Written and Published by...** (and so on), press the spacebar 20 times, then type **Summer/Fall 1990**.

- In lines 24, 27, 30, and 35 (bulleted paragraphs), type a lowercase letter *o*, press the tab key, and type the text. The indentation you'll enter shortly will give the text the proper wraparound.

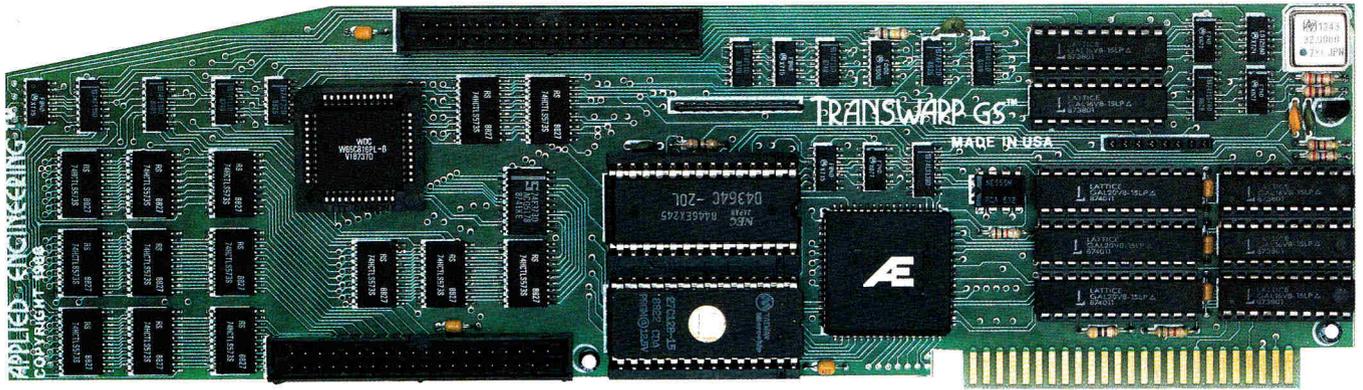
- In lines 69 and 79, hold down the underline key until the cursor reaches column 23. In lines 81 and 91, hold down the underline key until the cursor reaches column 22.

- In lines 85 through 90 (contents lines), press the spacebar twice before typing the page number.

- In line 118, hold down the right-arrow key until the cursor reaches column 46, then type the page number, **1**. AppleWorks' automatic page numbering is out of bounds because the front page (and every other page created this way) actually consists of **three** pages. To AppleWorks, each column is a page.

Now enter the text shown in **Figures 1 and 2**, paying careful attention to line numbers and blots. If you make a typographical error, press the delete key to back up the cursor. When you've finished, the cursor should be on line 118 column 47.

Before moving on to formatting, check your text. If something's missing, place the insert cursor (a blinking bar) on the character to the right of the spot where the insertion belongs. If you discover a typo, place the overtype cursor (a blinking rectangle) atop the character you want to replace. (Pressing OA-E switches between the cursors.) To erase, place either cursor on the doomed character ►



Fan mail GS

"TransWarp GS has performed flawlessly ... I've become addicted to computing at warp speed ... once you get a taste, you'll wonder how you ever got anything accomplished with your IIGS lumbering along at an unaccelerated pace ... it's an improvement you're going to appreciate every time you place your fingers on the keyboard."

— Owen Linzmayer, Technical Editor, A+

"I'm stunned ... bordering on speechless. I used to dread waiting and waiting to run GS/OS. I don't anymore. TransWarp GS breathes new life into my computer. Thanks AE, you guys are in a class by yourselves."

— Joe Kohn, *The Source*

"Once I started using the original TransWarp in my old IIe, I found I couldn't do without it, TransWarp GS promises to be equally indispensable."

— Lafe Low, Review Editor, *Incider*

"This is the card you want. Sell whatever secondary peripherals you must in order to get a TransWarp GS plugged in."

— Joe Abernathy, Houston, TX

"Together with my RamKeeper, you have given me a color Mac at one-third the price. Thanks."

— Richard Artz, Ft. Collins, CO

"I have conducted some recent tests which indicate that the 'little' IIGS (with TransWarp GS) outperforms the MacSE. Your engineering department should take a bow."

— George Dombrowski, Jr., Chicago, IL

"TransWarp GS will be the best \$400 you ever spent."

— Dan Muse, Editor in Chief, *Incider*

"WOW WOW WOW! I am completely blown away with how fast it goes. Unbelievable."

— Dean Esmay, *A2-Central*

"TransWarp GS is by far the best money I've spent on my GS since purchasing my DataLink. Hats off to everyone at AE for another great product!"

— Greg Dacosta, *GENie*

TransWarp GS is rapidly changing the way people use the Apple IIGS. Join the thousands of TransWarp GS owners who've discovered computing at Warp Speed. For more than nine years, Applied Engineering has led the way with proven, reliable products for the Apple II line. We plan to keep it that way. Thanks for the vote of confidence, folks.

TransWarp GS Accelerator \$399

Order today!

To order or for more information on TransWarp GS, 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 7% sales tax. Add \$10 outside U.S.A.

AE APPLIED ENGINEERING®
The Apple enhancement experts.

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice. Brand and product names are registered trademarks of the respective holders.

Table. Format for Figure 1.

Format Group 1 sets margins around the page, pauses the printer after each page (column) so that you can align the paper for the next page (column), increases the size of the gazette title to 4 characters per inch, and centers it. The left and right margins assume that platen width is set at the standard 8 inches, which leaves quarter-inch left and right margins on 8½-inch-wide paper. Hit Escape after each group of formats, so that you can move the cursor to the next line.

Line	Type	Press	Type	Press
1	TM	Return	.8	Return
2	BM	Return	0	Return
3	LM	Return	0	Return
4	RM	Return	0	Return
5	PE	Return	—	—
6	CI	Return	4	Return
7	CN	Return	—	—

Format Group 2 cancels centering and tells AppleWorks to print proportionally spaced text. Proportional spacing gives each character (whether skinny *i* or chubby *w*) only the width it needs, unlike standard spacing, which gives each character the same width. AppleWorks has two kinds of proportional spacing: P1 and P2. P1 characters print about 13 characters to the inch; P2 characters are slightly wider, printing about 12 characters to the inch.

12	UJ	Return	—	—
13	P1	Return	—	—

Format Group 3 sets a right margin that defines the left-hand column and tells AppleWorks to print the *Welcome . . .* heading at 8 characters per inch, which defeats proportional spacing.

23	RM	Return	5.7	Return
24	CI	Return	8	Return

Format Group 4 returns the text to proportional spacing.

28	P1	Return	—	—
----	----	--------	---	---

Format Group 5 gives the text in the bulleted paragraphs a three-character indentation at wraparound.

40	IN	Return	3	Return
----	----	--------	---	--------

Format Group 6 cancels indentation.

65	IN	Return	0	Return
----	----	--------	---	--------

Format Group 7 forces a new page, sets a top margin of zero so that there's less guesswork needed to align columns, sets margins defining the middle column, and tells AppleWorks to print the next heading at 8 characters per inch.

```

1 THE BABYSHOES GAZETTE ■
2 ■
3 ■
4 ■
5 -----
6
7 Written and Published by the Community Parents Association
8 of Abner County
9 Summer/Fall 1990 ■
10 -----
11
12 ■
13 ■
14 ■
15 WELCOME TO THE 1,000,000 ■
16 ■
17 When you become a babysitter, you join more than one million
18 young people enjoying the trust of parents who are out of
19 the home briefly. Babysitting is a serious, responsible job
20 but it can be fun as well. ■
21 ■
22 Here are points to keep in mind right from the start: ■
23 ■
24 o When you become a sitter you take the place of the
25 parent. This doesn't mean that you become the parent. ■
26 ■
27 o You must handle the child to the best of your ability
28 according to the rules set down by the parent. ■
29 ■
30 o You yourself are a special human being with special
31 skills and ways of your own. It pays to understand yourself
32 as a sitter, the things that work for you and the things
33 that don't work. ■
34 ■
35 o As a sitter, you're a pretty important person in the life
36 of the child. He or she will watch you closely and copy from
37 you. Be sure you're setting a good example. ■
38 ■
39 The aim of this guide is to help you meet your
40 responsibility in caring for children, whether you're an
41 experienced sitter or just beginning to take care of ■
42 ■
43 .....Continued on page 3 ■
44 SAFETY FIRST
45 ■
46 The most important part of your job is safety. The child you
47 care for must be kept away from harm. The best way to do
48 this is to remove dangers and keep accidents from happening. ■
49 ■
50 Indoors ■
51 ■
52 Though a home isn't one big boobytrap, people do have
53 accidents. Here are some things to look out for: ■
54 ■
55 In the kitchen, make sure that children stay away from hot
56 stoves, hot electrical appliances, and electrical cords.
57 Wipe up grease right after it's spilled. If a glass breaks,
58 use wet paper toweling to wipe it up and put the pieces in a
59 paper bag marked "broken glass." ■
60 ■
  
```

Figure 1. Text for front page.

Line	Type	Press	Type	Press
74	NP	Return	—	—
75	TM	Return	0	Return
76	LM	Return	2.7	Return
77	RM	Return	2.9	Return
78	CI	Return	8	Return
Format Group 8 returns the text to proportional spacing.				
81	P1	Return	—	—
Format Group 9 prints the next heading at 8 characters per inch.				
89	CI	Return	8	Return
Format Group 10 returns the text to proportional spacing.				

Line	Type	Press	Type	Press
92	P1	Return	—	—
Format Group 11 forces a new page and sets margins defining the right-hand column.				
133	NP	Return	—	—
134	LM	Return	5.5	Return
135	RM	Return	.2	Return
Format Group 12 prints the next heading at 8 characters per inch.				
168	CI	Return	8	Return
Format Group 13 returns the text to proportional spacing.				
171	P1	Return	—	—

```

61 Few things delight a child more than a fire. Make sure he or
62 she stays away from a working gas range or fireplace, and
63 never, never allow a child to play with a match. ■
64 ■
65 Open windows, balconies, and staircases are always
66 dangerous. Keep small children away from any area where a
67 bad fall could occur. If there's a basement, keep the door
68 closed. ■
69 ──────────── ■
70 ■
71 ■
72 ■
73 ■
74 ■
75 ■
76 ■
77 ■
78 ■
79 ──────────── ■
80 ■
81 ──────────── ■
82 ■
83 WHAT THIS ISSUE CONTAINS ■
84 ■
85 Welcome, 1 ■
86 Safety First, 1 ■
87 Getting Along With Parents, 2 ■
88 Getting Along With Children, 3 ■
89 Let's Play, 3 ■
90 Hints on Feeding, 4 ■
91 ──────────── ■
92 ■
93 A bathroom medicine chest often holds razor blades, powerful
94 medicines, cosmetics, and small but sharp tools. Each is
95 dangerous in the hands of a child. If, after all your
96 precautions, the child gets into something dangerous, act
97 promptly, quietly, and with encouraging reassurances if the
98 child is frightened or aware of danger. ■
99 ■
100 Outdoors ■
101 ■
102 If you spend time with children out of doors, here are other
103 danger zones: ■
104 ■
105 Many garages or storage sheds contain items that can catch
106 fire. So - once more - no matches! Also, play away from gas
107 cans (empty or full), paint buckets, rusty nails, lawn
108 mowers, and sharp or pointed tools like rakes and spades. ■
109 ■
110 In a play-yard, check climbing equipment for sturdiness and
111 the ground for holes, glass, nails, and stones. Direct
112 children to a safer part of the yard or put barriers around
113 hazards. ■
114 ■
115 .....Continued on page 4 ■
116 ■
117 ■
118 1 ■

```

Figure 2. Continuation of front-page text.

and press OA-Delete. When everything is as it should be, press OA-S to store the document on disk.

THE UNFORMATTED DOCUMENT

Seeing how something looks before formatting can give you an idea of the tasks that lie ahead. So turn on your printer; press OA-P to start the print command. Press the return key to confirm *Beginning*. Now press the return key to select the printer (or type a printer number, then Return). Press the return key again to confirm one copy.

When the printer stops, there's your document in raw form. Arggh! Your printout is

a far cry from *The Babyshoes Gazette* in Figure 3, but not to worry. In a short while, you'll produce the same effect.

FORMATTING THE DOCUMENT

The accompanying **Table** shows the locations of format options (a descriptor preceded by dashes—for instance, -----*Top Margin: 0.8 inches*). To enter an option, place the cursor on the line indicated, regardless of what it contains, and press OA-O to bring up the Printer Options screen. Then follow the instructions shown in the *Type* and *Press* columns.

To simplify matters, I've grouped formats

wherever possible. This means you can enter several formats, one after the other, while you're in the Printer Options screen. You don't have to hit Escape after each one, then start from OA-O again. After you enter an entire group, hit Escape to return to the document. With a group that consists of only one format, hit Escape after entering the format.

BOLDFACE TYPE

Doing titles and headings in boldface will make them stand out. Press OA-1 to jump the cursor to the beginning of the document. Now place the cursor on line 8 column 6 (*THE BABYSHOES GAZETTE*). Press Control-B. The caret that appears indicates the start of boldface. Boldface will continue until you stop it, so move the cursor to the end of the title and press Control-B again.

To make the following headings bold, place the cursor on or before the first character in the following lines, and press Control-B. After the last character in the heading, press Control-B again: lines 16 (*Written and Published by...*), 25 (*WELCOME...*), 79 (*SAFETY FIRST*), 90 (*Indoors*), 138 (*WHAT THIS ISSUE CONTAINS*), and 169 (*Outdoors*).

Formatting's complete, so spend a few minutes checking each format indicator on your screen with the listing here. When you're sure you've entered everything properly, press OA-S to store the document on disk.

PRINTING THE FRONT PAGE

Now print the front page. Be sure your printer is on; assuming you're using continuous-feed paper, position the top edge of the paper at the top edge of the print shield. Now press OA-P to start the Print command. Press the return key three times to confirm *Beginning*, printer, and one copy. While the printer chugs away at the first column, try to get a sense of where the printhead is striking, so that you can align the paper for the second column.

The printer pauses and awaits your instructions. Pretend you're about to print the first column again. Turn the printer knob counterclockwise to move the paper backwards. When the printhead is poised to strike the top line in the first column, press the computer's spacebar. The printhead jumps to the center of the page, busily producing the second column.

When the printer pauses again, turn the printer knob counterclockwise to align the

THE  BABYSHOES GAZETTE

Written and Published by the Community Parents Association of Abner County

Summer/Fall 1990

WELCOME TO THE
1,000,000

When you become a babysitter, you join more than one million young people enjoying the trust of parents who are out of the home briefly. Babysitting is a serious, responsible job but it can be fun as well.

Here are points to keep in mind right from the start:

- o When you become a sitter you take the place of the parent. This doesn't mean that you become the parent.
- o You must handle the child to the best of your ability according to the rules set down by the parent.
- o You yourself are a special human being with special skills and ways of your own. It pays to understand yourself as a sitter, the things that work for you and the things that don't work.
- o As a sitter, you're a pretty important person in the life of the child. He or she will watch you closely and copy from you. Be sure you're setting a good example.

The aim of this guide is to help you meet your responsibility in caring for children, whether you're an experienced sitter or just beginning to take care of

.....Continued on page 3

SAFETY FIRST

The most important part of your job is safety. The child you care for must be kept away from harm. The best way to do this is to remove dangers and keep accidents from happening.

Indoors

Though a home isn't one big boobytrap, people do have accidents. Here are some things to look out for:

In the kitchen, make sure that children stay away from hot stoves, hot electrical appliances, and electrical cords. Wipe up grease right after it's spilled. If a glass breaks, use wet paper toweling to wipe it up and put the pieces in a paper bag marked "broken glass."

Few things delight a child more than a fire. Make sure he or she stays away from a working gas range or fireplace, and never, never allow a child to play with a match.

Open windows, balconies, and staircases are always dangerous. Keep small children away from any area where a bad fall could occur. If there's a basement, keep the door closed.



WHAT THIS ISSUE CONTAINS

- Welcome, 1
- Safety First, 1
- Getting Along With Parents, 2
- Getting Along With Children, 3
- Let's Play, 3
- Hints on Feeding, 4

A bathroom medicine chest often holds razor blades, powerful medicines, cosmetics, and small but sharp tools. Each is dangerous in the hands of a child. If, after all your precautions, the child gets into something dangerous, act promptly, quietly, and with encouraging reassurances if the child is frightened or aware of danger.

Outdoors

If you spend time with children out of doors, here are other danger zones:

Many garages or storage sheds contain items that can catch fire. So - once more - no matches! Also, play away from gas cans (empty or full), paint buckets, rusty nails, lawn mowers, and sharp or pointed tools like rakes and spades.

In a play-yard, check climbing equipment for sturdiness and the ground for holes, glass, nails, and stones. Direct children to a safer part of the yard or put barriers around hazards.

.....Continued on page 4

PRODUCT INFORMATION

The New Print Shop. \$49.95
Print Shop GS. \$59.95
Broderbund Software
17 Paul Drive
San Rafael, CA 94903-2101
(415) 492-3200

TimeOut SuperFonts
Beagle Bros
6215 Ferris Square
Suite 100
San Diego, CA 92121
(619) 452-5500
includes **TimeOut Paint**
\$69.95

to get things to fit and look just right. So be patient with yourself.

USING THE HIDDEN "UNDO"

AppleWorks has a hidden "undo" feature that can be a lifesaver during writing and editing. When you want to delete text, make it a habit to *move* (OA-M) the text to the clipboard instead of deleting it (OA-D). This way, if you change your mind and want the deleted text back, you can simply move it from the clipboard—providing you didn't copy or move anything else to the clipboard in the meantime. Remember that the clipboard is temporary storage, so if you turn off the computer, anything on the clipboard disappears.

NEXT MONTH

The AppleWorks spreadsheet contains many curiously wonderful twists and turns. Tune in for some of my favorite ways to bend it to your will in my next column, "Spreadsheet Shenanigans." □

RUTH K. WITKIN IS THE AUTHOR OF THE TEMPLATE/HANDBOOK SERIES *SUCCESS WITH APPLEWORKS* (INCIDER, IDG COMMUNICATIONS/PETERBOROUGH), *THE BEST BOOK OF APPLEWORKS* (HOWARD W. SAMS & CO.), AND *PERSONAL MONEY MANAGEMENT WITH APPLEWORKS* (JOHN WILEY & SONS). WRITE TO HER AT 5 PATRICIA ST., PLAINVIEW, NY 11803. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A REPLY.

Figure 3. Front page of three-column newsletter.

paper again the same way. Press the computer's spacebar and the printhead jumps to the right side of the page to produce the third column.

If column alignment is a tad off when you're finished, don't fret. If you feel you can do better a second time, go for it. But avoid making it your life's work. You'll find the eye quite forgiving—really.

CREATING YOUR OWN NEWSLETTER

Here are a few tips on how to go about creating your own newsletter:

- Plan the layout of text and graphics on paper. This goes for subsequent pages as well as front page.
- Try to get all writing and editing out of the way before tackling formatting.
- Enter only those formats affecting the entire

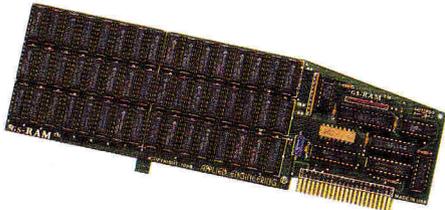
document and first column (for instance, margin settings, page pause, and character size). Press OA-K to calculate page breaks. If the column continues on another page, enter a *New Page* indicator two lines above the end-of-page indicator, so you can leave a blank line and type in **Continued on page x** above the *NP* indicator. Press OA-K again. Move leftover text on the topic in the first column to the end of the document, where you can deal with it later. If you plan to continue the topic into the next column, leave the text where it is. Press OA-K.

● Scroll to the second end-of-page indicator and repeat the steps, entering formats, shifting text, and calculating page breaks. Do the same thing for the third column. Through all this, be patient with the process. Rest assured that you'll need several attempts

Three ways to grow a IGS.

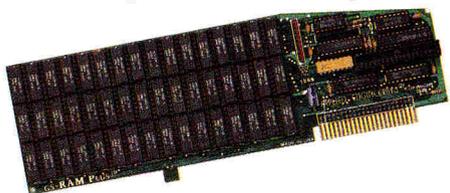
Applied Engineering makes three different memory cards for the IGS because every IGS owner is different. Each card was designed to suit specific needs:

1. **GS-RAM™** Start with as little as 256K of memory and grow in affordable 256K increments to 1.5 MEG (an amount that once sounded large, but is now considered a moderate amount of memory expansion.) Incorporates 256K x 1 chips.



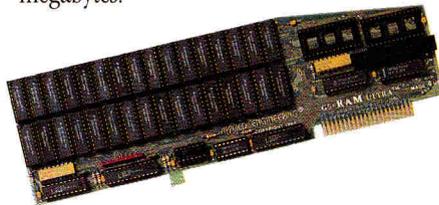
GS-RAM w/256K	\$154
1 MEG	\$259
1.5 MEG	\$329

2. **GS-RAM Plus™** Expands from 1 to 6 MEG in 1 MEG increments. Originally designed for power-users requiring a great deal of internal memory, this card 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 Plus w/1 MEG	\$319
2 MEG	\$459
3-6 MEG	CALL

3. **GS-RAM Ultra™** AE's newest memory card incorporates a new chip - the 256K x 4, which has four times the density of 256K x 1 chips. GS-RAM Ultra offers incremental expansion like the GS-RAM and ultimate size like the GS-RAM Plus. It's expandable from 256K to 4 MEG in 256K increments, so you can start small and still grow to a massive 4 megabytes.



GS-RAM Ultra 256K	\$214
512K	\$249
768K-4 MEG	CALL

We've also added ROM sockets to the GS-RAM Ultra. ROM sockets allow hardware-based applications to be loaded permanently into EPROMs...an increasingly important feature when applications become available from Applied Engineering and others.

Consider your needs.

Need a moderate amount of memory? **GS-RAM** lets you start small and takes you up to 1.5 MEG. Need lots of memory right away? **GS-RAM Plus** is your best bet. Want to start small and leave open the possibility of a huge internal memory? **GS-RAM Ultra** is your card. And our **GS Expander™** piggyback card adds up to 2 MEG to any of the three cards. Call AE for prices.

Talk to us.

Your decision should be based on anticipated maximum memory need and growth path. Initially, it's less expensive to add 256K than 1 MEG, but buying a MEG at a time could save you money over the long haul. Call us. We'll be happy to discuss your particular applications.

DMA compatibility.

All three of our GS memory cards are fully DMA compatible (and they're the ONLY large-format cards that are), so they not only run all GS software, they also support *current and future* DMA peripherals.

Installation couldn't be easier, the cards just plug in. And all three cards feature Applied Engineering's meticulous craftsmanship, along with our 5-year warranty, our 15-day money-back guarantee* and our American-made pride.

Still more:

Each of our GS memory cards comes with many other exclusive features, *disk caching* that tremendously speeds up many programs, including AppleWorks, by virtually eliminating disk access. Our *diagnostic utility* feature graphically detects the presence of bad or improperly installed chips and tests for CAS before RAS chips. And our *AppleWorks enhancement* package dramatically increases AppleWorks' word processor lines (from 7,250 to 22,500), database records (from 6,350 to 22,500), clipboard capacity (from 255 lines to 2,042) and more.

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 7% sales tax. Add \$10 outside U.S.A.

AE APPLIED ENGINEERING®

The Apple enhancement experts.

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders.

*When purchased from Applied Engineering or thru a participating dealer.



BENCHTOP PUBLISHING

For gifts and projects with universal appeal, try a Publish It!
template that combines the art of page design with
the craft of woodworking.

By CYNTHIA E. FIELD, Ph.D.

DESKTOP PUBLISHING IS WORKING its way into all kinds of surprising areas these days. If you're not already convinced of **Publish It!**'s unsurpassed flexibility, for instance, consider Gene Raper's latest *carpentry* project.

DO-IT-YOURSELF

Like many senior citizens, Raper relishes computing activities that help him pursue and enhance his post-retirement interests. For one thing, he uses the "Classic" version of **AppleWorks** to prepare lessons for the Bible class he teaches in Albany, Georgia. But Raper's latest project is unique: a grocery-list pad that's attached to a handcrafted wooden base.

Raper came up with the idea one day while perusing a catalogue from **Meisel Hardware Specialties**. He uses traditional woodworking tools and follows printed plans to create the base. But instead of purchasing the grocery-list pads from the company, he designs his own on an Apple IIc with Publish It! 2.

TOOLS OF THE TRADE

Raper's grocery-list template is easy to replicate. Start up Timeworks' Publish It! 2 (most options described in this column are also available in the original version of Publish It!) and work in *Size to Fit* mode

(Open apple-4 or Special menu).

Each grocery-list form measures 3.25 by 11 inches (**Figure 1**). You can fit two of these forms on a standard 8½-by-11-inch piece of paper.

Select the text tool and "rubber-band" (press and hold the mouse button while dragging) the main text area comprising Form 1. To preserve your eyesight, create this text area in any size and use the program's *Show Specifications* feature (Open apple-M or Objects menu) together with the values shown in the accompanying **Table** to fine-tune the object's dimensions and placement. Just type in the object's precise specifications and press the Return key.

Make sure the text area is still selected. (Click on it with the pointer if it's not.) Copy (Open apple-C or Objects menu) and paste (Open apple-V or Objects menu) a second text area. Don't bother dragging this duplicate text area into position; invoke *Show Specifications* and use the values in the **Table** instead.

ALL THE TRIMMINGS

Next, create the paper-cutting guides you'll need when you trim the completed grocery-list forms at the end of this project. Select the line tool and rubber-band a 0.25-inch vertical line anywhere on the page. Use *Show Specifications* to size and place the line.

Copy the line and paste it. Use *Show Specifications* to move this second cutting guide into position. Continue with this procedure

until you've drawn and positioned all six cutting guides. Save your template-in-progress as GROCERY.LIST.

Using the graphics-frame tool, rubber-band graphics areas onto each of the two grocery-list forms. As usual, *Show Specifications* can help you size and position them.

Finally, select the text tool and rubber-band a text area onto each form. Define dimensions and placement with the *Show Specifications* feature.

USER-FRIENDLY FORMS

If you were creating unlined grocery-list forms, your template would be finished at this stage—but most people consider lined paper easier to use. Half-inch spacing between lines gives shoppers room enough to write the names of the items they need to buy.

Thanks (again!) to Publish It!'s *Show Specifications* feature, you won't get bleary-eyed creating lined forms. First select the line tool and rubber-band a 3-inch horizontal line anywhere on the page. Use *Show Specifications* to size and position the line.

Copy and paste the line. Then invoke *Show Specifications* and type in the **Table** values for "Form 1, Line 2." Continue pasting (Open apple-V) and specifying (Open apple-M) until all 16 lines are drawn on Form 1. Save your template (Open apple-S).

Continue this procedure until you've also incorporated 16 lines onto Form 2. Save the completed template, which should look like **Figure 2**.

FINISHING TOUCHES

Now you're ready to customize your grocery-list template with words and illustrations. We like the Westwood typeface in 36-point size for the phrase *Grocery List* and the baked-goodies illustration from the *Home Cooking* file on the **People, Places & Things** artwork disk—but feel free to experiment with ►

SAVE SOME GREEN CELEBRATION

At SDA you're always "Dublin" your savings because our prices are "Shamrock" bottom and that's no blarney.



We have what you're looking for!



Broderbund

The author of Bard's Tale has created a universe more fantastic than anything he's written before. Sci-fi role playing in the 23rd century. **CENTAURI ALLIANCE**



List \$49.95

SDA Discount Price \$32

ACCOLADE

- Blue Angels GS Call
- Fast Break GS \$29
- Grand Prix GS \$29
- Heat Wave GS Call
- 4th & Inches Football GS \$29
- 4th & Inches Team Const. GS \$9.88
- Hardball \$9.88
- Hardball GS \$25
- Jack Nicklaus Golf GS \$32
- JN Golf Chp. Courses GS \$16
- JN Golf Int'l Courses GS \$16
- Mini Putt GS \$25
- Test Drive 128K \$23
- T.D. 2: The Duel GS \$29
- T.D. 2: Europe Scen. GS Call
- T.D. 2: Muscle Cars GS \$16
- T.D. 2: Calif. Scen. GS \$16
- T.D. 2: Super Cars GS \$16
- Third Courier GS \$32

ACTIVISION

- Battle Chess \$29
- Battle Chess GS \$32
- Black Jack Academy GS \$25
- Dragon Wars \$32
- Last Ninja 128K \$14
- Last Ninja GS \$14
- Might & Magic 1 or 2 \$32
- Music Studio 2.0 GS \$32
- Neuroancer 128K \$19
- Neuroancer GS \$32
- Paintworks Gold GS \$44
- Rampage 128K \$23
- Shanghai \$9.88
- Teleworks Plus GS \$65

AEC FUN LEARNING

- Human Biology \$6.88
- Life Science \$6.88
- U.S. Geography \$6.88
- U.S. History 1 or 2 \$6.88 Ea.

ARTWORX

- Bridge 64K or GS \$25 Ea.
- Kaleidokubes 48K or GS \$14 Ea.
- Strip Poker \$19
- S.P. Data Disks Call
- Strip Poker 2 GS \$25
- S.P.2 Data Females #1 GS \$14
- S.P.2 Female/Male #2 GS \$14
- S.P.2 Data Females #3 GS \$14

AVALON HILL

- Police Blotter \$19
- BERKELEY Geos 128K \$44
- Geocalc \$44
- Geopublish \$65

BLUE LION - ON SALE

- Ticket to Hollywood \$19.88
- Ticket to London \$19.88
- Ticket to Paris \$19.88
- Ticket to Spain \$19.88
- Ticket to Wash. D.C. \$24.88

BRITANNICA FANFARE

- Algebra 1 1st Semester \$25
- Gnarly Golf GS \$19
- Grt. Western Shootout GS \$19
- Laser Force GS \$19
- Task Force GS \$25

BRODERBUND

- Ancient Art of War \$29
- Ancient Art of War at Sea 128K \$29
- Ancient Land of Y's GS \$29
- Bank St. Writer + 128K \$49
- Carmen S.D.-Europe 128K \$29
- Carmen S.D.-Time 128K \$29
- Carmen S.D.-U.S.A. 128K \$29
- Carmen S.D.-World 128K \$25
- Carmen S.D.-World GS \$32
- Centauri Alliance \$32
- Dark Heart of Uukrul \$32
- Dazzle Draw 128K \$39

- Downhill Challenge GS \$19
- Geometry GS \$49
- Playroom 128K \$25
- Prince of Persia \$23
- Print Shop (Enhanced) \$29
- Print Shop Companion \$29
- Print Shop GS \$39
- P.S. Graphics #1, 2, 3 \$15 Ea.
- P.S. Graphics Library Party Edition GS \$23
- Sampler Edition GS \$23
- VCR Companion 128K \$32

CENTRAL POINT

- Copy 2 128K or GS V.9 \$25

CINEMAWARE

- Defender of Crown GS \$36
- King of Chicago GS \$32
- Rocket Ranger GS \$32
- The Three Stooges GS \$32

DATA EAST

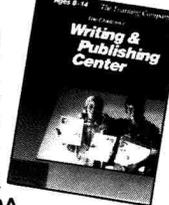
- Bad Dudes \$23
- Batman \$19
- Heavy Barrel \$23
- Ikari Warriors 128K \$9.88
- Platoon 128K \$9.88
- Robocop \$23

DAVIDSON

- Algeblaster Plus 128K \$32
- Grammar Gremlins 64K \$32

The Learning Company

New desktop publishing tool that helps kids ages 8-14 write & think clearly. Stimulates the natural creative writing process. Use your P-Shop graphics. 128K or GS **CHILDRENS WRITING & PUBLISHING CENTER SDA** List \$59.95 Discount Price \$39



- Math Blaster Mystery 128K \$32
- Math Blaster Plus 128K \$32
- Math Blaster Plus GS \$32
- Math & Me 128K \$19
- Read 'N' Roll 128K \$32
- Reading & Me 128K \$25
- Spell It Plus 128K \$32
- Talking Math & Me GS \$32
- Talking Reading & Me GS \$32
- Word Attack Plus 128K \$32

DESIGNWARE

- Designasaurus 128K \$25
- Designasaurus GS \$32
- Jigsaw GS \$25

ELECTRONIC ARTS

- Bard's Tale 2 GS \$19
- Chessmaster 2100 \$32
- Cribbage/Gin King GS \$39
- Deluxe Paint II GS \$32
- Earl Weaver Baseball \$26
- Hunt For Red October \$26
- Hunt For Red October GS \$32
- Keep the Thief GS \$32
- Legacy of Ancients \$9.88
- Life & Death GS \$32
- M. Beacon Typing GS \$32
- Madden Football \$32
- Magic Candle \$32
- Marble Madness 128K \$9.88

- Marble Madness GS \$14
- Music Const. Set GS \$14
- Skate or Die GS \$14
- Strike Fleet \$9.88
- Wasteland \$9.88
- World Tour Golf GS \$14
- Zany Golf GS \$26

EPYX

- Boulderdash Const. \$9.88
- Legend of Black Silver \$19.88
- Sporting News Baseball \$19.88
- Sub Battle Simulator \$9.88
- Summer Games 1 or 2 \$9.88 Ea.

FTL

- Dungeon Master GS \$25

GAMETEK

- Double Dare \$9.88
- Hollywood Squares 128K \$9.88
- Super Password 128K \$9.88

HI-TECH EXPRESSIONS

- Bad Bird's Spc. Delivery \$6.88
- Desk Power \$9.88
- Ernie's Magic Shapes \$6.88
- Fun House \$8.88
- Looney Tunes Print Kit \$9.88
- Muppet Adventure \$9.88
- Muppet Print Kit \$9.88
- Print Power \$9.88

SIR-TECH

The wizardry legacy continues w/more story and game depth than ever before. New mazes, abilities, spells, combat systems & monsters.



HEART OF MAELSTROM List \$49.95

SDA Discount Price \$32

MECA

- Andrew Tobias: Managing Your Money 128K or GS \$95

MELBORNE HOUSE

- Elway's Quarterback GS \$9.88
- War in Middle Earth GS \$32

MICROLEAGUE

- M.L. Baseball 88 or 89 Team Disk \$14

MICROPROSE

- F-15 Strike Eagle \$14
- Pirate 128K or GS \$29 Ea.
- Silent Service 128K or GS \$14

MINDSCAPE

- Arcade Mega Hits \$32
- Includes: Gauntlet, Paperboy, Xevious, Ind. Jones Temple, Doom, Into the Eagles Nest
- Balance of Power 128K \$25
- Balance of Power 1990 GS \$32
- Deja Vu 2 GS \$32
- Mystery Adventure GS 3 Pack \$32
- Includes: Shadowgate GS, Deja Vu GS, Uninvited GS

ORIGIN

- Knights of Legend \$32
- Omega \$32
- Quest For Clues Book 2 \$19
- Space Rogue \$32
- Tangled Tales \$19
- Times of Lore \$25
- Ultima 4 or 5 \$39 Ea.
- Ultima Trilogy \$39
- Windwalker \$25

POLARWARE

- All Dogs go to Heaven \$25
- Transylvania 3 GS \$25

ROGER WAGNER

- Hyperstudio GS \$95

SHARE DATA

- All New Family Feud \$8.88
- Concentration 1 or 2 \$9.88
- Wipe Out \$9.88

SIERRA

- Gold Rush 128K or GS \$25
- King's Quest 1, 2, 3 or 4 128K or GS \$32 Ea.
- Leisure Suit Larry 128K or GS \$25
- Manhunter N.Y. 128K \$32
- Manhunter N.Y. GS \$32
- Manhunter S.F. GS Call
- Mother Goose 128K or GS \$19
- Police Quest 128K or GS \$32
- Silpheed GS \$23
- Smart Money GS \$49

- Space Quest 128K \$32
- Space Quest 2 128K \$32
- Space Quest 1 or 2 GS \$32
- SIR TECH Elway's Quarterback \$32
- Return of Werdna \$39
- Wizardry Trilogy \$32
- SOFT-BYTE Lotto Program \$25
- SPRINGBOARD Certificate Maker \$24
- Newsroom \$23
- N.R. Clip Art 1, 2, 3 \$14
- SSI Champions of Krynn Call
- Curse of Azure Bonds \$32
- First Over Germany \$32
- Overrun \$32
- Pool of Radiance \$29
- Typhoon of Steel \$32
- War of the Lance \$26
- SUBLOGIC Flight Simulator 2 \$32
- Jet \$26
- TAITO Arkanoid \$9.88
- Arkanoid 2: Revenge GS \$23
- Bubble Bobble \$19
- Qix \$19
- Qix GS Call
- Renegade \$19
- Renegade GS \$23
- THREE SIXTY Dark Castle GS \$29
- Warlock GS \$24
- TIMETWORKS Publish It! 2 128K/GS \$84
- Swiftax \$44
- UNICORN Kinderama GS \$32
- Math Wizard GS \$29
- WEEKLY READER Stickybear ABC's \$24
- Stickybear Math 1 or 2 \$24 Ea.
- Stickybear Reading \$24
- Talking Alphabet GS \$32
- WORD PERFECT Word Perf. 128K/GS \$97 Ea.
- ACCESSORIES Animation Station \$65
- Big Mouse Pad 8 1/2 x 11 \$7
- Disk Case 5 1/4 or 3 1/2 \$6.88 Ea.
- Drive Clnr. 5 1/4 or 3 1/2 \$4.88 Ea.
- Sony 3 1/2" DSDD \$13.50 Bx.
- Sony 5 1/4" DSDD \$6.99 Bx.
- Wico Ergostick \$27
- Suncom Analog-Joystick \$25



Guide a party of characters thru a web of intrigue & combat in this 1st. epic of the Dragonlance series. Improved game system.



CHAMPIONS OF KRYNN 95 List \$49.95 16.90

Call For Price & Availability

Speedy Delivery Deep Discounts

Astronomical Selections

If you can't find what you're looking for in our ad, call us.



Send check or money orders to: P.O. Box 111327 - Dept. INC Blawnox, PA 15238



Order Line Hours: Mon.-Thurs. 9:00 AM-9:00 PM, Fri. 9:00 AM-7:00 PM, Sat. 10:00 AM-4:00 PM Eastern Time

*Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order: Orders with cashiers check or money order shipped immediately on in-stock items! Personal & Company checks, allow 3 weeks clearance. No C.O.D.'s! Shipping: Continental U.S.A.-Orders under \$100 add \$3; free shipping on orders over \$100. AK, HI, FPO, APO-add \$5 on all orders. Canada & Puerto Rico add \$7.50 on all orders. Sorry, no other international orders accepted! PA residents add 6% sales tax on the total amount of order including shipping charges. CUSTOMER SERVICE HOURS: Mon.-Fri. 9 AM-5:30 PM Eastern Time. REASONS FOR CALLING CUSTOMER SERVICE—(1) Status of order or back order (2) if any merchandise purchased within 60 days from SD of A is defective, please call for a return authorization number. We will not process a return without a return auth. #! Defective merchandise will be replaced with the same merchandise only. Other returns subject to a 20% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased & return directly to the manufacturer. Customer service will not accept collect calls or calls on SD of A's. 800 # order lines! Prices & availability are subject to change! New titles are arriving daily! Please call for more information.

MODEM OWNERS: You can order on-line from our APPLE Shop via the CompuServe and GEnie Electronic Malls.

Software Discounters Of America



USA/CANADA orders
1-800-225-7638
PA Orders 1-800-223-7784
Customer Service (412) 361-5291
Fax Order Line (412) 361-4545

- Free shipping on orders over \$100 in continental USA.
- No surcharge for VISA/MasterCard.
- Your card is not charged until we ship.
- School purchase orders accepted.

Now with new
Apple IIGS software.

QUICK CHANGE ARTIST.

You want to put works of art into your Apple®. Without lots of work. So you go to your ImageWriter®. Pop out the ribbon cartridge. Snap in ThunderScan®. Insert your artwork. And quicker than you can say Van Gogh, you're already going.

Turn your ImageWriter into a powerful image scanner. ThunderScan lets you put crisp images into most paint, drawing and desktop publishing programs. Change contrast and brightness with true gray scale. Colorize on screen and paper. Print out in three different styles.

Priced at just \$219, ThunderScan proves you can become an artist, with just a little change.



Thunderware

When your image really matters.

ThunderScan
for Apple® II

21 Orinda Way, Orinda, CA 94563
415/254-6581 FAX: 415/254-3047

ThunderScan is compatible with all IIGs, IIE, and IIC models and all ImageWriter models except the LQ. Images can be saved in high, double high and super res formats. The following are trademarks of the companies indicated: Apple and ImageWriter: Apple Computer, Inc.; ThunderScan, Thunderware and its logo: Thunderware, Inc. ©1989 Thunderware, Inc.



**PRESS
ROOM**

	Left Start	Top Start	Width	Height
USE TEXT TOOL TO CREATE:				
Main Text Areas				
Form 1	0.000	0.000	3.250	11.000
Form 2	3.250	0.000	3.250	11.000
Small Text Area				
Form 1	0.348	1.750	2.500	1.000
Form 2	3.586	1.750	2.500	1.000
USE STRAIGHT-LINE TOOL TO CREATE:				
Cutting Guides				
Top Left	0.000	0.000	n/a	0.250
Top Center	3.250	0.000	n/a	0.250
Top Right	6.500	0.000	n/a	0.250
Bottom Left	0.000	10.500	n/a	0.250
Bottom Center	3.250	10.500	n/a	0.250
Bottom Right	6.500	10.500	n/a	0.250
Writing Lines				
Form 1				
Line 1	0.125	3.250	3.000	n/a
Line 2	0.125	3.750	3.000	n/a
Line 3	0.125	4.250	3.000	n/a
Line 4	0.125	4.750	3.000	n/a
Line 5	0.125	5.250	3.000	n/a
Line 6	0.125	5.750	3.000	n/a
Line 7	0.125	6.250	3.000	n/a
Line 8	0.125	6.750	3.000	n/a
Line 9	0.125	7.250	3.000	n/a
Line 10	0.125	7.750	3.000	n/a
Line 11	0.125	8.250	3.000	n/a
Line 12	0.125	8.750	3.000	n/a
Line 13	0.125	9.250	3.000	n/a
Line 14	0.125	9.750	3.000	n/a
Line 15	0.125	10.250	3.000	n/a
Line 16	0.125	10.750	3.000	n/a
Form 2				
Line 1	3.375	3.250	3.000	n/a
Line 2	3.375	3.750	3.000	n/a
Line 3	3.375	4.250	3.000	n/a
Line 4	3.375	4.750	3.000	n/a
Line 5	3.375	5.250	3.000	n/a
Line 6	3.375	5.750	3.000	n/a
Line 7	3.375	6.250	3.000	n/a
Line 8	3.375	6.750	3.000	n/a
Line 9	3.375	7.250	3.000	n/a
Line 10	3.375	7.750	3.000	n/a
Line 11	3.375	8.250	3.000	n/a
Line 12	3.375	8.750	3.000	n/a
Line 13	3.375	9.250	3.000	n/a
Line 14	3.375	9.750	3.000	n/a
Line 15	3.375	10.250	3.000	n/a
Line 16	3.375	10.750	3.000	n/a
USE GRAPHICS-FRAME TOOL TO CREATE:				
Clip-Art Areas				
Form 1	0.348	0.500	2.500	1.000
Form 2	3.586	0.500	2.500	1.000

Table. Specifications for template (inches); n/a = not applicable.

GET ON THE FAS-TRACK!



the hundreds of alternatives you'll find among low-cost fonts and clip art available in the public domain.

Among other options, you could place borders around text areas or clip art by clicking on the *Frame Borders* radio button in the objects' *Show Specifications* dialog boxes. Invert artwork by pressing the spacebar at the *Import Picture* cropping screen.

Get creative—use alternative type styles such as outline or shadow (Font menu). Create a pattern-filled frame with the *Set Line Weight*, *Set Pen Pattern*, and *Set Fill Pattern* options offered on the Objects menu. Shift the positions of text areas and illustrations to suit your style and your message.

Whatever you do, don't think you're limited to creating only grocery-list forms. This template's just as handy for designing business-appointment calendars, homework assignment sheets, or general-purpose "to do" forms.

ROLL THE PRESSES

After you've added finishing touches and proofed the final form, print it with a fresh ribbon. Use Publish It's double-strike mode for best results.

Make sure the paper's left-hand perforated edge lines up with the red mark on the ImageWriter II paper bar (or with an analogous guide on another printer).

If adjusted properly, the two leftmost cutting guides you drew on the template will print at the left-hand perforation, and you'll have to make only two cuts instead of three to trim the finished forms. Copy the forms onto white or colored paper and cut them to size.

PADDING AROUND

You can use grocery-list forms as single sheets or you can pad them, a process that's neither expensive nor difficult. For each pad, place about 100 forms on top of a like-sized piece of cardboard. Recycled cereal box (or other food container) cardboard works great and seems particularly appropriate for this project.

Stack the pads-to-be on top of each other. Make sure all edges are even, then weight the stack with some heavy objects. (Hefty recipe books should do the trick.) With an inexpensive paintbrush, apply a first coat of *padding compound*.

You may be able to purchase padding compound locally at a quick printer or a graphics

- Call for FREE 128 pp Catalog
- Toll-Free Technical Support

- We Welcome School Purchase Orders
- Everyday Low Prices

Applied Engineering



GS Ram Plus w/1 Meg	\$249.95
GS Ram w/256K	\$129.95
Vulcan 20 Meg Drive	\$579.95
Vulcan 40 Meg Drive	\$719.95
TransWarp IIgs	\$289.95
TransWarp IIe Accel.	\$104.95
RamWorks III w/256K	\$149.95
DataLink Express	\$187.95

256K Drams (set of 8) \$29
1 Meg Drams (set of 8) \$95

Zip Technologies



\$164.95	8 MHz Chip
\$122.95	4 MHz Chip
Call	Zip IIgs

Applied Ingenuity

Juice Plus w/1 Meg	\$169.95
InnerDrive 20 Meg Drive	\$489.95
InnerDrive 40 Meg Drive	\$599.95

Laser Computers

Call!

AMR AS800 3.5" Drive



\$189.95
IIgs & IIc+
Daisy-Chainable

Other Hardware

IIe 80 Column 64K Card	\$24.95
FingerPrint GSI Ver 3	\$92.95
Computereyes IIgs	\$199.95
ThunderScan	\$159.95
Echo IIb	\$104.95
Kraft KCIII Joystick	\$17.95
Mach III Joystick	\$34.95
Flight Stick	\$46.95

Promodem 2400A



\$129.95

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

DTP & Graphics



Publish
It! 2
\$56.95

4 in one Graphics Pack	\$74.95
Educational Graphics	\$25.95
Graphic Writer III (IIgs)	\$91.95
Childrens' Writing and Pub Center	\$36.95
The New Print Shop	\$29.95
Print Shop IIgs	\$36.95
Pow Zap Comic Book Maker	\$30.95
VCR Companion	\$30.95
Print Shop Lovers Utility Set	\$25.95
Labels, Labels, Labels	\$25.95
Certificates and More	\$31.95
PaintWorks Plus (IIgs)	\$34.95
PaintWorks Gold (IIgs)	\$48.95

Beagle Brothers



AW 3.0 Companion	\$23.95
T.O. Style Starter Pack	\$74.95
T.O. Decision Starter Pack	\$84.95
T.O. Performance Starter Pack	\$64.95
Superfonts or Telecomm	\$37.50
Thisaurus or Powerpack	ea \$27.95
Desktools I or II	ea \$27.95
Sidespread or File Master	ea \$27.95
Spreadtools or Ultramacros	ea \$34.45
Graph or ReportWriter	ea \$48.95
Point-To-Point	\$58.95
BeagleWrite GS	\$58.95
GS Font Editor	\$29.95
Program Writer	\$29.95

Accessories

ImageWriter Black Ribbon	\$2.50
ImageWriter 4-Color Ribbon	\$5.75
10 DS/DD 3.5" Bulk Disks	\$6.95
25 DS/DD 5.25" Bulk Disks	\$8.95
5.25" Disk Case (Holds 60)	\$6.95
3.5" Disk Case (Holds 40)	\$6.95
Mouse Mat	\$4.95
System Saver IIgs	\$69.95

Productivity Software

AppleWorks 3.0	\$169.95
AppleWorks GS 1.1	\$199.95
HyperStudio 2.0	\$89.95
DB Master Professional	\$194.95
Quicken	\$37.95

Utility Software

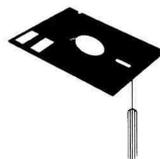
Copy II Plus	\$22.95
Prosel 8 (IIe)	\$34.95
Prosel 16 (IIgs)	\$54.95
Easy Drive	\$48.95
Cross-Works	\$78.95
Repairworks	\$28.95
Superpatch	\$28.95
Salvation (IIgs)	\$39.95

Education

Where in Time	\$27.95
Where in the World	\$25.95
Where in the USA	\$28.95
Where in Europe	\$28.95
Math Blaster Plus	\$29.95
Word Attack Plus	\$29.95
Math Blaster Mystery	\$29.95
Oregon Trail	\$25.95
Think Quick	\$30.95
McGee (IIgs)	\$27.95
USA or World Geograph(IIgs)	\$84.95
Talking Reader Rabbit (IIgs)	\$35.95
Mavis Beacon Typing (IIgs)	\$33.95
Tutor Tech	\$139.95
Multiple Choices	\$39.95
Algebra 1st or 2nd Semester	\$31.95
Designasaurus (IIgs)	\$31.95
Talking Stickybear Alph(IIgs)	\$33.95

Entertainment

Test Drive II (IIgs)	\$27.95
Jack Nicklaus Golf (IIgs)	\$29.95
Grand Prix (IIgs)	\$27.95
Dungeon Master (IIgs)	\$24.95
Crystal Quest (IIgs)	\$34.95
Keef the Thief (IIgs)	\$32.95
Prince of Persia	\$23.95
Down Hill Challenge (IIgs)	\$20.95
Chessmaster 2100 (IIgs)	\$32.95
Arkanoid II (IIgs)	\$21.95
Battle Chess (IIgs)	\$30.95
Third Courier (IIgs)	\$30.95
Blue Angels (IIgs)	\$30.95
Jam Session (IIgs)	\$33.95
Xenocide (IIgs)	\$30.95
Fast Break (IIgs)	\$27.95
Rocket Ranger (IIgs)	\$32.95
QIX (IIgs)	\$21.95



FAS-TRACK
COMPUTER PRODUCTS

7030C Huntley Road • Columbus, Ohio • 43229

ALWAYS CALL **1-800-272-1600**
TOLL-FREE

1-614-847-4050 (Central Ohio)



U.S., F.P.O., and A.P.O., add 3% (minimum \$4.00) for each shipment. No C.O.D. In Ohio, add 5.75% Sales Tax. MasterCard, VISA, and American Express—No extra charge. We accept purchase orders from schools. Prices subject to change without notice.

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

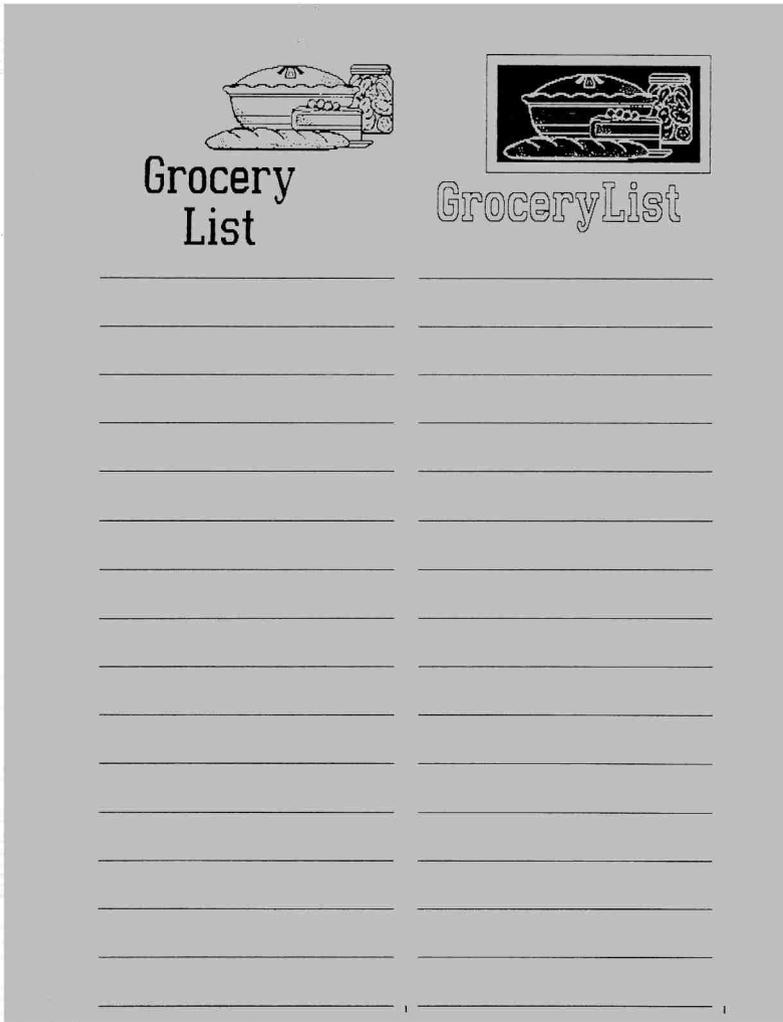


Figure 1. Final grocery-list forms.

PRODUCT INFORMATION

AppleWorks 3.0
Claris Corp.
5201 Patrick Henry Drive
Santa Clara, CA 95052-8168
(408) 727-8227
\$249

Meisel Hardware Specialties
P.O. Box 70
Mound, MN 55364-0070
(800) 441-9870

People, Places & Things.
\$39.95

Publish It! 2. \$129.95
Timeworks Inc.
444 Lake Cook Road
Deerfield, IL 60015-4919
(708) 948-9202

Per-fec Pad Cement
American World Chemical Co.
3218 Delmar
St. Louis, MO 63103
(314) 531-6371
\$10/gallon

supply store. You can also order various brands, such as **Per-fec Pad Cement**, in bulk quantity by mail for maximum savings and convenience.

Wait about 15 minutes while the first coat of padding compound dries. Brush on a second coat and let it dry thoroughly. Drying time varies with compound thickness, ambient temperature, and relative humidity. To be on the safe side, let pads cure overnight.

Remove the weights from the stack of pads and carefully separate them. A hobby knife or single-edge razor blade makes the job easier.

BE CREATIVE

If, like Gene Raper, you're as handy in the woodworking shop as you are at the computer workstation, you'll never be at a loss for what Raper refers to as "clever gifts for family and friends." Even without a wooden base, Raper's grocery-list pads have universal appeal. □

CYNTHIA E. FIELD IS A CONTRIBUTING EDITOR AND 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.

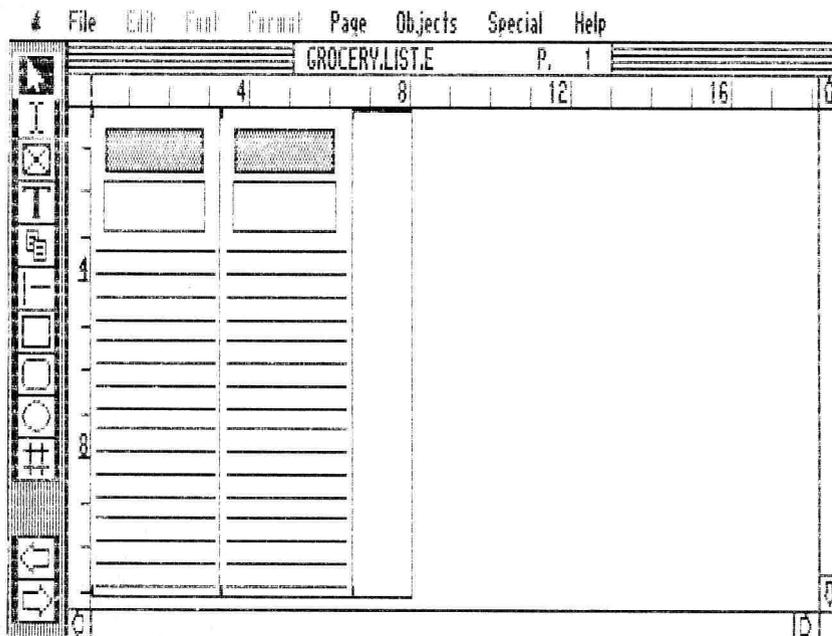


Figure 2. Screen dump of forms template.

Preferred Computing

Memory Cards & Co-Processors

Applied Engineering

GS-Ram, GS-Ram Plus, GS-Ram Ultra	
GS-Ram 256k	\$113
GS-Ram 1 MEG	\$189
GS-Ram Ultra 256k	\$157
GS-Ram Ultra 512k	\$182
GS-Ram Plus or Ultra 1 MEG	\$233
GS-Ram Plus or Ultra 2 MEG	\$335
GS-Ram Plus or Ultra 3-6 MEG	\$Call
RamKeeper (GS battery backup)	\$138

RamWorks III Memory for IIe

RamWorks III 256k	\$135
RamWorks III 512k	\$160
RamWorks III 1 MEG	\$211
RamWorks RGB Options	\$109
AE Ext. 80 col w/64k (IIe)	\$49

RamFactor - RamDisk (slotted Apple IIs.)

RamFactor 256k	\$171
RamFactor 512k	\$197
RamFactor 1 MEG	\$248
RamFactor 2-5 MEG	\$Call
RamCharger (RF battery backup)	\$138

RamExpress (IIc plus)

DClock (ProDOS clock for RamExpress)	\$43
---	------

Z-Ram Ultra Series (original IIc)

Z-Ram Ultra 1 (Memory only)	\$Call
Z-Ram Ultra 2 (Memory, ProDOS Clock)	\$Call
Z-Ram Ultra 3 (Memory, CLock, Z-80)	\$Call

256k DRAMs (set of 8 - 120ms)	\$31
256k x 4 DRAMs (for GS-Ram Ultra)	\$31
1 MEG DRAMs (set of 8)	\$113

TransWarp GS (IIGS)

TransWarp III (8mbz! II+ & IIe)	\$291
FastMath (slotted Apple IIs)	\$149
Z-80 Plus (slotted Apple IIs)	\$131
	\$109

PC Transporter - Run IBM software on your slotted Apple II (640k IBM mode)

MS-DOS v4.01 (5.25" disks)	\$364
MS-DOS v4.01 (5.25" disks)	\$85
Installation Kits (IIGS/IIe)	\$36/\$29
Single TransDrive (5.25" or 3.5")	\$189
Dual TransDrive (5.25" or 3.5")	\$284
A Preferred Computing Exclusive!	
Combo TransDrive (5.25" or 3.5")	\$284

Modems & Telecom Software

Applied Engineering

DataLink 2400 (slotted Apple IIs)	\$175
DataLink Express (external)	\$189
MNP5 Option (for DataLink Express)	\$Call
FAX Option (for DataLink Express)	\$Call
ReadyLink (128k, VT100 emulation)	\$65

Beagle Bros

Point-to-Point (128k, VT100 emulation)	\$79
--	------

Morgan Davis Group

ModemWorks (BBS construction set)	\$49
ProLine BBS (64k Apple w/HD)	\$175

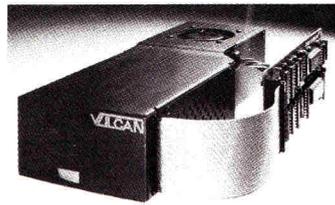
Practical Peripherals

PM2400Sa (external)	\$199
PM2400Sa w/MNP5 (external)	\$239

Supra Corp.

SupraModem 2400 (external)	\$119
SupraModem 2400 Plus (w/MNP5)	\$159
Modem Cables	\$15

Preferred's Best Buys



Vulcans have a 70 watt output power supply to power the most fully equipped Apple II. Use ProDOS, GS/OS, DOS 3.3, CP/AM or Pascal operating systems. Vulcan runs in any slot expect 3. Special low price on top rated Vulcan hard drives.

🍎 Vulcan 20 Meg	\$549
🍎 Vulcan 40 Meg	\$689



Supra 2400 & 2400 Plus modems. High quality, low cost modems feature Hayes AT compatibility, autodial/autoanswer, speaker volume control. Supra 2400 Plus offers V.42bis support & MNP levels 2-5 error correction/data compression.

🍌 Supra 2400	\$119
🍌 Supra 2400 Plus (w/MNP5)	\$159

Orders Only, Call Toll-Free

1-800-327-7234

Questions & Customer Service Call 214/484-5464

Hard Drives & Floppy Drives

Applied Engineering

Includes controller card. IIGS units come formatted with GS/OS (specify machine).	
Vulcan 20 Meg HD (68ms)	\$549
Vulcan 40 Meg (68ms)	\$689
Vulcan 100 Meg HD (28ms)	\$1299
5.25" Disk Drive	\$119
Disk II drive controller card	\$50

American Micro Research (AMR)

🍌 AS800 3.5" 800k drive (IIc+, IIGS, Mac & IIe. IIe requires UDC card.)	\$189
UDC 3.5" controller card by Laser	\$59
A.5 5.25" drive (II+, IIe)	\$135
A.5c 5.25" drive (IIe, IIc, IIc+, IIGS)	\$135
A.5d 5.25" drive (w/daisychain port)	\$159
45SY/APS 45 Meg removable cartridge	
SCSI hard drive w/SCSI controller.	\$1059

Apple Computer

SCSI controller card w/software	\$109
---------------------------------	-------

Chinook

Fast & small external hard drives. Includes software and cable (requires SCSI card).	
CT-20 SCSI HD (27ms, 8k cache)	\$519
CT-40 SCSI HD (25ms, 8k cache)	\$619
CT-80 SCSI HD (19ms, 64k cache)	\$Call

Hard drives for the IIc & IIc Plus. (no SCSI card needed)

CT-20c HD for IIc & IIc Plus	\$625
🍌 CT-40c HD for IIc & IIc Plus	\$Call

Blank Disks

3.5" DS/DD (pkg of 10)	\$15
5.25" DS/DD (pkg. of 10 w/sleeves)	\$8

Accessories

Applied Engineering

TimeMaster H.O. (slotted Apple IIs)	\$72
Serial Pro (serial card & ProDOS clock)	\$101
Parallel Pro (incl. parallel cable)	\$72
Buffer Pro 32k-256k (for para. pro)	\$Call
Sonic Blaster (IIGS)	\$94
Audio Animator (IIGS)	\$175
Phasor (slotted Apple IIs)	\$131
ViewMaster 80 (80 col for II+)	\$116
Heavy Duty Power Supply (II+, IIe)	\$69
Conservor (IIGS)	\$79

CH Products

MACH IV Plus (IIe, IIc, IIGS)	\$69
MACH III Joystick (IIe, IIc, IIGS)	\$39

Digital Vision

Computer Eyes GS (color)	\$199
Computer Eyes (B/W slotted Apple IIs)	\$108

Kensington

System Saver (specify machine)	\$69
Turbo Mouse ADB (IIc+, IIGS)	\$124

Passport Designs

Home Studio GS (incl. MIDI interface)	\$209
Master Tracks Jr. (IIGS)	\$119
MIDI card w/tape & drum sync (IIe, GS)	\$149
MIDI card w/drum sync (IIe, GS)	\$99
Passport for Apple II & Mac	\$Call

Practical Peripherals

Seri-All (emulates Apple SSC)	\$95
GraphiCard (incl. parallel cable)	\$65

Thunderware ThunderScan

ThunderScan	\$175
Sony 13" RGB Monitor/TV	\$569
Monitor cable (specify analog or digital)	\$22

Apple II Software

Beagle Bros

BeagleWrite GS	\$59
BeagleDraw (IIGS)	\$54
BeagleWrite (128k IIe, IIc, IIc+)	\$49
Program Writer (64k)	\$35
GS-Font Editor (128k)	\$35
🍌 AppleWorks Companion (128k)	\$29

TimeOut Series for AppleWorks 2.0-3.0

ReportWriter	\$59
TeleComm, QuickSpell or SuperFonts	\$49
UltraMacros or SpreadTools	\$40
MacroTools I or II	\$19
DeskTools I or II	\$35
PowerPack, SideSpread or Thesaurus	\$35
Graph	\$69
FileMaster	\$39

Brøderbund

Dazzle Draw (128k)	\$45
Bank Street Writer Plus (128k)	\$59
Print Shop (64k)	\$35
Print Shop GS (IIGS)	\$45
Where in the World is Carmen Sandiego?	

(specify Apple II or IIGS version)

Where in Time is C.S.? (128k)	\$32
-------------------------------	------

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

Claris

AppleWorks GS (1.25 meg)	\$229
AppleWorks v3.0 (128k)	\$199
Intuit Quicken (128k)	\$46

Manzanita BusinessWorks Bundle

(incl. Sys Mgr., A/R, A/P, I/C, G/L, 128k)	\$289
MECA Managing your Money 4.0 (128k)	\$98
Monogram Dollars & Sense (128k)	\$89

Roger Wagner Publishing

HyperStudio (IIGS)	\$89
StoneEdge DB Master Pro. (128k)	\$192
TimeWorks Publish It! (128k)	\$Call
Graph It! (128k)	\$53

Word Perfect Corp.

WordPerfect (specify Apple II or IIGS)	\$119
🍌 VIP VIP Pro. (specify Apple II or IIGS)	\$59

Why Buy From Us?

- 📞 Toll free 800 number for orders.
- 📦 We almost always ship from OUR stock. Call us before 3:00 pm (CST) and it ships today.
- 📦 Memory cards have all factory installed and tested RAM chips.
- 📦 We're nice guys that want to help. We want our business to grow because of repeat customers and word of mouth.
- 📦 We handle only the industry's best. We've tested and used all of the products we sell.
- 📦 15 day money back satisfaction guarantee on all hardware. If the hardware doesn't meet your needs, we'll refund the purchase price. No hassles.
- 📦 Ninety day limited warranty on all hardware. Defective hardware repaired or replaced at our option. We offer technical support on everything we sell.
- 📦 No surcharge for charge cards and we won't charge your card until we ship.
- 📦 No sales tax collected on orders shipped outside Texas.
- 📦 No extra charge for insurance.

If you don't see it here - Call us at 1-214/484-5464.

Order by Mail: Send Check or Money Order
Order by Phone: We accept Visa, MasterCard and CODs.
School & Government P.O.'s accepted. TX add 7% Tax

P.O. Box 815828
Dallas, Texas 75381

🍌 = New Item, 🍎 = Specials (qts may be limited)
TX, AK, HI and Outside U.S. call 1-214/484-5464
Prices & Specifications subject to change w/o notice.



THAT OLD BRUSH MAGIC

A variety of graphics-programming tools
and a little wizardry turn your computer
screen into a painter's canvas.

By **ROBERTA SCHWARTZ**
and **MICHAEL CALLERY**

CONSIDER FOR A MOMENT SOME OF the tricks you take for granted when you "paint" with your computer. One of the most fundamental, for instance, is seeing your brush float along the screen as you draw and then make a mark on screen when you press the mouse button. How did the programmer do that? Another basic feature is "rubber-banding"—pressing the mouse button and dragging to produce that elastic ghost line that delimits the size and shape of rectangles, ovals, and other geometrics. The rubber-band line moves and resizes without altering your painting until you release the mouse button to "put down" your shape.

The programmer can achieve such effects with a routine that captures and saves the area of the screen underneath the brush or line and then restores it when the brush or line is moved. That's a simple solution, but it's slow and would probably send you screaming back to your oils or watercolors. There's a better solution for programmers, built right into the Apple's central processing unit (CPU).

BE LOGICAL

All CPUs can execute only a limited number of instructions. Apple II CPUs have fewer than 256 instructions; the 65816 CPU in the Apple IIGS has a few more than the IIe/IIc's 6502. Among them are instructions for simple math,

for movement of data from one location to another, and, most importantly for this month's topic, for logical operations. The computer's logical operations are based on *Boolean logic*, named after the English mathematician George Boole, who first formulated the rules of binary logic and algebra.

Recall that most modern computers operate on *binary data*. That is, all information is stored in a series of bits, each of which can have only one of two values at any one time. In electrical terms, these bits are represented as circuits with or without current (on or off); in logical terms they're usually represented as a 1 or a 0 (on or off). Boolean operations are essentially comparisons and require two pieces of data. The result of the operation creates a third datum. *OR* is one of the basic Boolean operators. The results of applying *OR* can be summarized very simply:

1 OR 1 is 1

1 OR 0 is 1

0 OR 1 is 1

0 OR 0 is 0

There's a twist to the *OR* operation called *exclusive OR (XOR)*—something like this:

1 XOR 1 is 0

1 XOR 0 is 1

0 XOR 1 is 1

0 XOR 0 is 0

How does all this relate to graphics? Imagine that the 1s in the above statements are pixels that are lit, and the 0s are pixels of the background color. The first 1 or 0 is the screen,

the second 1 or 0 is your brush, and the result is the final appearance of the screen as you paint. If the screen is all black (0) and your brush is white (1), an *XOR* operation would put the brush on screen, appearing as white (0 XOR 1 is 1). Now here's the important part. A second *XOR* operation at the same location erases the brush: That location on screen is now white (1) and your brush is white (1), so the second *XOR* operation results in black, thus erasing the brush from the screen (1 XOR 1 is 0). The Boolean operator *XOR*, then, enables programmers to create moving brushes, fast rubber-bands for geometric shapes, and all sorts of other magic.

SHAPING UP

You can take advantage of *XOR* if you decide to try a little programming with Applesoft shapes. Applesoft offers two methods of placing a shape on screen: *DRAW* and *XDRAW*.

Program listing. XOR animation.

```
5 REM Set up full-screen hi-res graphics
10 HGR: POKE -16302,0
15 REM Set color and initial shape
   parameters
20 HCOLOR=3: SCALE=1: ROT=0
25 REM Loop to read shape data into RAM
30 FOR I=0 TO 10: READ T
40 POKE 768+I,T: NEXT I
45 REM Tell Applesoft where shape is
50 POKE 232,0:POKE 233,3
55 REM Animation loop
60 FOR X=10 TO 260
65 REM Draw shape
70 XDRAW 1 AT X,100
75 REM Erase shape
80 XDRAW 1 AT X,100
90 NEXT X
495 REM Shape data
500 DATA 1,0,4,0
510 DATA 39,55,55,53,37,37,0
```

DRAW places the shape on screen, while XDRAW XORs the shape with the screen. XDRAWing a shape a second time at the same screen position erases it and restores the screen to its initial condition. By XORing a shape across the screen (draw, erase, draw, erase) you can create some effective screen

you hold down the mouse button, and voilà: a brush stroke. BIC is a holdover from the original QuickDraw for the Lisa computer. It originally meant *black is clear*, and, if you're working in black-and-white, that's the effect you'll get. QuickDraw also offers the reverse of all these modes in the form of *NOTCOPY*,

important for animation, such packages generally offer a choice for various effects. **Spectragraphix 256**, for example, offers easy access to seven drawing modes for shapes, four of which translate directly into the QuickDraw transfer modes. (See **Figure 2.**)

The next time you sit down at your

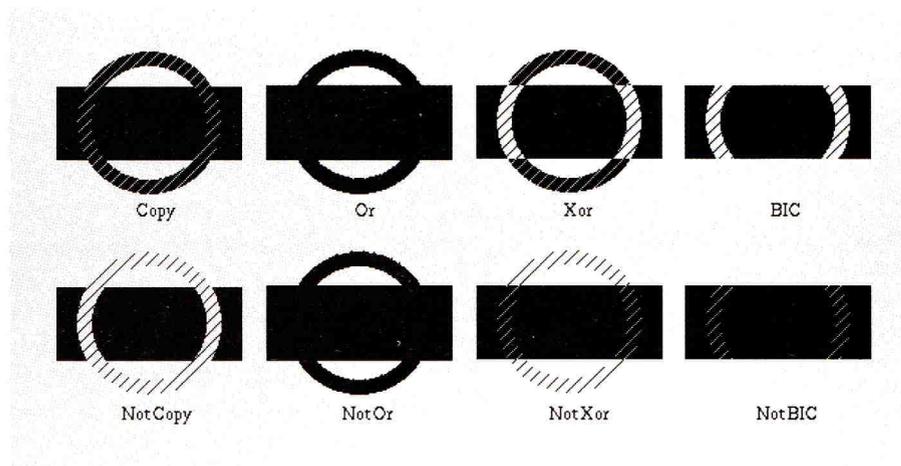


Figure 1. QuickDraw II transfer modes.

animation. Type in and run the accompanying **Program listing**, a simple sequence from our book *Apple Graphics: Tools and Techniques* (Prentice Hall, 1986), to see a good example. (Note that as in previous programs we've shown you in *Speaking of Graphics*, you don't have to type the REM statements—they're included to explain the following line or lines.)

QUICKDRAW

Built into the Apple IIGS are graphics routines known as *QuickDraw II*. They offer two *transfer modes*, COPY and BIC, in addition to the standard OR and XOR. (See **Figure 1.**)

COPY mode, like the Applesoft DRAW routine, just places the shape, brush, and object on screen regardless of the underlying pixels. To make your brush draw, then, just change the transfer mode from XOR to COPY when

NOTOR, *NOTXOR*, and *NOTBIC*. Color adds interesting complications to these transfer modes. It takes more than one bit to make a GS pixel, so while the XOR of white remains black, the XOR of red may be blue. (The actual colors depend on the hue you've assigned to each palette position. The XOR of color 1 is color 8.) Color complications have caused BIC to be rechristened *bit clear*.

Working in color with these transfer modes lets you achieve a variety of fascinating effects, but the commercial software you use may or may not give you direct access to them. Most programs let you invert a selection (XOR operation). **Paintworks Gold** lets you use the cotton tool to paint with an inversion brush. The shareware program **Paint.256** lets you select an option from its Brush Mode menu.

Because transfer modes are especially

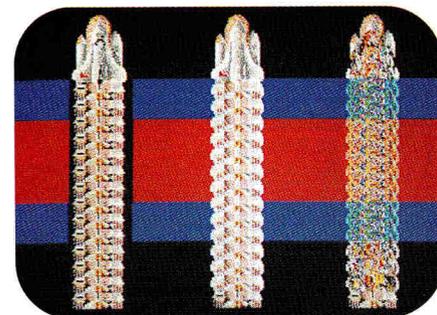


Figure 2. COPY, BIC, XOR color modes.

PRODUCT INFORMATION

Paintworks Gold

Activision Presentation Tools
3885 Bohannon Drive
Menlo Park, CA 94025
(415) 329-0500
\$99.95

Spectragraphix 256

Bachir Kassir
14922M Ramona Blvd.
Baldwin Park, CA 91706
(800) 346-0811
\$99

computer and wield your electronic brush, you may or may not care how it's being done, as long as it works. But sometime when you're with a group of computer enthusiasts, just mention casually that you were experimenting with a few Boolean operations. That should impress them! □

WRITE TO ROBERTA SCHWARTZ AND MICHAEL CALLERY C/O *inCider*, 80 ELM STREET, PETERBOROUGH, NH 03458.

straightforward, but they'll take some time to master. (Note that you can also insert markers and directives in existing AppleWorks word-processor files to turn them into branching, sound-enhanced StoryWorks stacks.) Moore suggests developing stacks while working on two computers at once—writing the stack on the computer running AppleWorks and testing it on the computer running StoryWorks. If you don't have two computers available, it's a good idea to build a stack just a few segments at a time to make correcting errors easier.

The beauty of StoryWorks is twofold. First,

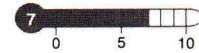
it's a program that operates on an Apple II with as little as 64K. Second, it builds on the most popular Apple II program ever developed—AppleWorks Classic. StoryWorks may not have all the "hypermedia" goodies available in programs like Tutor-Tech for 8-bit Apples (from TechWare) or HyperStudio for the GS (from Roger Wagner Publishing), yet it still gives educators the power to develop personalized courseware. Now if we can only get it to work with graphics. . . .

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

HANDWRITING ANALYST 3.0

CIASA Inc.,
2017 Cedar Street, Berkeley, CA 94709,
(415) 644-2771

Handwriting-analysis software;
64K Apple II; \$69.95



Anthropologists make sense of foreign cultures by living with the people they study. They observe and participate in the daily activities of their subjects until even the most obscure actions carry meaning. How people dress, what they eat, the language they



ALLTECH ELECTRONICS CO., INC.
1300 E. Edinger Ave., Suite D, Santa Ana, CA 92705
2018 Lomita Blvd., Suite 1, Lomita, CA 90717
602 Garrison St., Oceanside, CA 92054

ALL ORDERS CALL: (619) 721-7791

Minimum Shipping & Handling Charge \$5.00

<p>Floppy Drives for Apple</p> <p>II, II+, IIe External full height FD . . . \$70.00 IIc, Laser 128 External FD 80.00</p> 	<p>Apple Mother Board</p> <p>IIc Mother Board \$200.00 II+ Mother Board 100.00 Mac 128 Mother Board 100.00 Mac 512 Mother Board 150.00</p> 	
<p>Manuals for Apple</p> <p>AppleWorks with disks (ver. 1.2) . . . \$35.00 AppleWriter II users w/disks (v 2.0) . . . 29.00 ProDos users with diskette 15.00</p> 	<p>Expansion Boards for Apple</p> <p>IIgs 1MB RAM BDchw/1 meg. . . \$139.00 IIe 1MB RAM Board OK 69.00 IIc 1MB RAM Board OK 79.00 11+ 1MB RAM Board OK. 89.00</p> 	
<p>Alignment Diskette</p> <p>360KB Drives-IBM & Apple. 20.00 For technicians only! Oscilloscope Needed!</p> 	<p>Keyboards & Power Supply</p> <p>Apple II+, IIe, III or Mac keyboards . . . 65.00 Macintosh numeric key pad 29.00 II, II+, IIe power supply refurbished . . . 39.00</p> 	
<p>Diskettes</p> <p>360KD DSDD Diskettes . . . 100 for \$24.00 720KB DSDD 3.5" Diskettes . . . 50 for 32.00</p> 	<p>Switch Boxes</p> <p>AB/ABC switch boxes . from 12.00</p> 	
<p>Memory Chips for Apple</p> <p>64KB-15. each \$.75 64KB-20. each .50 256K RAM Chip each 2.75 SIMM 256 x 8 each 29.00 SIMM 1 MB x 8-08 each 100.00 Please Call for Latest Prices on RAM Chips and Eproms</p> 	<p>Floppy and Hard Drives for Apple</p> <p>IIc, internal floppy drive 95.00 ASA800 3.5" Daisy FD, IIgs, Mac 195.00 20MB SCSI HD system for IIe, IIgs 595.00 60MB SCSI HD system for IIe, IIgs 795.00 20MB hard drive for Mac+ & Mac II 495.00 60MB hard drive for Mac+ & Mac II 725.00</p>	
<p>Cables</p> <p>Laser 128 parallel printer cable . . . \$15.00 Apple Talk cable extender-10 ft. . . 12.50 Various cables for Apple from 9.00</p>	<p>Boards for Apple</p> <p>80 Column Card for II, II+ 69.00 64/80 Column Card for IIe 35.00 CP/M Z80 card 29.00 16K RAM Expander card, II+ 39.00 128K card Apple II+ 69.00 Super serial card 69.00 Graphic printer interface 35.00 Unidisk 5.25" controller 45.00 Unidisk 3.5" controller 75.00</p>	<p>Monitor, Misc.</p> <p>AMB 9" Comp. AMB monitor, IIe, +, C, GS . . . \$89.00 Apple IIc Comp. GRN monitor w/stand. 89.00 Apple IIc carrying case. 29.00 Apple IIc mouse-Logitech. 49.00</p>

Above prices are subject to change without notice. Refunds subject to 20% restocking fee. Our liability is limited to purchase price. Above prices are cash and carry. Credit cards add 3%. Shipping, COD, and insurance charges extra.

NOTE: School purchase orders accepted!



Does handwriting reveal personality?

use, and the music they enjoy all contribute to an overall picture about who people are and what makes them tick.

While studying group culture can tell you something about the individuals who make up the group, a person's handwriting can make a statement about his or her personality. Graphologists analyze writing samples for insight into a person's emotions, intellect, and material drives. By examining the way letters form characteristic shapes, or by interpreting the size, width, height, and style of letter formation, professional handwriting analysts can tell you something about a person's character.

Such information could prove invaluable in business settings where, for example, employers need to minimize employee turnover. The ability to ensure the correct fit between employees and tasks could mean the difference between profit and loss.

You don't have to spend big bucks on the services of a professional graphologist to perform a handwriting analysis—you can use your Apple II to analyze handwriting yourself without any formal training. Handwriting Analyst from CIASA (Career Information and Software Associates) lets you produce a personality-assessment report based on an individual's handwriting sample.

The package consists of one double-sided 5¼-inch floppy with 57 multiple-choice questions about the shapes and formations of letters in a writing sample you've collected. The disk also includes handwriting analyses of several famous people. The software isn't copy-protected; individuals with two-drive computer systems can copy side 2 to a separate disk to minimize swapping while the program is running.

The well-written manual provides instructions for analyzing samples, plus a history of handwriting analysis, a glossary of graphological terms, a list of professional graphological organizations, celebrity signatures, and a bibliography of suggested reading. There's also a plastic *Handwriting Analyst Guide* for measuring slant and size; it'll come in handy when you compare collected samples with the examples in the manual.

You can run an analysis on either a text or a signature sample. Because most signatures don't contain all the letters in the alphabet and usually make a statement about the way a person wants to be seen by others, the program's authors recommend reserving signature analysis for informal party settings. If the task is business-related—screening job applicants or solving employee problems—you should perform a lengthier text analysis.

Letter formation in a person's handwriting is supposed to reflect personality traits, yet people may vary their letters according to the speed at which they write, which letters are adjacent to one another, or their mood at the moment. Therefore, the first step in analysis involves securing a handwriting sample with at least five examples of each letter. Samples should be written with a ballpoint pen on an unlined 8½-by-11-inch sheet of paper. You'll get more accurate results if you use at least half a page of text (a longer sample would be better) on a spontaneous topic (not copied from another sample).

The program's multiple-choice questions are designed to analyze an individual's physical and material drives, emotional characteristics, intellectual style, personality traits, social behavior, and vocational orientation. You can request personality reports in either "quick" or "detailed" format. Both reports contain roughly the same information, but the detailed format provides more elaborate explanations for each characteristic.

You can display your reports on screen, print them, or save them as ASCII text files

for later editing with a word processor. Once you've saved a report in text-file format, you can't use it again with Handwriting Analyst. If you want to call up the answers for review or modification within Handwriting Analyst before saving them as text files, you must save them in a special "writer's file."

THE WRITE STUFF?

Does the program work? Perhaps. Here's what Handwriting Analyst discovered about the "vocational implications" of my handwriting sample:

"Carol likes to streamline her work, but she will sacrifice speed for accuracy when necessary. She slows down to make sure the accuracy of her work doesn't suffer.

"Carol's independence and openness to new experience are useful traits for occupations that offer possibilities for developing new business ventures."

The analysis is right on target, but may be accurate only because it's so general. Here's what the program had to say about the "vocational implications" of Ronald Reagan's handwriting: ▶

The Sensational Lasers Apple IIe/IIc Compatible



\$375

Includes 10 free software programs!

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. The Laser 128 even includes 10 free software packages! Take advantage of this exceptional value today..... **\$375**

Super High Speed Option! only \$425

The LASER 128EX has all the features of the LASER 128, plus a triple speed processor and memory expansion to 1MB \$425.00

The LASER 128EX/2 has all the features of the LASER 128EX, plus MIDI, Clock and Daisy Chain Drive Controller \$465.00

DISK DRIVES

- 5.25 LASER/Apple 11c \$ 99.00
- 5.25 Apple 11e \$ 99.00
- 3.50 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 \$645.00

THE SUPERSTAR a LASER 128 Computer with 14" RGB Color Monitor and the LASER 145E Printer \$825.00

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
- 1200/2400 Baud Modem Auto \$149.00

U.S.A. MICRO

YOUR DIRECT SOURCE FOR APPLE AND IBM COMPATIBLE COMPUTERS

2888 Bluff Street, Suite 257 • Boulder, CO. 80301
Add 3% Shipping • Colorado Residents Add 3% Tax

Phone Orders: 1-800-654-5426

Your satisfaction is our guarantee!

8 - 5 Mountain Time • No Surcharge on Visa or MasterCard Orders!
Customer Service: 1-800-537-8596 • In Colorado: (303) 938-9089

Laser 128 is a registered trademark of Video Technology Computers, Inc. Apple, Apple II, Apple IIc and ImageWriter are registered trademarks of Apple Computer, Inc.

REVIEWS

"Ronald is equally concerned about brainstorming as he is with implementation or operations. He feels most comfortable when he is able to start a project at the beginning. He likes to be efficient in his work, but he will slow down to make sure that he does the job right.

"Ronald is a good organizer. He has a desire to serve others. Ronald is ambitious and probably has long-term plans for his future. There is a difference between Ronald's public image (his signature) and the way he really is (his text sample).

"Based on his signature: His motivations come from his work, and his focused approach allows him to operate well behind the scenes. Based on his text sample: No information about this trait was found in the text sample."

Would you hire this man based on that analysis?

DIFFERENT STROKES

Handwriting Analyst makes evaluations according to "trait/stroke relationships" in handwriting samples: Certain letter strokes are associated with specific personality traits. For

instance, handwriting that slants to the right indicates a personality given to emotional release; a left slant indicates emotional restraint. Wide spacing between words shows a distaste for crowds, while crowded spacing indicates a strong preference for social contact. People who sign their first names larger than their last names are focused on individual achievement; those who sign the reverse are oriented toward past family achievements.

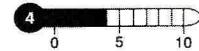
Handwriting Analyst evaluates individual samples in an effort to detect distinct personality traits; it formulates its analyses according to a set of methodological guidelines accepted by professional graphologists. If you value the opinions of professional analysts, this program will help you perform similar evaluations at greatly reduced cost. It won't tell you everything you need to know about the character of the person you want to evaluate, but it will give you insight into a person's motivations and job characteristics. Even if it doesn't meet your business needs, however, you'll still have lots of fun trying it out at a party.

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

MASTERWRITE

MINDSCAPE, INC.
3444 Dundee Road, Northbrook, IL 60062,
(312) 480-7667

Word-processing exercises
to build writing skills;
128K Apple II series; \$69.95



Teaching kids to use computers for writing is basically a two-step process. First, youngsters must learn to write using a word processor, as comfortably as if it were an electronic pencil. After that, you can begin to teach them fundamental writing techniques. MasterWrite, a word processor plus a series of creative-writing exercises, addresses major writing problems and composition formats, while teaching youngsters in grades 5-12 to express themselves in words. Whether or not it inspires students to want to learn how to write, or whether it motivates them to enjoy writing, is clearly of critical concern, however, and it's here that the program falls severely short. MasterWrite's straight text presentation, its lack of interactive feedback, and the need to learn a new word processor (no matter how simple it is) may actually undermine the creative-writing process it's intended to foster.

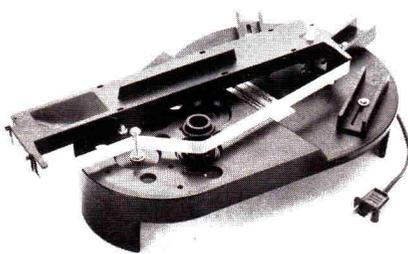
MasterWrite is really two programs in one—MasterType's Writer and MasterWrite. The joint product combines a word processor with creative-writing lessons to handle both phases of learning to write. MasterType's Writer is an easy-to-use word processor, originally published by Scarborough Systems. MasterWrite includes a series of 25 creative-writing lessons—data files for use with MasterType's Writer—that emphasize the fundamentals of effective writing.

Mindscape sells MasterType's Writer by itself for \$14.95. The extra dollars for the comprehensive MasterWrite package get you backup disks, a series of electronic tutorials, exercises, and assignments, plus a *Teacher's Manual* with instructions and lesson plans.

The emphasis is on "process writing." Kids aren't expected to view writing as the instant creation of a finished product; they're taught to perceive it as a three-phase process—pre-writing (brainstorming and conceptualizing ideas), writing, and postwriting (revision). MasterWrite is intended for classroom instruction, not as a self-paced writing tutor. Students first learn how to operate the word-processor portion of MasterWrite (MasterType's Writer), ▶

Never buy another ribbon!

MacInker Over 125,000 sold since 1982



Free bottle of ink,
reservoir cover, ink
meter and dispenser

\$42.00

MacInker™, the automatic ribbon re-inker. The Imagewriter MacInker (mod 234IM) re-inks Imagewriter I/II black & single color cartridges. The Universal MacInker also re-inks hundreds of different cartridge types (including the Imagewriter LQ) with suitable adaptors. Extra dark, dot matrix, lubricated ink yields a better than new print quality and helps extend printhead life. Average number of re-inkings/cartridge is 60-100. With the **Multicolor Adaptor (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, and gold. Ask for free catalog.

Imagewriter I/II MacInker (mod 234IM)	42.00
Multicolor Adaptor (mod M422)	40.00
Epson MacInker (mod 271EP)	42.00
Universal MacInker	68.50
Heat Transfer Adaptor	30.00
Imagewriter cartridges ...3.15/ea	4-color10.00/ea
Extra ink bottle.....3.00/ea	pint.....18.50

Apple Autoswitch (new!!) - Data Switches

4 port 8 pin	50.00	Apple Autoswitch (4 to 1)	149.00
4 port 9 pin	50.00	BothWay Autoswitch*	89.00
cable	16.00	* Can be configured 2 comp/1 printers or 1 comp/2 printers	

Order Toll Free (800)547-3303

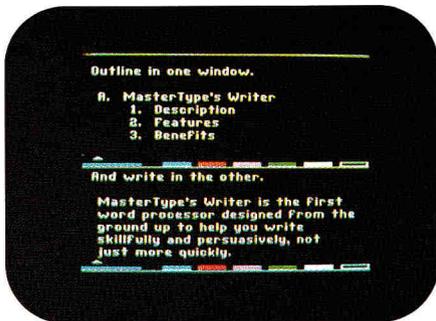
Computer Friends, Inc., 14250 NW Science Park Dr. Portland OR 97229
telephone (503)626-2291 - fax (503)643-5379

Major credit card accepted, cod, immediate shipment, 30 days money back guarantee

then proceed to the lessons.

The word processor features copy, cut, and paste; find and replace; and a variety of typefaces. Students can copy, erase, and print text by pressing Escape. They can access several program operations with control-key equivalents—such as Control-F to call up the Find command or Control-P to invoke the Print submenu.

Students should be able to master the word processor quickly, especially if they follow the tutorial on the flip side of the program disk. It's divided into ten lessons, including hands-on exercises that teach youngsters how to use the program. Students advance through the tutorial screens by pressing Return. Unfortunately, though, they can only go forward. There's no way to review a previous screen, unless they choose to reread the entire lesson.



Ease of use may mean severe limitations.

By today's standards, the word processor is limited. It lacks a spelling checker and a thesaurus, and it restricts file size to 16K (about ten double-spaced pages).

To begin using the MasterWrite lessons, teachers must first prepare two master student work disks: Levels I (lessons 1–12) and II (lessons 13–25). Instructions for preparing the work disks are simple to follow, but tedious to carry out. The preparation process takes about 20 minutes; it involves copying files one at a time from the lesson disks to the master disks.

Level I lessons teach sentence structure—things like subjects and predicates. Students learn how to write a journal, an autobiography, a business letter, a description, and a variety of essays. Level II lessons focus on writing dialogue, a news article, figurative language, poetry, a book report, a topical outline, and a research paper, among other assignments. MasterWrite offers split-screen viewing, so students can load two files at once. This feature is particularly helpful if youngsters want to refer to their outlines as they write. The program also includes options to create

macros, sort lists alphabetically, and edit typefaces.

All lessons consist of tutorials and exercises, and all take advantage of the word processor's split-screen feature. Instructions and the tutorial appear in the screen's upper window; exercises appear in the lower work window. Kids move back and forth between windows by pressing the open-apple key. A bouncing cursor indicates the active window.

MasterWrite lessons are straightforward, but drab. They lack any interactive qualities and they don't offer any audiovisual reinforcement for correct answers. For example, in lesson 12, students are taught to write directions. The program explains that four types of words are used most often when giving directions—action words, location words, comparisons, and qualifiers. MasterWrite describes each type briefly and presents some practice exercises.

The homework assignment may relate only to the particular lesson, or it may require youngsters to integrate what they learned earlier. In either case, there's no clear demon-

stration of how the lessons, exercises, assignments function as anything more than an electronic textbook. The only advantage completing the exercises on the computer that students can save their work for later revision without rewriting from scratch.

You might also ask why Mindscape requires students to learn a new word processor just to work with the lessons on the MasterWrite disks.

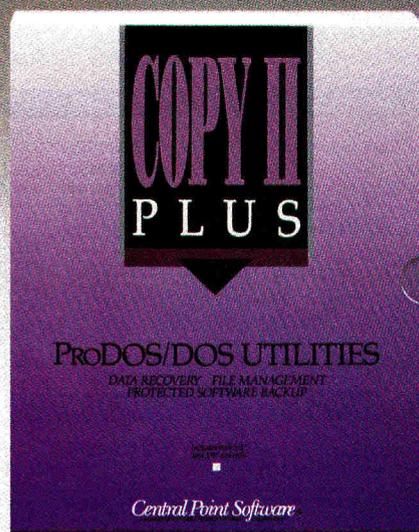
Because the exercises are designed to give practice in the mechanics of creative writing, they would be more useful if presented in ASCII format for use with a word processor students already know. Back to the drawing board, Mindscape. Your writing tutor looks as though it needs some rewriting.

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

Editor's note: In the wake of Mindscape's sale to The Software Toolworks, Mindscape products will still be available through certain mail-order retailers. Contact The Software Toolworks at 19808 Nordhoff Place, Chatsworth, CA 91311, (818) 885-9000, for details. □

Announcing:

Version 9. The most complete utility product for the Apple II series just got better. Its new interface makes accessing all its capabilities easier than ever. Select and run applications right from within Copy II Plus. Activate functions with a "key" letter or simply by clicking on them with a mouse. Make archival copies of hundreds of copy-protected programs nearly as easily as copying a data disk. As always, nothing makes recovering accidentally deleted files easier. If you own an Apple II and you're without Copy II Plus, we now have your number: **Version 9.**



Central Point Software, Inc.
A MEMBER OF THE VIDEO TECHNOLOGY GROUP (503) 690-8090

Requires 128K and an 80 column card. 3.5" Bit copier does not support Unidisk drives.
Copy II is a trademark of Central Point Software. All other product names are trademarks of their manufacturers.
Users of versions prior to 9.0, call (503) 690-8090 for upgrade details.

NEW!

LOW FACTORY DIRECT PRICES!

UNIV & SCHOOL P.O.'S WELCOME!

DEALER INQUIRIES INVITED

GS RAM UPGRADES

AI 4 MEG GS RAM BOARD. DMA compatible. Expands Ilgs to 4.25 Meg. w/1MEG . . . \$159

AE GS-RAM Plus 6 MEG RAM board. DMA comp. Expands GS to 6.25 Meg. w/1MEG . . . \$259

Above w/2 to 6 Megabytes . . . Call

256K RAM Set (8pc) 120ns 5 Yr Wty . . . \$39

1 MEG RAM Set (8pc) 120ns 5 Yr Wty . . . \$89

TRANSWARP GS by Applied Engineering . . . \$319

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

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

SOUNDSYSTEM 2 For Ilgs

New 2-Way Stereo Amplified Speaker Pair! These thunder pods put the S in your GS operations, at one third the cost of Bose. FREE Demo Program . . . \$129

AE RAM BOARDS

RAMWORKS III w/256K . . . \$149

RAMFACTOR w/256K . . . \$199

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/OK Above w/256K . . . \$59

Above w/512K or 1 Megabyte . . . \$108

Super Expander C Expands IIc to 1152K, Appleworks desktop to 10652K, & allows instant module switching. w/OK . . . \$69

Above w/256K . . . \$118

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 Ilgs. No audio line interference. Internal Mount . . . \$24

PRO-KEYPAD for IIe/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 2 will configure your A.W. startup & program diskette to run on your computer. Not a preboot, a one time configure package. (Requires 80 Col, 64K, & Shift Key Mod) . . . \$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

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

DISK DRIVES!

Disk Drive H/H for Apple II+/IIe . . . \$119

Disk Drive H/H for Apple IIc/IIGs . . . \$119

Disk Drive H/H Daisy Chainable for Ilgs . . \$149

Disk Controller Board II+/IIe/IIGs . . . \$34

DISK DRIVE 3.5" Full GS compatible . . . Call

VULCAN HARD DRIVE by A.E.

20 MEG VULCAN Specify IIe or IIGs . . . \$595

40 MEG VULCAN Specify IIe or IIGs . . . \$795

100 MEG VULCAN Specify IIe or IIGs . . . Call

GAMEPORT SWITCHBOX

Switch between mouse & joystick or any two gameport peripherals. Free master cable . . \$29

APPLETALK CONNECTION!

Localtalk Replacement kit w/balanced RS422 transformer & 25 foot cable . . . \$29

COPY II PLUS

The ultimate copy program. For 5.25"-3.5"-Hard drives.

8.4 w/5 1/4 diskette . . . \$15

8.4 w/5 1/4 & 3 1/2 diskettes . . . \$25

APPLEWORKS CLOSEOUTS!

COMPLETE PACKAGE: Startup/program diskette, tutorial diskette, sample templates, & A.W. manual. Not upgradable by Claris.

Appleworks Version 1.2 Package . . . \$59

Appleworks Version 1.3 Package . . . \$79

5 YEAR WTY PC BOARDS/2 YEAR WTY ALL OTHERS
CALL or WRITE FOR OUR FREE COLOR CATALOG
ADD \$3 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. P.S.T.



inCider

Problems with Advertisers: Send a description of the problem and your current address to *inCider*, 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*, 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*, 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*, 80 Elm Street, Peterborough, NH 03458. Call (800) 343-0728.

Back Issues: Send \$3.50, 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 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.

Free

Want To Know More
About Products Or
Services Advertised In
This Issue?

HERE'S HOW.



• **PRINT** your name and address where indicated.

• **TELL US** about yourself by answering the questions.

• **CIRCLE** the numbers on the card corresponding to the reader service number for products or services that interest you.

• **TEAR OUT** and mail the card—the postage is on us.

• **SUBSCRIBE** to *inCider* by checking off the \triangleright where indicated. We'll bill you \$27.97 for 12 issues of *inCider* delivered to you monthly. **That's 40% off the cover price.** Look for your subscription in 6 to 8 weeks.

NO OBLIGATION. Literature on products and services will be sent to you directly from advertisers, free of charge.

Product Info

DIRECT TO YOU
at no cost or obligation

INCIDER READER SERVICE CARD

APRIL ISSUE, valid until June 15, 1990

Name _____ Phone () _____
Title _____
Address _____
City/State/Zip _____

Check here to start your subscription to *inCider*. You will be billed \$27.97 for one year (12 issues).

I Please indicate which of the following computers you currently own and/or plan to buy in the next 3 months.

	Own	Plan to Buy
Apple Iics	<input type="checkbox"/> a	<input type="checkbox"/> f
Apple IIe/IIc/IIc Plus	<input type="checkbox"/> b	<input type="checkbox"/> g
Macintosh	<input type="checkbox"/> e	<input type="checkbox"/> j

III If you purchase, or influence the purchase of, computer-related products, indicate the number of computers involved.

1-5 (x)
6-10 (y)
11-20 (z)

II Are you an educator?

Yes
 q

1	6	11	16	21	76	81	86	91	96	151	156	161	166	171	226	231	236	241	246	301	306	311	316	321
2	7	12	17	22	77	82	87	92	97	152	157	162	167	172	227	232	237	242	247	302	307	312	317	322
3	8	13	18	23	78	83	88	93	98	153	158	163	168	173	228	233	238	243	248	303	308	313	318	323
4	9	14	19	24	79	84	89	94	99	154	159	164	169	174	229	234	239	244	249	304	309	314	319	324
5	10	15	20	25	80	85	90	95	100	155	160	165	170	175	230	235	240	245	250	305	310	315	320	325
26	31	36	41	46	101	106	111	116	121	176	181	186	191	196	251	256	261	266	271	326	331	336	341	346
27	32	37	42	47	102	107	112	117	122	177	182	187	192	197	252	257	262	267	272	327	332	337	342	347
28	33	38	43	48	103	108	113	118	123	178	183	188	193	198	253	258	263	268	273	328	333	338	343	348
29	34	39	44	49	104	109	114	119	124	179	184	189	194	199	254	259	264	269	274	329	334	339	344	349
30	35	40	45	50	105	110	115	120	125	180	185	190	195	200	255	260	265	270	275	330	335	340	345	350
51	56	61	66	71	126	131	136	141	146	201	206	211	216	221	276	281	286	291	296	351	356	361	366	371
52	57	62	67	72	127	132	137	142	147	202	207	212	217	222	277	282	287	292	297	352	357	362	367	372
53	58	63	68	73	128	133	138	143	148	203	208	213	218	223	278	283	288	293	298	353	358	363	368	373
54	59	64	69	74	129	134	139	144	149	204	209	214	219	224	279	284	289	294	299	354	359	364	369	374
55	60	65	70	75	130	135	140	145	150	205	210	215	220	225	280	285	290	295	300	355	360	365	370	375

4AAA1

INCIDER READER SERVICE CARD

APRIL ISSUE, valid until June 15, 1990

Name _____ Phone () _____
Title _____
Address _____
City/State/Zip _____

Check here to start your subscription to *inCider*. You will be billed \$27.97 for one year (12 issues).

I Please indicate which of the following computers you currently own and/or plan to buy in the next 3 months.

	Own	Plan to Buy
Apple Iics	<input type="checkbox"/> a	<input type="checkbox"/> f
Apple IIe/IIc/IIc Plus	<input type="checkbox"/> b	<input type="checkbox"/> g
Macintosh	<input type="checkbox"/> e	<input type="checkbox"/> j

III If you purchase, or influence the purchase of, computer-related products, indicate the number of computers involved.

1-5 (x)
6-10 (y)
11-20 (z)

II Are you an educator?

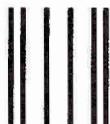
Yes
 q

1	6	11	16	21	76	81	86	91	96	151	156	161	166	171	226	231	236	241	246	301	306	311	316	321
2	7	12	17	22	77	82	87	92	97	152	157	162	167	172	227	232	237	242	247	302	307	312	317	322
3	8	13	18	23	78	83	88	93	98	153	158	163	168	173	228	233	238	243	248	303	308	313	318	323
4	9	14	19	24	79	84	89	94	99	154	159	164	169	174	229	234	239	244	249	304	309	314	319	324
5	10	15	20	25	80	85	90	95	100	155	160	165	170	175	230	235	240	245	250	305	310	315	320	325
26	31	36	41	46	101	106	111	116	121	176	181	186	191	196	251	256	261	266	271	326	331	336	341	346
27	32	37	42	47	102	107	112	117	122	177	182	187	192	197	252	257	262	267	272	327	332	337	342	347
28	33	38	43	48	103	108	113	118	123	178	183	188	193	198	253	258	263	268	273	328	333	338	343	348
29	34	39	44	49	104	109	114	119	124	179	184	189	194	199	254	259	264	269	274	329	334	339	344	349
30	35	40	45	50	105	110	115	120	125	180	185	190	195	200	255	260	265	270	275	330	335	340	345	350
51	56	61	66	71	126	131	136	141	146	201	206	211	216	221	276	281	286	291	296	351	356	361	366	371
52	57	62	67	72	127	132	137	142	147	202	207	212	217	222	277	282	287	292	297	352	357	362	367	372
53	58	63	68	73	128	133	138	143	148	203	208	213	218	223	278	283	288	293	298	353	358	363	368	373
54	59	64	69	74	129	134	139	144	149	204	209	214	219	224	279	284	289	294	299	354	359	364	369	374
55	60	65	70	75	130	135	140	145	150	205	210	215	220	225	280	285	290	295	300	355	360	365	370	375

4AAA1

Free Product

DIRECT TO YOU
at no cost or obligation



BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 1217 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

inCider
ATTN: Reader Service Dept.
P.O. Box 8987
Boulder, CO 80328-8987



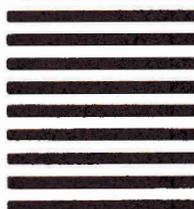
BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 1217 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

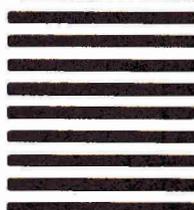
inCider
ATTN: Reader Service Dept.
P.O. Box 8987
Boulder, CO 80328-8987



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED
STATES



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED
STATES



Info

**Want To
Know More**
About Products Or
Services Advertised In
This Issue?

HERE'S HOW.



- **PRINT** your name and address where indicated.
- **TELL US** about yourself by answering the questions.
- **CIRCLE** the numbers on the card corresponding to the reader service number for products or services that interest you.
- **TEAR OUT** and mail the card—the postage is on us.
- **SUBSCRIBE** to *inCider* by checking off the where indicated. We'll bill you \$27.97 for 12 issues of *inCider* delivered to you monthly. **That's 40% off the cover price.** Look for your subscription in 6 to 8 weeks.

NO OBLIGATION. Literature on products and services will be sent to you directly from advertisers, free of charge.

Reader Service

Page

40 Abracadata..... 88
 103 Alltech Electronics Co. Inc. 76
 * Applied Engineering..... 14, 15, 31
 63, 67
 65 Az-Tech Computer Services 93
 87 Bible Research Systems 92
 * Broderbund Software 37
 8 CDA Computer Sales 28, 29
 * Central Point Software 79
 94 Choice Computer Products..... 91
 21 Co-Du-Co 91
 * Compucraft 92
 124 CompuServe..... 55
 205 Computer Direct, Inc. 56
 252 Computer Enhancers..... 92
 288 Computer Friends 78
 28 Computer Search USA, Inc. 91
 142 Computers Plus Company 93
 134 Dayton Computer Supply 92
 73 DMA Technologies..... 93
 220 Educational Resources..... 16, 17
 135 Entertainment Online..... 82
 85 Fas-Track Computer Products .. 71
 61 GE Ridge Services..... 93

Reader Service

Page

38 Gemini Marketing Inc. 90
 * Golem Computers..... 34, 35
 27 Gosselin Computer Services 90
 64 GS Central..... 90
 88 Howard Soft 23
 * inCider
 Sub Ad..... 89
 43 Island Computer Services 92
 70 Island Computer Supply..... 91
 199 Jameco Electronics..... 21
 * Kensington Microware CV4
 131 Kinson Products..... 13
 175 Laser Computer Inc. CV2
 248 Memory Plus Distribution 50
 55 National AW User Group 92
 173 New Science Prospects..... 90
 271 Nikrom 82
 89 North Forty Enterprises 81
 59 Perfect Solutions Software 91
 * Personal Financial Services..... 26
 77 PIE 92
 * Preferred Computing 73
 105 Price Busters 80
 128 Programs Plus 40, 43
 269 Public Domain Exchange 54
 136 Quality Computers 2, 3
 164 Quality Computers 5
 7 Ramco Computer Supplies 90

Reader Service

Page

90 Roger Coats..... 10, 11
 240 Sensible Software 27
 29 Shreve Systems..... 93
 143 Silicon Express 83
 292 Softdisk 1
 51 Softtools 91
 96 Softronics 93
 127 SoftSpoken, Inc. 93
 270 Software Disc. of America..... 69
 18 Sports Software Assoc. 91
 233 Standard Peripherals 92
 92 Street Electronics CV3
 104 Supra Corp. 9
 68 Thunderware 70
 140 Timeworks..... 25
 231 Tulin Corp. 88
 297 USA Micro..... 77
 254 Vitesse Inc. 6
 17 VMC Marketing Technologies... 90
 91 William K. Bradford..... 85
 260 Zimco Int. 4
 189 Zip Technology 87

This index is provided as an additional service. The publisher does not assume liability for errors or omissions.

QUALITY AT A DISCOUNT

PRODUCTS FOR THE APPLE IIc & APPLE IIc+ ONLY:

Applied Ingenuity:
 C-Drive/Internal Hard Drive 20Mb \$545 40Mb..... 655
 C Keeper Ram Memory Backup: 256K 129 1Mb..... 299
 Chinook External Hard Drives (UniDrive compatible):
 CT 20c 20Mb 27ms \$645 40Mb 25ms..... 799
 C-Ram Memory Card: 256K 175 512K \$209 1Mb..... 275
 AE: RamExpress (IIc+) 183 217 269
 Z Ram Ultra 1 (IIc) 143 175 119
 Z Ram Ultra 2 (IIc) 194 220 275
 Z Ram Ultra 3 (IIc) 257 290 344
 Z 80c (Apple IIc only, to run CPM) 119
 External drive cable adapter, DB 20 to DB 19 16
 Apple Mouse IIc \$65 Lynx Track Ball Mouse 65
 SMT No Slot Clock \$34 IIc Numeric Keypad 49

EXTERNAL SCSI HARD DRIVES (For all except IIc, IIc+):

AMR: 20Mb 65ms \$575 30Mb 38ms \$645 45Mb 32ms..... 750
 60Mb 40ms 799 Removable Cartridge 45Mb 25ms..... 1035
 Applied Ingenuity: Falcon 10Mb 295
 Over Drive 20Mb \$494 40Mb 560
 Chinook Auto Parking Multi Language Slacking:
 27ms: 20Mb \$639 25ms: 40Mb 765
 19ms: 80Mb 1250 19ms: 105Mb 1299
 Crate Technology: 80Mb \$395 100Mb \$1099 160Mb 1550
 Sider 20Mb \$499 40Mb \$900 90Mb \$1520 w/Tape 2230

INTERNAL HARD DRIVES (Specify IIgs, IIe/II+):

Applied Ingenuity:
 Inner Drives 20Mb \$499 40Mb \$599 100Mb..... 1199
 Applied Engineering:
 Vulcan Drives 20Mb 611 40Mb 764 100Mb..... 1365
DRIVES, DRIVE ACCESSORIES & SOFTWARE:
 AMR: 3.5" 800K Daisy Chainable (compat with all but Apple IIc,
 Also works with PC Transporter) 188

SOFTWARE & HARDWARE ALL STARS:

- * **GS NUMERICS** — The finest math program available. InCider. "should find a place in almost any high school or college math class." A 20 min. VCR, which fully explains its features, is available. Send \$10 or your school P.O. Refundable on its return. \$119
- * **Visionary GS** — Color & B/W video digitizer producing up to 640 x 200 resolution. Control contrast, brightness, full palette editing, zoom, digitize. Any slot, control panel indep., wide screen format. \$275

5.25 Drive \$115 5.25 Daisy Chainable 144
 Apple IIgs or UniDrive 3.5 \$319 Uni Controller 62
 Multi Cache Card for 5.25 & 3.5: 256K \$275 1Mb 350
 with Hard Drive/SCSI option 256K 340 1Mb 425
 Applied Ingenuity: Drive Backup System (VCR) NEW..... 139
 ProSel B \$34 ProSel 8+16 \$51 Quark Catalyst..... 27
 EasyDrive \$54 Catalyst \$27 Salvation GS Backup 38

LASER COMPUTERS:

Laser 128 \$359 Laser 128 EX..... 399
 EX 2 with 5.25" drive \$445 With 3.5" Drive 490
 3.5" Drive \$178 Daisy Chainable UDC Card..... 44
 Expansion Slot Box \$55 Carrying Case 56
 Monitor Stand \$26 RF Modulator \$23 Mouse 45
 L128 Internal Ram Bd. \$26 Dust Cover \$20 Safeskin 25

APPLE IIgs HARDWARE:

AE Audio Animator \$179 AE Sonic Blaster 99
 AE Conservar 77 AE RamKeeper 139

Ingenuity: \$135 Cutting Edge \$119 Same QK..... 145
 Magnavox Analog RGB GS Compat Monitor(2 yr Warr)..... 285
KURTA DRAWING/GRAPHICS TABLETS:
 IIGs Only: 8.5"x11 \$299 12x12" \$455 12x17"..... 745
 IIe/II+ Only 399 499 760
 Cordless Pen or Cordless cursor/Specify Computer..... 85
 AE PC Transporter (For IIGs, IIe, II+; Runs IBM):
 Transporter \$374 Math Co-Processor... 179
 Keyboard \$110 Installat Kit GS \$39 IIG+/+ 31
 Single Drive \$199 Dual Dr \$299 Xtra Dr 110
 AMR 3.5 PC Transporter compatible Daisy Drive 188
 Ram Chips (sets of 8): 256K \$26 1mb 88

APPLE IIc HARDWARE:

Checkmate Techn MultiRam RGB: 256K \$138 512K..... 165
 768K \$192 1Mb \$221 2Mb \$495 3Mb \$585 4Mb 675
 5Mb 765 RGB Option \$30 Battery B/U 2Mb+ 35
 AE RamWorks III: 256K \$138 512K \$167 768K+ 195
 1Mb \$221 2Mb \$404 3Mb \$496 RGB Option 99
 RamFactor 256K 178 512K 206 1Mb 260
 AE TransWarp III 8MHz \$149 RamCharger 135
 FingerPrint Plus (Combo of best parallel printer graphics
 card + super serial for modem/printer) 89
 Computer Eyes Black & White (Digitize Video Image) 97
 ImageWriter Buffer (for ImWir II: 64K \$69 128K 89
 Mouse Card \$40 RF Modulator \$18 Lynx TurboMouse 65
 SMT No Slot Clock \$34 Printech II (parallel) 43
 RC Systems: Slot Buster Card \$120 Clock \$35 Modem 24
 Speech Synth \$35 Parallel Prr \$16 Serial Prr 12

Free illustrated catalog. Pay by check. Free Shipping: in the 48 states: Canada, AK, HA, FPQ, APO \$5 extra. Credit card & COD: Shipping added. COD \$10 charge. Except: Certified, Cashiers, Tellers Checks, all checks & money orders must clear B4 shipping. We honor Master Chg., Visa, Discover Card, also accept with 4% surcharge: Amer. Exp., Diners & Carte Blanche. Foreign credit cards \$8 one time charge. NY residents add sales tax. Federal, State and local government agencies, school and college orders accepted Net 30 days, FOB shipping point. Returns accepted for 30 days with authorization. Over 30 days, subject to Mfr warranty only.

NORTH FORTY ENTERPRISES LTD., P.O. Box 172B, E. Meadow NY 11554 Tel. (516) 679-8790 Fax (516) 783-4873 7 Days to 11 P.M.

COMING Attractions

- The Russians are coming! Al Martin, editor and publisher of *The Road Apple*, profiles the Bulgarian Pravetz computer—a IIe clone—and talks to Vladimir Fedorov, head of the International Computer Club's Apple special-interest group, based in the U.S.S.R.
- Look for part 2 of *inCider's* report on desktop-video projects you can do at home with your Apple II, your VCR, and some basic hardware and software. Take 1 . . . cut . . . and print!
- Try a Press Room template: Design your own graph paper or gradebook pages with Timeworks' Publish It! and create a variety of custom grids for business, home, and school.
- Ruth Witkin shows you some tricks of the spreadsheet trade: AppleWorks calculates discount eligibility automatically, thanks to some handy techniques you can adapt for your own accounts and invoices.
- Reviews: Small Business Accounting, Positively Rewarding, TML Pascal II, Ugly Duckling, Tunnels of Armageddon, Grand Prix Circuit, Clue, and more.

You probably already know that Computers Need Maintenance!

But did you know that with *Intelligent Tools* your computer can maintain and diagnose itself?



MASTER DIAGNOSTICS™

Master Diagnostics provides all of the tools and knowhow necessary so that *anyone* can do monthly maintenance duties. Calibrating disk drive speed, cleaning drive heads, checking track alignment or just adjusting your monitor to peak clarity is a snap.

In addition to the maintenance routines, extensive diagnostic procedures are available at the touch of a key. With our **new diagnostic construction set**; you can create peripheral diagnostics for any device card. Problems are diagnosed down to the chip level and tests will report: *what's right, what's wrong, what to do and how to do it*. Not just pass-fail type exams!

The user manual is easy to understand and is packed with money saving U-DO-IT information. The Drive Analyzer tests and calibration routines alone will pay for Master Diagnostics after using it just once.

Expert Opinions

Nibble magazine says, "This program should be in the library of every Apple user". Howard Sams Tech Manual, Apple Orchard, InCider Popular Computing, and the Apple II Review have all awarded Master Diagnostics with triple AAA ratings. *Consumers Guide* chose Master Diagnostics as one of the best programs for 1985. Used by Apple service centers world-wide.

WHEN ORDERING SPECIFY:

version: II+, IIe or IIc

Master Diagnostics - \$75.00 r 6.1

Drive Analyzer alone - \$39.95
(Included with MD)

Visa, MC, COD, School PO's

Call Free 1-800-835-2246

Apple Diagnostics
Since 1979

NIKROM

Technical Products, Inc.
176 Fort Pond Road ♦ Shirley, MA. 01464

Upgrades - return
diskette and \$20.00

NOW! NEW Release for the APPLE II (ProDOS) Computer:

WIN BIG MONEY!

The COMPLETE Lottery TRACKER and WHEELER™

As seen on
the NBC
Today Show



Now APPLE II Computer owners can enjoy the same popular software program for Pick-6 Lotto Games that has made **BIG MONEY WINNERS** of people from all over the United States! Just look at some of the features included in the **NEW VERSION 3.0 DELUXE UPGRADE of The COMPLETE Lottery TRACKER and WHEELER™**:

- Record and track up to 500 past winning numbers and dates
- Produce expert trend charts for HOT and DUE numbers
- Track as many State and International games as you like
- Produce statistics for all numbers played
- Check your bets for winning combinations
- Print Charts, stats, recorded numbers, and wheeling systems!

Use Our Years of Experience with **YOUR Computer Advantage!**

Choose From The Worlds Most Popular Wheeling Systems!

SEARCHING HIGH and LOW MENU: • NEW! SKIP and HIT CHART • NEW! Number SEQUENCE Chart • NEW! Number OCCURRENCE Chart • NEW! . . . PLACE YOUR BETS MENU: • NEW! "ROLL YOUR OWN" Tickets Feature • NEW! Data Base TICKET SEARCH . . . WINNING NUMBERS BANK: • NEW! Last Winning Entry and Date Display!

When We Say Complete . . . WE MEAN COMPLETE!

ORDER NOW! Only \$39.95 plus \$2.00 S&H

ENTERTAINMENT-ON-LINE,® Inc.
P.O. Box 553, Dept. A
Westboro, MA 01581 **NIPA**

MC/Visa Orders Only
Call TOLL FREE 1-800-824-7888
In Canada 1-800-544-2600

Order Direct or see Your Local Software Dealer.

1989 Entertainment-On-Line,® Inc.



LEARNING
CURVE

REAL-WORLD CONNECTIONS

By **DAVID D. THORNBURG, Ph.D.**

To bridge the gap between simulations and the outside world, we must create environments in which computer models interact with reality.

THE PERSONAL COMPUTER IS A MARVELOUS tool for exploring conceptual space: It affords unique opportunities to examine microworlds of your own construction. There's almost no limit to the types of worlds you can examine; we've looked at a number of math microworlds, for example, in the past several months, with a special emphasis on *chaos*. (See "An Ordered World," September 1989, p. 110; "Fishing for Questions," October 1989, p. 108; and "The Art of Mathematics," February 1990, p. 84.)

You can use personal computers to explore other domains, as well. For example, you could build a world in which gravity didn't exist, or one in which gravitational attraction pulled with a force proportional to the cube, instead of the square, of the distance between bodies. If you can dream it, you can do it.

COMPROMISING POSITIONS

As exciting as it is to study these computational universes, we shouldn't rely too heavily on that medium. Microworlds suffer from one pitfall of science in general: To make calculations possible, we make certain simplified assumptions that exchange computability for accuracy.

A simple example is the trajectory of a bowling ball pushed off the top of a tall building. A computational model based on the laws of motion would trace a parabolic arc as the ball fell to earth. If you were to actually conduct the experiment, however, you'd find that the real trajectory was close to, but not precisely the same as, the one you'd computed. And with repeated experiments you'd find that the ball would probably land not in the same spot, but in a slightly different location each time.

This gap between the computer simulation and the real world of physics has several causes, the most prominent of which is that the computer model might not have allowed for wind resistance along the trajectory. It might also have assumed that the ground was flat. Although such simplifications make calculations manageable and help us see the basic structure of physical phenomena, they

make it too easy for us to think we live in a predictable world, whereas predictability is the exception, not the rule.

Although a computer model of a falling body will come close to predicting the results of the actual experiment, most dynamic systems are quite sensitive to slight perturbations. That means that even a small error in starting assumptions can produce tremendously varied results, as in weather prediction, for instance. We can even model a portion of this sensitivity by using some of the chaotic functions covered in earlier columns (such as the Gingerbread Man in "An Ordered World," noted above).

BRIDGING THE GAP

The cure is to create environments in which computer models (microworlds) interact with reality (the macroworld) in some meaningful way. Light and heat sensors from **Broderbund Software** and **Sunburst Communications**, for example, transmit physical data to the computer, which displays and analyzes them. (See "Beakers, Test Tubes, and Apples," September 1989, p. 50, for details.) These products are a step in the right direction; they let us study real phenomena, complete with all the "errors" and variations that attend any physical experiment. The challenge is to use the computer not just as a tool for data capture, but for the interactive exploration of concepts through a blend of computational models and physical experiments.

Imagine a configuration of equipment that includes an Apple II with the **Video Overlay Card** and the **Logo** programming language, plus a Canon Zap Shot or Sony Mavicam still-video camera. The computer holds the microworlds created with Logo; the camera captures macroworlds in the form of full-color still images; and the Video Overlay brings them together. You could spend a day in the woods photographing plants, then connect the camera's video output to the Overlay Card to view your color images on screen. You could then add computer graphics to your photos through programs created in Logo.

As a starting activity, you might see whether the

"golden rectangle" (side ratios of 1.618 to 1) appears in any of the objects you shot. With a few simple commands, you could draw a rectangle of those proportions around a photo of a pine cone to see whether it fits. You might want to try replicating the design of a fern with a recursive pattern in which the overall shape is the same as that of an individual leaf (as in a fractal).

With a photo of the plant displayed underneath the computer-generated image, any similarities or differences will be easy to see.

Such experiments aren't limited to the natural sciences. The golden-rectangle example works beautifully with photos of classical architecture and other works of art, for instance. The domain for the integration of microworlds and macroworlds is boundless.

LOOKING OUTWARD

On another level, the bringing together of two universes through technology may be a metaphor for the transformation of education. Too many classrooms operate as microworlds isolated from the outside.

Confined to areas without phones, satellite hookups, or the other advances in communications that have turned our planet into a "global village," our 19th-century classrooms perpetuate a model of education that has lost touch with reality.

Just as physics books present inaccurate models in exchange for computability, our educational system promotes models that ignore both technological change and the growing complexity of our world.

THE HAZARDS OF SIMPLIFICATION

Simplified assumptions help us understand certain basic principles, but they become dangerous when we accept them as true.

I remember hearing from a parent whose child was asked whether a ball rolled off the edge of a table would fall to the ground in the same time as a ball dropped straight down from the same height.

The child said no, and the teacher marked the answer wrong.

The parent protested, pointing out that the earth is curved, and so the dropped ball would land before the one that rolled horizontally off the table.

The teacher held fast, and the argument grew as the parent finally accused the teacher of belonging to the Flat Earth Society.

PRODUCT INFORMATION

Apple II Video Overlay Card

Apple Computer
20525 Mariani Ave.
Cupertino, CA 95014
(408) 996-1010
\$549

Exploring Science: Temperature Playing with Science: Temperature

Sunburst Communications
39 Washington Ave.
Pleasantville, NY 10570
(914) 769-5030
\$129 each

LCSI Logo II, \$99

\$549 site license,
\$399 lab pack

LogoWriter, \$169

\$450 site license,
\$299 lab pack
Logo Computer Systems
1000 Roche Blvd.
Vaudreuil, Quebec
Canada J7V 6B3
(800) 321-LOGO

Science Toolkit:

Master Module

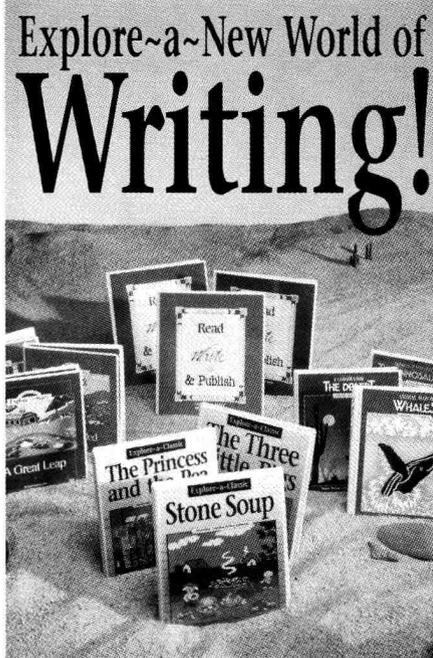
Broderbund Software
17 Paul Drive
San Rafael, CA 94903-2101
(415) 492-3200
\$79.95 home, \$89.95 school

GIFT OF THE FUTURE

We in education must be careful to acknowledge the wonderfully complex world outside the classroom walls—a world of imperfections, yes, but a world without limits, where our children will invent their future and ours. We not only can prepare our children for our complex world, we must do so to ensure our own preservation and theirs.

To those who ask how we can afford the technology needed to bring our classrooms into the 20th century, let us ask: How can we afford not to? □

DAVID D. THORNBURG IS INVOLVED IN THE CREATIVE USES OF COMPUTERS IN EDUCATION. PRINCIPALS OF SCHOOLS WITH STUDENTS IN GRADES K-6 ARE INVITED TO WRITE TO HIM REGARDING A SCHOOL DONATION PROGRAM HE HAS ESTABLISHED WITH ROYALTIES FROM THE AUDIO TAPE *SUNSHINE THOUGHTS*, PRODUCED BY THE THORNBURG CENTER FOR PROFESSIONAL DEVELOPMENT, P.O. BOX 1317, LOS ALTOS, CA 94023-1317. PLEASE ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.



With the **Explore~a~Series**, your students can explore and discover their writing potential.

Reading and writing software for Apple, IBM, and Tandy computers: [Networks, Lab Packs, Licensing, and Standard Packages]

Explore~a~Classic

Writing with classic literature
3 Programs for Grades: Pre-K to 3

Explore~Australia

Writing with History, Geography, and Map Skills Applications
Grades: 4-6

Explore~a~Story

Writing with original storybooks
12 Programs for Grades: K-6

Explore~a~Science

Writing with Science content
6 Programs for Grades: 1-8

Read, Write, & Publish

Process Writing with English- or Spanish-Language Editions
8 Programs for Grades: 1-8

For a listing of over 200 titles in all disciplines, including all D.C. Heath Software, write or call: Circle 91 on Reader Service Card.



William K. Bradford

William K. Bradford Publishing Co.
P.O. Box 1355, Dept IC
Concord, MA 01742
1-800-421-2009



PRINT RUN

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. Bracketed numbers in program listings refer to inCider's Applesoft Proofer Program. For your copy send a self-addressed, stamped envelope to Proofer, c/o inCider, 80 Elm St., Peterborough, NH 03458.

ENVELOPE ADDRESSER

By Roger E. Stemberge

ADDRESSING ENVELOPES HAS always been the bane of computer users—it just never seems to come out right. Many of us simply resort to “low tech”—addressing by hand or on the typewriter. There's an easy high-tech alternative, though, if your printer happens to be an ImageWriter II and you're working with AppleWorks GS: Open a word-processor file with your return address and set up your printer to accommodate a #10 (standard business size) envelope. A few practice runs will make you an expert.

Here's the basic plan. First open a new word-processor file, then set your left margin for $\frac{1}{16}$ of an inch (as far left as it'll go) and a tab of $4\frac{7}{8}$ inches. Press Return twice. Type your return address and select it. Set type size to 10-point and choose boldface. Place the cursor on the first line below your return address; hit Return eight times and Tab once. Press Open apple-S; when the dialog box appears, change the filename to ENVELOPE and save it in your correspondence folder. (Perform that last step just once; when you select this file in the future, it will open with the cursor in place for typing a name and address.)

Now type your correspondent's name and address and select them. Set type size to 10-point and choose boldface style. Check the name and address for accuracy, then press

Open apple-P to start the printing process. Click on the *Better Text* button and turn on your ImageWriter II.

Pop up the plastic window over the platen; don't remove the other cover. Look straight down the rear edge of the platen while you turn it to back your paper out. Stop as soon as the edge of the paper disappears from view.

Push the paper-release lever to the friction-feed position and the paper-thickness lever down to the four-sheet position. Lift the paper bale on both sides. Insert a blank sheet of paper under the flap of the envelope, so that the flap is up and the paper is aligned at the left edge of the envelope.

Position the envelope on the platen with the right edge about $\frac{1}{8}$ of an inch from the platen gear. Insert the envelope into the printer and roll it down until the top edge aligns with the red line on the clear plastic paper guide behind the printhead.

Now hit Return to start printing. As the printer types the return address, keep your finger on the upper-right corner of the envelope and guide it under the paper bale. After printing, reset the paper-release lever to the pin-feed position, move the paper-thickness lever to the single-sheet position, lower the paper bale, and replace the clear plastic window on the printer.

Click on the close box. When the dialog box asks whether you want to save the file, click on *No*. (If you save it inadvertently, cut the

name and address, re-establish the cursor position for the name and address, and save again.) You can adjust the location of the name and address for envelopes of another size; just make sure the starting position for the cursor is the geometric center of the envelope.

Write to Roger E. Stemberge at 1 Hillview Drive, Rockwell, TX 75087.

CLIP-ART LOADER

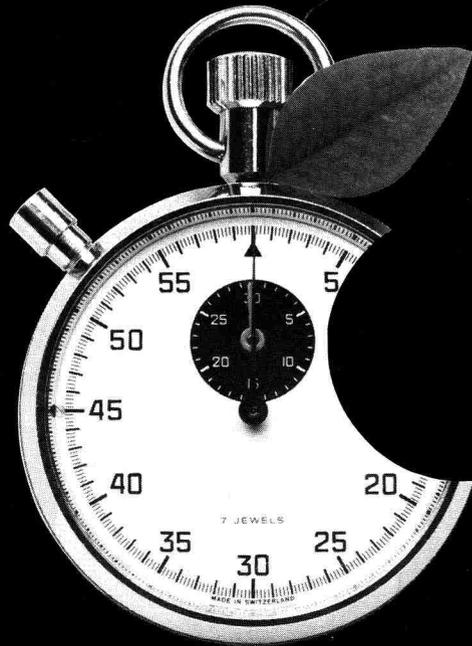
By Barclay R. Clemesha

IMAGINE USING PRINT SHOP GRAPHICS without having to load The Print Shop! Because this classic program from Broderbund Software doesn't use standard Apple graphics format, you can't just BLOAD a clip-art image for display on your monitor. PS.Loader (see the accompanying **Program listing**) is a handy little program that loads Print Shop graphics and displays them anywhere on screen—up to nine images simultaneously. It also lets you superimpose Print Shop clip art on a standard hi-res picture.

Just type in the **Program listing** and save it as PS.Loader. When you run it, it POKES a short machine-language program into memory and after some initial computation presents you with a menu. You can load and display either a standard picture file or a Print Shop image. Coordinates *X* and *Y* refer to the screen position of the top left-hand corner of the Print Shop graphic. Maximum values for *X* and *Y* are 136 and 191, respectively.

After loading a Print Shop file, select *Paste Clip* to display the image at the chosen position. To invert the graphic, hold down the open-apple key as you paste the clip art. Holding down the solid-apple key blackens the section of the screen where you want to place the graphic. Do that first if you want to superimpose the image on a background. If you don't enter a filename, PS.Loader will display ▶

IT'S ABOUT



Accelerate your Apple II 8x

When Time Counts

If you're tired of doing hard time at the keyboard, speed it up with Zip Chip.

That's because Zip Chip runs Apple II, II+, IIe and IIc up to EIGHT TIMES FASTER. Making it the unrivaled leader in acceleration technology.

Zip Chip is a patented cache-memory accelerator chip that replaces the Apple II's central processing unit.

It's safe and easy to install. And it comes in two models: 8 MHz (800% speedup) or 4 MHz (400% speedup).

Both are 100% software transparent and accelerate all application programs along with compatibles like the Lazer 128.

Ahead of its time.

Zip Chip is a totally unique acceleration technology. Unlike board products, it plugs right into the Apple II's motherboard, saving a valuable card slot.

It also has a special caching technology -- developed and patented by Zip Technology, Inc.-- that offers virtually unlimited memory-expansion capabilities.

In addition, Zip Chip has the unmatched ability to address all memory including up to two megabytes of user-installed memory.

And among its many other advantages, Zip Chip helps motherboards stay cool thanks to its extremely low power use.

Buy yourself some time.

So if you really want to save mega-hours at the keyboard, run your Apple II eight times faster (8000 model) or four times faster (4000 model) with Zip Chip. It's the kind of good behavior you'll get plenty of time off for.

Dealer inquiries invited.

Zip Chip -- It's about time.

Zip Technology, Inc.

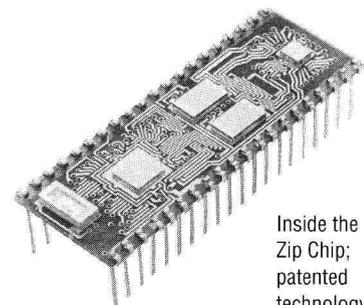
"Setting the Pace for the Future"
5601 W. Slauson Ave.
Culver City, CA 90230
Phone: 213 337-1313
Fax: 213 337-9337

TIME



T E C H N O L O G Y

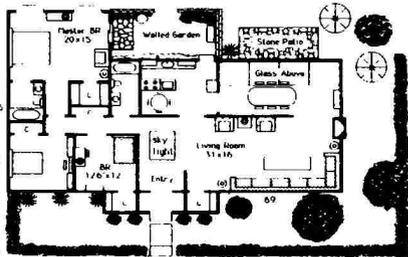
Circle 189 on Reader Service Card.



Inside the Zip Chip; patented technology.

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 1MB ... \$89.95
- Macintosh with 1MB ... \$99.95
- IBM with 640K ... \$99.95
- All libraries ... \$29.95 ea.

Compatible with Laser 128

*Call for availability

1-800-451-4871



DEPT D PO Box 2440
Eugene, OR 97402
(503) 342-3030

Circle 40 on Reader Service Card.

Build Your IIGs/IIE Hard Disk Apple-Hive •• a disk enclosure

- room for two 5.25" or 3.5" drives
 - horizontal or vertical placement
 - provision for cartridge drive • FCC certified
 - quiet cooling fan • platinum grey color
- 30watts -- \$119 65watts -- \$169

Hard Disk Subsystem (pre-formatted) Complete w/ Apple SCSI Card

- 32MB--\$549
- 48MB--\$609
- 65MB--\$699
- 85MB--\$759
- 100MB--\$959



Hermit Crab

--portable hard drive 40MB--\$609

Tape Subsystem w/ backup software

- 155MB--\$769
- 60MB--\$669

Subsystems come with latest GS/OS 5.02 system software

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.

HINTS & TECHNIQUES

Program listing, PS Loader

```

10 REM Print Shop Clip Art Loader [5319]
11 REM by Barclay Clemesha [3807]
12 REM Copyright 1990, inCider [4886]
20 HOME : PRINT "WORKING - PLEASE WAIT" [1970]
30 FOR N = 0 TO 146: READ P$: POKE 7952 + N, P$: NEXT
   : ONERR GOTO 50: REM * Load ML program. Line 40
   : creates look-up table [7542]
40 FOR N = 0 TO 191: C% = N / 8: A% = N - C% * 8: D% =
   C% / 8: B% = C% - D% * 8: Y% = 8192 + 40 * D% + 128
   * B% + 1024 * A%: Z% = Y% / 256: POKE 28672 + N, Z
   %: POKE 28864 + N, Y% - 256 * Z%: NEXT [15278]
50 PSLD = 7952: D$ = CHR$(4): M$ = CHR$(13): DR$ = "
   1": PRINT D$ "PR#3" M$: HOME : LM = 35: WI = 2 [9468]
60 GOSUB 250: PRINT : FOR N = 1 TO 23: PRINT "|": NEXT
   : LM = 0: WI = 34: GOSUB 250: VTAB 2: PRINT "
   PS.GRAPH"M$M$ Print Shop Graphics Loader"
   : FOR N = 1 TO 34: PRINT " "": NEXT [10100]
70 TEXT : GOSUB 240: GOSUB 260: VTAB 7: PRINT "1: DR
   IVE: D"DR$M$M$": 2: COORDINATES: X, Y "M$M$": 3: LOAD
   PS"M$M$": 4: LOAD HGR"M$M$": 5: SAVE HGR"M$M$": 6: CLEA
   R SCREEN"M$M$": 7. PASTE CLIP"M$M$": 8. QUIT"M$: GET
   K$: K = VAL (K$) [31401]
80 ON K GOTO 230,130,110,160,150,170,180,340 [1474]
90 GOSUB 270 [1002]
100 GET KE$: GOTO 70 [1402]
110 AD$ = "4": GOSUB 120: GOTO 70: REM * Load PS fil
   e [2517]
120 GOSUB 280: PRINT D$ "BLOAD" FILE$, A$ "ADS" 000, D"DR
   $: RETURN [3753]
130 POKE 34, 22: INPUT "X: "; X: INPUT "Y: "; Y: IF X >
   191 OR Y > 138 THEN 130 [4612]
140 GOTO 70 [227]
150 GOSUB 280: PRINT D$ "BSAVE" FILE$, A$ 2000, L$ 2000, D
   "DR$: GOTO 70: REM * Save screen [10848]
160 AD$ = "2": GOSUB 120: GOSUB 270: GOTO 100: REM *
   Load HGR file [4848]
170 HGR : TEXT : GOTO 70: REM * Clear screen [3524]
180 YMAX = Y + 51: X% = X: GOSUB 220: LIT = BIT$: LYTE =
   BYTE$: REM * LEFT BIT and LEFT BYTE [7548]
190 X% = X% + 88: GOSUB 220: MIT = BIT$: MYTE = BYTE$: REM
   * MAX BIT and MAX BYTE [8780]
200 POKE 27, MIT: POKE 28, MYTE: POKE 29, Y: POKE 30, YM
   : POKE 249, LIT: POKE 250, LYTE [6575]
210 CALL PSLD: GOTO 90 [1278]
220 BYTE% = X% / 7: BIT% = 2 ^ (X% - 7 * BYTE%): RETURN
   [5157]
230 GOSUB 260: PRINT " DRIVE 1/2 ? ": GET DR$: LM =
   37: WI = 42: GOSUB 250: HOME : PRINT "CAT, TBIN, D" D
   R$: GOTO 70: REM * Set drive and catalog disc [15642]
240 LM = 0: WI = 35: [1826]
250 POKE 32, LM: POKE 33, WI: RETURN : REM * Set text
   window [5954]
260 VTAB 23: PRINT " "": VTAB
   23: RETURN : REM * Clear input line [5655]
270 POKE 49232, 0: POKE 49234, 0: POKE 49239, 0: POKE 4
   9247, 0: RETURN : REM * Turn on HIRE [4544]
280 INPUT " FILE NAME: "; FILE$: GOSUB 260: RETURN [4441]
290 DATA 166,29,134,25,32,150,31,169,0,133,235,169,
   64,133,236,169,128, 133,251,165,250,133,238,165,2
   49,133,237,32,99,31,70,251,208 [19423]
300 DATA 10,230,235,208,2,230,236,169,128,133,251,3
   2,121,31,6,237,165, 237,201,128,208,6,230,238,169
   ,1,133,237,197,27,208,218,165 [19428]
310 DATA 238,197,28,208,212,230,25,32,150,31,165,30
   ,197,25,176,193,96,160,0,177,235,37,251,240,2,169
   ,255,174,97,192,224,128,144 [19045]
320 DATA 2,73,255,133,26,96,164,238,174,98,192,224,
   128,144,9,165,237,73,255,49,206,76,147,31,165,26,
   37,237,17,206,41,127,145,206,96,166 [28425]
330 DATA 25,189,0,112,133,207,189,192,112,133,206,9
   6 [9862]
340 END [298]

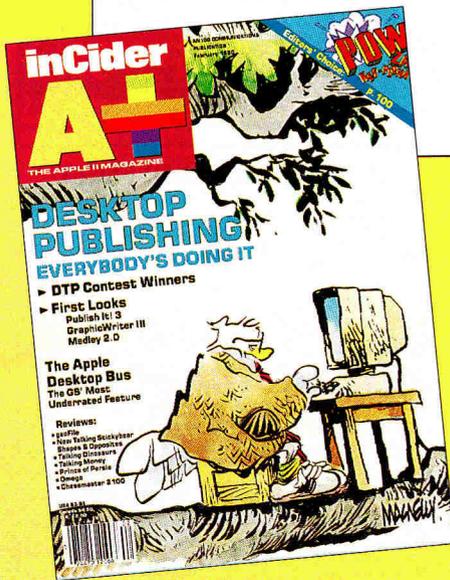
```

the previous clip again, and you can change its position if you like. To save the screen as a standard HGR file, choose *Save HGR* and enter a filename. When you want to catalog a specific disk, just select the drive that will contain that data disk. PS.Load works under ProDOS, so you must first run your Print Shop files through the CONVERT utility from the ProDOS User's Disk, or Copy II Plus (Central Point Software, 15220 Northwest Greenbrier Parkway, #200, Beaverton, OR 97006, 503-690-8090). □

Write to Barclay R. Clemesha at I.N.P.E., C.P. 515 12201, S.J. dos Campos, Sao Paulo, Brazil.

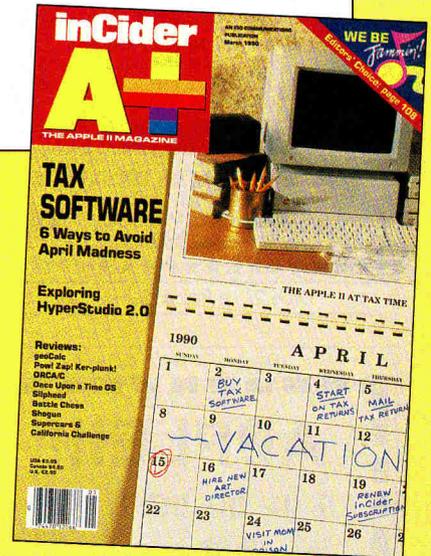
inCider/A+ brings you everything you need to know to unlock the power of your Apple II!

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.

ATTENTION ROLE PLAYERS

Use these products to make these games easier.

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), Autoduel, Wizardry (1-3), Wizardry 4, Wizardry 5, The Magic Candle, Pool of Radiance, Dragon Wars, Curse of the Azure Bonds, Knights of Legend, Space Rogue.

HINT BOOKS - \$9.95

Might and Magic, Wizardry (1, 2, 3, 4 or 5), Legacy of the Ancients, Curse of the Azure Bonds.

OTHER MIGHT AND MAGIC PRODUCTS

Monster Editor (Change the monsters) \$12.95
Construction Set (Make new scenarios) \$24.95
Halbaron Scenario (New scenario for M&M) \$19.95

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.

**FREE - 15 DISKS - FREE
FULL OF APPLE SOFTWARE**

TRY US! Get 15 disks full of our best selling software - **FREE!**
Great Games, Education, Graphics, Programmers' Utilities,
Finance for home/business, more.
PAY ONLY \$5.00 FOR SHIPPING

SATISFACTION GUARANTEED!

INTERNATIONAL SOFTWARE LIBRARY
511-104 Encinitas Blvd • Encinitas CA. 92024

619 942-9998
since 1985



Circle 23 on Reader Service Card.

//// LASER 128.....\$369.00
LASER 128 Refrb. Sys...\$369.00
LASER 128 E-X.....\$409.00
LASER 128 EXII-5.25....\$439.00
LASER 128 EXII + 3.5....\$489.00

12" Monochrome 96	UDC Card 75
13" Magnavox RGB/COM 259	256K Memory Call
Laser 145 (Epson) 169	Monitor Stand 29
Laser 190 (Epson) 199	Keyboard Protector 24
Laser 190 (Apple) 199	Joy Stick 25
Laser 190 (Apple Senal) 245	Mouse 59
Laser 190 Pull Tractor 45	2400 Modem 155
Star NX-1000 199	Modem Software 75
Star Rainbow 259	PC Viewer 629
Ribbons (Black) 4(6)	Apple II Serial Card 85
Laser 128E Memory Card 35	Apple II Parallel Card 59
Laser 3.5" Drive 185	AppleWorks 3.0 180

All Units 1 year warranty

NEW SCIENCE PROSPECTS

Your full Laser® Computer Service Center
1200 Blalock Ln., Ste. 380, Houston, TX 77055
713-464-8303

School orders welcome

Circle 173 on Reader Service Card.

APPLE!!!

II, II+, IIE, IIC, & IIGS



For Shareware

Shareware & Public Domain Software

- Business
- Utilities
- Games
- Education

Hundreds of Programs from \$1.50

Programmers: Gemini is seeking quality Apple software for our forthcoming commercial range. We would be pleased to review your submissions for inclusion on a royalty or outright purchase basis. Send submissions to the Duvall address below.



P.O. Box 640, Duvall, WA 98019-0640
Call Toll-free for Catalog 1-800-346-0139

Circle 38 on Reader Service Card.

APPLE MEMORY CHIPS

WORKS IN ALL SYSTEMS & EXPANSION CARDS

It doesn't get any cheaper than this!

- ★ 256K Chip Set \$28.00
- ★ 256KX4 Chip Set \$24.00
- ★ 1MB Chip Set \$84.00
- ★ 5 year warranty
- ★ 1 MBX8 Simm \$98.00

So what are you waiting for?

CALL TOLL-FREE 1-800-456-2498



2106 W. Murray Road Phone: (417) 883-6261
Springfield, MO 65807 FAX: (417) 883-2584

COD



Circle 17 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		\$7.50	\$10.50
Epson MX-80	\$3.75	\$4.50	\$6.75
Okidata 182/192	\$6.50	\$7.50	\$6.00
Panasonic KXP 1090	\$6.75	\$7.75	

T-Shirt (Heat Transfer Ribbons)

Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

Color Paper	200 shts assorted	
Bright Pack:	9 1/2 x 11	\$11.95/pk
Pastel Pack:	9 1/2 x 11	\$11.95/pk
Color Certificate Paper:	100 sheets	\$12.00/pk
Color Banner Paper:	45 ft./roll	\$ 9.95/roll

Min. orders: \$25.00. Minimum S&H: \$3.50. 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.

GS CENTRAL 1-800-628-6636

HARDWARE AND SOFTWARE FOR THE APPLE IIGS

<p>AMR 3.5 DISK DRIVE</p> <p>\$185</p> <p>100% GS Compatible 1 Year Warranty</p>	<p>4 MEG RAM BOARD</p> <p>with 1 MEG RAM \$165</p> <p>2 MEG \$265/4 MEG \$465</p>	<p>HARD DRIVES</p> <p>AMR External Drives w/AMR's SCSI CARD</p> <p>20 meg \$525 30 meg \$590 45 meg \$645 60 meg \$745 45 meg removable \$990</p>
<p>2400 BAUD External MODEM</p> <p>\$95</p> <p>100% Hayes Compatible</p>	<p>1 MEG RAM BOARD</p> <p>with 256K RAM \$79</p>	<p>APPLIED INGENUITY</p> <p>10 meg \$270 20 meg \$385 40 meg \$560 Innerdrive 20 \$440 (Internal Drive) Innerdrive 40 \$550 (Internal Drive) Innerdrive 100 \$1275 (Internal drive)</p>
<p>MODEM CABLE</p> <p>GS — MODEM \$9.95</p>	<p>RAM CHIPS</p> <p>256K - 120ns \$34 1 MEG - 100ns \$100</p>	<p>GS CENTRAL 7am-6pm M-F 250 Skyline Drive Grants Pass, OR 97527 1-800-628-6636 Shipping & Handling \$3.50</p>

Circle 64 on Reader Service Card.

TAXCALC-89

FAST - MENU DRIVEN - EASY

Built-in IRS worksheets & tax theory save time & money for home preparer or pro. User enters data: TAXCALC-89 calculates best tax advantages, populates forms & enters tax data. **FAST.** Features pop-up calculator & data save. Includes tax help, tips & flow charts. Runs on entire Apple II family. Yearly update \$24.95. Reviewed in March InCider-A+ magazine.

\$39.95 + \$2 s&h 1-800-780-7786

Provides you with a lot of intuitive insight. Offers great technical support. Gets the job done!
Craig Crossman, Tax Review in Miami Herald, 1/15/90

Calculates 1040 + A, B, C, D, E, SE, 2106, 2119, 2441, 3903, 4562

LASER 128 EX/2 3.5 \$459
EX/2 5.25 \$419
EX.....\$369

LASER authorized repair center & educational dealer. **LASER 128**.....\$339
Monochrome monitor.....\$99
3.5 Drive...179 Daisy chain 5.25.....115
LASER 190A ImageWriter II Compatible Printer...195
RGB 14" Color Monitor + Green + TIR & Swivel...249
OK RAM Expansion Card //e...95 //c...115 Laser 128...30
RAM for Laser & Apple: 120ns - set of 8 chips.....28
Add 3% (45 min) for shipping. COD orders accepted.

PERFECT SOLUTIONS SOFTWARE

3701 Savoy Lane, Suite 106-D West Palm Beach, FL 33417

Circle 59 on Reader Service Card.

FACTORY FRESH RIBBONS

Ribbon	Black	Color
Apple Imagewriter I, II	\$ 2.50	\$ 3.25
Imagewriter II 4 color		\$ 6.50
Imagewriter II 4 color Heat transfer	\$10.50	
Imagewriter LQ (Black and 4C)	\$11.50	\$15.95
Epson LX80/90	\$2.25	\$ 3.95
Epson MX/FX/RX80	\$2.90	\$ 3.90
Epson MX/FX/RX100	\$3.80	\$ 4.00
Star NX1000	\$4.50	\$ 5.50

5.25 double-sided, double-density. Multiples of 50 . . \$3.95
3.50 double-sided, double-density. Multiples of 5 . . \$7.99

Hundreds more, call or write for prices.
Colors (BLUE, RED, GREEN, PURPLE.)

-PREMIUM IS ALL WE SELL!

Shipping/Handling \$3 per order (over \$50 we pay S/H).
Check, Money Order, C.O.D., School purchase orders accepted. New York residents please add sales tax.

-MONEY BACK GUARANTEE

ISLAND COMPUTER SUPPLY
Box 3495, Farmingdale, New York 11735
(516) 798-6500

Circle 70 on Reader Service Card.

Just Released for 1990: The All-New MCM BBS v4.2!

"Your Apple has entertained and taught for you. It has helped you to become better organized. Now it can be your portal to the world!" -A BBS sysop

Start a bulletin board system at home, work or school for just \$59.95 with the Magic City Micro Bulletin Board System.

CLUBS

Enhance your organization with a BBS; keep in touch with members; advertise activities; broaden your geographic coverage.

SCHOOLS

"Publish an on-line edition of your school newspaper. Major newspapers do and now you can too!"

The MAGIC CITY MICRO BBS

Multiple Message Boards • Online Games • Private E-Mail • Up/Downloading • More!

Call for your

FREE BROCHURE on starting your own BBS...

(800) 283-3901

SofTools, Inc. (Since 1985)

Communications software for your Apple II
P.O. Box 60400-Palo Alto, CA 94306-0400

Have an earlier version of the MCM BBS?

You can upgrade to our latest release for as little as \$20-call for details!!

Circle 51 on Reader Service Card.

Choice Computer Products

PO BOX 8432, CEDAR RAPIDS, IA 52408
CUSTOMER SATISFACTION IS OUR #1 PRIORITY

AUTHORIZED **AE** APPLIED ENGINEERING® DEALER

FACTORY INSTALLED / WARRANTED RAM

PC TRANSPORTER	362	SONIC BLASTER	94
SINGLE TRANSDRIVE	188	AUDIO ANIMATOR	174
DUAL TRANSDRIVE	282	PHASOR	123
IIGS KIT	37	DATALINK 1200	130
IIE KIT	29	DATALINK 2400	173
RAMWORKS III 256K	133	SERIAL PRO	101
RAMFACTOR 256K	170	PARALLEL PRO	72
RAMCHARGER	130	COLORLINK	94
GS RAM 256K	112	H.D. POWER SUPPLY	59
GS-RAM ULTRA 256K	155	AE DISK DRIVES	112
GS RAM + 1MEG	231	CONSERVER	72
RAMKEEPER	138	TRANSWARP	123
RAM EXPRESS 256K	181	TRANSWARP GS	289
RAM EXPRESS D-CLOCK	44	VULCAN 20	599
TIMEMASTER	74	VULCAN 40	749

OTHER FINE PRODUCTS

KENSINGTON SYSTEM SAVER IIGS	76	SCSI INTERFACE	119
KENSINGTON SYSTEM SAVER IIE	69	CHINOOK 20MEG	539
APPLEWORKS GS	229	CHINOOK 40MEG	687

For the Lowest Prices on all **AE** Products Call 319-396-2306 (9 am to 9 pm)

MasterCard, Visa, COD, P.O. & Checks Accepted (NO SURCHARGES)

Prices subject to change

Circle 94 on Reader Service Card.

Buy or Sell, New or Used Computers via Modem

We have the source to turn your PC's, Drives, Printers, & Terminals, into fast Cash. Search our DATABASE for unique or obsolete gear, manufacturers seconds, surplus or new excess inventory. Sell yours or buy theirs direct. Never a commission. #900-568-1234 .99¢ per minute. 3/12/2400 bd modem, 8 bts, 1 stp, ANSI on

No modem? No problem. Fax us your equipment listing on our form. Cost, \$12.95 per minute, #900-468-1234

Computer Search USA, Audio text info: 401-272-9980

1 Richmond Square, Providence, RI 02906

Circle 28 on Reader Service Card.



Sports Scheduler

FEATURES:

- Any league or category with 4 to 22 teams.
- No limit on the number of categories that can be scheduled.
- Equal distribution of teams in playing slots.
- Up to 231 games per schedule.
- Dates calculated automatically.
- Schedules list date, day, time, location, game number and opponents for each game.
- Only minutes to schedule a league or category.
- Includes Referee/Facility Scheduler

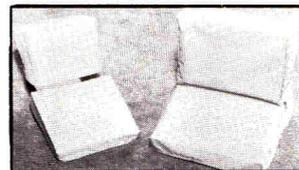
APPLE IIE (128K) IIC, IIGS 109.95
IBM PC & Compatibles + 3.00 S&H
\$112.95

Send check or money order to:
SPORTS SOFTWARE ASSOCIATES
75 Recreation Park Drive, Hingham, MA 02043
(617) 749-7880

Circle 18 on Reader Service Card.

Protect Your Computer with Quality, Custom Fit, Fabric Dust Covers

In Tan-Navy-Royal-Gray-Red-Brown



- Professional Appearance
- Unlike plastic covers, ours allow heat from equipment to flow thru fabric.
- Machine Wash & Dry.
- Custom Design/Perfect Fit.
- All Fabric. Won't crack or dry out with age.

Apple Computer Items

10-62 IIGS, Color Mon & Keyboard	29.95
10-87 IIGS, KSS, Cir Mon & Keyboard	29.95
10-65 IIGS Mouse	2.00
10-67 IIGS Keyboard	2.95
10-12 Mac & Keyboard	24.95
10-55 Mac & Keyboard Plus	24.95
10-74 Mac SE & Keyboard	24.95
10-75 Mac SE & Extended Keyboard	24.95
10-52 Mac w/Apple Hrd Drive beneath	19.95
10-72 Mac II Color Mon & Keybrd	29.95
10-73 Mac II Color Mon & Ext Keybrd	29.95
10-77 Mac II Mono. Mon & Keyboard	29.95
10-78 Mac II Mono. Mon & Ext Keybrd	29.95
10-18 Mac External Drive (400K)	5.00
10-53 Mac External Drive (800K)	5.00
10-28 Mac Mouse	2.00
10-80 IIC, Mono Mon. & Std.	29.95
10-16 IIC & Monitor IIC (Separate)	24.95
10-36 IIC Computer	9.95
10-61 IIC & Color Monitor IIC	29.95
10-17 IIC External Drive	6.95
10-34 IIC Computer	15.95
10-33 Monitor IIC	15.95
10-32 Color Monitor IIC	16.95
10-07 IIC & Monitor II	24.95
10-14 IIC, Duo Drive & Mon II	24.95
10-57 IIC & Duo Drive	16.95
10-58 IIC & Color Mon IIC	24.95
10-45 IIC, Duo Drive & Cir Mon IIC	29.95
10-03 Disk II Drive (Single)	6.95
10-04 Disk II Drives (2 Stacked)	9.95
10-60 Apple 3.5 (Single)	4.95
10-38 Apple 5.25 (Single)	6.95
10-59 One 3.5 on top one 5.25	9.95
10-09 Imagewriter	15.95
10-07 Imagewriter II	15.95
10-19 15" Imagewriter	16.95
10-39 Imagewriter II/cut sht Fdr	19.95
10-20 Scribe Printer	13.95
10-35 Laserwriter Printer	24.95
10-90 Laserwriter II Printer	24.95
10-82 Imagewriter LQ	16.95
10-91 Imwriter LQ w/cut sheet feeder	24.95

Also available IBM, Compaq, Misc. Printers and Others

Name _____
Address _____
City/State/Zip _____
Telephone _____
Item No. _____ Color _____
*MC/VISA # _____ Exp. Date _____

Add \$3.00 Shipping & Handling (Check, M.O., C.O.D., VISA, MC)

WI Residents Add 5% Tax
Call (414) 476-1584 or Mail Form and Pymt. to

Co-Du-Co

4802 W. Wisconsin Ave. Milwaukee, WI 53208

Circle 21 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	2.95
EPSON MX-FX 80	2.50	3.50
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	5.75	6.50
STAR NX-1000	3.25	5.50

DAYTON COMPUTER SUPPLY

a division of Den-Sys Corp.

1220 Wayne Avenue, Dayton, Ohio 45410

EST. 1979

TERMS: C.O.D. MC, VISA, DISCOVER

Circle 134 on Reader Service Card.

TAX SOFTWARE AS LOW AS \$10

TAX SMITH Formerly known as TaxMaster

Tax software designed just for you with the TaxSmith family of software. TaxSmith Quick contains a Form 1040 and Schedules A & B, W-4, IRA, EIC calculation too. For simpler returns at a low, low price. Only \$10.00.

TaxSmith Family - Forms 1040, 2119, 2441, 3903, and Schedules A, B, D, D-1. For a more complicated return but still at a budget price. Only \$20.00.

TaxSmith Full - Forms 1040, 2106, 2119, 2441, 3903, 4562, 6251, 8582, 8636, 8615, 8814, and Schedules A, B, C, D, D-1, E, R, SE. For small businesses, rental property owners and other complex returns. Only \$50.00.

TaxSmith Pro - Contains Quick, Family, Full versions and five other common combinations. For the professional tax preparer. Only \$75.00.

Linked forms, easy to use. IRS acceptable output, easy to customize, much, much more! Free 1990 Planner included. Our 5th year! Discounts on future upgrades! Money back guarantee! Choose the version that's right for you!



End your annual income tax preparation nightmare. Requires AppleWorks (any version) and at least 128K RAM. Macintosh and IBM versions available. Shipping begins in late January.

* offers one particularly nice feature: separate templates for clients with differing tax needs. * inCider

ORDER TOLL-FREE (800) 826-7146

Double Scorpio Software Island Computer Services 3501 E. Yacht Drive Long Beach, NC 28465 (919) 278-7444

Circle 43 on Reader Service Card.



DESIGN NEEDLECRAFT CHARTS

for Counted Cross-Stitch, Needlepoint, Latch Hook, Knitting, etc. using a revolutionary new computer program—The Stitch Grapher. Graphs up to 240 X 400 counts with up to 30 symbols may be generated & printed with any of 3 grid styles along with a color chart. A unique windowing feature allows the artist to move, copy, rotate, mirror image, save & re-use previous designs.

The Stitch Grapher is compatible with the 64K Apple II and 256K IBM-PC microcomputers. Disk plus 90 pg. manual - \$89.95. For complete information contact: **COMPUCRAFTS**, P.O. Box 326, Lincoln Ctr., MA 01773 or call (508) 263-8007.

Apple version supports only the Imagewriter printer with depicted grid style (dot matrix printers, other than the Imagewriter will require graphics capable interface card or separate software). IBM version supports all IBM Graphics / Eps-on compatible printers.

Circle 77 on Reader Service Card.

GUARANTEED LOWEST PRICE

ZIP CHIP — 4 MHz*

NEW LOW — \$99.00

Call on 8 MHz

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 & money orders to: **COMPUTER ENHANCERS**, 24331 Muirlands, Ste. 4-456, El Toro, CA 92630. VISA, MASTERCARD & COD orders call toll-free: 800-728-1824. Add \$5.00 shipping, insurance & handling. CA residents add 6% sales tax.

Circle 252 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.

NEW LOWER PRICES

CARDS: LOWEST PRICES

- Extended 80 Column w/64K (Ile) \$29.95
- Disk controller (II + e) 29.95
- 16K RAM 29.95
- Graphic printer card w/cable 29.95
- Ile/ + Cooling fan w/surge protect. 24.95
- Music card w/2 speakers (II, +) 29.95
- Ile Numeric keypad 29.95
- Z-80 CP/M Card 29.95
- ALS Z-80B w/64K/CP/M 3.0 99.95
- Super serial card 45.00
- Hi-speed eeprom burner 49.95
- Ile Keyboard replacement 59.95
- IIGS 1 Meg/Ram card 199.95
- Disk Notcher 4.95
- 128K RAM(II, +) 59.95

1 year warranty. Add 5% shipping (minimum \$5); APO/Canada add \$2 extra). VISA/MC add 4% Minnesota residents add 6% sales tax.

P.I.E.
P.O. Box 13509, MINNEAPOLIS, MN 55414
612-545-1715 (11 am- 7 pm Mon-Fri)

SCHOOL P.O. & DEALERS WELCOME

Circle 77 on Reader Service Card.

ORANGE MICRO • BEAGLE BROS • APRICORN • THUNDERWARE • PANASONIC

Call or Send in this Coupon for our free Catalog containing hundreds of computer products for your Apple II, Laser, or Mac. We offer the largest number of computer products in the U.S. so please call for a price on products that you may be interested in.

Standard peripherals
P.O. BOX 65187
West Des Moines, IA 50265
800-535-1707 • (In IA) 515-225-7033

NAME _____
ADDRESS _____
CITY, STATE, ZIP CODE _____

TDK: 3.5" SS/DD \$10.50, DS/DD \$13.95, color \$13.95, 5.25" SS/DD \$5.70, DS/DD \$6.95, color \$7.50
Supra 2400 Baud Modem \$125, bundled w/Mouse Talk & IIGS, C+ Cable \$155
Guaranteed Sets of 120NS 256K chips \$32, 256K x 4 chips \$29.95
1024K chips \$89.95 w/Free Installation. **We will match any price in this magazine on memory chips.** Most computer Cables \$9.95, SystemGate: 5.25" Apple II, + e disk drive \$75, Apple IIc drive \$85
AMR: 3.5" disk drive \$199, Avatex 1200 Baud Modem \$69.95, US Robotics HST 9600 \$639, Zoom Apple II internal 300 Baud Modem \$39
Laser EX/2's are now in stock, please call!
S&H: \$117 & Under add \$3.50 over \$117 add 3% of order. M.C. & Visa Accepted. COD's add \$4.

US ROBOTICS • CH • CHINNOK • CURTIS • KENSINGTON • GRAVIS • SUPRA • LASER

Circle 233 on Reader Service Card.

MACROS

The UltraMacros Primer teaches you everything you need to know to use TimeOut UltraMacros. The lessons in this book describe how to install UltraMacros, how to capture keyboard macros, how to write compiled macros, and much more. 260 pages, including dozens of examples and suggestions. Author Mark Munz is on the staff at Beagle Bros. \$19.95 (plus \$2 s/h).

National AppleWorks Users Group
Box 87453, Canton, Michigan 48187
(313) 454-1115

Satisfaction guaranteed or your money back.

Circle 55 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.



AppleWorks 3.0
Compatible!

In seconds, **CROSS-WORKS** copies files either way between your Apple II and IBM PC, and translates the file formats. Word Processor files maintain underlining, margins, centering, etc. Spreadsheets transfer data and formulas! Transfers ASCII text files too. Includes universal 19,200 baud cable to connect *Ile* (with Super Serial Card), *Ilc*, *IlcPlus* & *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.

SoftSpoken
 P.O. Box 18343
 Raleigh, NC 27619

Circle 127 on Reader Service Card.

Apple® Parts! Apple® Systems

We Buy, Sell & Horsetrade
 Popular Computers!

New & Used Apple® Stuff!

This Month's Specials!

ADB & Ilc MOUSE.....\$65.
 Ilc power supply.....29.
 Il+ extended keyboard.....12.

318-635-1121

Shreve Systems
 2421 Malcolm
 Shreveport, La. 71108
 Modem 318-636-4887
 FAX 318-865-2006

Circle 29 on Reader Service Card.

REMOVABLE HARD DISK STORAGE FOR THE APPLE II

HARD DISK CARTRIDGE SYSTEMS

- Random Access With Unlimited Capacity
- 10MB to 50MB Capacities Available
- Proven Winchester Technology
- Maximum Data Security
- Image Back-up
- 100% Media Interchangeability
- 24 Month Warranty

Model 100AS 10MB Removable Hard Disk System \$560.00
 Model 181ES 50MB Removable Hard Disk System \$1,345.00

MEGABOARD HARD DISK CONTROLLER

- The Only ST506 Controller for the Apple IIe or Iigs
- Supports DOS, PRODOS, CPM 2.2 and UCSD Pascal
- Operating Systems Are Bootable
- IBM Interface Allows Use of Cheap IBM Disk Drives
- Adjustable Partitions
- Iie installs in Slot 1-7; Iigs in Slot 7

Megaboard, Software Utilities, Cable, and Manual \$195.00

See your local Apple dealer or call 1-805-964-0733

DMA TECHNOLOGIES, INC.
 601 Pine Ave., Goleta, CA 93117
 Call 805-964-0733 for Information
 Fax Inquiries: 805-964-0734

Circle 73 on Reader Service Card.

24 TERMINAL EMULATIONS

Softerm 2, an advanced communications package, includes 24 terminal emulations such as:

- DEC VT52, VT100, VT102
- IBM 3101-20 (block mode)
- HP 2622A • VIP7801, 7803
- DG D200 ... and many more.

Guaranteed Compatibility!!

Supports Script Files, Disk Capture, Softekeys, ProDOS (floppy), DOS, CP/M, Pascal, & most vendor boards/modems.

Comes with keyboard enhancer.
 For the Apple II, II+, Ile, Ilc, Iigs.

\$195 MC-VISA-COD

SEIFTRONICS

1-800-225-8590

Call for information

(719) 593-9540

(719) 548-1878 FAX

Telex 450236

Circle 96 on Reader Service Card.

Aztech Computer

(602) 938-1160

Memory Expansion

GS-RAM Plus 1 Meg \$299
 GS-RAM Ultra 1 Meg \$299
 AE RAM Express 256K \$199
 RamWorks III 256K \$159

Hard Drives & Floppies
 Vulcan 20 Hard Drive \$519
 Vulcan 40 Hard Drive \$629
 Vulcan 100 Hard Drive \$1229
 External 40MB SCSI \$499
 3.5" Drive Daisy-Chains \$229
 5.25" Drive Daisy-Chains \$119

Accelerators
 Transwarp gs \$299
 Transwarp Ilc II+ \$149

Other Hardware
 Audio Animator \$199
 PC Transporter \$399
 AE Conserver \$85
 System Saver gs \$69
 Turbo Mouse Adb \$125
 2400 bps Internal Modem \$189
 2400 bps External Modem \$149
 Printer Imgrwr Compatible \$239
 MACH III Joystick \$37

Software

SwiftTax 89 \$49
 On Balance \$45
 Quicken \$45
 Beagle Write gs \$65
 Appleworks 3.0 \$189
 Family Software Library \$219
 Hyperstudio \$79
 Publish It! 2 \$85
 ProTERM \$89
 Point-to-Point \$69
 AE ReadyLink \$69
 TO Telecomm \$59
 TO QuicksPELL \$49
 TO Report Writer \$59
 TO Superfont \$59
 HyperLaunch gs \$49
 Battle Chess gs \$35
 Archonoid II gs \$26
 2008: Cryllan Mission \$45
 Wings of Fury \$26
 Carmen SD in Time \$32
 Math Blaster + \$35

AE Authorized Sales & Support
 Factory Installed RAM
 Call for Technical Support and Returns.
 4920 W. Thunderbird Glendale, AZ 85306
 VISA-MC, Schools POs, CODs.
 Shipping free on orders over \$200.
 In store prices may vary.
 inCider 3/90

Circle 65 on Reader Service Card.



WIN
**LOTTO
 MILLIONS\$!**

NOW FOR APPLE! LOTTO PICKER PLUS, the original lottery selection software, allows you to store winning Lotto, Keno, & Pick 3/4 numbers & choose between three modes of probability analysis (hot, due, unbiased) in order to give you the winning edge! Guaranteed to work for all lotteries. Bonus numbers are easily handled and our full-featured database editor gives you access to your files. We give you the PICKS — not a bunch of jumbled statistics! \$39.95 for 5.25" disk. \$44.95 for 3.5" (+ \$2.55 S/H). For all Apple II, Lazer, MS-DOS, and Commodore 64/128. NY residents please add sales tax. NOT Copy-protected!

CREDIT CARD ORDERS:
 1-800-634-5463 ext. 293

GE RIDGE SERVICES

170 Broadway, Suite 201-1C
 New York, NY 10038 Info 718-317-1961

Circle 61 on Reader Service Card.

Great Performers!

Hard Disk Drives (specify computer!)

Internal Hard Drive for Iles, Iie
 Inner Drive 20 meg \$ 459 40 meg \$ 589
 Vulcan Internal 20 meg \$ 489 40 meg \$ 639
External SCSI Hard Drive for Iles & Macintosh
 (can be used easily with Macintosh Plus, SE & Mac II's)
 40 meg \$ 499 100 meg \$ 749
 add \$149 for Iles software, SCSI card & terminators

Memory

GS-RAM PLUS 1meg \$ 289 2meg \$ 399 4meg \$ 599
 1meg memory set for GS-RAM \$ 120
 256K 150ns set for Iles memory cards \$ 49
 1meg SIMMS \$ 99

IW Compatible Printers (complete w/cable)

Fortis 1310AP (friction / pin feed / 150 cps) \$ 199
 Fortis 2210AP (240cps wide carriage) \$ 299

Software

AppleWorks GS version 1.1 \$ 199
 AppleWorks version 3.0 //e, //c \$ 179
 HyperStudio (Iles 1.25 Megs required) \$ 79
 DB Master Version 5 \$ 99
 DB Master Professional \$ 189

Hardware

Kensington System Saver for Iles \$ 65
 Conserver for Iles \$ 79
 CH Mach III Joystick (specify platinum or beige) .. \$ 32
 Turbo Mouse ADB ver. 1.0 ... \$ 59 ver. 3.0 \$ 109
 Turbo Mouse & Mouse card for //e (non ADB V3) \$ 189
 ThunderScan for //e, //c, Iles \$ 179
 TransWarp for Iles \$ 289 for //e \$ 189
 Sonic Blaster IIGS \$ 89
 Grappler C/Mac/gs \$ 69
 Super Serial Pro Card \$ 99
 "Y" adaptor for using Disk II drives on Iles \$ 39
 Heavy Duty Power Supply for //e \$ 69

Accessories

3.5 inch Disks (holds 40) 10 for \$ 19
 Flip File for 3.5 Disks \$ 10
 4 — Way Selector for 9 Pin Joystick Port \$ 29
 Mouse Pad (blue) \$ 7 Better Quality (plat.) ... \$ 12
 Quality ImageWriter Black Ribbons 6 for \$ 48
 Quality ImageWriter 4 Color Ribbons 6 for \$ 72
 Apple Scribe Black or 4 Color Ribbons 6 for \$ 24
 ABCD Switchbox (1 ImageWriter-4 Computers) ... \$ 99

Note: (cables included - specify computers)
 Shipping \$5 per \$100 by surface in USA. inCider 3/90
 Extra for other modes of shipment.
 Prices subject to change without notice.
 For Defective Merchandise, call in 10 days of receipt for authorization - refund or replacement at our option.
 School purchase orders welcome.

Computers Plus Company

2303 N 44th St. #2
 Phoenix, Arizona 85008
 phone • (602) 955-1404
 fax • (602) 840-3767



Circle 142 on Reader Service Card.

EDITORS' CHOICE

THIEF OF TIME

IF YOU COULD SAVE TIME IN A BOTTLE, CARMEN SANDIEGO WOULD probably steal it. Hold onto your possessions, because Carmen's back—and in Broderbund's **Where in Time Is Carmen Sandiego?** she's harder to find than ever before. Not only are Carmen and her V.I.L.E. henchmen (the gang from the Villians International League of Evil) trotting all over the globe, they're now skipping through history in a stolen time machine, as well.

You'll be in hot pursuit of Carmen's crooks around the world, from 400 A.D. into the 1950s. She's got her eye on Paul Revere's horse, Napoleon Bonaparte's hat, Queen Isabella's jewels, and a copy of the Magna Carta, among other items—so there's plenty to keep a private eye busy. As the Acme Detective Agency's newest Time Cadet, you'll get to bomb around in a 325i Chronoskimmer for a limited period. Catch your crook within the allotted time and you're a hero; take too long and you'll be reassigned for another try. Closing a case is no small feat here, but when you do you'll move up through the ranks just as in previous Carmen installments, and each successive case will be more difficult.

Along the way you'll interview witnesses and pick up tips. This time you're after such nefarious characters as Earl E. Bird, Justin Case, Nosmo King, and Lynn Gweeny; when you enter your clues into the Evidence Database and get a match with any of your suspects' traits, the computer will issue an arrest warrant and activate the capture robot.

"This latest episode in the continuing saga of Carmen Sandiego is by far the toughest," notes Review Editor Lafe Low. "I've always been a geography buff, but a history buffoon. You've got to have a good handle on both if you hope to recover the world's historical treasures from Carmen's mob." You'll need more than just an atlas to help you track down Carmen's hoodlums this time around, so consult your copy of the *New American Desk Encyclopedia*, included in the package.

The game's afoot—on a 128K Apple II for \$44.95 (\$54.95 for the school edition with teacher's guide and backup disk; \$109.95 for a lab pack with teacher's guide and five disk sets). Contact Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101, (415) 492-3200. Put on your trenchcoat and polish your powers of deduction—Carmen's time has come. □

EDITORS' CHOICE SINGLES OUT ONE PRODUCT EACH MONTH THAT THE *INCIDER* EDITORS FEEL IS A SIGNIFICANT ADDITION TO THE APPLE II FAMILY OF PRODUCTS. PRODUCTS EVALUATED ARE AMONG THE MOST RECENT RELEASES AND MAY NOT BE AVAILABLE YET FOR RETAIL DISTRIBUTION.



BIG TALKERS



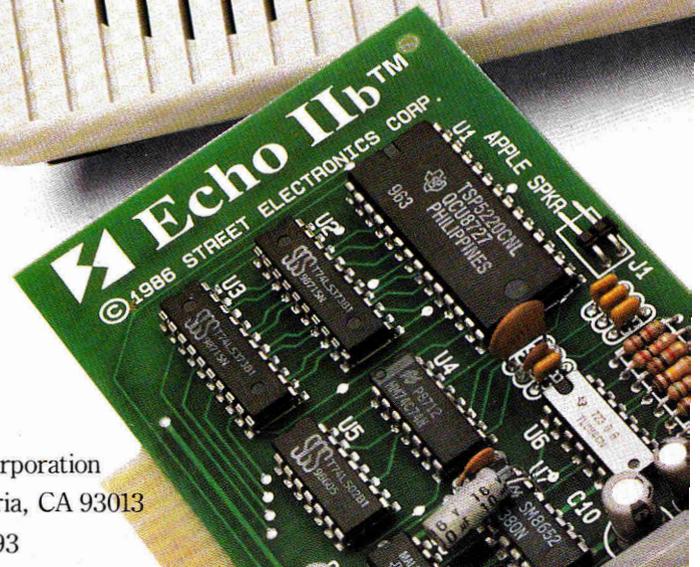
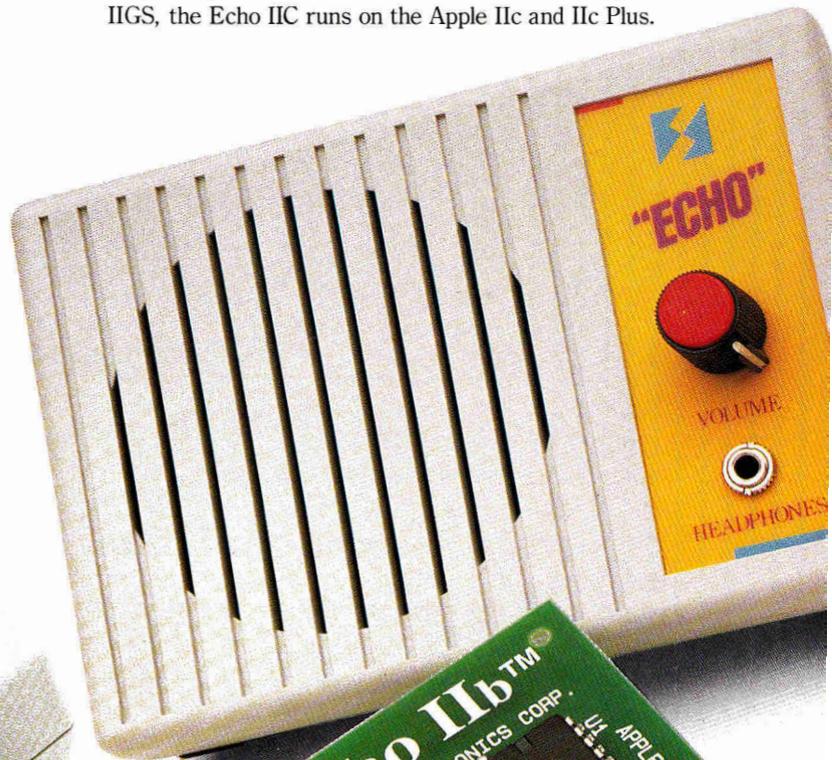
Street Electronics' Echo® products have set the standard for microcomputer voice output for over eight years. Teachers and parents have found that talking software adds a whole new dimension to computer-based learning.

Children not only enjoy the novelty of having their computer talk to them, their attention span is increased, verbal cues and reinforcement keep them motivated as well as assisting non-readers, and learning becomes more personalized and fun.

Although there are a few quality programs which process "software only" voice, it is still necessary to use a dedicated speech add-on peripheral or plug-in board for nearly all of the "talking" educational software. There are over 100 software manufacturers including *Scholastic*, *Optimum Resource/Weekly Reader*, *Houghton Mifflin*, *Hartley Courseware*, *DLM*, *Edmark*, and *Laureate Learning Systems* who presently offer Echo compatible educational and special needs programs, and the number is constantly growing.

Most of the educational programs which are compatible with the Echos take advantage of the high quality female voice output. However, in those programs which require an unlimited vocabulary; for example, a talking word processor, the Echos' text-to-speech capability produces speech in an intelligible robotic-type voice.

The Echos come with a tutorial style manual, an external speaker with a volume control knob and headphone jack, and supporting software. The Echo IIB runs on the Apple® Iie and IIGS, the Echo IIC runs on the Apple IIC and IIC Plus.



Street Electronics Corporation
6420 Via Real, Carpinteria, CA 93013
(805) 684-4593

Circle 92 on Reader Service Card.



EYESORE VS. EYE PROTECTION

As today's monitors get bigger and brighter, anti-glare filters become less of an option and more of a necessity.

The right filter can combat eye fatigue, help eliminate headaches, even reduce overall body stress.

Yet, the irony is that something so good for your eyes can be such an eyesore.

In fact, most filters look like they belong to someone else's system.

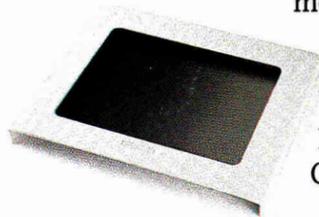
The fit is sloppy. The colors don't match. The materials are different.

Kensington has a different idea.

Instead of making a filter that will fit on any monitor, we make filters that will only fit a *specific* monitor.

An example is our Maccessories® SE Anti-Glare Filter.

It looks so much a part of the SE, you would think it was designed by the same people who designed the SE.



The styling is complimentary. The color identical. Even the same material is used.

And unlike generic filters, the fit is perfect. So light passes through the filter, never around it.

Kensington uses only optical quality glass with a ceramic anti-reflection and scratch-resistant coating.

The result is a 96% reduction in glare. And an improvement in contrast and clarity of up to 20 times.

In short, the most advanced eye-protection system you can find today—it even filters out VLF and ELF radiation and dissipates static.

Kensington has custom designed screens for the Mac, Mac Plus, Mac SE, Apple IIGS, as well as for the entire Mac II family of large screen monitors.

For a free brochure, and the dealer nearest you, call 800-535-4242. In New York call 212-475-5200.



KENSINGTON 