

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 312/540-8911 (in Canada 416/477-2818) for your nearest dealer. Or write LASER Computer, Inc., 550 E. Main Street, Lake Zurich, IL 60047.

Then let your children play with a real power tool.

That is, when you're finished using it.



We turn Apple Owners into Apple Users. For only \$6.65 a month.

Softdisk™ is a monthly two-disk collection of valuable software for your Apple® II, II+, IIc, lle, or llgs.

Learn from the Experts!

Draw on the vast experience of our software editors to provide for you each month carefully-selected programs which you can use productively...from spreadsheets to accounting programs, from roleplaying games to recipe programs, from home office to telecommunications programs. Using clearly-written documentation, you will master each new application with ease and confidence.



Contents of Issue #89*

-Electronic Learning

- Asia —Learn its countries and cities.
- The Golden Cheese—A treasure-filled maze to keep you mystified.
- Finger Spell—Learn to sign with the American Sign Language.
- Expense Master—Track your business expenses with this AppleWorks® template.
- Tree—Display the tree structure of vour ProDOS® disk.
- Print Shop® Graphics—A new variety of images for your collection.

Plus ten more programs and features!

*Available as a back issue

Become Experienced Inexpensively!

Without your investing a fortune, Sottdisk will quickly demonstrate to you the full power and versatility of your Apple II. With its wide range of software, you will learn more about the capabilities of your computer than you ever thought possible. At only \$6.65 a month, Softdisk is your best software value!

Try Softdisk for Three Months!

Each month the latest issue of Softdisk will be delivered to your door on two unprotected 51/4" disks or one 31/2" disk. Each disk is filled with great software, including utilities, games, home and business applications, and educational programs. Order now and receive **Softdisk Premium Graphics**, Vol. 4 absolutely *free!*







Available at Waldenbooks, B. Dalton Booksellers, and fine bookstores everywhere at a cover pr ProDOS, AppleWorks, and Apple are trademarks of Apple Computer, Inc. Print Shop is a trademark of Braderbund Software.

Softdisk Premium Graphics, Vol. 4* when you place an order for the next three issues of Softdisk for your Apple II! Your bonus disk contains 200 graphic images. including:

- · Signs and Symbols—Barber, Stop, Elevator...and more!
- Animals—Pig, Ram, Rhino, Dog, Cat, Buffalo...and more!
- Sports—Baseball, Basketball, Hockey, Olympic Events, and NBA Emblems...and more!
- People Pilgrim, Cowboy, Hunter, Boy, Girl...and more!

Your Satisfaction Guaranteed!

If for any reason you are not satisfied with your purchase, return your first issue for a full \$19.95 refund. Softdisk Premium Graphics, Vol. 4 is yours to keep. You just can't lose!

· LA residents add 4% sales tax.

Please rush my free Softdisk Premium Graphics, Vol. 4* and start my three-month subscription to Softdisk for my Apple II for only \$19.95 postage paid. I understand that this offer is a trial subscription and that I am under no obligation to

continue beyond three months. Canada/Mexico \$24.95 • Overseas \$27.95

Che	ck One: 🗆	Two 51/4" d	disks 👊 One 3¹/2" disk
Name			
Street Address	S		
			StateZip
Daytime Phone	e		
			☐ Payment Enclosed (U.S. Funds)
Card#			Exp. date
Signature			
=	Make check or	money order o	navable to Softdisk Publishing

Call Toll-Free 1-800-831-2694

*Premium Graphics in 31/2" format compatible only with Apple II GS.

SOFTDISK PUBLISHING P.O. Box 30008 • Shreveport, LA 71130-0008 • 318-221-8718 Circle 292 on Reader Service Card.



PRESENTS

Point-To-Point ⁵68. Point-To-Point™ is the award

Point-To-Point " is the award winning communications program. It comes with everything you need to take full advantage of your modem's built-in power.

For All Apple II Line

GS Font Editor \$31.
GS Font Editor™ is specially designed to edit the standard IIGS system fonts used by virtually all IIGS graphics based programs. For All Apple II Line

TimeOut ReportWriter ³45.
TimeOut ReportWriterTM
completely replaces AppleWorks' report formatting
module with an extremely
powerful relational report
generator.
For Whole Apple II Line

Program Writer

⁵31. Program WriterTM Beagle Bros. makes writing Basic programs as easy as using a word processor. Program development time is slashed to a minimum. For Whole Apple II Line



TimeOut TeleComm
TimeOut TeleComm
IimeOut TeleComm
Iims
AppleWorks directly 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. For Whole Apple II Line

BEAGLE BROS, INC.

ENTERTAINMENT	
ACCOLADE Mini Putt (IIGS), Mean 18 (GS)	88.
Jack Nicklaus Golf (IIGS)	
Test Drive II (GS)	
Test Drive (Ile/IIc), Bubble Ghost (IIGS)	
4th & Inches (IIGS), Serve & Volley (IIGS)	68.
BRODERBUND Wings of Fury	
Ultima I, III, Ancient Art of War at Sea	88.
Ultima IV, V	ea .
Tangled Tales (ile/lic)	
BUENA VISTA Who Framed Roger Rabbit	
CINEMAWARE King of Chicago (IIGS)	
Defender of the Crown (IIGS)	
Lords of the Rising Sun (IIGS)	
Rocket Ranger (IIGS)	
DISCOVERY Sword of Sodan (IIGS 768K)	
ELECTRONIC ARTS Bard's Tale	
Cartooner (HGS)	
Skate or Die (IIGS), Zany Golf (IIGS)	ea.
Life and Death	
World Tour Got! (IIGS)	
Bard's Tale (IIGS), Bard's Tale II (IIGS)	68.

Bard's Tale II, III	ea. 3
Chessmaster 2100, Chuck Yeager AFT	ea. 2
Hunt For Red October (IIGS)	3
Hunt for Red October (lie/lic)	2
John Madden Football (Ile/Ilc)	3
Tomahawk (IIGS)	
Halts of Montezuma (IIGS)	2
Marble Madness (IIGS)	1
Chessmaster 2100 (IIGS)	3
EPYX World Games, Winter Games	ea. 1
World Games (IIGS), Winter Games (IIGS)	ea. 1
Street Sports: Soccer (IIGS)	1
Sub Battle (Ile/Ilc, IIGS)	ea. 2
California Games, Destroyer (IIc/IIe/IIc+)	ea. 2
California Games (IIGS)	3
Project Neptune	3
Sporting Baseball, Impossible Mission II	ea. 2
The Games-Summer/Winter	ea. 2
Technocop (Ile/Ilc)	2
Impossible Mission II (IIGS)	3
F.T.L. Dungeon Master (HGS)	2
LOGICAL DESIGN WORKS	
Vegas Gambler(IIGS), Vegas Craps(IIGS)	ea. 2

and the same of th	
MASTERPLAY Star Saga I	
MASTERTRONICS	
John Elway's Quarterback (Ile/IIc)	
War in Middle Earth (IIGS)	
MEDIAGENIC/ACTIVISION	
Last Ninja (IIGS)	
Maniac Mansion, Rampage	68.
Championship Basketball (IIGS)	
Black Jack Academy (IIGS)	
Neuromancer (IIGS)	
Battlechess (IIGS)	
MICROPROSE Pirates (Ile/Ilc, IIGS)	ea.
Silent Service, F-15 Strike Eagle	ea.
Silent Service (IIGS)	
IMMOSCAPE Balance of Power	
Gauntlet, Paper Boy, Paper Boy (IIGS)	8a .
Gauntlet (IIGS)	
Super Star Ice Hockey (IIGS)	
Shadowgate (IIGS)	
Uninvited (IIGS), DejaVu I, II (IIGS)	ea.
PBI SOFTWARE (All IIGS)	
Sea Strike, Monte Carlo	ea.
Tower of Myraglen, Alien Mind	ea.

•		
53.	Cavern Cobra, Strategic Conquest	ea. 32
	SIERRA ON-LINE King's Quest 1, II, III	ea. 31
27.	Black Cauldrun (IIGS)	27
32.	Thexder (Ile/Ilc, IIGS)	ea. 24
	King Quest I, II, III, IV (IICS)	еа. 32
26.	Space Quest I,If (IIGS)	ea. 32
L 23.	Leisure Suit Larry (Ile/Ilc, IIGS)	ea. 26
27.	Leisure Suit Larry II (IIGS)	32
27.	Gold Rush (GS)	27
30.	Police Quest (IIGS), Manhunter NY (IIGS)	ea. 32
32.	SIR-TECH Wizardry, Wizardry 5	ea. 32
. 26.	Knight of Diamonds, Legacy of Llylgamyn	ea. 32
. 22.	Return of Werda	39
25.	SPECTRUM Tetris (IIe, IIGS)	25
29.	SSI Dungeon Master Asst. Vol. 1	20
. 25.	Advanced D & D-Pool of Radiance (Ile/Ilc)	33
29.	SUBLOGIC Flight Simulator II	32
29.	Scenary Disks 1 thru 6	ea. 16
32.	TAITO Arcanoid (GS)	22
. 32.	Renegade (IIGS), Quix (IIGS)	ea. 22
	Bubble Bobble (IIGS)	22
. 26.		



/lindscape: Captain Blood (IIGS)	\$ 30.
Roger Wagner: Hyper Studio (IIGS)	\$ 82.
Roger Wagner: Macromate (IIGS)	\$ 33.
Beagle Brothers: Program Write	\$ 31.
Beagle Brothers: Program Write Beagle Brothers: Timeout-Telecom	\$ 45.
Beagle Brothers: Timeout-Report Writer	\$ 45.
Beagle Brothers: GS Font Editor	\$ 31.
/ Beagle Brothers: Point-To-Point	\$ 68.
Lynx: Supergraphics 256 (IIGS)	\$ 64.
Nature Boy Soft: Animal Tracker (IIGS)	\$ 65.
FOR FAST SERVICE 1-800-248-	0363

Mon. thru Fri. 7am - 6pm - Pacific Time

FOR **FAST** SERVICE 1-800-248-0363

Mon. thru Fri. 7am - 6pm **Pacific Time**

GOLEM

COMPUTERS

WESTLAKE VILLAGE, CA 91360

special of the Month the Month (IIGS)
Hyper Studio (IIGS) \$82.00

EDUCATION

EDUCATION	ł
BARRON'S Study Program For SAT V2.0	32.
BRITANICA Jigsaw (IIGS)	25.
Algebra 1, 2, 3, 4	ea. 25.
Algebra 5 & 6	30.
Writing Skills 1-5	66.
BRODERBUND Science Tool Kit	49.
Science Tool Kit Module 1, 2, 3	ea. 27.
Geometry (GS)	53.
Where in the USA is Carmen San Diego	27.
Where in the World is Carmen San Diego	24.
Where in the World (IIGS)	30.
Where in Europe is Carmen San Diego	27.
DAVIDSON & ASSOCIATES	
Math Blaster Plus, Alge-Blaster	ea. 29.
Math Blaster Mystery	29.
Math Blaster Plus (Talking) (IIGS)	29.
Read & Roll, Word Attack Plus	ea. 29.
Math & Me, Reading & Me	ea. 24.
Math & Me (IIGS), Reading & Me (IIGS)	ea. 29.
Word Attack, Spell It, Grammar Gremlins	ea. 29.
DESIGNWARE Spellicopter, Math Maze	ea. 26.
Designasaurus (IIe/IIc) Designasaurus (IIGS), Revolution 76 (IIGS)	ea. 25.
	ea. 32.
Grammar Examiner, States & Traits	ea. 25.
The Body Transparent, European Nations ELECTRONIC ARTS	ea. 25.
Mavis Beacon Teaches Typing (IIGS)	32.
Mavis Beacon Teaches Typing (IId3)	25.
FIRST BYTE (for IIGS) (768K Req.)	23.
Mathtalk, First Shapes, Kidtalk	ea. 30.
Speller Bee, Smoothtalker	ea. 30.
Mathtalk Fractions, First Letter & Words	ea. 30.
HARDCOURT, BRACE, JOVANOVICH	ea. 30.
Computer Prep for the ACT	29.
Computer Prep for the SAT	26.
ILS SOFTWARE	20.
Computer Preparation SAT, GRE	ea. 33.
Computer Preparation LSAT, MBE	ea. 59.
MINDSCAPE Crossword Magic	33.
SIMON & SCHUSTER Chem Lab	23
Typing Tutor IV (Ile/Ilc/IIGS)	ea. 29.
THE LEARNING COMPANY	
Reader Rabbit (IIGS)	36.
Writer Rabbit, Think Quick,	-
Rocky's Boots (Ile/IIc/IIGS)	ea. 30.
Math Rabbit, Reader Rabbit, Gertrudes	
Secrets, Magic Spells (Ile/IIc/IIGS)	ea. 26.
Children's Writing	
Publishing Center (Ile/Ilc, IIGS)	40.
UNICORN SOFTWARE (IIGS Only)	
All About America, Read A Rama	ea. 40.
Math Wizard, Animal Kingdom	ea. 33.
Kinderama, Aesop's Fables	33.
WEEKLY READER Sticky Bears - ABC's,	
Numbers, Shapes, Opposites, Reading,	
Basics, Typing, Drawing, Music,	
Spellgrabber, Town Builder	ea. 29.
Shapes (Talking, IIGS)	31.
Opposites (Talking, IIGS)	31.
ABC's Talking (IIGS)	31.
BUSINESS	
BERKLEY SOFTWORKS GeoPublish	

66.
ea. 46.
47.
39.
205.
175.
60.

HOME/PERSONAL	
Wordperfect (IIGS), (IIe/IIc)	ea. S
WORDPERFECT	
People, Places & Things	ea. 2
Font Pack I, II, Symbols & Slogans,	
Graph It!	4
TIMEWORKS Publish it 2	8
SOFTWOOD Softwood GS File	€
PFS: Write w/Speller (128K PRO DOS)	6
PFS: Workmates (128K PRO DOS)	11
PFS: File & Report (128K PRO DOS)	6
PFS: Graph (128K PRO DOS)	•
SOFTWARE PUBLISHING	
SEVEN HILLS Graphic Writer III	8
Sensible Grammar Checker	5
Sensible Speller IV (PRO DOS)	ea. 6
SENSIBLE SOFTWARE Sensible Writer	6
MILLIKEN Medley (IIGS)	11
Drives)	23
The Business Accountant (Dos, 2x51/4"	
Business Works (ProDos, 2x31/2" Drives)	28
MANZANITA	
Delux Write II/Paint II Combo (IIGS)	8
ELECTRONIC ARTS Delux Write II (IIGS)	

ACCOLADE Graphics Studio (IIGS) ABRACADATA Design Your Own Home Architecture (IIGS)

Interior (IIGS)

e (IIGS)

Landscape (IIGS)	5
BAUDVILLE 816/Paint (IIGS)	4
Award Maker Plus	2
BRODERBUND The Print Shop	2
The Print Shop (IIGS), Fantavision (IIGS)	ea. 3
The Print Shop Library (IIGS)-	
Sampler, Party	ea. 2
The Print Shop Library 1, 2, 3	ea. 1
Dazzle Draw	4
ELECTRONIC ARTS Deluxe Paint II (IIGS)	€
Instant Synthesizer (IIGS)	5
Music Construction Set (IIGS)	1
Instant Music (IIGS)	1
EPYX Print Magic	4
INTUIT Quicken	3
MECA Managing Your Money	8
MECC Calendar Crafter	6
MEDIAGENIC/ACTIVISION	
Writer's Choice Elite (IIGS)	5
Paintworks Plus (IIGS)	4
Paintworks Gold (1.25MB Req.)	6
Draw Plus (IIGS), Music Studio (IIGS)	5
Paint, Write, Draw Bundle (IIGS)	٤
MONOGRAM Dollars & Sense (128K/48K)	ea. 7
OLTRAD Graphics Images (Ile/IIc)	2
Graphics Images (IIGS)	3
PASSPORT DESIGN Master Tracks	16
Master Tracks Pro	20
Master Track Jr. (IIGS)	10

UTILITY/LANGUAGE

BEAGLE BROS. Timeout Graph	5
Timeout-Superfonts, Quickspell, Telecom	ea. 4
Timeout-Filemaster, Sidespread,	
Power Pack, DeskTools II, Thesaurus	
Desktools	ea. 3
Timeout-Reportwriter	41
Timeout-Ultramacros, Spreadtools	ea. 3
Timeout-Macrotools, Macrotools II	ea. 18

Point to Point GS Font Editor, Program Writer BIG RED COMPUTER ea. 31 PS Lovers (IIGS,IIe/IIc) Labels, Labels, Labels BYTE WORKS ORCA/C, Pascal (IIGS) ea. 27 ORCA/Desktop (IIGS) ORCA/Desktop (IIGS) ORCA/M 1.1 CENTRAL POINT Copy Two Plus CHECKMATE TECHNOLOGY Proterm MICOL Advanced BASIC (IIGS) ROGER WAGNER Merlin 8/16(PRO DOS) 40. 27. 84. Softswitch (IIGS) Hyper Studio (IIGS) STREET ELECTRONICS 96. 122. Echo IIB Echo Plus TERRAPIN Logo Plus TML Pascal (IIGS), Basic (IIGS)

COMPUTERS

Source Code Library (IIGS) Speech Toolkit (IIGS) VERSACAD CAD Apple IIc/IIe

46

59

LASER COMPUTER	
Laser 128E	375
Laser 128EX	44
MONITORS	

MONTON	,
LASER COMPUTER	
Color RGB Monitor	298.
Amber, Green Monitor	ea. 105.
MAGNAVOX	
RGB/Composit (CM8762)	285.

HARRIEL ORRY DIOK DRIVES

HARD/FLOPPY DISK DE	RIVES
AMERICAN MICRO	
A.5 Drive (IIGS, Daisychainable) 51/4"	145
60MB Hard Drive w/ SCSI	817
CHINOOK Apple SCSI, Software	
CT-20 (IIE, IIGS)	600
CT-40 (Ile, IIGS)	775
CT-20c (lic/lic +)	620
APPLIED ENGINEERING	
Vulcan Hard Drives	Cal
51/4 Drive (IIc/IIe, IIGS)	119
Trans Drive Dual	294
Trans Drive Single	195
APPLIED INGENUITY	
InnerDrive 20MB (IIe, IIGS)	ea. 455
InnerDrive 40MB (IIe, IIGS)	ea. 600
LASER COMPUTER	
External Disk Drive (51/4" Laser)	90
External Disk Drive (51/4", Ile/IIc)	95
External Disk Drive (31/2" Laser)	190
Universal Disk Controller	65

MODEMS	
APPLIED ENGINEERING Datalink 1200	132.
Datalink 2400 PROMETHEUS	178.
Promodem 2400A w/ Software	145.
Promodem 2400G (external)	165.
SUPRA 2400 External	135.

MEMORY & INTERFACE

APPLIED ENGINEERING	
Ram Factor 512K (II + , IIe, IIGS)	330
Ram Factor IMB (II+, IIe, IIGS)	528
Ram Works III 512K (IIe)	286
Ram Works III IMB (IIe)	492
GS-Ram 256K (IIGS)	162
GS-Ram 1MB (IIGS)	470
GS-Ram PLUS 1MB	440
GS-Ram PLUS 2MB	750
Z-Ram Ultra 2 512K + Clock (IIc)	338
Trans Warp (II + , IIe)	145
Ram Express 256K (IIc +)	184
Ram Express 512K (IIc +)	286
Phasor (II + , IIe)	125
Serial Pro (II + , IIe, IIGS)	105
Parallel Pro, Timemaster HO	ea. 73
Parallel Pro, Timemaster HO PC Transporter 768K	ea. 73 375
PC Transporter 768K RamKeeper	375 139
PC Transporter 768K RamKeeper Ramcharger	375 139 132
PC Transporter 768K RamKeeper	375 139 132 95
PC Transporter 768K RamKeeper Ramcharger Sonic Blaster Transwarp GS	375 139 132
PC Transporter 768K RamKeeper Ramcharger Sonic Blaster Transwarp GS APPLIED INGENUITY	375 139 132 95 294
PC Transporter 768K Ramkeeper Ramcharger Sonic Blaster Transwarp GS APPLIED INGENUITY Juice Plus 1MB (GS)	375 139 132 95 294
PC Transporter 768K RamKeeper Ramcharger Sonic Blaster Transwarp GS APPLIED INGENUITY Juce Plus 1MB (GS) DIGITAL VISION Computer Eyes (IIGS)	375 139 132 95 294 250 200
PC Transporter 768K Ram/keeper Ram/charger Sonic Blaster Transwarp GS APPLIED INGENUITY Juice Plus 1MB (GS) DIGITAL VISION Computer Eyes (IIGS) MEMORY Ram's	375 139 132 95 294 250 200 Cal
PC Transporter 768K RamKeeper Ramcharger Sonic Blaster Transwarp GS APPLED INCENUITY Juice Plus IMB (GS) DIGITAL VISION Computer Eyes (IIGS) MEMORY Ram's ORANGE MICRO Hotlink (IIc)	375 139 132 95 294 250 200 Cal
PC Transporter 768K Ramkeeper Ramcharger Sonic Blaster Transwarp GS APPLIED INGENUITY Juice Plus 1MB (GS) MEMORY Ram's ORANGE MICRO Hotlink (IIc) Grappler CIMAC/GS, Prograpler	375 139 132 95 294 250 200 Cal 49 ea. 74
PC Transporter 768K Ram/keeper Ram/charger Sonic Blaster Transwarp GS APPLIED INCENUITY Juice Plus 1MB (GS) DIGITAL VISION Computer Eyes (IIGS) MEMORY Ram's ORANGE MICRO Hotlink (IIc) Grappler C/MAC/GS, Prograpler Imagebuffer	375 139 132 95 294 250 200 Cal 49 ea. 74
PC Transporter 768K Ramkeeper Ramcharger Sonic Blaster Transwarp GS APPLIED INGENUITY Juice Plus 1MB (GS) MEMORY Ram's ORANGE MICRO Hotlink (IIc) Grappler CIMAC/GS, Prograpler	375 139 132 95 294 250 200 Cal 49 ea. 74

ACCESSORIES

130

ZIP TECHNOLOGY Zip Chip (Ile/Ilc)

BLANK MEDIA (Bulk)	Ca
CH PRODUCTS Flight Stick	50
Mach III w/fire Button (IIe/IIc, IIGS)	ea. 34
Mach IV Plus (IIGS/IIc)	59
EPYX 500xj Joystick (II + , IIe/IIc, IIGS)	28
KENSINGTON System Saver	64
Turbo Mouse ADB (IIGS)	115
System Saver IIGS	69
KURTA Apple IS/GS Tablet (IIGS)	320
LASER COMPUTER Mouse	45
Expansion Box	55
Cables - Parallel, Serial, RGB, Modem	ea. 16
RIBBONS Imagewriter II, 4 Colors	7.50
Imagewriter (Black, Red, Brown, etc.)	ea. 5

PRINTERS

LASER COMPUTER	
190A (Imagewriter I Compatible, serial)	240
190E (Epson Compatible)	225
PANASONIC	
KX P1124 (80cps/24pin)	340
KX P1180 (192 cps/38 cps NLQ)	210
KX P1191 (240 cps/48 cps NLQ)	275
KX 1092i (240 cps/NLQ)	340
STAR MICRONICS NX-1000	210
NX-1000 Rainbow (Color)	265
SEIKOSHA 1000AP (Imagewriter I)	235

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 orders welcome. Sorry, no C.O.D. 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% sales tax. Include phone number with order. All sales are final. Defective items will be replaced or money refunded, at our descretion. Call for Return Authorization number. We are not responsible for suitability or compatability. Restocking fee of 15% will apply. Shipping and handling: All shipments U.P.S. if possible. Continental U.S. Software: add \$5.00; min., 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).

ALL ITEMS SUBJECT TO AVAILABILITY. PRICES AND STIPULATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

IN CALIFORNIA CALL 1-805-499-0197 Mon. thru Fri. 7am - 6pm - Pacific Time

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



00 07 210 01., 0000	in things, itt 1142/
COMPUTERS	Z-RAM ULTRA 3 w/1 M. \$61
COMPOTERS	APLUS MOUSE IIC, Mac \$7
LASER 128 Computer \$365	CH Flightstick \$4
LASER 128EX Computer \$423	
GENUINE APPLE:	Extended 80 col. for lie \$2
Apple IIc+ CPU \$534	
Apple lie CPU\$656	JOYSTICK for Ile/c/GS \$2
Apple IIG\$ \$885	Kensington System Saver \$65
Apple MacPlus, SE, II, IIx call!	KOALA Pad Plus \$8
DRIVES	KRAFT 3-but, joystick \$31
Genuine Apple 3.5", 800K	LASER 128K cables\$2
drive (IIGS/Mac) \$335	
Apple UniDisk 3.5 \$316	
Catalyst	
Applied Engineering with a 1 year warranty	Prograppier lie/IIGS \$8
with a 1 year warranty	Pro-Grappler +/IIc \$7
5.25 drive \$111	
Controller \$52	
Genuine Apple 5.25" drive	Parallel Printer Interface \$4
forlie,lic,liGS\$260	
Harddisk 20SC \$711	80 Column Card II+ \$51
Harddisk 40SC \$1028	
CENTRAL POINT 3.5° Drive\$187	
Controller \$69	STREET ELEC. Cricket IIc \$12
CMS Stack Drive for Ile/IIGS	
SD20-A2S \$650	
SD43-A2S \$815	Surge Surpressor w/6 outlets
RODIME	and circuit breaker \$2

Buffer Pro 32K . Buffer Pro 256K

Parallel Pro

IBM Keyboard w/cable PC Transporter 1768K S PC Transporter Inst. II+/IIe PC Transporter Inst. IIGS

Pocket Rocket 16K II+ RamCharger

Ramfactor w/0k
Ramfactor w/256k
Ramfactor w/512k
Ramfactor w/1 Meg
Ramfactor Exp. w/1 M.
Ramfactor Exp. w/2 M.
Ramfactor Exp. w/3 M.

RamKeeper Ramworks OK

Ramworks w/64 ... Ramworks w/256k

Ramworks w/512k Ramworks 2 Meg. exp. card w/1 Meg....\$485 w/2 Meg \$822 Ramworks III w/0K \$104

Timemaster II H.O.

ransdrive Single.

iewmaster 80 II+ Z-80 Plus .

Z-RAM ULTRA 1 w/0k ...
Z-RAM ULTRA 1 w/256k
Z-RAM ULTRA 1 w/55k
Z-RAM ULTRA 1 w/512k
Z-RAM ULTRA 2 w/0k
Z-RAM ULTRA 2 w/256k
Z-RAM ULTRA 2 w/512k
Z-RAM ULTRA 2 w/1 M
Z-RAM ULTRA 2 w/1 M
Z-RAM ULTRA 2 w/1 M

Z-RAM ULTRA 3 w/0k ... Z-RAM ULTRA 3 w/256k Z-RAM ULTRA 3 w/512k

Transdrive Double

\$528 \$149

\$82

PPLIED ENGINEERING: 16 Channel 12-bit A/D \$205

	Z-RAM ULTRA 3 w/1 M.	\$61
	APLUS MOUSE IIC, Mac	
55	CH Flightstick	
23	CH Mach III Joystick IIe/II+	
	Extended 80 col. for Ile	
34	Fan & Surge Prot	\$2
56	JOYSTICK for Ile/c/GS	
35	Kensington System Saver	\$6
ıllı:	KOALA Pad Plus	\$8
	KRAFT 3-but. joystick	\$3
	LASER 128 Mouse	\$5
	LASER 128K cables	\$2
35	Lower Case ROM, II+ only	\$1
6	ORANGE MICRO:	
39	Hotlink serial-to-parallel	
	Prograppier lie/IIGS	
	Pro-Grappler +/Ilc	
11	w/buffer	
52	Serial Grapler Plus	
	Parallel Printer Interface	
50	Graphics Printer Card	
11	80 Column Card II+	\$5
28	16K RAM CARD for 2+	
37	SMT Par. Printer card/cable	\$5
59	STREET ELEC. Cricket lic	
	Echo iib lle/+/GS	
50	SUPER SERIAL CARD	
15	Surge Surpressor w/6 outle	
	and circuit breaker	\$2
55	w/fan and 2 outlets for	
99	lle or II+	\$2
00	Thunderware Thunderscar	n
	for Imagewriter only	\$17
	MEDIA	
	MILLIA	

DRIVES	LASER 128 Mouse
enuine Apple 3.5°, 800K	LASER 128K cables \$21
	Lower Case ROM, II+ only \$19
pple UniDisk 3.5 \$316	
Catalyst \$339	Hotlink serial-to-parallel \$58
	Prograppier lie/IIGS \$84
pplied Engineering with a 1 year warranty	Pro-Grappler +/Ilc \$79
5.25' drive \$111	w/buffer \$115
Controller \$52	
enuine Apple 5.25" drive	Parallel Printer Interface \$49
	Graphics Printer Card \$59
Harddisk 20SC \$711	80 Column Card II+ \$59
Harddisk 40SC \$1028	16K RAM CARD for 2+ \$35
ENTRAL POINT 3.5° Drive\$187	SMT Par. Printer card/cable \$59
Controller \$69	STREET ELEC. Cricket IIc \$125
MS Stack Drive for Ile/IIGS	Echo iib lle/+/GS \$122
SD20-A2S \$650	SUPER SERIAL CARD \$59
SD43-A2S \$815	Surge Surpressor w/6 outlets
ODIME	and circuit breaker \$21
20 Plus ext. IIe/GS \$665	
40 Plus ext. Ile/GS \$999	lle or II+ \$24
60 Plus ext. IIe/GS \$1200	Thunderware Thunderscan
HARDWARE	for Imagewriter only \$179
	MEDIA
ENUINE APPLE:	
Apple IIc MOUSE \$79	Floppy Drive Cleaning Kit \$25
Apple lle MOUSE \$119	DISKETTES 10 5-1/4' DS/DD \$8
Apple lle enhance. kit \$59	
Apple lle mem.exp.cd \$182	
Apple Ile 256k exp. kit \$125	LASER 128EX
Apple Numeric Keypad \$55	LASER 120EA
Apple SCSI card \$119	
Apple Super Serial Card \$110	IMAGEWRITER I

	0
LASER 128EX	\$423
IMAGEWRITER II	\$465
Hayes Compatible Moden 1200 bps w/ cable	n 300, \$149
NEW SONIC BLASTER	\$94
NEW TRANSWARP GS	\$293
Remember, If You Don't S Here, CALL US for Anyt	

0147		
\$485		
\$822		
\$1158	DISKETTES 10 3.5" DS/DD S	21
\$1494	3.5" Cleaning Kit	
\$138	Disk Storage 100	15
\$90	MIDI	
\$164	IVIIDI	
\$171	Mastertracks IIGS \$1	70
\$276	SONUS Super Sequencer \$1	97
rd	Sonus Pers, Musician IIGS S	87
\$822	PASSPORT Polywriter 2	05
\$104	Passport Music Tutor \$1	59
\$179	Passport Voice Librarians	cal
\$285	Apple MIDI INTERFACE 9	89
\$491	PASSPORT MIDI INTERFACE	
\$737	w/tapesych \$1	35
\$1307	MODEMS	
. \$97	MODEIVIS	
\$104	ANCHOR Auto 1200E S	89
. \$72	ANCHOR Auto 2400E \$1	58
\$194	Signalman Light 2400 \$2	92
\$298	APPLE Personal Modem \$2	21
\$125	APPLIED ENGINEERING:	
6110	DATALIAN 200712000	

7	MODEMS	
7	INIODEINIS	
4	ANCHOR Auto 1200E S	89
2	ANCHOR Auto 2400E \$1	58
4	Signalman Light 2400 \$2	92
8	APPLE Personal Modem \$2	21
5	APPLIED ENGINEERING:	
9	DATALINK 300/1200bps int.	
1	for II+/e/GS \$1	59
9	DATALINK 1200 \$1	34
9	DATALINK 2400 \$1	79
4	HAYES MODEMS:	
6	Micromodem IIe \$1	64
1	Smartmodem 1200 Ext \$3	25
6	Smartmodem 2400 Ext \$4	67
8	PRACTICAL PERIPHERALS:	
В	1200SA \$	99
2	2400SA \$2	03
6	PROMETHEUS AND	
В	US ROBOTICS CA	LL
3	Modern Cables from \$	21
	The man wanted a service of	_

lle or II+ \$24 Thunderware Thunderscan	SOFTWARE
for Imagewriter only \$179 MEDIA Floppy Drive Cleaning Kit \$25 DISKETTES 10 5-1/4' DS/DD \$8	ACTIVISION Beyond Zork
LASER 128EX	\$423
IMAGEWRITER II	\$465
Hayes Compatib 1200 bps w/ cab	ole Modem 300/ le \$149
NEW SONIC BLA	ASTER \$94
NEW TRANSWAR	P GS \$293
Remember, If Y Here, CALL US Apple, MA	for Anything
DISKETTES 10 3.5° DS/DD \$21 3.5° Cleaning Kit	The Last Ninja \$22 BRODERBUND Ancient Art of War \$29 Bank Street Writer 64K \$42 Bank Street Writer Plus \$48
Mastertracks IIGS	CARMEN SAN DIEGO! Where in Europe \$28 Where in the USA \$24 Where in the World \$28

Print Shop w/graphics lib. Graphics Libraries Disk 1/2/3/ Holidays

Math Blaster (or) M/B Plus

ELECTRONIC ARTS Bard's Tale Bard's Tale 2 (or) 3

Chessmaster 2000 Hunt for Red October

EPYX
"THE GAMES" Winter ...
"THE GAMES" Summer
California Games

possible Mission II

Legacy of Llylgamyn ... Return of Werdna Star Trek II (Sim. & Schus.)

SubLogic Flight Simulator II

DAVIDSON

\$25	TASS TIME in TONETOWN \$25
\$30	To Heir Is Human\$30
\$37	Webster's Spell (Sim.&Sch.) \$37
\$95	WORDPERFECT IIGS,e,c \$95
175	WORDSTAR 2X (MicroPro) \$175
D	SOFTWARE FOR
١	SOFTWARE FO

FREE SHIPPING*

ON ALL ORDERS

MONITORS

PRINTERS

APPLE Imagewriter 32K Op. \$80 Imagewriter II \$465

LASERWRITER IISC ...
LASERWRITER IINTX

anasonic Laser 4450 ...

STAR NX-1000 Parallel NX-1000 Rainbow TOSHIBA P321SL......

CITIZEN EPSON LX800

LQ800

PANASONIC KXP-1180 KXP-1191i

APPLE Color Comp

APPLE RGB Analog GS Amber or Green Mono \$1 MAGNAVOXAmber/Green\$1

THE IIGS! e ask for the IIGS version

	3121011)
DELUXE PAINT	. \$73
GRAPHIC WRITER	\$109
HACKED	. \$25
HACKER	\$37
LEARNING CO.	337
Reader Rabbit GS	. \$37
Writer Rabbit GS	
Magic Spells GS	\$25
Math Spells GS	
Mastertracks MIDI	\$170
MICROPROSE	
Silent Service GS	\$25
Pirates GS	. \$25
Pirates GS MINDSCAPE	-
Defender o.t. Crown	
King of China and Co	. 331
King of Chicago GS	
\$D1	
Paperboy	
Gauntlet	. \$25
MIGHT & MAGIC	. \$34
MIGHT & MAGIC MUSIC CONSTRUCTION	\$38
MUSIC STUDIO	. \$54
NEWSMAKER	
PAINTWORKS PLUS	. \$54
PBI Software	
Sea Strike GS	. \$24
Monte Carlo GS	\$24
Tower of Myraglen GS	. \$31
Alien Mind GS	. 551
Visulaizer GS	
Pinpoint IIGS Starter Pack	. \$97
Pinpoint IIGS Starter Pack PRINT SHOP	\$97 \$36
Pinpoint IIGS Starter Pack	\$97 \$36
Pinpoint IIGS Starter Pack PRINT SHOP	\$97 \$36 \$49
Pinpoint IIGS Starter Pack PRINT SHOP	\$97 \$36 \$49
Pinpoint IIGS Starter Pack PRINT SHOP Random Hs. II Write GS Roger Wagner Mousewrite GS	\$97 \$36 \$49
Pinpoint IIGS Starter Pack PRINT SHOP Rondom Hs. II Write GS Roger Wagner Mousewrite GS Softswitch GS	\$97 \$36 \$49
Pinpoint IIGS Starter Pack PRINT SHOP	\$97 \$36 \$49 \$90 \$38
Pinpoint IIGS Starter Pack PRINT SHOP Rondom Hs. III Write GS Roger Wagner Mousewrite GS Softswitch GS SPECTRUM HOLOBYTE Gato	\$97 \$36 \$49 \$90 \$38
Pinpoint IIGS Starter Pack PRINT SHOP. Rondom Hs. II Write GS. Roger Wagner Mousewrite GS. Softswitch GS. SPECTRUM HOLOBYTE Gato. Orbitor	\$97 \$36 \$49 \$90 \$38 \$25 \$33
Pinpoint IIGS Starter Pack PRINT SHOP Rondom Hs. II Write GS Roger Wagner Mousewrite GS Softswitch GS SPECTRUM HOLOBYTE Gato Orbitor Wilderness	\$97 \$36 \$49 \$90 \$38 \$25 \$33
Pinpoint IIGS Starter Pack PRINT SHOP. Rondom Hs. II Write GS Roger Wagner Mousewrite GS. Softswitch GS. SPECTRUM HOLOBYTE Gato Orbitar Wilderness SIERRA ONLINE	\$97 \$36 \$49 \$90 \$38 \$25 \$33
Pinpoint IIGS Starter Pack PRINT SHOP Rondom Hs. II Write GS Roger Wagner Mousewrite GS Softswitch GS SPECTRUM HOLOBYTE Gato Orbitor Wilderness SIERRA ONLINE Kinds Quest 1/2/3GS.	\$97 \$36 \$49 \$90 \$38 \$25 \$33 \$31
Pinpoint IIGS Starter Pack PRINT SHOP Rondom Hs. II Write GS Roger Wagner Mousewrite GS Softswitch GS SPECTRUM HOLOBYTE Goto Orbitor Wildermess SIERRA ONLINE Kings Quest 1/2/3GS Leisure Suit Lorny GS	\$97 \$36 \$49 \$90 \$38 \$25 \$33 \$31 \$25
Pinpoint IIGS Starter Pack PRINT SHOP. Rondom Hs. II Write GS Roger Wagner Mousewrite GS Softswitch GS SPECTRUM HOLOBYTE Gato Orbitar Wilderness SIERRA ONLINE Kings Quest 1/2/3GS Leisure Suit Larry GS Space Quest IIGS.	\$97 \$36 \$49 \$90 \$38 \$25 \$33 \$31 \$25 \$31
Pinpoint IIGS Starter Pack PRINT SHOP. Rondom Hs. II Write GS Roger Wagner Mousewrite GS Softswitch GS SPECTRUM HOLOBYTE Gato Orbitar Wilderness SIERRA ONLINE Kings Quest 1/2/3GS Leisure Suit Larry GS Space Quest IIGS.	\$97 \$36 \$49 \$90 \$38 \$25 \$33 \$31 \$25 \$31
Pinpoint IIGS Starter Pack PRINT SHOP Rondom Hs. II Write GS Roger Wagner Mousewrite GS Softswitch GS SPECTRUM HOLOBYTE Gato. Orbitor Wilderness SIERRA ONLINE Kings Quest 1/2/3GS Leitsure Suit Lorry GS Space Quest IIGS Softwiew Taxwiew GS Talking Textwriter GS	\$97 \$36 \$49 \$90 \$38 \$25 \$31 \$25 \$31 \$64 \$150
Pinpoint IIGS Starter Pack PRINT SHOP Rondom Hs. II Write GS Roger Wagner Mousewrite GS Softswitch GS SPECTRUM HOLOBYTE Cato Orbitor Wilderness SIERRA ONLINE Kings Quest 1/2/3GS Leisure Suit Larry GS Space Quest IIGS Softwier Taxview GS Talking Textwriter GS TOP DRAWER GS	\$97 \$36 \$49 \$90 \$38 \$25 \$33 \$31 \$25 \$31 \$54 \$150
Pinpoint IIGS Starter Pack PRINT SHOP. Rondom Hs. II Write GS Roger Wagner Mousewrite GS Softswitch GS SPECTRUM HOLOBYTE Gato Orbitar Wilderness SIERRA ONLINE Kings Quest 1/2/3GS Leisure Suit Larry GS Space Quest IIGS.	\$97 \$36 \$49 \$90 \$38 \$25 \$33 \$31 \$25 \$31 \$64 \$150 \$54 \$30

IIGS **HARDWARE**

Writer's Choice Elite IIGS \$54

APPLE IIGS Computer.	\$885
Apple IIGS mem.exp	
Applied Engineering:	
Colorlink GS/Analog .	\$97
GS-RAM 0k	\$81
GS-RAM 256k	\$161
GS-RAM 512k	\$263
GS-RAM 1Meg	
GS-RAM 1.5Meg	
GS-RAM Plus 1 Meg	
GS-RAM Plus 2 Meg	\$770
GS-RAM Plus 3 Meg	
GS-RAM Plus 4 Meg	
PC Trans. Inst. IIGS .	
NEW from Applied Eng	gineering:
SONIC BLASTER GS .	\$94
TRANSWARP GS	
Kensington Sys.Saver I	
Kensington Sys.Saver KURTA IS GS Digitizing 1	
KURTA IS GS Digitizing 1 w/ stylus	Tablet \$299
KURTA IS GS Digitizing 1	Tablet \$299
WURTA IS GS Digitizing T w/ stylus	S299 \$299
WURTA IS GS Digitizing 1 w/ stylus	fablet \$299 \$24
KURTA IS GS Digitizing 1 w/ stylus Joystick for IIGS MDIDEAS Conserver IIGS Professional Digitizer	Tablet \$299 \$24 \$124 \$139
KURTA IS GS Digitizing W/ stylus	fablet \$299 \$24 \$124 \$139 \$59
KURTA IS GS Digitizing W/ stylus	Tablet \$299 \$24 \$124 \$139
KURTA IS GS Digitizing W/ stylus	fablet \$299 \$24 \$124 \$139 \$59
KURTA IS GS Digitizing I w/stylus	Tablet \$299 \$24 \$124 \$139 \$59 \$59 \$62
KURTA IS GS Digitizing 1 w/stylus	Tablet \$299 \$24 \$124 \$139 \$59 \$59 \$62
KURTA IS GS Digitizing 1 W/stylus	Tablet
KURTA IS GS Digitizing 1 w/stylus	Tablet \$299 \$24 \$124 \$139 \$59 \$59 \$62 \$84 \$239
KURTA IS GS Digitizing w/stylus Joystick for IIGS Joystick for IIGS MDIDEAS Conserver IIGS Professional Digitizer Supersonic (Stereo) Supersonic Digitizer ORANGE MICRO Juice Box GS Grappier G/Mac/GS Rampac 512k GS Street Elec. Echo bil for Ilet-f/GS	Tablet \$299 \$24 \$124 \$139 \$59 \$59 \$62 \$84 \$239
KURTA IS GS Digitizing 1 w/stylus	Tablet \$299 \$24 \$124 \$139 \$59 \$59 \$62 \$84 \$239 the \$122

NO EXTRA CHARGE DISCOVER. VISA. MASTERCARD 1-800-227-6647 Orders Only. For All Inquiries, Tech Support & NY: Call 718-479-7888

\$20

Free shipping via UPS/USPS ground within the continental U.S. *Add insurance and handling fee to all orders. We cannot guarantee prices or weather; both tend to change. Call for current prices & sale flyer. Min. restocking fee 20%. No returns without prior authorization. (InCider, A/Plus 7/89)

PUBLISHER Paul Boule

EDITOR IN CHIEF Dan Muse

MANAGING EDITOR Eileen T. Terrill

SENIOR EDITOR Paul Statt

TECHNICAL EDITOR William Kennedy, Ph.D.

REVIEW EDITOR Lafe Low

COPY EDITOR Ellen Ratner Otis

EDITORIAL ASSISTANT Janet Cote

WEST COAST EDITOR Jeff Cable

CONTRIBUTING EDITORS Joe Abernathy Cynthia E. Field, Eric Grevstad, Scott Mace Tom Sherman, Ruth K. Witkin

FIELD EDITOR Babs Cringely

DESIGN

ART DIRECTOR Linda Sweeney

SENIOR DESIGNER/AD GRAPHICS Dianne K. Ritson

PRODUCTION MANAGER/DESIGNER Varvara Auer

ADVERTISING

ASSOCIATE PUBLISHER/ Dale Strai NATIONAL SALES MANAGER (800) 441-4403

NORTHEAST SALES REPRESENTATIVE Peter Slingluff

(800) 441-4403

WESTERN SALES REPRESENTATIVE James Burns

3350 W. Bayshore Rd. Suite 201 Palo Alto, CA 94303 (415) 328-3470

NORTHWEST SALES REPRESENTATIVE Ianet Wright

(415) 328-3470 MARKETPLACE/CLASSIFIEDS Fiona Davies

SALES REPRESENTATIVE (800) 441-4403

ADVERTISING COORDINATOR Mary Hartwell (800) 441-4403

ADMINISTRATIVE ASSISTANT Carmen Bryer WESTERN SALES ASSISTANT Kathleen Roberts

MARKETING SERVICES/PROMOTION

MARKETING MANAGER Peg Brown MARKETING ASSISTANT Rita Rivard

CORPORATE PRODUCTION

MANUFACTURING MANAGER Leslie A. Walden TYPESETTING MANAGER Lindy Palmisano

TYPOGRAPHER Heidi N. Thomas

IDG COMMUNICATIONS/PETERBOROUGH

PRESIDENT Roger J. Murphy

EXECUTIVE VICE PRESIDENT/ Stephen D. Twombly PUBLISHING DIRECTOR

VICE PRESIDENT Dennis S. Christensen MANUFACTURING/OPERATIONS

SINGLE-COPY SALES DIRECTOR Linda Ruth

MARKETING MANAGER/SINGLE-COPY SALES Michael P. Carroli (800) 343-0728

NEWSSTAND PROMOTION MANAGER Debbie Walsh

CIRCULATION DIRECTOR, INCIDER Megan Lane (800) 289-0619

ASSISTANT CIRCULATION MANAGER, INCIDER Laurie K. Seamans

DIRECTOR OF CREDIT, SALES, William M. Boyer AND COLLECTION

> AUDITS AND STATISTICS Cecile Giguere FOUNDER Wayne Green

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



Bureau inCider (ISSN 90740-0101) is published monthly by IDG Communications/Peterborough, Inc., 80 Elm Street, Peterborough, NH 03458. Phone: (603) 924-9471. Second-ciass 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 mCider, Subscription Services, P.O. Box 55618, Boulder, CO 80322-8618. (Send Canadian changes of address to: mCider, P.O. Box 1051, Fort Erie, Ontario L2A 5N8.)

Æ Update...

Vulcan internal hard drives are now shipping. Vulcan for the IIGS, IIe or II Plus, combines a heavy duty power supply, cooling fan and 20, 40 - up to 200 MEGs of hard drive memory. The 70 watt power supply has nearly twice the capacity of others and its components are heatsinked to the aluminum case. Vulcan's fan runs a cool 104°F compared to 140°F w/o fan and under a full load. Vulcan tests out significantly faster than the fastest drive tested in the last issue of A+. In every category: verifying disks, booting GS/OS, loading AWGS, disk timer, etc. The 20 MEG Vulcan with controller card and software retails for \$649.

Robert J. Carroll has joined AE as president and CEO. Carroll has extensive experience leading technology companies during periods of rapid growth. He has set his sights on taking AE to the next level by aggressively marketing existing products and introducing new products. Company founder Dan Pote continues as chairman and will head the growing research and development department.

Memory card prices have been reduced from \$10 to more than \$700, depending on the card's configuration. The more memory on the card, the greater the savings. For example, AE's best-selling GS-RAM Plus w/1 MEG has gone from \$599 to \$509.

EasyLink communications software is now shipping. EasyLink is a user-friendly telecommunications program for the IIGS, enhanced IIe, IIc and IIc Plus. It includes advanced features like multiple windows, a Mac-like interface, full mouse or keyboard support, VT-100 emulation for both text and graphics and powerful macro capabilities. EasyLink retails for \$99.

Soon to be released Audio Animator is taking full advantage of Apple's new System 5.0 and Apple's MIDI tools. Audio Animator will include MIDI sequencing software along with it's MIDI interface. Audio Animator is also a top-quality stereo digitizer and comes with sound editing software. AA's sound quality is unsurpassed, even for serious audiophiles.

A disk caching option will soon be available for AE's Vulcan hard disk. While Vulcan is already the fastest hard drive available for the Apple II series (and we've extensively tested with System 4.0, System 5.0, with and without RamKeeper, TransWarp GS, etc.), the new caching option will provide even greater speed for mega-performance types. The caching option is compatible with all existing Vulcans and can be purchased with Vulcan or separately.

A new native mode driver for RamKeeper boosts RamKeeper's speed by 25-50%. The driver is now available for RamKeeper owners on the AW2 Expander Disk and requires version 1.4 or later of the RamKeeper ROM. Upgrades are \$19.95.





You're running a lot of extremely expensive software programs on your Apple II computer. Spreadsheets, data base, graphics, page layout...And you love all this stuff. Except for one not-so-little problem.

The waiting. Sometimes, retrieving information from your disk drives is slower than inter-office mail.

But you don't have to waste your time waiting on disk drives. Our Multi-Kache Card disk controller can make sure of that.

Here's how it works. The Multi-Kache Card uses a high-speed processor to read and write data from your disk drives. And this same processor stores your data in its high-speed "cache" memory before transferring it to your Apple computer. With disk-intensive programs, this eliminates constant, time-consuming data retrievals from your disk drives.

What this process gives you is speed. Serious speed. You won't have to wait for your programs to load or run. In fact, you'd better get your coffee before you load your program.

And you get all this speed without taking up any of your system memory. Speed that out-performs a RAM disk two to one. But speed that keeps your data safe as any non-volatile disk storage. And, since your disk drive isn't working itself to death — The Multi-Kache Card actually prolongs your disk drive's life.

But The Multi-Kache Card doesn't require a degree in Rocket Science to install or use. You simply plug it into one of the available slots in your Apple computer.

And The Multi-Kache Card is no stranger to your current hardware. In fact, it's compatible with most Apple 3.5 and 5.25 disk drives. And our newest option—the SCSI option—makes it compatible with any SCSI hard disk drive. And makes data transfers up to 10 times faster than any other SCSI board.

Of course, there's a lot more technical information we could tell you about The Multi-Kache Card. But first, try our 15-day trial—at absolutely no risk or obligation. And the time you save by using The Disk Accelerator will give you the leisure to browse through The Multi-Kache Card's impressive specs.

Call or write for our free brochure.



Ohio Kache Systems Corp. 4162 Little York Road, Suite E Dayton, Ohio 45414-2566 1-800-338-0050

Multi-Kache Card is a registered trademark of Ohio Kache Systems Corp Apple II is a registered trademark of Apple Computers, Inc.





ARTICLES

14

AppleWorks 3.0: A New Classic

Exciting new features make this 8-bit integrated program even more versatile, efficient, and powerful than the original. Anything AppleWorks 2.1 can do, version 3.0 can do better—and just as easily.

50

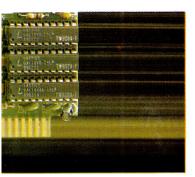
Breaking the Speed Limit

Don't let the dog days of summer slow you—or your Apple—down. Rev up your II's operations with an accelerator chip or speedup board, and watch your long-distance runner become a champion sprinter.

60

The Medium Is the Message

Turn your lectures and speeches into dynamic presentations. Captivate your audience with Apple II graphics and videos that illustrate your point and create an immediate, lasting impression.



COLUMNS

inCider's View • Dan Muse Caught Looking
Stattus Report • Paul Statt Something Strange
AppleWorks in Action • Ruth Witkin Database Doings 2
Press Room • Cynthia E. Field, Ph.D. Living Color
Apple IIGS BASICs + Joe Abernathy Tools to Draw On
Speaking of Graphics + Roberta Schwartz
and Michael Callery Mousing Around
Learning Curve • David Thornburg Taking Chances
Mace on Games + Scott Mace

New Adventures

p.	50



p. 60

DEPARTMENTS

DEFINITION
Letters to the Editor
What's New Software, Hardware, Games, Bits 16
Apple Clinic Panel of Experts: Control-Panel Access, Jammin', Copy Protection, Applesoft Program Proofer
Reviews MacroMate, Mad Match, Hometown U.S.A., Super Sign Maker, Read 'N Roll, At a Glance
Games Editors Play TrianGO GS, Space Quest II GS, Short Takes
Hints & Techniques Best Bye: ProDOS Better Bye, Time Commands
Editors' Choice HyperStudio: Hypertext for Your GS 108



INCIDER'S

We were sitting on the fastball when AppleFest threw us a curve: Things are looking up in the Apple II world.



By DAN MUSE # EDITOR IN CHIEF

MY HIGH-SCHOOL BASEBALL COACH used to say, "When you think you have the fastball timed, look out for the curveball."

High school's a distant memory, but that advice holds true both in baseball and in general. I thought I had drawn a bead on the Apple II market: Apple cutting support for the II line, developers not developing, retail stores not stocking II software. . . . It wasn't pretty, but I knew what to expect. The curveball, however, caught me by surprise.

In this case, the curveball was AppleFest/Boston and a couple of product announcements made on its heels. Negative rumors of the fate of the Apple II abounded. We know because we circulated a lot of those rumors. To be honest, there weren't a lot of reasons to be excited about AppleFest. Claris, Electronic Arts, Epyx, Mediagenic, and other prominent software companies had announced they weren't attending. Advertisements and promotional material implied a heavy Macintosh influence.

In baseball talk, we were sitting on the fastball—waiting for AppleFest to bomb—so that we could jump on it. But the curveball of success caught us looking.

Twenty-two thousand Apple II enthusiasts attended AppleFest. And not many of those 22,000 were talking about the Macintosh. They were talking about the latest version of the GS operating system, and about Roger Wagner's HyperStudio; they would have been talking about AppleWorks 3.0 and Broderbund's New Print Shop, too, if they'd known about them.

The newest version of GS/OS, also called System Disk 5.0, adds life to the IIGS. It speeds up some operations so much you'd swear you were looking at a new computer. (See What's New, p. 18.) Software such as AppleWorks GS and Medley, when revised to run under 5.0 and maybe TransWarp GS, act like new programs. And if you've been trying to use the GS on the AppleTalk network, 5.0 is the best thing you could have hoped for.

HyperStudio is the kind of product that makes you realize how powerful the Apple IIGS is. (See Editors' Choice this month, p. 108.) We've been impressed by stunning graphics programs, powerful sound products, dazzling digitizers, and videooverlay cards, but the last piece of the puzzle—the one that makes everything work together—has been missing until now.

If you use an Apple IIe and are beginning to feel neglected, don't worry. There's still plenty to get excited about. HyperCard-like products aren't restricted to the GS. In fact, Techware has been selling Tutor-Tech, the IIe equivalent of HyperCard, for a couple of years. The newest version takes advantage of the Apple II Video Overlay Card. The most exciting thing, however, is that Techware has announced that Tutor-Tech will feature the ability to import Mac HyperCard stacks.

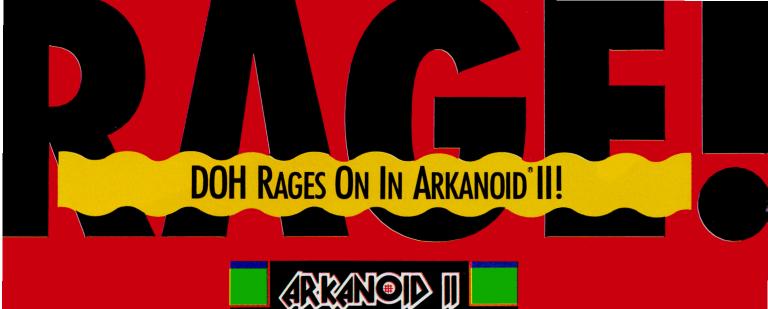
What if you don't care about hyper this and interactive that? If you're content in the pragmatic world of AppleWorks, you'll benefit from the best news of all—AppleWorks 3.0.

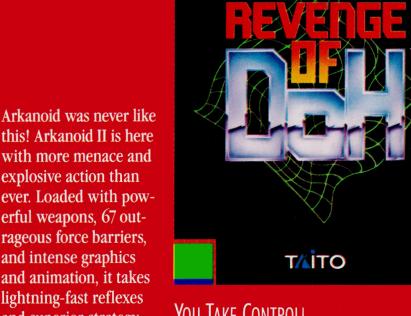
The AppleWorks 3.0 curveball caught me offguard. Claris set me up for it. The company decides not to show its face at the only Apple II show, and then a month later announces a significant upgrade to its 8-bit AppleWorks. What gives?

Whatever the reason for skipping the show, AppleWorks is impressive. It makes the best integrated computer program even better, adding features you've been asking for, but keeping that familiar, comforting AppleWorks look. The changes in 3.0 are subtle, but powerful. (See "AppleWorks 3.0: A New Classic," p. 44, for details.)

Not to be outdone, Broderbund has announced a revision to the second most popular Apple II program, The Print Shop. While The Print Shop is the standard by which low-cost, easy-to-use publishing programs are measured, it needed a facelift. (See What's New, p. 17.) A tip of the cap goes to Broderbund for not forgetting the product and the people who helped it get where it is today.

Things are looking up in the Apple II world. Of course, if you've read my columns in May and June you wouldn't think so. Maybe I've been getting a little too predictable, looking for bad news the way sluggers look for fastballs. Journalists are like power hitters. You have to throw a curveball at us once in a while to keep us honest.





this! Arkanoid II is here with more menace and explosive action than ever. Loaded with powerful weapons, 67 outrageous force barriers, and intense graphics and animation, it takes lightning-fast reflexes and superior strategy to survive! But survival is just the beginning.



With the Arkanoid Construction Set, you create the game! IBM EGA/VGA screen.

YOU TAKE CONTROL!

The new Arkanoid Construction Set[™] gives you the tools to master the game. Build complex force barriers. Create exciting and original levels of play. Challenge the force of DOH! Arkanoid Construction Set available for Apple IIGS, IBM, and IBM compatible personal computers.



Smasb 67 action-packed levels. IBM EGA/VGA screen



Power up with supercharged energy capsules. Apple IIGS screen.



Blast tbrough the force of DOH. Tandy 1000 screen.



If you cannot find this product at your local retailer, Visa/MasterCard holders can order direct anywhere in the United States by calling toll free 1-800-663-8067.



II GOOD II FORGET

HE APPLE IIGS IS DEAD, LONG live the Macintosh," appears to be Apple's continuing philosophy. If Apple persists in its present course, the future II will be a Mac/Apple II hybrid capable of handling both systems. The company, apparently, is trying to convert all Apple II users to the Macintosh line. Now Apple's trying to force the Mac into the K-12 market with its support and pricing policies.

If Apple wants to continue propagating only the Macintosh line, why not sell the Apple II rights to a company that's interested in supporting the II? Or alternatively, how about creating a separate company, as it did with Claris? A competitively priced IIGS running at 7 megahertz or more, with a megabyte of memory on board, stereo-sound output jacks, built-in SCSI interface, and a math-coprocessor socket would scare the pants off most of Apple's competitors. The problem is it also scares the pants off Apple.

Mark S. Snyder, Engineer Link Simulation Systems 11800 Tech Road, MS #208 Silver Spring, MD 20904

UP IN ARMS

'M STILL SHOCKED AFTER READing John Sculley's quote in April's What's New (p. 15). If I need to own a Mac II to continue with Apple Computer in the future, I guess I'd better sell my IIGS today and buy an IBM, or at least consider the PC Transporter.

The Mac II is an amazing machine. The monitor's resolution, the microprocessor's powerful capabilities, and the machine's expandability should make even the boys at Big Blue a little concerned. But its amazing price

tag will make some buyers look to more affordable alternatives. Let's hope the GS and its cousins will be nearby.

Mr. Sculley's statement should have all II users up in arms. We've made a sizable investment in a company whose president is hinting that its future lies with another machine! Granted, even if Apple axed the II line today, there'd be a large enough user base to keep it alive for some time. But don't be naive enough to think that the II line would survive long if Apple nudged it politely out on the street.

David Hindman 8 Wheatland Drive Hutchinson, KS 67502

STATTUS REVIEW

F ALL YOUR EDITORS, PAUL Statt seems to be most guilty of muddy thinking and faulty logic. His April Stattus Report ("Write It Yourself," p. 20) exemplifies this point. Mr. Statt described typical programmers accurately. They're mathematically inclined, obsessed with squeezing maximum performance from the hardware, and continue to burn the midnight oil while columnists are fast asleep. He then turns around and says he doesn't care for programs that typical programmers write.

If only programmers were more like him, he bemoans. Mr. Statt admits he's never written a program more complicated than an envelope addresser—hardly the peak of programming excellence. Yet he states that because there are six times as many writers as there are programmers, it's more likely that "some writer will tickle my fancy than some computer programmer will." All he'll end up with, then, is a lot of sluggish, buggy programs to address envelopes.

It's at least six times as hard to be a good

programmer as it is to be a good writer. I agree with Mr. Statt that more programmers would mean more diversity, but they have to be *programmers*, not writers. If you want good software, go to a programmer. If you want good literature, go to a writer. And if you want muddy thinking and cloudy logic, read Stattus Report.

Brent P. Glines P.O. Box 6284 APO NY 09012

Paul Statt replies, "If there were more programmers like me, it's true there'd be more bad programmers. But there also would be more good programmers if only there were more programmers. A rising tide floats all boats. (That, by the way, is a metaphor, not muddy thinking or cloudy logic.)"

—eds.

WHERE WAS TAWUG?

E ENJOYED READING "Templates from Heaven" (May 1989, p. 46), but there was one glaring error! You failed to mention The AppleWorks User Group. TAWUG has been in operation for more than four years, sending disks throughout the United States and overseas.

Joseph H. Madden, Jr.
President
Computer C.A.C.H.E.
The AppleWorks User Group
P.O. Box 37313
Denver, CO 80237-7313

Cynthia Field concedes that if the article had been meant as an exhaustive AppleWorks resource guide, she certainly would have included TAWUG. Faced with limited space, however, she selected disks she felt best exemplified the breadth of ready-made AppleWorks applications. —eds. ▶



Live Long and Prosper

Permit us a logical prediction. With Vulcan,™ the Apple II series will continue to live long and prosper. Applied Engineering's latest triumph, Vulcan, lives!

Vulcan high-speed internal hard disks for the Apple IIGs, IIe and II+, combine high speed flexibility and ease-of-use with sheer, raw power. The result? A quantum leap forward into the Apple II future.

Stop that infernal disk swapping and file splitting and store your massive new megaprograms on Vulcan. Speed up booting and access time while you save wear and tear on your disk drives.

Flexibility.

Choose a Vulcan from 20, 40, 100—all the way to a staggering 200 MEGs. Your Vulcan can grow as your needs grow. Start with a Vulcan sized for your current needs and upgrade to a bigger size later. Use virtually any operating system: GS/OS, ProDOS 8, DOS 3.3, CPM or Pascal 1.3. Vulcan supports them all. Choose your own partitioning scheme. Sixteen partitions with

four accessible simultaneously. And partitioning and backup utilities are included. Choose an available slot. 1, 2, 4, 5, 6 or 7. Even pseudo-slot to slot 7 from another slot. Vulcan understands.

Sheer, raw power.

Vulcan's built-in power supply checks in at 70 watts. That's nearly twice the capacity of competing systems. A truly heavy-duty power supply with enough punch to safely handle a motherboard full of expansion cards. To harness all that power, Vulcan contains an ultra-quiet cooling fan. For speed, Vulcan incorporates a 16-bit data bus controller, not an 8-bit like others.

Ease of use.

Vulcan lives in the space the stock, Apple power supply formerly occupied under your Apple's hood. Just pop out the old one, slip Vulcan into its place, plug in the expansion card and connect one cable.

Your Apple II is finally ready to go up against the big boys.

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.

Vulcan	20	MEG							\$649
Vulcan	40	MEG							\$849
Vulcan									

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.



WHAT'S IN A NAME?

S PRESIDENT OF A USER group, I've spent many hours educating our members about publicdomain, shareware, copyrighted, and commercially sold software. Then you, a reputable publication, refer a shareware purchaser to the Shareware Connection (Letters, "Shareware Beware," March 1989, p. 12), implying that all the software advertised is shareware. We talked with Randy Brandt and Glen

Bredon; both stated their programs aren't shareware.

There are those of us who support copyrighted, commercially sold software and discourage piracy. Give us a break; don't make it even harder for us to clarify the differences.

Bettie Graves 2537 South Franklin Avenue Springfield, MO 65807

We understand your concern over misusing the word shareware. We didn't intend to confuse or trick people into buying "free" software. A lot of excellent Apple II programs exist, but because the developers can't afford to market their products aggressively, many people never discover them. inCider created the Shareware Connection with this premise in mind.

We tested dozens of shareware programs and included only the best in the Shareware Connection. We also discovered that many readers were unaware of high-quality programs such as MiniPaint and ProSel. By providing toll-free numbers and taking credit-card orders, we hoped to provide a service to both our readers and developers.

Shareware purists can lay their fears to rest, however. While we still believe in the concept, we've decided to eliminate the Shareware Connection. —eds.

The Sensational Lasers

Apple Ile/Ilc Compatible

ONLY \$395 Includes 10 free software packages!



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........\$395

Super High Speed Option!

ONLY \$459

The LASER 128EX™ has all the features of the Laser 128, plus a high performance triple speed processor, and memory expansion to 1MB. Get the Apple compatible that's three times faster than the lle or IIc!.....\$459

DISK DRIVES

5 1/4" Laser External Disk Drive	\$10
5 1/4" Apple Ile Compatible Disk Drive	\$10
5 1/4" Apple IIc Compatible Disk Drive	\$10
3 1/2" Apple Compatible Disk Drive	\$17

Save Money by Buying a Complete Package!

THE STAR: A Laser 128 Computer with 12" Monochrome Monitor and the Laser 190 Printer...... \$695.00

THE SUPERSTAR: A Laser 128 with 14" RGB Color Monitor and the Laser 190 Printer......\$883.00

ACCESSORIES

12" Monochrome Monitor	\$89
14" RGB Color Monitor	\$249
Laser 190 Printer	
2400 Baud Modern	\$149

YOUR DIRECT SOURCE FOR APPLE AND IBM COMPATIBLE COMPUTERS

Your satisfaction is our guarantee!

Phone Orders: 1-800-654-5426

5 Mountain Time . No Surcharge on Visa or MasterCard Orders! tomer Service: 1-800-537-8596 • In Colorado: (303) 938-9089

TRIAL AND ERROR

LOT OF PEOPLE ARE UPSET with Apple for suing Microsoft for Windows and Hewlett-Packard for its New Wave software interface in the PC world. I feel the idea of whether a company can copyright windows is the same as whether a manufacturer can copyright a car's brake and gas-pedal location. In other words, it's a good idea to standardize some things.

The courts are going to take years to settle this issue. However, we can have a say by writing Apple that we're opposed to the suit. To reinforce how we feel, we should tell the company that we won't buy any more Apple products, unless it drops the lawsuit against Microsoft and Hewlett-Packard. For every sale of 166 \$6000 computer systems, this'll cost Apple a million dollars.

It's better for a company to devote its resources to producing a better product, than to spend its resources trying to stifle freemarket competition.

Larry Nestor 6250 Parima Street Long Beach, CA 90803-2108

We agree that Apple should devote more of its resources to developing and improving Apple II products.

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



Compatible

The SupraModem 2400 is 100% compatible with industry-standard, intelligent "AT" commands and all commonly used protocols (including Bell 103/212A, CCITT v.22, and CCITT v.22bis). Since the SupraModem operates asynchronously at 300, 600, 1200, and 2400 baud, you can communicate at whatever rate you need to. All these features let you use the SupraModem 2400 to connect with most modems being used today.

Affordable

In addition to its low price, the SupraModem 2400 will save you money by letting you communicate at 2400 baud, thus decreasing your on-line time. The SupraModem 2400 incorporates the advanced Intel 89024MS chip set. This design utilizes fewer parts, assuring operation long after the one-year warranty period.

The SupraModem 2400 is very easy to use. It features autoanswer and autodial (tone and pulse) for performing phone tasks, and it has a programmable-volume speaker for monitoring call progress. Storing phone numbers and user configurations is also simple because of the modem's programmable nonvolatile memory.

These features and others are explained thoroughly in the comprehensive *SupraModem 2400 Operator's Manual.* Once you understand the basics, the modem's quick-reference card makes finding command descriptions and other modem information quick and simple.

And to make it even easier to begin telecomputing, the SupraModem 2400 comes with introductory packages for several popular on-line services.

5

Supra Corporation

1133 Commercial Way / Albany, OR 97321 U.S.A. Phone: (503) 967-9075 / Fax: (503) 926-9370 Telex: 5106005236 (Supra Corp)

Available at Your Local Dealer or Call (800) 727-8772 (Orders Only)



Look Here First!



MASTER

Those who use it know it's the best. DB Master Professional is the most powerful, yet easy to

use data base manager for the Apple II. With DB Master Professional not only can you sort, select and tally, you can cross reference, calculate, create formatted reports, generate form letters, update other categories and files, and more. DB Master Professional speaks your language — simple commands for complex operations. \$239.00

fast lane with an accelerator chip from Zip Technology. Choose your need for speed-4 or 8 mhz. Easy to install, addresses all memory, compatible with all software and hardware. Need an upgrade? We'll give you \$50 for your current accelerator with the purchase of an 8 mhz. Zip Chip. 4 mhz. - \$139.00.8 mhz. -

\$179.00. Coming this Fall! 8 mhz. Zip Chip for the IIgs - \$249.00.

Move your com-

puter into the

ROTERM

We've tried them all and none compare. Pro-

term combines almost every imaginable feature while keeping the program fast and easy to use. Whether you're a programmer,

professional, or just starting out, there isn't a better communications program for you than

Proterm. Features include: scroll back buffer, 1 key macros, VT emulation, password protection, remote down loads, 2 modem transfer protocol, and more. \$93.00.

YOUR HARD DISK SOURCE



ARD-DISKS

It's no secret. SCSI is the key. Apple's big plan for the Apple II is based on SCSI technology.

CHINOOK: Full SCSI compatibility, quiet operation, small in size, Apple SCSI interface card, 1

year warranty. Chinook has proven to be one of the most reliable units available. Works with Apple IIe, IIc, IIgs, and Mac compatible computers. EasyDrive recommended but not included. CT20

\$639.00, CT 40 - \$800, CT 20C - \$645.00

CMS: Fully SCSI compatible, the CMS series comes with

their own interface for the Apple II or you can use Apple's interface, a good bet! Mac compatible. With CMS you can have an Apple II and a Mac share the same unit, simultaneously! I year warranty available. Comes in a variety of sizes. EasyDrive recommended but not included. 20 meg. - \$629.00, 30 meg. -\$719.00, 40 meg. -\$769.00, 60 meg. -\$839.00, 80 meg. + - Call.

SIDER: D2 - \$499.00, D4 - \$645.00, D4T - \$855, D9 - \$1,465.00, C96 - \$2,155.00.

EASYDRIVE: Designed to make hard-disks user-friendly for the beginner and professional. Set up custom menus, and launch programs at the touch of a key. Status graphs display disk space and optimization information. Includes a ProDOS beginners book that illustrates ProDOS and examples of hard-disk set-ups. \$69.95.



AGNA CHARTA

You won't find a better graphing utility! Create impressive, multi-colored, 3-D images. Put your data in perspective with 9 different styles of charts, then bring them to life with full, crystal-clear color. Your data

will become a work of art! Magna Charta is easy to use, fast, and you'll love the detailed output. \$47.00.

The best 51/4 drive available. We tried dozens of 51/4 drives, but not one came close to offering as much as this one. Not even at twice the price. The MP6 offers 320K capacity treating both sides of the disk as one device. Or, you can use the toggle switch to electronically flip a 2 sided disk. Crystal controlled disk speed means NO DISK SPEED FLUCTUATION, the leading cause of lost data. Packed with features, the MP6 offers: noiseless operation, disk eject, daisy chain port and more. The MP6 is made in the USA, and comes with a 2-year warranty - parts and labor. You can look but you won't find a better drive for any price. \$179.00.

G



e, peripherals, and enhancements...

OC Cliphoord

	QC C	lipboard	
TimeOut Series: Thesaurus,	Desktools	MISCELLANEOUS:	
1&II, Sidespread, PowerPack,	Spread	Pack of 10 5.25 Diskettes	6.95
Tools 1&11	31.00	Pack of 10 3.5 Diskettes	9.95
Graph	52.00	5.25 Disk Storage Case (50)	12.00
Quickspell, Superfonts	44.00	3.5 Disk Storage Case (30)	12.00
Ultramacros	37.00		
Macro Tools I & II	19.00	CABLES:	
Diversitune	55.00	All makes - most	14.95
Diversicopy	30.00		
Managing Your Money	99.00	HARDWARE:	
Quicken	34.00	Kensington System Saver Ile	59.00
Printshop	29.00	Kensington System Saver IIgs	69.00
Printshop GS	36.00	Turbo Mouse ADB	124.00
Copy II +	23.00	Thunderscan	175.00
WordPerfect GS	99.00	Laser 128 EX	449.00
Sensible Grammar	55.95	Laser Mouse	79.00
Publish It 2.0	84.00	Al Ext. 80 Column	59.00
AppleWorks 2.1	199.00	AI TimeCard	69.00
AppleWorks GS	219.00	SMT No Slot Clock	44.00
Computer Eyes IIc	99.00	Print Tech II	49.00
Computer Eyes IIe	99.00	Finger Print GSI	Call
Computer Eyes Ilgs	204.00	Image Buffer 64K	79.00
Word Bench	94.95	Mach II, III, IV	Call
Orca M	46.00	Flight Stick	Call
Orca Pascal	74.00		
Orca Pascal Debugger	80.00	MONITORS:	
Orca Desktop	39.00	Magnavox RGB Color 14"	279.00
TML Basic	89.00	Amber, Green	99.00
GAMES:		MEMORY UPGRADES:	
Police Plotter	Call	256K 150ns	69.00
Sword of Sodan	Call	256K 120ns	69.00
King Quest I-IV	32.00	1024K 120ns	155.00
Mean 18	24.95	1024K 100ns	155.00
California Games	24.95		
California Dreams	24.95	OTHER PRODUCTS AVA	ILABLE
Alien Mind	34.95	CALL!	
Hardball GS	29.00		
PaintWorks Gold	62.95	PROSEL 8 \$39	9.00
PaintWorks+	49.95		
4th and Inches	32.95	PROSEL 16 \$5	9.00

UALITY'S VERY OWN



EASYDRIVE: The complete hard-disk management system for the Apple II. ProDOS 8, 16, GS/OS compatible, and menu-driven. Features include: quick launch, backup/restore,

optimizer, and indexing. The treesurgeon utility puts you in control by displaying a map of the directories, the files, and the commands. You see your hard-disk in terms you can understand \$69.95.

RAMUP: Load Apple-Works, Timeout Series Dictionaries, Proterm and all of your favorites onto your ramcard at once. RAMUP makes using a ramdisk a snap. Menudriven RAMUP lets you reboot your system



to work with unloadable applications like CPM, PASCAL, copy protected games, and then later return to the programs still intact on the ramcard. Features include: backup / restore, auto load, and more. Three years as the top-selling ram disk utility. \$39.95.

REPAIRWORKS: In a perfect world a program like RepairWorks wouldn't be necessary. Unfortunately the world isn't perfect and for those who have peered tearfully into a monitor filled with the dying gasps of our precious work, it can

almost seem cruel. But, don't Damaged despair! RepairWorks can soften the blow of cruel fate Appleworks when it involves your Apple-File Works files. RepairWorks will examine your files and



surgically remove the offending problems, reducing or eliminating the need to recreate

your work. Available on 3.5 and 51/4 disks. \$39.95.

APPLIED ENGINEERING

MANUEL ON THE	
256K 169	RAMCHARG
512K 249	RAMKEEPER
1 meg 389	SLOT MAKE
ULTRA II	DATALINK 2
256K229	PC TRANSPO
512K299	IIe KIT
1 meg 449	IIgs KIT
RAMFACTOR	TRANSDRIV
256K199	TRANSDRIV
512K269	SERIAL PRO
1 meg 409	SONIC BLAS
GS RAM	TRANSWARE
256K	TRANSWARE
512K	PARALLEL P
1 meg	AE 51/4
1.5 meg 509	POWER SUPI
GS RAM +	RAMCHARG
1 meg	TIMEMASTE
1 meg	EXTENDED S
2 meg	Z80
3 meg	PHASOR
	VIEWMASTE
1 meg	COLORLINK
2 meg 479	COLORLINK
RAMFACTOR EXP.	WE'L
1 meg329	ANY
2 meg	
3 meg 649	VULCAN

RAMWORKS III

RAMCHARGER 133
RAMKEEPER 139
SLOT MAKER 34
DATALINK 2400 179
PC TRANSPORTER 419
IIe KIT 29
Ilgs KIT 39
TRANSDRIVE (Single) 199
TRANSDRIVE (Duo) 299
SERIAL PRO 109
SONIC BLASTER 98
TRANSWARP (IIe) 149
TRANSWARP (gs) 299
PARALLEL PRO 79
AE 51/4
POWER SUPPLY 59
RAMCHARGER 133
TIMEMASTER H.O 78
EXTENDED 80 COL 99
PHASOR 139
VIEWMASTER 124
COLORLINK 99
WE'LL MATCH
ANY PRICE!
VULCAN CALL

Visia and MasterCard - no added surcharge.

C.O.D. certified - add \$2.95
ff order is split, we pick up freight charges on balance of items.

Shipping UPS, Airborne, Federal Express and U.S. Mail. urday deliveries available. RETURNS: Defective software will be replaced immediately with the same item. Defective hardware will be replaced or repaired at our own discretion. Call customer service at 313-331-1120 to obtain a return authorization number before returning goods. Product purchase in error subject to 15% restrocking fee. SCHOOLS: Schools are half of our business. We accept school P.O.'s by mail or by fax Call us. We'll work for you. DEALERS: Call USER GROUPS: Volume discounts on group purchases. Call us for details Quality Computers POWER FOR PERFORMANCE 15102 Charlevoix • Grosse Pointe, MI 48230 • 313/331-0700 Orders & P.O.s by FAX: 313/331-0663 0-443-6697

By the inCider staff

AΤ WORK Barney Stone, creator of DB Master, the professional database manager for the Apple II, announced at AppleFest/Boston last May that he would begin publishing II At Work: Apple II **Productivity News**, a newspaper for people who use Apple IIs.

Stone will be the editor of the new publication, which will be mailed without charge to qualified subscribers. The publisher is James Pennypacker, a colleague of Stone's at Stone Edge Technologies (Maple Glen, PA).

In his first editorial. Stone promises that // At Work will "dig out the real news about the Apple II, and report it in a way that Line magazines generally do not." The front page of the first

issue features an article on "AppleFest Dropouts," such as Claris, Electronic Arts, Mediagenic, and Berkeley Softworks—publishers and vendors that decided not to exhibit at AppleFest/Boston. A Claris spokeswoman is quoted as saying that the company is "moving the AppleWorks family to the K-12 education market."

Il At Work also features "company newsletters" with tips and hints from Stone Edge Technologies, Ohio Kache Systems (Dayton, OH), Berkeley Softworks (Berkeley, CA), and Applied Ingenuity (Baldwin Park, CA), plus advertisements from those companies and others.

For information contact // At Work, P.O. Box 3200, Maple Glen, PA 19002, (215) 641-1825, or circle 352 on the Reader Service card. -P.S. •The Laser Computer may be the only 8-bit Apple II sometime in the future. Laser (Lake Zu-

portable Apple II clone at Apple- gest sales day ever the day before Fest/Boston, and rumors were AppleFest/Boston, and it sure flying that the company would li- didn't look as though people were cense Micol BASIC to replace the leaving the Applied booth at the expensive Microsoft BASIC that show with full wallets. Apples now use in ROM.

•Beagle Bros (San Diego, CA) had next Apple IIGS (fall 1989?) will inits usual strong presence at clude HyperCard and Macintosh AppleFest/Boston, but we were disk drives that will let the GS run concerned to hear rumors that Beagle was looking for a few good No comment from either of the two Macintosh programs. Does anybody remember Beagle Bros' MS- world, Roger Wagner Publishing DOS product?

•Steve Wozniak says he wants •inCider's pretty certain that the from a vacation and was worn out. Mac programs.

 Applied Engineering is doing very well with its Apple II products. thank you. We hear the

rich, IL) showed a prototype of a Carrollton, TX, giant had its big-

•Some gossip reports that the Mac HyperCard stacks. Slowly. hypertext companies in the Apple II and Techware.

the Apple II world to know that his addition of "resources" to GS/OS "no show" at AppleFest/Boston Version 5.0 is the first in a series was not a statement on the health of improvements in the Apple IIGS of the market; he had just returned that will enhance the portability of



NEWS

ip Technology (Los Angeles, CA) had plenty to sing about at AppleFest/Boston:

- Its vaporous past has been all but forgotten by the press and public.
- Its 4-MHz and 8-MHz chips are flying off the
- Its major competitor in the Wrestlemania atmosphere of the 8-bit Apple II chip-accelerator market was nowhere to be seen.
- Its 8-MHz GS accelerator will reportedly ship this fall
- · And its new executive vice president, Dick Stivers, seems to bring the marketing savvy the company needs.

So if you heard any singing at AppleFest, it was probably Zip Technology celebrating. Zip enlisted the help of the Harvard Krokodillos to add a touch of class and a bit of fun to AppleFest. The Harvard boys wooed the crowd in the Zip booth with a performance of Zippity-Do-Dah, featuring rewritten lyrics that would make Barry Manilow proud:



Zip-pity-do-dah! Zip-pity-ay! My oh my, what a Zip-pity-day! Speed up your Apple with Zip Chip today, And Zip-pity-do-dah! You're Zippin' away.

You had to be there-but if you attend a computer conference in the near future, you may get the chance to hear a live performance. According to Zip's Viqui Denman, AppleFest was only the first event in the company's "Singing with ZIP!" campaign. The program encourages school glee clubs, choruses, and classrooms to earn Zip Chips by singing Zippity-Do-Dah at the company's booth at trade shows and conferences around the country.

At AppleFest/Boston in 1988, Zip Technol-

ogy handed out chocolate-chip cookies to appease angry Zip Chip-less customers. A year passed, and Harvard students were singing for their chips. If you were Zip Technology, all you could say was "My, oh my, what a wonderful day."

-Dan Muse, Editor in Chief



THE NEWS EDITOR'S CHOICE

The Apple IIGs'
Achilles' heel is

its battery: It's not replaceable, so when the juice runs out, so does your GS. How can you tell the battery's dead? The Control Panel comes up in 40 columns, and the internal clock can't remember what year it is, to name only two symptoms. So what do you do?

You can curse Apple Computer for planning obsolesence, but if you want to get your GS running again, send \$9.95 to Nite Owl Productions, 5734 Lamar, Mission, KS 66202. Nite Owl, a widely known developer of utility software for programmers, will ship you a brand-new 3-volt lithium battery just like the one that came with your GS. You can install it yourself; wire cutters are preferred, but nail clippers or scissors will do.

Nite Owl's Slide-On IIGS Replacement Battery saved two GSes that inCider was about to dump onto a pile of Apple IIIs, Lisas, and a Timex Sinclair. It could do the same for yours. For more information, call (913) 362-9898, or circle number 351 on the Reader Service card.

-P.S.

GAMES RUS

First among an array of up-and-coming games announced at AppleFest/Boston is **Gnarly Golf** from Britannica Software (San Francisco, CA). It's yet another GS miniaturegolf game in the tradition of Zany Golf and Mini-Putt (from Electronic Arts and Accolade, respectively).

Britannica was putting the finishing touches on **Revolution '76**, a simulation of the struggle for American independence in the eighteenth century.

Imagine Balance of Power: The 1776 Edition and you'll have



GAMES

Sword of Sodan from Discovery Software

(Annapolis, MD) was demonstrated at the Future of IlGS Games panel. Its gruesome graphics and dazzling animation showed what Apple's 16-bit machine is capable of doing. Discovery is also releasing **ZOOM!**, a GS arcade game.

The Duel, the muchanticipated sequel to Test
Drive, was speeding along over
at Accolade (San Jose, CA).
This one promises to be the ultimate driving simulation for
the GS. It should be available by
late summer. California Challenge and Supercars, two supplemental disks that will be
released along with The Duel,
let you fly down Pacific Coast
Highway in the latest from Ferrari, Porsche, and Chevrolet.

-Lafe Low, Review Editor



SOFTWARE

THE BEST GETS BETTER

One and a half million copies of The Print Shop weren't enough: Broderbund Software (San Rafael, CA) has made **The New Print Shop** good enough to sell another million and a half.

The New Print Shop (\$49.95) sports a new interface and higher-resolution graphics—it will be easier to print even better greeting cards, banners, posters, calendars, invitations, sign letters, menus, letterheads, and all the other things you used The Print Shop to create.

The New Print Shop also offers an on-screen preview so that you can see what you get before you print it. If you don't like your first try, it's easy now to make changes in your work. You can use more than one picture or type of letter on each page, and you can place them anywhere on the page.

You can make daily, weekly, monthly, and yearly calendars with The New Print Shop, jobs you once needed The Print Shop Companion to print. But don't worry—there'll be a New Print Shop Companion (\$39.95), with border and font editors, an envelope maker, and some desktop-publishing templates for creating newsletters and flyers.

Broderbund has also released three disks of clip-art graphics, fonts, and borders—a sampler, a party disk, and one for schools and businesses (\$24.95 each).

Schools may also want The New Print Shop Lab Pack (\$119.95), including a new teacher's guide and a set of five backup disks. (The New Print Shop is copyprotected.) Developed in cooperation with educators, the teacher's guide takes advantage of the software's new features and includes lesson plans, suggested activities, and reproducible materials.

If you bought The Print Shop after May 25, 1989, you can upgrade to the new edition at no

cost; other Print Shop owners can upgrade for \$20.

For more information call the New Print Shop Hotline at (800) 999-3256 (educators call 800-521-6263).

Print Shop COMPANION

SAMPLER EDITION

FOR SHOP COMPANION

SAMPLER EDITION

-P.S.



IT'S A WHOLE 'NOTHER COMPUTER

Every month software companies introduce new GS programs that are fun, educational, and productive, but GS/OS System Software Version 5.0, announced at AppleFest/Boston last May, will transform your Apple IIGS into a whole new computer. GS/OS 5.0 is so fast you won't believe your screen-when you first use it you'll swear somebody secretly installed an accelerated microprocessor in

Apple has added a roster of new features to this operating system, too. The Finder (desktop), for instance, seems almost identical to that found in previous versions. But look carefully: A new pull-down menu called "Disk" does all your disk work-formatting new floppies and renaming them, for instance. A really close scrutiny reveals that all text on the Finder screen now uses lowercase as well as uppercase in menus, disk names, and filenames.

Pull down the Apple menu, and you'll find an additional new desk accessory (NDA), the Control Panel. This one uses graphics, while the old version (a classic desk accessory, or CDA, accessed by the awkward control-open apple-escape key sequence) used text. The functions of the NDA Control Panel are unchanged: Switch screen colors, adjust speaker volume, and set slot assignments, for example.

Menus that used to run off the bottom of the desktop in older versions of GS/OS now scroll—you can list more than 15 fonts in a single menu, for example.

GS/OS 5.0's Get Info command can calculate the true size of any disk file or volume, including that of a subdirectory. Previous versions of GS/OS calculated every subdirectory at 2K, ignoring its contents.

GS/OS 5.0 includes the Finder, System Tools, and File Translators, and is fully prepared for the AppleShare network right out of the box. Older versions of GS/OS required you to buy a bundle of software add-ons and a large jar of aspirin to get AppleShare running on a GS.

And while you're checking out GS/OS' new features, you'll notice something else that's changed, too: Everything's happening faster. Windows, for instance, open twice as quickly as they used to; Apple has rewritten the software tools controlling them. All graphics images are drawn faster, too, because Apple has also revamped QuickDraw, the GS graphics toolset, making pictures appear as much as ten times faster.

Many of GS/OS 5.0's other improvements are hidden from view, but you'll still notice the speed. Apple has drastically increased the rate of data transfer between the computer and its disk drives; 31/2-inch drives and standard hard disks both work faster, and the new small-computer-systems interface software tools in GS/OS 5.0 can read and write to SCSI hard disks 400 percent faster than earlier versions. (Unfortunately Apple hasn't rewritten the GS/OS printer drivers yet. You'll still print slowly.)

A new feature of GS/OS called Express Load can boot programs at a rate that will astound experienced GS users. For instance, you won't have to wait so long for AppleWorks GS to load—it's now up and running in less than a minute.

The entire GS/OS 5.0 program now loads itself into RAM for instant access. When you quit AppleWorks, for instance, the Finder appears on screen almost instantly, not 15 seconds later after being loaded from disk.

To use GS/OS 5.0 you must have an Apple IIGs with at least 512K of RAM, ROM version 01, and at least one 31/2-inch drive. You'll want to have at least 768K of RAM to use the new operating system on a network or to really see the increase in speed. With its low retail price of \$39, this is one piece of software you won't want to wait for.

-Jeff Cable, West Coast Editor

WIN VALUABLE PRIZES!

TML Software (Jacksonville, FL), Applied Engineering (Carrollton, TX), and inCider are teaming up to bring you the biggest TML programming contest ever. To demonstrate their support for the Apple IIGS market, TML and Applied will be giving away thousands of dollars' worth of hardware and software, and you may just see your smiling face and your TML program published in inCider. TML promises we'll be seeing some exciting new enhancements to TML Pascal this summer, and to TML BASIC soon. If you're a TML Pascal programmer, look for details about the contest in next month's inCider, or call TML at (904) 636-8592.

-P.S.

EAGLE PUPPIES

eagle Bros (San Diego, CA) showed

five new products at AppleFest/ Boston, three of which Apple users have seen before.

As previously announced, Beagle Bros now sells Gary Little's Point-to-Point (\$99.95). The software has been upgraded; apparently the new version's a better terminalemulation program than the old one and supports expanded memory better.

Beagle Bros also announced that it will release TimeOut TeleComm (\$69.95), "The Communications Solution for AppleWorks Users." According to Randy Brandt at Beagle, the company "doesn't mind competing with itself, as long we sell the product." Watch for a comparison of TimeOut TeleComm and Point-to-Point in inCider.

The programming utility Program Writer (\$49.95) was a success for The Software Touch before Mark Simonsen took his company and product back to Beagle Bros. Program Writer does for BASIC programming what a word processor does for writing a novel: It lets you concentrate on the creative parts, not the page numbers. Program Writer lets you insert, delete,

find, and replace lines; it numbers lines for you and even lets you create macros.

The neatest of the new is TimeOut ReportWriter (\$79.95), which replaces the report-formatting module of the AppleWorks database with a relational report generator. Now, you can work on more than one file at once-in fact, making changes on the ReportWriter screen can change more than one database, spreadsheet, or word-processor file.

When you compose text with ReportWriter, you can use information from as many as 11 different files. ReportWriter also adds spreadsheet functions such as math and lookup tables to reports.

GS Font Editor (\$49.95) has nothing to do with AppleWorks except that it runs on 8-bit Apples in addition to the Apple IIGS, but it's something GS users have been waiting for. It's designed to edit the standard GS system fonts used by all GS programs. You can create your own fonts for foreign languages, desktop publishing, or sign making (up to 127 points). It's fast, simple, and useful-you can tell it's from Beagle Bros.

-Paul Statt. Senior Editor

APPLEFEST TECHNO-NEWS

AppleFest/Boston (May 5-7) may have titillated more than satisfied Apple users' pent-up expectations for speed and performance.

First, the releases: Sales of Applied Engineering's (Carrollton, TX) TransWarp GS alone probably paid for the company's booth space. This auxiliary-slot expansion card accelerates the GS to about 2.7 times faster than its current (and lumbering) "fast" speed. Disappointment over Applied's earlier promise of a 7- to 8-MHz TransWarp GS were somewhat tempered by a rumored 10-MHz accelerator in the works. Applied also showed its new Vulcan internal hard-disk drive, which should be ready sometime this summer.

Zip Technology (Los Angeles, CA) fascinated the IIe/IIc crowd with an 8-MHz Zip Chip accelerator for the slow (1-MHz) and ancient 65C02. The new chip includes memory caching for even faster direct-memory-access (DMA) throughput. AppleWorks on a He equipped with the 8-MHz Zip Chip handily outperforms its sibling on a GS running a TransWarp GS.

First Class Peripherals (Carson City, NV) added 70- and 90-megabyte harddisk drives (models D7 and D9) to its already impressive array of "turbo" massstorage devices. And, in response to Apple II user inquiries, the company also introduced a "turbo" version of its popular operating-systems partition for the 40-megabyte D4T hard drive. (Partitioning software divides a hard drive into DOS 3.3, ProDOS, CP/M, and Pascal segments.)

First Class also introduced two new Apple-SCSI-compatible (small-computersystems interface) subsystems, which, unlike their traditional drives, fit quite comfortably between an Apple II and a monitor.

On the software front, Roger Wagner Publishing's (El Cajon, CA) HyperStudio

was the talk of the show. Modeled on Apple's HyperCard for the Mac, HyperStudio embodies the next generation of software development for the GS-multimedia database management (graphics, video images, sound, and text). Roger Wagner's show special included two free updates, underscoring the product's infancy, not to mention its complexity. If show sales are any indication, however, HyperStudio should attain a ripe old age. (See this month's Editors' Choice.)

Micol Systems (Toronto, Ontario) introduced an improved Advanced BASIC package for 8-bit Apple II and Laser 128 computers. It includes an enhanced set of integral commands for ProDOS, sound, and double low- (80 by 47) and highresolution (140/560 by 192) graphics. Rumor has it that Micol might become the on-board BASIC for the new Laser.

Lynx Computer Products (Baldwin Park, CA) demonstrated SuperGraphix 256 (formerly SpectraGraphix 256), a toolset of 35 additional Applesoft BASIC commands (ampersand-activated) for access to super-hi-res graphics on the GS that include editing and implementing graphics shapes, palettes, fonts, and animation.

Now for the titillation: The latest and greatest Apple IIGS operating system, GS/OS Version 5.0, is near completion. (See the accompanying report, "It's a Whole 'Nother Computer.") ByteWorks (Albuquerque, NM) has announced that ORCA/C is also nearly ready. In addition, the company whetted developers' appetites with the promise of a summer release of a high-performance GS BASIC.

Finally, Simple Software Systems' (Marietta, GA) GeneSys, should it perform as promised when released in September, will eliminate most of the drudgery of GS desktop programming. It'll literally write code for you.

-William P. Kennedy, Technical Editor



Great Ways To Get The Most Out Of Your Apple II® GS™

From LYNX Software



SUPERGRAPHIX 256™ . . . Only \$89

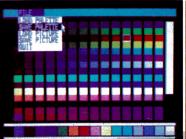
Complete & easy control of the super hi-res color graphics & animation from Applesoft™ BASIC . . . Perfect for beginners, students, teachers, & professionals alike . . . Adds 35 new commands . . . Displays 256 colors at the same time . . . Mix 640 & 320 modes . . . Draw & animate

Fast Animation & Color Cycling

Powerful Shape Editor Program







Palette Editor Program Displays Up To 256 Colors Lets You Design Your Own Palette



Mixing 320 & 640 Modes Circle 44 on Reader Service Card.

shapes easily . . . Access to all 4096 colors. &PRINT, &DRAW, &MODE, &PLOT, &MOUSE, &TIME, &MOVE, &COLOR, &SCAN, &PAL, &CLEAR, &HTAB, &VTAB and 22 more commands! Disk also includes a shape & font editor program that lets you DESIGN, EDIT, & ANIMATE shapes & fonts . . . Also includes a shape grabber program that lets you make shapes out of any portion of the super hi-res screen & use them inside your own program . . . Plus a palette editor, many selfrunning demo programs, & utility programs. Users report: ". . . best package to come along in a long time . . . ", ". . . routine done in a very elegant way . . .

SUPERMUSIC™ . . . Only \$39.95

Adds 6 music commands for Applesoft BASIC: PLAY, WAVE, STOP, DIGI-TIZE, OSC, SET . . . Play any or all 30 oscillators at once . . . digitize any analog message . . . Compatible with SUPERGRAPHIX . . . Define a different waveform for each oscillator . . . Use SUPERMUSIC & SUPERGRAPHIX to design graphics, games, & educational programs.

SUPERPUZZLE™ . . . Only \$44.95

Designed using SUPERGRAPHIX & SUPERMUSIC . . . Many kinds of puzzle games with sound effects, hints, & scores . . . Challenges you with 14 skill levels . . . Two games in one with each offering small & large puzzle . . . Comes with 35 dazzling super hi-res pictures . . . Stimulates learning & memory . . . Fun for all ages.

Buy all 3 for a low package price of \$149.95 . . . Look forward to more fascinating programs from LYNX Software.

System requirements: 512K, 1 3.5" disk

Call to order or for more information:

(Visa/MasterCard/COD accepted)

1 (800) 824-3522 (outside Calif.) 1 (818) 960-4839 (inside Calif.)

LYNX Computer Products Inc.

15115 Ramona Blvd., Baldwin Park, CA 91706



OMETHING STRANGE

By PAUL STATT * SENIOR EDITOR

With an Apple II and Chaos, you may understand what the next winner of the Nobel Prize is talking about.

SOMETHING STRANGE IS HAPPENING inside your computer: You can create some outlandish pictures with a two-column AppleWorks spreadsheet or the simplest of BASIC programs.

Something strange is also happening in science and math. Look at James Gleick's *Chaos: Making a New Science* (Viking Penguin, New York, 1987). Note the bizarre color photographs of Mandelbrot plots, intricate as paisley neckties, and almost as commonplace.

But Gleick's *Chaos* is different from other books on the subject. Gleick answers the question my editor always asks me about chaos: "What good is it?"

Chaos is a new kind of science, one that finds order in disorder and disorder in order. One of its avatars was an ecologist named Robert May, who in the early 1970s noticed that an equation ecologists use to measure population growth had some unusual properties.

The equation is $P_{n+1} = r * P_n(1 - P_n)$. P_n is last year's population, P_{n+1} is this year's; r is a constant that expresses the "rate of growth" of a population. The gist of the equation is that this year's population depends on last year's.

If you own spreadsheet software, you don't have to write a program to see for yourself. Using AppleWorks, put a starting figure into cell A1, then this formula into A2: + C1*A1*(1-A1). Copy the formula into cells A3-A100, and you can simulate 100 years of population growth. (Copy C1 absolutely—it's a constant—and A1 relatively.)

By the way, you have to decide what constant goes into cell C1. Try some numbers between 2 and 4, but experiment with it first. As you try possible starting populations (A1) you'll discover that ecologists think of them as fractions between zero and 1. Try a starting population of 0.1 (A1) and a rate of growth of 2 (C1). You should find that after only seven years, the population levels out at 0.5: It converges. Nothing unusual about that; you expect populations to reach equilibrium.

But try changing the rate of growth to 4 (C1). The population doesn't keep rising from year to year, it doesn't keep falling, and it certainly (at least

for the first hundred years) doesn't level out.

What's happening? What you see as you iterate the formula A(n+1) = +C*A(n)*(1-A(n)) with C equal to 4—for example, A2 = +C*A1*(1-A1)—is the onset of chaos. It turns out that chaos is what population fluctuations have in common with the weather, the stock market, and maybe even the creation of life itself.

One physicist credits his son's Apple II with convincing him that the new science has merit. Apple II owners can be proud when they read that. Your little computer, the computer Apple wants to see in every kindergarten in the world (and nowhere else), can do real math and persuade real physicists.

A brief program accompanies this column to persuade you. When it's running, you'll see what happens to a population over a period of 280 years for

Program listing. Chaos of population growth.

- 10 HGR: GOSUB 100: HOME: VTAB 21: ONERR GOTO 150
- 20 PRINT "For Y = C * Y * (1 Y)
 where": VTAB 24: PRINT "(Press any key
 to pause)"
- 30 FOR C = 2.5 TO 3.9 STEP .01
- 40 VTAB 22: HTAB 10: PRINT "C = '
 (INT ((C * 100) + .5)) / 100;"
- 50 Y = .1: FOR X = 0 TO 279: HPLOT X, INT (1000 * Y / 8)
- 60 Y = C * Y * (1 Y): NEXT X
- 70 IF PEEK (49152) < 128 THEN 90
- 80 POKE 49168,0: GET A\$: PRINT
- 90 GOSUB 100: NEXT C: GOTO 150
- 100 HCOLOR = 3: HPLOT 0,0: CALL -3082
- 110 HCOLOR = 0: RETURN
- 150 TEXT: HOME: END

various values of the "growth constant," C. Population growth becomes chaotic at C = 3.7, but for some reason becomes predictable at 3.74.

Nobody knows "why," and your Apple II isn't going to tell you. You're not likely to win the next Nobel Prize, but with an Apple II and *Chaos* you may understand what the person who does win is talking about. □



Data East USA Inc., 470 Needles Drive, San Jose, CA 95112 (408) 286-7074

COMPUTER DIRECT

Since 1979

WE WON'T BE UNDERSOLD!

No One Can Sell This Printer For Less

180 CPS Printer

Lifetime Warranty on Printhead our Best Printer Buy



- 2yr. Immediate Replacement
- Dot Addressable Graphics
- High Speed Square Dot Matrix
- Italics, Elite, Condensed, Pica
- Centronics Parallel Port
- 8K Print Buffer
- NLQ Selectable from Front Panel
- Low Cost Adapters Available
- Pressure Sensitive Controls

Our Low Sale Price

2400 Baud External Modem

100% Rayes Compatible **Made Especially For You!**



- Both Tone & Pulse Dialing
- Built-in Speaker with Volume Control
- For all Computers

Everyday Low Price

List \$349



is Carmon San Diego?

Track Carmen's gang all around the world finding clues and consulting the World Almanac and Book of Facts (included). Joystick/Keyboard. 64K. Apple II Series or LASER 128

BR0500Z List \$39.95 SALE \$24.95

Walt Disney's

Matterhorn Screamer

Even Goofy wants to be a hero. Dodge crafty mountain goats, evade abominable snowmen and climb up & down rugged slopes.

HT0750Z List \$9.95 SALE

Concentration

Test your memory as you match the pairs of prizes on the board and uncover pieces of a hidden puzzle. 128K. **Apple II Series or LASER 128**

SA0320Z List \$12.95 SALE \$8.95

Laser 128/Apple IIc or IIe 160K 54" Disk Drive



• 5¼" Floppy Disk Drive For Laser/Apple IIc or IIe

Laser 128, Macintosh, lle or II plus 800K 3½" **Disk Drive**





Our Low Sale Price

800K Memory

REE GIFT

(With Any Order)

Disk Drive Cleaner

---Please Specify 5¼" or 3½"---

LIST \$1495

Webster's Dictionary of **Computer Related Terms**

---Every Word You Need To Know--LIST \$995

Disk Notcher

--Turns SSDD disks into DSDD disks---

LIST \$9°5

5¼" Floppy Disks

100% Certified • Lifetime Guarantee Double Sided • Double Density



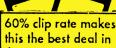
Qty. of 100 w/sleeves & labels.....\$24.00

3½" MicroDisks

– Made In The USA[.]

100% Certified

Double Double Sided Density



No Limit

the country!

Lots of 50 - 99° Lots of 250 - 69°

IMMEDIATE ANSWER

800 - BUY - WISE EXT. 24



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

800 - 289 - 9473 ext. 24 Outside Service Area Call 312-382-5058

Circle 205 on Reader Service Card.

BEST SERVICE IN T

- 90 Day Immediate Replacement Experts in Customer Satisfaction
- Bulletin Board Service
- Fast, Low Cost Delivery 15 Day Home Trial

PRICE IS NOT ENOUGH!

- No Credit Card Fees
- Free Catalogs

Laser 128 Complete Computer System Only 49 **NOW! With FREE SOFTWARE!**

Everything You Need to Get Started!

The expandable Laser 128 comes completely ready to run thousands of Apple IIe & IIc programs without buying anything extra. We include a 12" Hi-Res Monochrome monitor. & a Genuine IBM Printerand you're ready to start computing.



PLUS!

NOW You Get Your Choice of One of These Great Software Titles FREE!

- File & Report
- Home Video Producer
- Stickybear Townbuilder
- Stickybear Reading Comp.
 My Phonebook
- Little Computer People
- My Mail List
- Where in the World Is Carmen SanDiego?
- Pinball Construction Kit
- Magic Calc
- Magic Memory
- Magic Window
- 1. Laser 128 Apple Compatible Computer 4. 1 Roll of IBM Thermal Paper
- 2. Genuine IBM 81/2" Letter Size Printer 5. 12" Hi-Res Monochrome Monitor
- 3. Laser 128 IBM Printer Interface.
- 6. FREE Software!

II 6 for ONLY S49

The Laser 128 Computer Comes with These Features Built-In!

128K RAM...32K ROM...51/4" Disk Drive...Parallel Centronics Port...Serial Modem Port... Serial Printer Port...RGB Port...Numeric Keypad...Joystick/Mouse Port

The Ergostick

Shatters the Gap Between **Action and Reaction**

- *True Ergonomic Design
- Soft & Pliable
- *Formfit to the Human Hand
- Microswitch Technology



List \$39,95



Sizzler Price

FREE CATALOG



Call For Your Free Catalog With Everything You Need For Apple

1200 Baud Migent **Pocket Modem**

100% Hayes Compatible



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

Our Low Sale Price

VISA

MASTER CARD

COD

COMPUTER DIRECT will match any current (within 30 days), valid nationally advertised delivered price on specially marked items of the exact same product with a comparable payment method, excluding any applicable sales taxes. Verification Required.

Prices do not include shipping charges. Call to get your lowest delivered cost. We insure all shipments at no extra cost to you! all packages are normally shipped UPS Ground. 2nd Day or Overnight Delivery available. Minimum shipping charge per order is 13.75, Illinois residents add 6 % % sales tax. We shipto all points in the U.S., Canada, Puerto Rico, Alaska, Hawaii, Guam, and APO 8 FPO. (Color monitors shipped in Continental USA only.) PRICES AND AVAILABILITY SUBJECT TO CHANGE WITHOUT NOTICE.



ANEL OF EXPERTS

You don't need a special program to re-enable access to the control panel, because it's restored whenever you hard-boot the GS.

By WILLIAM P. KENNEDY, Ph.D.

CONTROL-PANEL ACCESS

'M A TEACHER WITH A ROOMFUL of Apple IIGS computers. They're great machines except for one thing: The students enjoy changing the control-panel settings so that their software won't work. Is there any way to disable access to the control panel?

James Vyvyan Union Grove, WI

The BASIC code shown in the accompanying Program listing should stop those control-panel pests. Type in the program (Disable.CP) and SAVE it as Startup on a disk containing ProDOS (8-bit) and BASIC.System. Then boot that disk each time you have to "hard-boot" by turning on the power or pressing Open apple-Control-Reset.

When RUN, Startup POKEs into memory (line 40, using DATA from lines 100-120) and executes (line 50) a short machine-language routine that disables access to the control panel. It then asks you to specify a boot slot for your student's program disk (lines 60-80). Insert into the appropriate drive and select 5 to boot a 31/2-inch disk or 6 for a 51/4-inch disk, for example. You don't need a special program to re-enable access to the control panel, because it's restored whenever you hard-boot.

For technologically curious readers, Disable.CP uses the SetVector tool in the Miscellaneous tool set to point the interrupt generated by pressing Open apple-Control-Escape (IRQ.DSKACC) away from the GS' ROM-based control-panel program. Normally (at least in the current GS), the IRQ.DSKACC vector address, located in memory at \$E1/0049-4B, points to the control-panel routines. Disable.CP redirects that vector address to \$FF/B49C, which contains the codes CLC, RTL. The IRQ.DSKACC interrupt still occurs, but essentially does nothing.

JAMMIN'



ILL I DAMAGE MY GS IF I use a cassette deck to amplify its audio output? I've got

"phono/line" input channels on my stereo cassette, which has an amplifier, graphic equalizer, and detachable speakers. The quality of the sound should be superior to the GS alone. But how do I make the connections?

R. Fernandez Eielson AFB, AK

Connecting the audio output from your GS to a cassette deck is a great idea. Sound emerging from the GS audio-output (headphone) jack can handle a 600-ohm load, so you can connect it safely to the input of just about any audio amplifier. Indeed, your connection is a great arrangement should you want to record on audio tape the musical scores produced by the excellent GS sound system.

Most electronics-parts stores have the plugs and wires to make the connections: from the "miniature" stereo headphone jack on the GS to the auxiliary (aux), "line," or even microphone (mic) input jack(s) on your record player, stereo, or tape deck.

Anticipating the use of headphones, Apple uses a stereo connector for audio output on the GS even though the sound isn't stereo-it's monaural. You really need only one audio extension cable, not two (stereo) cables (at about twice the price), to connect your GS to a remote amplifier.

If you're handy with a soldering iron and are willing to make your own cable, here are the connections. Solder the center wire of a single-core coaxial cable (audio) to the tip and center segments, ▶

Program listing. Disable.CP.

REM Disable access to the Control Panel 1Ø

by William Kennedy [3553] 20 REM

Copyright 1989, inCider [4733] FOR I = \emptyset TO 23: READ N: POKE 8192 + I,N: NEXT I 40

CALL 8192: PRINT "The Control Panel is now NOT ac

[3900] PRINT : PRINT "Boot the disk is which slot (1-7)? 6Ø

[2464] 7Ø

GET A\$: PRINT A\$; [1135]
IF VAL (A\$) < 1 OR VAL (A\$) > CHRS (7); CHR\$ (8);: GOTO 70 [4600]

CHR\$ (4); "PR#"; VAL (A\$)

100 24,251,194,48,169,18,0,72 [5897] DATA

244,255,0,244,156,180 [5035] 110 DATA

[687Ø] 120 DATA 162,3,16,34,0,0,225,56,251,96



EasyLink Does It.

Using the right communications software is the key to getting the most from your modem. The ideal software would be intuitive enough to speed you through the hassle of logging on, flexible enough to work with mouse or keyboard, sophisticated enough to reach virtually any bulletin board or service and simple enough to be useful right away ... even for beginners. EasyLink™ does it. And more.

For starters, yes, EasyLink will work with your IIGS, enhanced IIe (128K), IIc or IIc Plus—it's fully Hayes compatible and features 132-column VT100 emulation. EasyLink supports XModem, XModem/CRC, X-Modem/ProDOS and YModem with automatic protocol selection on both sending and receiving. The Mac-like desktop interface can be operated from either mouse or keyboard and automatically configures the hardware setup.



Open two windows at once. For the first time, two mobile, resizable

windows can be open at the same time. You can actually work with the built-in text sentence or message in one piece and then editor window while the on-line window continually updates incoming messages and information. Access your own files (or create new ones), edit the text with pulldown menu commands like cut, copy, paste, find and replace; then send the text in perfect, edited form. Even print text directly from the window-all without breaking contact with the on-line window.

Software that learns by watching.

Our engineers have developed a rich macro language that allows you to easily learn to write your own macros. EasyLink can autodial a number for you, log on, redial or disconnect if the number's busyand do it all automatically. In fact, the software actually "watches" you log on the first time and "learns" how to do it for you the next time.

The macros can be pre-compiled for added speed and up to 18 macros can be executed with a single keystroke. An unlimited number of macros can be executed via a proper command and the language includes such esoteric features as integer variables, complex expressions, conditional execution and subroutines. All keyboard commands can be re-assigned to any key.

Conference mode.

Tired of watching your messages broken up by incoming transmissions? EasyLink's

built-in conference mode lets you enter a send it all at once.

Track costs as you go.

EasyLink also comes with an automatic rate calculator that watches those phone bills for you, by continually metering online costs.

Compare AE's EasyLink with any other communications software. For completeness of features, ultimate flexibility and ease of use. For beginners and bulletin board junkies alike, EasyLink does it.

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.

EasyLink Software \$99

Æ 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 bolders.



Applesoft Proofer Program

Carefully type in the Applesoft BA-SIC program shown in *Listing 1* (*ignore* the bracketed numbers!) and SAVE it on disk as MAKE.PROOFER; it POKEs the PROOFER program into memory (line 50).

If you're using DOS 3.3, type in lines 1000–1020 shown in *Listing 2* instead of those in *Listing 1*.

Now type RUN. If you entered the program correctly, you should see the message "Proofer installed!" and a flashing cursor adjacent to the BASIC prompt (]).

If not, press Control-Reset, LOAD MAKE.PROOFER, fix the problem, SAVE, and try RUNning it again. Most often, you can find the error in one of the DATA statements.

If all's well, type LIST. An inverse number should appear following each program line.

Numbers should match those appearing in brackets in *Listing 1*. If not, make sure you typed the program correctly, then recheck DATA.

Use the Proofer to compare the numbers generated by your LISTed programs with those we publish. If they're the same, you typed the line(s) correctly and the program should work.

You can activate the Proofer each time you start up BASIC from ProDOS or DOS 3.3 by typing RUN MAKE .PROOFER.

Or, once you run MAKE.PROOFER, you can BSAVE the machine-language program it creates as PROOFER, A\$300,L\$C7 on your disk. You then can BLOAD PROOFER and CALL 768.

Also, if you reset your Apple or use the PR# command, you'll disconnect the Proofer. Type CALL 768 to restart it. For example, to get a listing of your program with the proofer numbers on your printer, use the following sequence of commands:

1) LOAD or type in your program.

- 2) PR#1 to activate the printer.
- 3) CALL 768 to restore the Proofer.
- 4) LIST should print your program.
- 5) PR#0 to restore printing on screen.
- 6) CALL 768 to activate the Proofer.

Proofer doesn't count spaces between REM and its message or DATA and the data values. So, there shouldn't be a difference in the proofer number between

10 REM Only one space after REM and

10 REM Five spaces after REM

Trailing spaces after a REM message or DATA list do count. You might first try editing a DATA line with an incorrect proofer number; make sure to press Return at the end of the line to see whether the proofer number changes.

In addition, the proofer number includes the order in which you enter a line, particularly the order of values in a DATA statement. So, 10 DATA 1,2,3 will generate a different proofer number from 10 DATA 1,3,2.

-W.K.

Listing 1. ProDOS version of MAKE.PROOFER.

```
MAKE.PROOFER -- NEW ProdOS version 2.1 [7738]
10
    REM
2Ø
    REM
         by Bill Kennedy [3084]
30
    REM
         Copyright 1989, inCider
                                   [4733]
    REM
40
          [194]
    FOR I = 768 TO 966: READ N: POKE I,N: NEXT I [2872]
5Ø
60
    CALL 768
              Γ685 T
70
    TEXT: HOME: PRINT: PRINT "Proofer installed!"[2530]
8Ø
    PRINT
          "BSAVE it as PROOFER, A$300, L$C7"
                                            [6170]
          [3Ø8]
90
    END
      DATA
1000
            162,29,160,3,173,48,190,141,182,3
                                                 [3496]
                                                   [3674]
1010
      DATA
            173,49,190,141,183,3,142,48,190,140
                                                 [3514]
1020
      DATA
            49,190,169,0,133,60,133,61,96,201
1030
      DATA
            141,240,3,76,178,3,134,70,132,71
                                                [5275]
                                                 [5436]
1040
      DATA
            186,138,105,7,170,189,0,1,201,214
1050
      DATA
            208,7,189,255,0,201,229,240,28,189
                                                  [5614]
1060
                                                [5325]
      DATA
            253,0,201,40,208,6,169,0,201,141
1070
            208, 15, 189, 255, 0, 201, 13, 240, 93, 169
      DATA
                                                  [5612]
                                              [5145]
      DATA
1080
            6,133,60,133,61,240,85,165,60,5
1090
            61,240,23,32,87,219,32,87,219,165
                                                 [7673]
      DATA
                                                [7460]
      DATA
            50,72,41,63,133,50,166,60,165,61
1100
1110
      DATA
            32,36,237,104,133,50,160,0,132,60
                                                 [7749]
1120
      DATA
            132,61,177,155,200,17,155,240,43,200
                                                    [8374]
1130
      DATA
            177,155,200,24,113,155,133,66,32,191
                                                    [8413]
                                                [7725]
1140
            3,177,155,240,27,32,184,3,177,155
      DATA
1150
      DATA
            240,20,201,32,208,3,200,208,245,72
                                                 [1211]
1160
      DATA
            32,184,3,104,201,58,240,229,177,155
                                                   [1280]
            208,243,166,70,164,71,169,141,141,67
                                                    [1318]
117Ø
      DATA
1180
      DATA
            3,76,0,0,69,66,133,66,24,101 [1099]
1190
      DATA
            60,133,60,144,2,230,61,200,96 [1092]
```

Listing 2. Substitutions for DOS 3.3 version.

```
1000 DATA 162,29,160,3,173,83,170,141,182,3 [3481]
1010 DATA 173,84,170,141,183,3,142,83,170,140 [3669]
1020 DATA 84,170,169,0,133,60,133,61,96,201 [3502]
```



They are the TURBO SERIES, and they are from FIRST CLASS PERIPHERALS.

THE SIDER D4+TURBO. This 40 Megabyte Hard Disk Subsystem for the Apple II family of computers offers the features other brands can't – SPEED! This High Performance Sider takes an Apple II user to limits never before experienced. The ONLY 40 Megabyte Hard Disk that will allow you to utilize multiple operating systems such as GS/OS. ProDos 16. ProDos 8. Dos 3.3, Pascal and CP/M or as a ProDos ONLY drive. As a ProDos ONLY drive, the SIDER D4-TURBO will arrive with the ProDos operating system, and ProSel data management utilities factory installed. With an average access speed of 25 milliseconds, a MTBF of 30,000 hours and automatic head parking, the SIDER D4-TURBO is perfect for home or business use.

D4-TURBO is perfect for home or business use.

THE SIDER D7-TURBO. A 70 megabyte Hard Disk Subsystem for the Apple IIe. Apple IIGS, and Macintosh computers. A true plug and play hard-disk, the SIDER D7-TURBO comes with the ProDos operating system, and ProSel data management utilities factory installed for Apple IIe, and Apple IIGS users. For Apple IIGS users. GS/OS drivers are included to double the performance of the SIDER under GS/OS. For Macintosh users.

support software to format and partition the hard drive is supplied. With an average access time of 29 milliseconds, a MTBF of 40,000 hours and automatic head parking, the SIDER D7-TURBO offers the extra storage and speed you need to run

an efficient office.

THE SIDER D9-TURBO. Simply the fastest drive on the market. This high performance hard-disk subsystem is dedicated for use with either ProDos-8 or GS/OS. It offers a full 87 megabytes (over 91 million bytes) of storage. The SIDER D9-TURBO comes partitioned onto two 32 MB (33.5 million bytes) volumes with the remainder of 23 MB allocated to a third volume. This third volume can be accessed as slot 2. drive 1 under ProDos-8. For Macintosh users. the SIDER D9-TURBO can be installed in any Mac that comes with a standard SCSI port, and comes with support software to format and partition the drive. Using the latest enhancements in hard-disk technology, the SIDER D9-TURBO runs at a speedy 18 milliseconds and has a MTBF of 40.000 hours. Providing the fastest data transfer rates, higher data integrity and GS/OS drivers, the SIDER D9-TURBO is a perfect hard-disk for business, education or any networking environment. hard-disk for business, education or any networking environment.

THE SIDER C96-TURBO. Our finest of the series. The SIDER C96-TURBO offers the same features and speed of the SIDER D9-TURBO, but includes a high performance tape drive

built into one compact subsystem.

The tape drive offers 44mb of formatted storage for use with either ProDos-8 or GS/OS.

On a Macintosh, a full 60mb of formatted storage is achieved. With a data transfer rate of over 800,000 bytes per minute on a Macintosh.

Easy to use tape back-up utility software is included with both the Apple II and Macintosh models.

The combination of 91 million bytes of storage with a built-in tape back-up and the fastest data transfer rates available, the SIDER C96-TURBO is a must for any business, or network where the risk of data loss could mean financial ruin.

See your local dealer today and demand a TURBO series SIDER, before your computer becomes an extinct species. Or call FIRST CLASS PERIPHERALS at (800) 982-3232 for a dealer near you. Or send check or money order to FIRST CLASS PERIPHERALS. Mastercard, Visa and American Express are welcome. California and Nevada residents add applicable sales tax. Include \$15.00 postage and handling to all orders.



D2	20 MB	Hard Disk Subsystem	\$ 595
D4/A	40 MB	Hard Disk Subsystem*	\$ 795
D4-Turbo M/S D4-T	40 MB	Hard Disk Subsystem/Turbo*	\$ 995
D7-Turbo	70 MB	Hard Disk Subsystem/Turbo*	\$1195
D9-Turbo	90 MB	Hard Disk Subsystem/High Performance*	\$1695
C96-Combo	90 MB	Hard Disk & 60 MB Tape Subsystem/High Performance	\$2495
	A PROPERTY OF THE PARTY OF		

*Features SiderFile and ProSEL disk and tape software.

Call (800) 982-3232

Brands and product names are registered trademarks of their respective holders.

LOW FACTORY DIRECT PRICES!

UNIV & SCHOOL P.O.'S WELCOME!

DEALER INQUIRIES INVITED

00 0444 4000 4000	DEMEEN INGOINES INVITED
GS RAM UPGRADES	SUMMER SPECIALS!
Increase Your GS RAM For Less!	64K/80 Column Board 100%
Super Expander GS Expands GS to	replacement for Apple extended 80
1.25Meg. A 100% replace for Apple	col card. Features super sharp 80
1Meg Bd. ØK	column display, softswitch select
Above w/256K	40/80 columns, dbl hi-res graphic, lle
Above w/512K or 1 Megabyte call	expansion to 128K (A.W. desktop to
AI 4 MEG GS Board DMA compati-	56K)
ble. Expands IIGS to 4.25Meg. User	Super Serial Board 100% replace-
Expandable. w/1MG \$295	ment for the Apple Super Serial
Above w/2 Megabytes or 4 Megabytes call 256K RAM Set (8 piece) to upgrade	Card, this versatile serial RS-232 bd
your 512K GS computer. Also com-	can be used for all modems & serial
patible w/AE Bds \$80	printers. For II+/IIe/IIgs \$48
1 MEG RAM Set (8 piece) for above 4	MORE SUPER SPECIALS!
Meg GS board, or AE GS-RAM Plus \$200	Graphic Parallel Board w/6 ft. cable.
	text & graphic screen prints. Versatile
SOUNDSYSTEM 2 FOR IIgs	graphics including inverse/normal,
New 2-way Stereo Amplified Speaker	enhanced, 90 degree rotate & double
PAIR! This thunderous amplified	size print
speaker set will make all speech,	Parallel Printer Board w/cable. Text
music, games, and other sound pro-	print only. Used where graphic is not
grams come to life on your Ilgs. Put	required
the S in your GS operations with this	Z80 CP/M Board Cpens the CP/M
Soundsystem 2. Limited time	world for the II+/IIe/IIgs. Microsoft &
offer	Turbo Pascal compatible \$34
WOW! That's \$100 below the Bose Roomates!	Joystick III. Similar to the Hayes
1 MEC DAM DOADD II /II	Mach III, with large fire button on
1 MEG RAM BOARD IIe/IIc	stick
Super Expander E For U.S. and	replacement for II+/IIe supply. Dou-
European Ile. Licensed by Applied	ble the amp power! \$49
Engineering. A 100% replacement for	TV Modulator. Connects your Apple
extended 80 col card. Expands	II+/IIe to any color TV
Appleworks desktop to 998K &	Serial/Parallel Converter. Connects
allows instant switching between	any parallel printer to your Ilc \$49
A.W. modules. w/ØK	DISK DRIVES!
Above w/512K or 1 Megabyte call	
Super Expander C Expands IIc to	Disk Drive H/H for Apple II+/IIe \$119
1152K & A.W. desktop to 1062K, and	Disk Drive H/H for Apple IIc/IIgs \$119
allows instant switching between	Disk Controller Board II+/IIe/IIgs \$34
A.W. modules. w/ØK \$69	SWITCHBOX & CABLES
Above w/256K \$144	A/B Switchbox. Parallel or Serial \$29
Above w/512K or 1 Megabyte call	A/B/C/D Switchbox, Parallel & Serial \$39
QUIET COOLING FANS	Serial Cable 10 ft. Male/Male \$12
SuperFan II For II+/IIe. Kensington	Parallel Cable 10 ft. Male/Male \$12
Style w/surge protect & twin rear AC	CAMEDORT SWITCHROY
outlets\$27	GAMEPORT SWITCHBOX
Super Cooler GS For the Ilgs. No	Switch between mouse & joystick or
audio line interference. Internal	any two gameport peripherals. Free
Mount	master cbl \$29
ZIPCHIP by ZIP Tech.	IMAGEWRITER II CABLES
	II+/IIe to Imagewriter II thru SSB \$12
For those with the need for speed!	Ilc to Imagewriter II (Din5 to Din8) \$12
Run Ile/Ilc/II+ application 4 times faster. Lifetime warranty. Free	Ilgs to Imagewriter II (Din8 to Din8) \$12
Diagnostics Software \$149	
- agreement continue	APPLEWORKS CLOSEOUTS!
PRO-KEYPAD FOR IIe/IIc	Complete package. Startup/program
Numeric data entry made simple.	diskette, tutorial diskette, sample
Includes mathematic, decimal, &	templates, & A.W. manual. (Not
RETURN keys.	upgradable by Claris) Appleworks Version 1.2 Package \$59
PRO KEYPAD He for U.S. & Euro He \$34	Appleworks Version 1.2 Package \$59 Appleworks Version 1.3 Package \$79
PRO KEYPAD IIc for U.S. & Euro IIc \$39	
NO SLOT CLOCK	APPLE II+ OWNERS!
For Ile/Ilc. Fits underneath your CD	Run Appleworks On Your Computer!
or CF ROM. Appleworks Compatible.	See our special II+ ad in this issue.
Free Sfwr	

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 Mésa, CA 92041 Monday-Friday 10 a.m-6 p.m. P.S.T.



and the coaxial cable's shield to the "ground" lug of a "miniature" stereo plug.

Now at the other end of the extension cable, solder on a plug that fits into your audio amplifier's input receptacle—it's most often an RCA-type connector.

When listening to the GS in stereo, set your amplifier to "mono" (monaural) mode so that the system will send sound to both speakers.

Alternatively, solder in or purchase a Y connector that'll jumper your audio-extension cable into both inputs on your stereo amplifier, so that the system will send Apple IIGS sound automatically to both stereo channels. Now crank up the volume and blast away.

COPY PROTECTION

RECENTLY TRIED BOOTING A Broderbund game that runs fine on a friend's IIe, but on my IIc the disk drive just whirls. I have another Broderbund game that also won't boot on my IIc. Is there something wrong with my computer, or am I just stuck with incompatible software?

Jay Moorman Sunman, IN

A similar problem occurred on one of my older Hes when I tried to boot a copy of Broderbund's Print Shop the first time. I contacted the company's technical hot line and found out that the disk's copyprotection scheme requires that the host disk drive be in top condition.

I re-aligned the drive, adjusted its speed, and cleaned the heads, and the problem disappeared. I suggest you have your local dealer do the same for your IIc drive.

QUICKIES

Strong recommendation for Cameleon robotics-computer interface. Great with LCSI LogoWriter. (Cameleon, 492 Ste-Elizabeth, #3, Longueuil, Quebec, Canada J4H1K41.)

> -Andre Laporte Verdun, Quebec

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, PETER-BOROUGH, NH 03458.

"COPY II PLUS"

WIPED, REFORMATTED AND DELETED ITS COMPETITION."

-inCider

Disk Utilities

Backup Program for Copy-Protected Disks

AWARD-WINNING UTILITIES.

Over 20 built-in utilities, including the ability to delete and undelete files, map disk usage, copy disks and files, view and print files, format and verify disks, and alphabetize the catalog. Also contains drive diagnostics for checking and adjusting drive speed. Plus much more-all in an easy-to-use menu perfect for both novices and professionals.

- VERSATILE PERFORMER. Copy II Plus enables you to convert DOS 3.3 files to ProDOS files and vice versa-automatically.
- SUPPORTS THE IIGS. Runs great on the IIGS, and makes full use of Apple 1-Megabyte RAM boards.
- PROTECT YOUR SOFTWARE INVESTMENT. Make backup copies of protected and unprotected programs—even those with the most sophisticated protection schemes. Use Copy II and you'll always have a backup handy should anything happen to your original disk.
- EASY TO USE. Backup parameters for most programs are already on the disk. Simply select which program you want to backup, insert that program disk and you're off. Data and unprotected disks are copied in less than a minute and require only two passes on an Apple IIc, Laser 128 or IIGs.

Take a look at Copy II Plus today and see why inCider magazine says Copy II Plus deleted its competition. For the dealer nearest you, or to order direct, call (503) 690-8090, M-F, 8 a.m.-5 p.m. (West Coast time).

Hardware requirements. Apple II or Laser computer with 128K memory and one disk drive.

3.5-inch bit copy requires Laser 128EX or IIos (or Apple II computer with Central Point Universal Disk Controller) and a 3.5-inch IIos, Chinon or Laser drive.

Copy II Plus is a trademark of Central Point Software. Apple II, IIe, IIc and IIcs are trademarks of Apple.



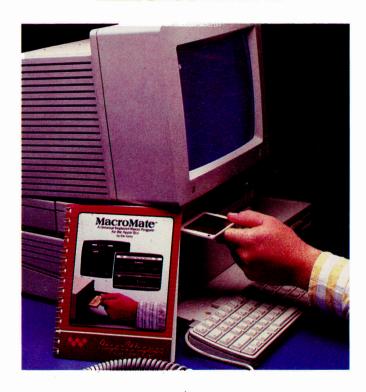
INCORPORATED

15220 N.W. Greenbrier Pkwy. #200
Beaverton, Oregon 97006

(503) 690-8090



MACROMATE



ROGER WAGNER PUBLISHING, 1050 Pioneer Way, Suite P, El Cajon, CA 92020, (800) 421-6526, (619) 442-0522

Macro program; 768K Apple IIGS, one 3½-inch drive, ProDOS 16 or GS/OS; \$49.95

Rating: ♦ ♦ ♦ ♦

all me lazy if you will, although I prefer efficient. I've always liked using keyboard macros—programs that let you enter lines of keystrokes with an openapple or option-key combination.

MACRO MAKING

Until recently, however, all the easy-to-use commercial macro programs were designed to work strictly with AppleWorks. But now that restriction's beginning to fade for IIGS owners. Roger Wagner's MacroMate provides macro capabilities for many programs, including AppleWorks.

MacroMate installs itself as a classic desk accessory (CDA) when you place it in the Desk.Accs folder; you can use it with only ProDOS 16 and GS/OS programs. The MacroMate disk comes with four prepared macro files—two demonstration files to use with the tutorial and two files to use with AppleWorks and Applesoft BASIC.

Two relatively simple methods let you create new macros or change an existing one. You can either record a macro as you're using it, or change it with the MacroMate macro editor.

NOW RECORDING

Recording a macro within another program lets you see what the macro's doing as you write it. To begin recording, press Control-Option-Escape. Type the macro's name, then type its command lines slowly. While I was typing several lines into a macro, everything appeared on screen; when I played the macro back, though, some characters were missing. Many programs will react in a similar delayed manner, so you should be familiar with the procedure you're recording, and type the instructions carefully.

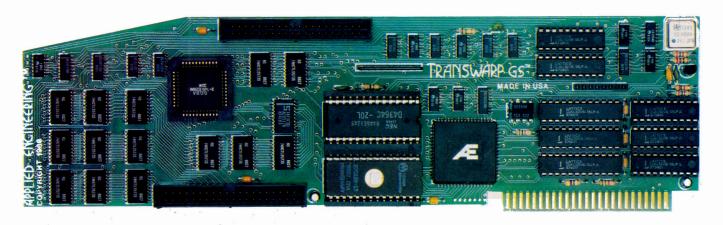
The recording process doesn't prompt or instruct you in any way, so at first you'll have to record macros with the manual open, following the instructions step by step. Fortunately, the manual is clearly written and well organized. When you've finished writing, press Shift-Escape to save your macro, which is now ready for use.

THE MACRO EDITOR

Your other option for writing or changing a macro is to use the macro editor. To get into the editor from any program, press Control-Open apple-Escape to bring up the Classic Desk Accessories menu, and select MacroMate.

The editor screen is divided into two parts. The top section lists all letters you can use as macro titles. MacroMate can define macros for almost all keyboard and keypad keys. Combinations with the control, open-apple, and option keys provide 384 possible macro titles. Select a macro title, then press Shift-Down Arrow to move to the lower part of the screen to write your instructions.

When writing your macro, simply type the keys you want executed in the proper



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.

Order today!

To order or for more information on TransWarp 6S, 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.

APPLIED ENGINEERING®

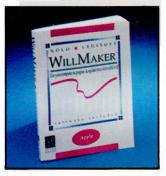
The Apple enhancement experts.

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.

Programs & Peripherals



WillMaker **by Nolo Press**

With WillMaker by Nolo Press you can write your own valid will without a lawyer. WillMaker, the bestselling program that gets you started on basic estate planning. The easy-touse software tailors a will to your needs, allows you to provide for your spouse, children, grandchildren, friends or charities and even create a trust for minor children. \$39.

ACCELERATORS/RAMCARDS/Z-80/80 COLUMN

	GS-RAM (256K to 1.5Meg)	Call
65.	GS-Ram Plus (1MB to 6MB)	Call
89.	GS-Ram Ultra (256K to 4MB)	Call
	RamWorks Basic (256K or 512K)	Call
Call	Phasor (II+, IIe, or IIGS)	139
Call	TransWarp Accelerator (AP or IIGs)	Cal
Call	ViewMaster 80 (II+)	129
399.	Z-80 Plus (II+, Ile, IIGS)	129
	Bits & Pieces Rocket Chip	139
Call	Orange Micro RamPak 4GS	
Call	(512k Exp. to 4MB w/Utilities)	139
Call	Zip Technology Zip Chip 4 MHZ	129
Call	Zip Chip 8 MHZ	159
	Call Call Call 399. Call Call	65. GS-Ram Plus (1MB to 6MB) 89. GS-Ram Ultra (256K to 4MB) RamWorks Basic (256K or 512K) Call Phasor (II+ IIe, or IIGs) Call ViewMaster 80 (II+) 399. Z-80 Plus (II+, IIe, IIGs) Bits & Pleces Rocket Chip Call Call (512k Exp. to 4MB w/Utilities) Call Call Call Call Call Call Call Call



War in Middle Earth by Melbourne House

"The exquisite detail and accuracy of the game makes this the definitive Tolkien game," ... Computer Gaming World. "War in Middle Earth gets my highest recommendation for all roleplayers, wargamers, or just plain fantasy fans," ... Questbusters. War in Middle Earth is fantasy at its best! May your heroic efforts be met with success and the forces of darkness be vanquished! \$30.

DDINTED INTEDEACE CADRO

I WINIEW INTENIACE	CARD		
Apple SCSI Card	115.	Orange Micro Grappler C/Mac/GS	79
Apple Super Serial Card	119.	ProGrappler (Apple He or HGS)	84
Applied Engineering Buffer Pro 32K	95.	Serial Grappler Plus	62
BufferPro 128K	139.	SMT No Slot Clock	42
Serial Pro (II+, IIe, IIGS)	119.	Print Tech II (Parallel Interface)	37
Parallel Pro (II+, IIe, IIGs)	85.	Thirdware Finger Print GSi Ver 2 (Incl.	
Applied Ingenuity GS Juice Plus 1 MB	219.	Desktop Accessories-IIGS) Specia	1 79
GS Juice Plus 2 MB	429.	Finger Print Plus (Specify Cables: Parallel,	
GS Juice Plus 4 MB	855.	Serial or ImageWriter II-II+ & IIe)	89

COMMINICATION COETWADE

OMMONICATION SOLITIZALE				
	_			
Specia	19			
er Kit	2			
	7			
	6			
	Specia er Kit			

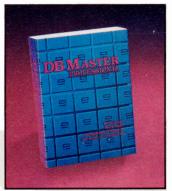
UTILITIES & LANGUAGES

Absoft AC/BASIC (16-bit BASIC		The Byte Works ORC
Compiler for IIGS)	84.	ORCA/Pascal Deskto
Big Red Computer		ORCA/C Desktop De
PS Lovers' Utility Set (AP or IIGS)	29.	ORCA DeskTop (IIGS)
Micol Systems Micol Advanced Basic (IIGS)	99.	TML Systems TML 8
Roger Wagner SoftSwitch (IIGS)	39.	TML Pascal (IIGS)
Merlin 8/16 (IIe, IIc, IIGS)	79.	TML Source Code Lib
So What Software Disc Commander (IIGS)	29.	TML Speech Toolkit (
Hyper Launch (IIGs)	35.	Zedcor ZBASIC 4.0 li

The Byte Works ORCA/M Assembler (IIGs)	39.
ORCA/Pascal Desktop Debugger (IIGs)	80.
ORCA/C Desktop Debugger (IIGs)	80.
ORCA DeskTop (IIGs)	34.
TML Systems TML Basic (IIGs)	84.
TML Pascal (IIGS)	84.
TML Source Code Library (IIGS)	35.
TML Speech Toolkit (IIGS)	49.
Zedcor ZBASIC 4.0 Interactive Compiler	39.

DISK DRIVES & HARD DISK SUBSYSTEMS

American Micro Research (Micro S	Sci)	Chinook	
AMR D20/APS 20MB HD	_	CT-20 Hard Drive (AP & IIGS)	Special 529
w/SCSI (Ile & Ilgs)	599.	CT-20c Hard Drive IIc	pecial 645
AMR D60/APS 60MB HD		CT-40 Hard Drive (AP & IIGS)	715
w/SCSI (lie & ligs)	829.	CMS "SD Series - Stack" Platinum IIe	, llgs
A5 D Half Height 51/4" Drive		20 MB w/SCSI II card	645
(IIGS Daisychain)	155.	43 MB w/SCSI II card	845
A.5 Half Height (II+ & IIe)	129.	60 MB w/SCSI II card	950
A.5C Half Height (IIc)	129.	First Class	
Micro Sci C2 Controller	52.	T6 60MB Tape	709
Applied Engineering Transdrive 36	0K 209.	D2 20MB HD (Ile & Ilgs)	509
Transdrive Dual 360K	305.	D4/A 40MB HD (Ile & Ilgs)	645
Transdrive Half Height 360K	119.	Laser Computer, Inc.	
/ulcan 20	525.	Universal Disk Controller	45
/ulcan 40	689.	Laser DiskDrive (IIGs)	105
/ulcan 100	1455.	Laser 800KB Drive	185
Applied Ingenuity Inner Drive 20	Special 449.	Universal Disk Controller/800KB	
nner Drive 40	Special 599.	Drive Bundle	219



DB Master Professional by Stone Edge Tech

DB Master Professional brings the power of a relational database manager to the Apple II. Anyone who needs to keep track of interrelated types of information can utilize DB Master Professional to automate record keeping. Relate up to 10 files for automatic data entry, posting and updating. Includes a full featured reports generator, mail merge, password security and AppleWorks compatibility. \$195.

GRAPHICS PACKAGES

Abracadata

Design Your Own Train	35.	Print Shop Comp
Design Your Own Home: Architecture (IIGS)		Print Shop Graph
or Interiors (IIGs)	65.	or Holiday Ed.
Design Your Own Home:		Print Shop Graph
Landscape (IIGS)	65.	Print Shop Graph
Design Your Own Home: Architecture,		Electronic Arts
Interiors or Landscape	49.	DeluxeWrite w/D
Architecture Library 1, 2, 3 or 4 (AP or IIGS)	21.	DeluxeWrite (IIGS
Interiors Library 1, 2 or Landscape		EPYX Art & Film I
Library 1	21.	Printmagic (AP or
Activision		Create-A-Calend
PaintWorks Gold or Draw Plus	66.	Lynx Computer S
Paint/Write/Draw (Not Protected IIGs)	80.	Roger Wagner
Baudville		Graphic Exchange
Award Maker Plus (Ile & Ilgs)	24.	So What Softwar
816/Paint (Works On All Apples)	46.	Springboard
Berkeley Softworks GEOS (C+)	79.	Certificate Maker
GEOPublish	69.	Springboard Publ
GEOS, GEOCaic or GEOFile	49.	Certificate Maker
GEOMouse (AP & C+)	39.	Fonts For Springt
Broderbund Dazzle Draw (AP or C+) or		Newsroom Clip A
Show Off (IIGS)	39.	Thunderware Th
Print Shop (AP or C+) or Fantavision	29.	(ilgs, ile, & lic)

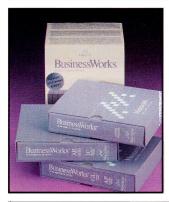
Print Shop (IIGs) or Fantavision (IIGs)	39.
Print Shop Companion	25.
Print Shop Graphics Library I, II, III	
or Holiday Ed.	16.
Print Shop Graphics Lib. Sampler Ed. (IIGS)	24.
Print Shop Graphics Lib. Party Ed. (IIGs)	24.
Electronic Arts DeluxePaint II (IIGS)	65.
DeluxeWrite w/DeluxePaint II (IIGs)	85.
DeluxeWrite (IIGs)	55.
EPYX Art & Film Director (IIGS)	55.
Printmagic (AP or C+)	34.
Create-A-Calendar	21.
Lynx Computer Supergraphix 256	69.
Roger Wagner	
Graphic Exchange (IIGS)	35.
So What Software Iconix (IIGS)	35.
Springboard	
Certificate Maker Library #1	19.
Springboard Publisher 2.0 (IIe or IIGs)	84.
Certificate Maker or Newsroom	26.
Fonts For Springboard Publisher (IIGs)	19.
Newsroom Clip Art Collection Vol. 1, 2 or 3	14.
Thunderware Thunderscan Apple	
(IIGS, IIe, & IIc) Special	159.



ThunderScan by Thunderware

ThunderScan brings high-resolution scanning technology to the Apple II. Just insert the ThunderScan cartridge into your ImageWriter printer and your ready to scan. The Thunder-Scan system provides 16 shades of grey, contrast and brightness control. Fully ProDOS compatible, you can export scans to all paint programs for custom editing. \$159.

Overnight



BusinessWorks by Manzanita

BusinessWorks is the accounting package for small and medium size businesses. Combining G/L, A/P, A/R and inventory control in one flexible package. BusinessWorks lets you set up your accounts the way you want. Customize your reports to display the information you want displayed. BusinessWorks looks and acts like AppleWorks. BusinessWorks is the accounting solution for the Apple II. \$269.

APPLE COMPATIBLE COMPUTERS

Laser Computer, Inc.		Laser 190A Printer	
aser 128 Computer	379.	w/Serial Interface	239
The Laser 128 includes an		Laser RGB Monitor	32
Expansion Slot, RGB Video		Laser Amber Monitor	9
Output, Parallel Printer Port,		Laser 128 Disk Drive (IIGs)	10
and a 10 Key Numeric		Laser 128 2nd Disk Drive	
Keypad!		(5¼", ½ height)	9.
aser 128EX Computer	449	Laser 128 800K 3.5" Drive	
The Laser EX includes a Built-in		w/Controller	21
RAM Expansion Board, Universal		Laser 128 Cables	
Disk Controller, Built-In Expansion		(Parallel, Serial, RGB or Modem)	1
Slot, and Ports for all Peripherals!		Laser 128 Mouse	4

BACKUP UTILITIES & BOARDS

THE RESERVE THE PARTY OF THE PA	AND DESCRIPTION OF THE PARTY OF	THE RESERVE THE PARTY OF THE PA
	Central Point Software	
36.	Copy II Plus	
34.	(5.25" & 3.5" Bit Copy)	23
		36. Copy II Plus

BUSINESS SOFTWAI Addison-Wesley		Monogram	
Wordbench (lie & ligs)	99.	Dollars and Sense (II+, IIe or IIc)	72
Programmer's Online Companion (IIG:			cial 39
Beagle Brothers	3) 34.	Peachtree	Juli 00
Timeout Graph	55.	Back To Basics Professional: GL/AR/AP	129
Timeout ReportWriter	52	Roger Wagner Publishing	
Timeout SuperFonts or QuickSpell	45.	Macro Mate (IIGs)	35
Timeout UltraMacros or SpreadTools	37.	Mouse Write (Ile, Ilc, IlGs)	84
Timeout SideSpread, FileMaster, or		Sensible Software	
DeskTools	32.	Sensible Grammar ProDos	
Timeout Thesaurus, DeskTools II	-		ecial 59
or PowerPack	32.	Sensible Speller ProDos w/3.5" & 5.25"	69
GS Font Editor or Program Writer	Special 32.	Seven Hills Software	
Timeout MacroTools or MacroTools II	19.	Graphicwriter III (IIGS)	85
Broderbund On Balance	39.	Simon & Schuster	
Bank Street Writer Plus (AP or C+)	50.	Webster's Spelling Checker (ProDos)	41
Brown Wagn Desk Pak (IIGS)	55.	Software Publishing	
GS File	61.	All Programs for IIe with 128K or IIc	
Claris Apple Works (IIGS)	215.	PFS: Workmates (File/Report/Plan/Write)	119
Apple Works	185.	Softview	
Multiscribe IIGS 3.0	75.	Form Set Business Forms (IIGS)	59
Dac Software Dac-Easy Accounting	65.	Stone Edge	
Garde Footing To Finish	55.	DB Master v5.	145
Intuit Quicken	34.	DB Master Professional Spec	cial 195
Manzanita		Timeworks	
BusinessWorks Payroll (Ile & IIGS)	139.	Art Portfolio 4 in 1	75
BusinessWorks Bundle IIe & IIGS		Publish-It 2.0 (IIe or IIGS)	84
(Sys. Manager, G/L, A/P,		People, Places and Things (Ile & Ilgs), De	esign
A/R, Inventory)	Special 269.	Ideas (Ile & IIGs), Symbols and Slogans	3
MECA	-	(Ile & IIGs), Education Graphics (Ile &	
Managing Your Money 3.0 (Ile, Ilc, IIGS	s) 95.	IIGS), Font Pack 1 or 2 (IIe & IIGS)	27
Mecc		Word Perfect Corporation	
Calendar Crafter School (IIGS)	59.	WordPerfect V1.1 w/Speller (IIe & IIc)	99
Milliken Medley (IIGS)	Special 119.	WordPerfect (IIGs)	99



Medley by Milliken Publishing

Mediev, a powerful desktop publishing program gives you word processing, page layout, and graphics. Twenty fonts, a dictionary and thesaurus are available with Medley's word processor. Medley's page layout program automatically wraps text around any object. Artwork and digitized pictures import easily into Medley, or create original art using Medley's powerful art tool. For the ligs. \$119.

Cutting Edge 105 Key ADB Keyboard

The Cutting Edge, 105 Key ADB Extended Keyboard, for the Apple llgs, combines the best features of tactile touch feel and the advantage of the Apple extended keyboard layout. It is designed for speed and accuracy and has a 1 year warranty. This keyboard features 15 function keys, 6 page control keys, and an 18 key numeric keypad. Now bundled with the macro program MacroMate...... \$149.

OUR POLICY

- ★ VISA and MASTERCARD accepted. No surcharge.
- ★ Your credit card is not charged until we ship.
- ★ If we must ship a partial order, the shipment that completes the order is sent freight free.
- ★ All shipments insured; no additional charge.
- ★ Upon receipt and approval, personal and company checks now clear the same day for immediate shipment.
- ★ No sales tax except orders shipped within CT, add 7.5% tax.
- ★ COD maximum \$1000, cash or certified check.
- ★ 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.
- ★ Call us anytime Monday thru Friday 9:00 to 9:00 Eastern Time, or Saturday 9:00 to 6:00 Eastern Time. You can call our business offices Monday thru Friday 9:00 to 5:30 Eastern Time at (203) 375-3560.
- ★ Purchase Orders accepted at our discretion, for more information call (203) 378-1926, 9:00 to 5:30 Eastern Time.

SHIPPING

- ★ Continental U.S.; Add \$6.00 minimum per order to cover Airborne Express Overnight*, unless UPS ground delivers next day. Some areas require an additional day.
- ★ All (instock items) ordered by 6:00PM Eastern Time Monday thru Friday will ship that evening. 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.
- *UPS ground service available at reduced rate per customer request.



Shipped Airborne Express



II and IIc Hard Drives by Chinook Technology

SCSI models feature 20, 40 and 80 megabyte capacities, 2 year warranty, System 5.0 compatibility, II/Mac partitioning and Chinook Utilities. Apple SCSI card required. CT-20c (\$645) is the only HD available for the IIc. Nibble Magazine concluded: "Run, don't walk to your nearest dealer and get yourself a CT-20c". CT-20c includes MouseWrite v1.5.7 (orig nonspeller version) from Roger Wagner. All drives support DOS 3.3.

Learning Company

EDUCATIONAL SOFTWARE

Barron's
Computer SAT Revised Version
Britannica
Designasaurus
Designasaurus (IIGS) or
Revolution '76 (IIGs)
Broderbund Geometry (IIGS)
Science Tool Kit Master Module
Science Tool Kit Module I, II or III
Type!
Where in the World is Carmen Sandiego?
Where in the USA is Carmen Sandiego?
Where in Europe is
Carmen Sandiego? (AP or C+)
Where in the World is Carmen
Sandiego? (IIGs)
Coda
Music Class Courses 1-5 (Bundle) 1
Compu-Teach
Once Upon A Time II
Stepping Stones Level I or II
Joshua's Reading Machine
(AP or IIGS & C+)
See the U.S.A.
Davidson & Associates
Math Blaster Plus (IIGs)
or Word Attack Plus (IIGS)
Alge-Blaster or Math Blaster Plus
Grammar Gremlins or Read 'N' Roll
Spell-It or Math Blaster Mystery (AP or C+)
Talking Math & Me (IIGs) or Talking
Reading & Me (IIGS)
Talking Math Blaster Plus (IIGS)
Math & Me or Reading & Me
Mavis Beacon Typing
Mavis Beacon Typing (IIGs)
First Byte/Electronic Arts The Rhyming
NoteBook, The Dinosaur Discovery
Kit (IIGs), The Puzzle StoryBook (IIGs)
Grade Busters Corp.
Grade Busters 1, 2, 3
Great Wave
Kidstime II (IIGs)
Harcourt, Brace, Jovanovich
Computer SAT

34.	Header Habbit (IIGS) or writing and	
	Publishing Center (AP or IIGS)	36.
24	Writer Rabbit (IIGs), Think Quick (IIGs)	
	or Rockys Boots (IIGS)	30
28.	Magic Spells (IIGs) or Math Rabbit	24
55.	Gertrude's Secrets (IIGs)	24
50.	Think Quick, Writer Rabbit	
26.	or Rocky's Boots	30
19.	Reader Rabbit, Magic Spells	
25.	or Math Rabbit (IIGs)	24
29.	Mindscape	
	Crossword Magic	34
29.	Roger Wagner	
	HyperStudio (IIGS)	85
29.	Sensible Software	
	Report Card II (IIe & IIGS)	37.
149.	Simon & Schuster	
	Speed Reading Tutor IV or	
25.	Typing Tutor IV	27.
25.	Typing Tutor IV (IIGS)	34
	Spinnaker Kidwriter Gold (IIGS)	31.
25.	Facemaker: Golden Edition	27
30.	Kidwriter	27
	Springboard Atlas Explorer	32
	Terrapin	
29.	Terrapin Logo Plus	79
29.	Tom Snyder Productions	
29.	Reading Magic Library: Jack and the	
29.	Beanstalk or Flodd, the Bad Guy	25
	Weekly Reader	
29.	Stickybear Series: Sticky Bear ABC (51/4),	
29.	Basket Bounce (51/4 or 31/2), Bop (51/4),	
25.	Math I (5¼ or 3½), Math II (5¼ or 3½),	
	Numbers (5¼ or 3½), Opposites	
30.	(5¼ or 3½), Reading (5¼ or 3½),	
37.	or Shapes (5¼ or 3½)	24
	Basic (5%), Car Builder (5% or 3%), Drawing	
	(5¼), Map Skills (5¼ or 3½), Math Word	
29.	Problems (5¼ or 3½), Music (5¼), New	
	Talking Alphabet (31/2), Parts of Speech (51/4)	
64.	or 3½), Printer (5¼), Punctuation Rules (5¼	
	or 3½), Reading Comprehension (5¼ or	
24	3½), Spellgrabber (5¼ or 3½), Townbuild	er
	(5¼ or 3½). Typing (5¼ or 3½). or	
29	Vocabulary Development (5% or 3%) (ea)	31

Vocabui	ary Dev	elopmen	t (5¼ or 3	3½) (ea)	31
		•			
			FingerP	0	
			321	THE STATE OF THE S	
				District States	
				- B	

ENTERTAINMENT SOFTWARE

Access Software		FTL Dungeon Master (IIGs)	29.
World Class Leader Board Golf	27.	Garde	00
Famous Courses of the World vol. 1 or 2	14.	Blue Powder Grey Smoke or High Seas	29.
Accolade Jack Nicklaus Golf (IIGs) Mean 18 (IIGs), Hardball (IIGs) or	34.	Hayden Software Sargon III Infocom Sheriock	14. 24.
Serve & Volley (IIGs)	27.	Hitchhiker's Guide to The Galaxy or	۲.
Mini-Putt (IIGs), 4th & Inches (IIGs) or	LI.	Leather Goddesses of Phobos	15.
Test Drive (IIGs)	27.	Beyond Zork (Ile or IIGs), Zork Trilogy	-
Famous Course Disk Vol. 2	12.	or Battle Tech	34.
Famous Course Disk Vol. 3 & 4	21.	Zork Zero, Journey or ShoGun	34.
Test Drive or Bubble Ghost (IIGs)	21.	InterPlay Battle Chess (IIGs)	34.
Action Software Thunder Chopper	19.	Intracorp	•
Activision		Search for Titanic (5¼) or Trump Castle (5¼)	21.
GBA Championship Basketball (IIGs),		Miami Vice (5¼ or 3½)	21.
or Shanghai (IIGS)	14.	Search for Titanic (3½) or Trump Castle (3½)	24.
The Last Ninja or Rampage	24.	Lynx Computer Supermusic	29.
Blackjack Academy (IIGs), CrossBow or Corruption	27.	Superpuzzle	34
The Last Ninja (IIGs) or Neuromancer (IIGs)	29.	MasterPlay Star Saga: One! (AP or IIGS)	55.
Sky Travel (Ile or IIGS)	32.	Melbourne House Quarterback	19.
Music Studio 2.0 (IIGS)	59.	Quarterback (IIGs), or Barbarian (IIGs)	25.
Artworx Bridge 5.0	19.	War in the Middle Earth (IIGS) Special	30.
Strip Poker II (IIGS)	27.	Micro League Sports Team Disk	14.
Avalon Hill Police Blotter	20.	Micro League Baseball	24.
BlueLion Ticket to Hollywood or R.S.V.P.	27.	General Manager/Owner Disk	21.
Ticket to London, Paris, or Spain	27.	Microprose	27
Ticket to Washington, D.C.	30. 25.	F-15 Strike Eagle or Silent Service Silent Service (IIGs) or Pirates (IIe or IIGs)	27. 30.
Britannica JigSaw (IIGS) Broderbund	20.	Miles Computing Magic Candle	36
Ancient Art of War at Sea	31.	Might & Magic or Might & Magic II	36
Wings of Fury (AP & I/Gs) or Down	2.5	Mindscape	
Hill Challenge (IIGS)	23.	Shadow Gate (IIGs), Uninvited (IIGs), Deja	
VCR Companion (AP or C+)	34.	Vu II (IIGS), Balance of Power 1990 (IIGS)	
Ultima IV or Ultima V	39.	or Deja Vu (IIGS)	32
Buena Vista Who Framed Roger Rabbit?	25.	Balance of Power (Ile & IIGS), Gauntlet (IIGS)	
California Dreams Vegas Gambler (IIGs),	05	or Super Star Ice Hockey (IIGS)	29.
Vegas Craps (IIGs) or Triango (IIGs)	25.	Super Star Ice Hockey or Hostage (IIGS) Gauntlet or Paperboy (IIe or IIGS)	27. 25.
Mancala (IIGS) or Club Backgammon (IIGS)	25.	Orgin Systems Times of Lore (IIGS)	27
Casady & Greene, Inc. Crystal Quest (IIGs)	31.	Tangled Tales	20
Cinemaware Defender of the Crown (IIGS).	01.	PBI Software	
King of Chicago (IIGs) or Sinbad (IIGs)	32.	Strategic Conquest (IIGs)	
Data East Platoon or Bad Dudes	23.	or Cavern Cobra (IIGS)	31
Datasoft		The Tower Of Myraglen (IIGS) or	5151
Tomahawk (IIGs) or Hunt for Red October	30.	Alien Mind (IIGS)	32
Hunt for Red October (IIGS)	37. 29.	Sea Strike (IIGs) or Monte Carlo (IIGs)	25
Discovery Software Sword of Sodan (IIGS) Diversified Software Research	29.	Share Data Concentration, Card Sharks, Jeopardy,	
Diversi-Tune (IIGs)	55.	Family Feud or Wheel of Fortune	10
Electronic Arts Instant Synthesizer (IIGS)	59.	Jeopardy II or Wheel of Fortune II	11
Cartooners (IIGs)	44.	Sierra On-Line Space Quest (lie or ligs),	
Bards Tale (IIGs), Bards Tale II (IIGs),		or Space Quest II (Ile or IIGS)	32
Bards Tale II, Madden Football, Bards		Kings Quest I, II, or III (IIe or IIGs)	32
Tale III (AP or C+), Wasteland or		Kings Quest IV (AP or IIGS)	34
Chessmaster 2100 (IIGs or C+)	33.	Leisure Suit Larry (Ile or IIGS)	26
Aaargh (IIGS) or Chessmaster 2100	29.	Gold Rush (IIGs) or Black Cauldron (IIGs)	26 24
Chuck Yeager Flight Sim., Zany Golf (IIGs), or Skate or Die (IIGs)	26.	Thexder (AP or IIGS) or Silpheed (IIGS) ManHunter (IIGS)	24
Strike Fleet	23.	or Police Quest (IIe or IIGs)	32
Instant Music (IIGs), Music Construction	20.	Mother Goose (Ile or IIGs)	19
Set (IIGs), Marble Madness (IIGs) or		Simon & Schuster Star Trek 4 First Contact	27
World Tour Golf (IIGS)	15.	Sir-Tech Wizardry or Legacy of Llylgamyn	32
EPYX		Heart of the Maelstrom or Return of Werdna	34
The Games: Winter Edition or		So What Software Sonix (IIGS)	39
The Games: Summer Edition	32.	Sphere, Inc. Gato	12
California Games (IIGS)	29.	Soko-Ban (Ile & IIGS)	23
California Games (AP or C+) or Technocop	26.	Tetris (Ile & IIGs) or Dondra Strategic Simulations	25
Street Sports: Basketball or Street Sports Football	14.	Wizards Crown or Eternal Dagger	26
Winter Games (Ile or IIGS)	174	AD&D Dungeons Mstr. Asst. Vol 1	23
or World Games (Ile or IIGS)	14.	Questron II, Roadwar 2000 (IIGs) or	
Street Sports Soccer (Ile or IIGs),		AD&D Pool of Radiance	30
or Street Sports: Baseball	14.	Battle of Napoleon, Questron II (IIGS)	
Summer Games II or Sub Battle Simulator	14.	or Typhoon of Steel	33
Sub Battle Simulator (IIGS) or Dive Bomber	14.	Sublogic Flight Simulator II	35
Final Assault (IIGS) or		Jet	27
Impossible Mission II (IIGS)	14.	Talto Arkanoid	14 24
L.A. Crackdown or Destroyer (IIGS) Fetes Flight	14. 32	Arkanoid (IIGS) or Renegade (AP & IIGS) Bubble Bobble (AP & IIGS) or Oix (AP & IIGS)	
Estes Flight Physics or In Search of Space	14. 32. 18.	Bubble Bobble (AP & IIGS) or Qix (AP & IIGS) Three Sixty Warlock (IIGS)	24

FingerPrint GSi by Thirdware

InCider Editor's Choice award winning graphic utility card for Apple IIGs. Capture, print and export screens from inside of any program at the touch of a button. Print billboards up to 140 feet wide. Access special disk utilities and much more - all from inside of any program. Includes FingerPrint Slide-Show program. Five year, no hassle warranty. \$79.





FAX: 203/381-9043 Inquiries: 203/378-3662 Canada: 1/800/344-7753 75 RESEARCH DRIVE STRATFORD, CT 06497



APPLIED ENGINEERING

GS-RAM® & GS-RAM Plus® These cards of-
fer higher performance and greater expansion
capabilities than Apple's card. Includes AE
3.5 Disk Cache, AppleWorks expansion, print-
er buffer, time display, graphic self diagnos-
tics, DMA compatibility, and much more!
GS-RAM 256K\$175
GS-RAM 512K\$287
GS-RAM 1 MEG\$511
GS-RAM 1.5 MEG\$735
GS-RAM Plus 1 MEG\$479
GS-RAM Plus 2 MEG \$839
GS-RAM Plus 3-6 MEG CALL
RamKeeper Boot the GS/OS in 12 seconds.
Boot AppleWorksGS in 15. Store programs
and data reliably. Battery back-up protection.
Allows the use of two RAM expansion cards in
the GS' memory expansion slot\$149
the GS' memory expansion slot
ligs rips along at over twice the speed of the
stock 2.8 MHz! Pull down menus fly open.
Graphic screens refresh instantly. Spread-
sheet calculations, spell checking, etc Boot
up your RamKeeper ROM disk based GS/OS
or AppleWorks GS in mere seconds \$329
Serial Pro Multi-function card for IIGS, IIe, &
II+. Serial port and a ProDOS clock \$109
Parallel Pro [™] Centronics compatible parallel
printer interface. Ilgs, Ile, and II+\$79
Buffer Pro™ Printer buffer option for the Par-
allel Pro. Allows you to regain control of the
keyboard while your printer is working.
Buffer Pro with 32K buffer\$84
Duilei Fio Willi SZN Duilei
Buffer Pro with 128K buffer \$131
Buffer Pro with 128K buffer\$131 Buffer Pro with 256K buffer\$185
Buffer Pro with 128K buffer\$131 Buffer Pro with 256K buffer\$185 RamFactor™ Slot 1-7 memory expansion
Buffer Pro with 128K buffer
Buffer Pro with 128K buffer\$131 Buffer Pro with 256K buffer\$185 RamFactor™ Slot 1-7 memory expansion card. Expands AppleWorks on a IIss, IIe & II+. RamCharger battery back-up allows perma-
Buffer Pro with 128K buffer\$131 Buffer Pro with 256K buffer\$185 RamFactor™ Slot 1-7 memory expansion card. Expands AppleWorks on a IIss, IIe & II+. RamCharger battery back-up allows permanent storage for instant access to data.
Buffer Pro with 128K buffer\$131 Buffer Pro with 256K buffer\$185 RamFactor™ Slot 1-7 memory expansion card. Expands AppleWorks on a Ilas, Ile & II+. RamCharger battery back-up allows permanent storage for instant access to data. RamFactor 256K\$239
Buffer Pro with 128K buffer
Buffer Pro with 128K buffer\$131 Buffer Pro with 256K buffer\$185 RamFactor™ Slot 1-7 memory expansion card. Expands AppleWorks on a Ilas, Ile & II+. RamCharger battery back-up allows permanent storage for instant access to data. RamFactor 256K\$239 RamFactor 512K\$351 RamFactor 1 MEG\$575
Buffer Pro with 128K buffer\$131 Buffer Pro with 256K buffer\$185 RamFactor™ Slot 1-7 memory expansion card. Expands AppleWorks on a llgs, lle & II+. RamCharger battery back-up allows permanent storage for instant access to data. RamFactor 256K\$239 RamFactor 512K\$351 RamFactor 1 MEG\$351 RamFactor 1 MEG\$575 RamCharger Battery back-up\$139
Buffer Pro with 128K buffer\$131 Buffer Pro with 256K buffer\$185 RamFactor™ Slot 1-7 memory expansion card. Expands AppleWorks on a llgs, lle & II+. RamCharger battery back-up allows permanent storage for instant access to data. RamFactor 256K\$239 RamFactor 512K\$351 RamFactor 1 MEG\$575 RamCharger Battery back-up\$139 RamWorks III If you have a lle this card is
Buffer Pro with 128K buffer\$131 Buffer Pro with 256K buffer\$185 RamFactor™ Slot 1-7 memory expansion card. Expands AppleWorks on a Ilgs, Ile & II+. RamCharger battery back-up allows permanent storage for instant access to data. RamFactor 256K\$239 RamFactor 512K\$351 RamFactor 1 MEG\$575 RamCharger Battery back-up\$139 RamWorks III If you have a Ile this card is perfect, and if you use AppleWorks it's an ab-
Buffer Pro with 128K buffer
Buffer Pro with 128K buffer\$131 Buffer Pro with 256K buffer\$185 RamFactor™ Slot 1-7 memory expansion card. Expands AppleWorks on a Ilas, Ile & II+. RamCharger battery back-up allows permanent storage for instant access to data. RamFactor 256K\$239 RamFactor 512K\$351 RamFactor 1 MEG\$575 RamCharger Battery back-up\$139 RamWorks III If you have a Ile this card is perfect, and if you use AppleWorks it's an absolute must! Expands memory up to 3 MEG. RamWorks III 256K\$199 RamWorks III 512K\$311 RamWorks III 1 MEG\$535 RamWorks III 1.5 MEG\$799 RamWorks RGB Options ColorLink™ For analog RGB and digital RGB
Buffer Pro with 128K buffer

ORDER TOLL FREE! 1-800-327-7234 COD VISA M/C

VulcanTM High Si	peed Internal Hard Disk
Chaose from 20	peed Internal Hard Disk up to 200 Megs! GS/OS,
ProDOS 8 DOS 3	3.3, CP/M, and Pascal 1.3
compatible True 1	6 bit data buss (others only
ueo an 8 hit) Con	troller card can be installed
in any slot and in i	invisible to the built in ports
in any siot, and is i	TVISIDIE IO INE DUIII IN PORIS
in the ligs. Built in	70 watt high output power
supply and cooling	fan. Specify computer type
20 MEG	\$519
40 MEG	\$679
100-200 MEG	CALL
TransWarp™ You	ur lle or ll+ runs over 3.5
times faster with 2	56K of built in accelerator
	a 16K RAM card \$129
Z-80 Plus Runs all	Apple CP/M software. Tur-
	ar, dBase. Includes operat-
ing system and mai	nuals. IIGS, IIe, II+ \$119
PC TransporterTM	& Accessories Your Ilas,
Ile, or II+ is now to	he most versatile personal
computer you can o	wn. It allows you to run Ap-
ple and IBM softwa	are on the same computer.
AppleWorks auton	natically recognizes the ex-
tra memory for expa	andina desktop.
768K (640K IBM)	\$389
	\$40
lle Install Kit	\$34
Single TransDrive	\$209
	\$309
Heavy Duty Power	r Supply Replacement for
llo or ll with over t	wice the output of the stock
aupply Facy to inc	stall\$69
	emory expansion card for
the Us Dive and ari	ginal IIc with the expansion
connector. Installs	inside your computer.
Ram Express	inside your computer. \$199
Ram Express Ram Express	inside your computer. \$199 512K\$311
Ram Express Ram Express Ram Express	256K \$199 512K \$311 1 MEG \$535
Ram Express Ram Express Ram Express Ram Express Cloc	256K
Ram Express Ram Express Ram Express Ram Express Cloo Z-Ram Ultra Comp	256K\$199 512K\$311 1 MEG\$535 ck Option\$49 patible with the IIc.
Ram Express Ram Express Ram Express Ram Express Cloo Z-Ram Ultra Comp Ultra 1	256K\$199 512K\$311 1 MEG\$535 ck Option\$49 eatible with the IIc. 256K\$199
Ram Express Ram Express Ram Express Ram Express Cloo Z-Ram Ultra Comp Ultra 1 Memory only	256K
Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2	256K
Ram Express Ram Express Ram Express Ram Express Cloo Z-Ram Ultra Comp Ultra 1 Memory only	256K
Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2	256K \$199 512K \$311 1 MEG \$535 ck Option \$49 eatible with the IIc. 256K \$199 512K \$311 256K \$255 512K \$367 1 MEG \$591
Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3	256K
Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock	256K
Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80	256K
Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80	256K
Ram Express Ram Express Ram Express Clock Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 Cc grade a lie to 128K	256K
Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 Cc grade a lie to 128K Timemaster II H.0	256K
Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 Cc grade a lie to 128K Timemaster II H.0 features and is the	256K
Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 Cc grade a lie to 128K Timemaster II H.C features and is the e automatically reco	256K
Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 Cc grade a lie to 128K Timemaster II H.C features and is the e automatically reco	256K
Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 Cc grade a lie to 128K Timemaster II H.C features and is the e automatically reco- cludes AppleWorks	256K
Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 C grade a lie to 128K Timemaster II H.C features and is the automatically reco cludes AppleWorks adds 15 new comm	256K
Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 Cc grade a lie to 128K Timemaster II H.0 features and is the automatically reco cludes AppleWorks adds 15 new comm Phasor Simply to	256K
Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 Cc grade a lie to 128K Timemaster II H.0 features and is the country automatically reco cludes AppleWorks adds 15 new comm Phasor Simply to thesizer for the Ilgs,	256K
Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 Cc grade a lie to 128K Timemaster II H.C features and is the count automatically reco cludes AppleWorks adds 15 new comm Phasor Simply to thesizer for the ligs, Sonic Blaster AE's	256K
Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 Cc grade a lie to 128K Timemaster II H.0 features and is the automatically reco cludes AppleWorks adds 15 new comm thesizer for the Ilgs, Sonic Blaster AE's er for the Ilgs, Amp	256K
Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 Cc grade a lle to 128K Timemaster II H.0 features and is the automatically reco- cludes AppleWorks adds 15 new comm Phasor Simply thesizer for the llas, Sonic Blaster AE's er for the llas, Amp stereo. 1 Meg llas	256K
Ram Express Ram Express Ram Express Ram Express Ram Express Clock Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Z-80 AE Extended 80 Co grade a lie to 128K Timemaster II H.C features and is the automatically reco cludes AppleWorks adds 15 new comm Phasor' Simply to thesizer for the llos, Sonic Blaster AE's er for the llos, Amp stereo. 1 Meg llos DataLink 2400/1:	256K
Ram Express Ram Express Ram Express Ram Express Ram Express Clock Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 Cc grade a lle to 128K Timemaster II H.C features and is the e automatically reco- cludes Apple Works adds 15 new comm Phasor Simply to the sizer for the llgs, Sonic Blaster AE's er for the llgs, Amp stereo. 1 Meg llgs DataLink 2400/1; hardware, software,	256K
Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Z-80 AE Extended 80 C. grade a lle to 128K Timemaster II H.C. features and is the lautomatically reco cludes AppleWorks adds 15 new comm Phasor Simply to thesizer for the llgs, Sonic Blaster AE's er for the llgs, Amp stereo. 1 Meg llgs DataLink Z-400/1: hardware, software, FREE on line service	256K
Ram Express Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Z-80 AE Extended 80 C. grade a lie to 128K Timemaster II H.C. grade a lie to 128K Timemaster II H.C. grade a lie to 128K Sonic Blaster AE's er for the ligs, Amp stereo. 1 Meg ligs DataLink 2400/11 hardware, software, FREE on line servic DataLink 1200/300	256K
Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 AE Extended 80 C. grade a lie to 128K Timemaster II H.C. features and is the automatically reco cludes AppleWorks adds 15 new comm Phasor Simply to thesizer for the ligs, Sonic Blaster AE's er for the ligs. Amp stereo. 1 Meg ligs DataLink 2400/1: hardware, software, FREE on line servic DataLink 1200/300 51/4" Half Height D	256K
Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 Extended 80 Ca grade a lie to 128K Timemaster II H.0 features and is the automatically reco- cludes AppleWorks adds 15 new comm Phasor Simply to thesizer for the Ilas, Sonic Blaster AE's er for the Ilas, Amp stereo. 1 Meg Ilas DataLink 2400/10 hardware, software, FREE on line service 514" Half Height D ble with all Apple	256K
Ram Express Ram Express Ram Express Ram Express Cloc Z-Ram Ultra Comp Ultra 1 Memory only Ultra 2 Memory, Clock Ultra 3 Memory, Clock Z-80 Extended 80 Ca grade a lie to 128K Timemaster II H.0 features and is the automatically reco- cludes AppleWorks adds 15 new comm Phasor Simply to thesizer for the Ilas, Sonic Blaster AE's er for the Ilas, Amp stereo. 1 Meg Ilas DataLink 2400/10 hardware, software, FREE on line service 514" Half Height D ble with all Apple	256K

and compatible drives. Has connections for

two drives. For the IIGS, IIe, and II+\$	59
Viewmaster 80™ Super resolution II+ 80 c	
umn card. Includes software patch enable	ing
AppleWorks to run on a 64K II+ \$1	24
Pocket RocketTM 16K RAM Card Upgra	de
your II+ to 64K and run ProDOS\$	85

More Quality Products.

Sony Ultra HI-Hes HGB Monitor/ I V
Without a doubt, this RGB monitor/TV is the
best available for the IIGs, IIe, bar none! \$529
Sony digital cable (\$29 sep.)\$22
Sony analog cable (\$29 sep.)\$22
CH Products Flightstick™\$52
CH Products MACH IV™ Plus \$69
CH Products MACH III™ Joystick \$39
Kensington System Saver® Ile & II+ \$69
Kensington System Saver® Ilcs \$74
Turbo Mouse ADB/Turbo Mouse \$124
ThunderScan® \$175
AppleWorks GS\$299
Classic AppleWorks version 2.1
TimeOut™ Series 2.0 or 2.1 AppleWorks en-
hancements. Ilgs, 128K Ile, or Ilc required.
TimeOut UltraMacros\$40
TimeOut MacroTools \$19
TimeOut MacroTools II \$19
TimeOut QuickSpell\$49
TimeOut Thesaurus \$35
TimeOut Graph\$69
TimeOut SuperFonts\$49
TimeOut SideSpread\$35
TimeOut SpreadTools\$40
TimeOut FileMaster\$39
TimeOut DeskTools\$35
TimeOut DeskTools II\$35
TimeOut Powerpack\$35
Quicken® Easy home accounting \$36
Publish It! 2™ Desktop publishing \$89
VIP Professional™ IIgs Like Lotus 123 \$69
VIP Professional™ Ile and Ilc \$69
WordPerfect®ligs\$104
WordPerfect®lle & Ilc \$104
SideWays TM \$38
Deluxe Paint II\$59
Managing Your Money 4.0TM\$98
Where in the World is Carmen Sandiego? \$29
(10) 51/4 DS/DD disk with sleeve \$8
(10) 31/2 DS/DD disk\$15

Why Buy From Us?

- 1. Toll free 800 number for orders
- 2. We almost always ship from OUR stock. Call us before 3 P.M. and it ships today.
- 3. Memory cards have <u>all</u> factory installed and tested RAM chips.
- 4. We're nice guys that want to help. We want our business to grow because of repeat customers and word of mouth.
- 5. We handle only the industry's best. We've
- tested and used all of the products we sell.

 6. 15 day money back satisfaction guarantee on all hardware. If you don't like something, we'll give you your money back. No hassles.

 7. We'll support, service and warranty everything we on!! thing we sell.
- 8. No surcharge is added for charge cards and we won't charge your card until we ship.
- 9. No sales tax is collected on orders outside Texas.
- 10 All shipments insured by us.

Order by mail: Send Check or money order to Preferred Computing, P.O. Box 815828, Dallas, Texas. 75381. USA (TX. res. add 7% sales tax) Order by phone: (800)327-7234 Visa, Master Card, C.O.D, School and Government P.O.'s accepted. Prices subject to change without notice.

Questions and Service: Confused about what to order? Tired of trying to get advice from someone that knows less about Apple Computers than a convenience store clerk? If so, try asking our friendly Apple support staff for honest advice, TX, HI, AK, Outside US (214)484-5464

AT A GLANCE

Continued

This program lets a child select from three basic activities—Alphabet, Letter Hunt, and Fast Letters—all intended to aid him or her in learning the alphabet and recognizing simple words.

Talking Stickybear Alphabet is a superior program that deserves attention from GS owners. Young children (under the age of 7) will be enthralled not only by the animated graphics screens that have been a hallmark of the Stickybear programs since the very first one, but also by the near-perfect speech and sound effects that accompany the pictures.

Cross-Works 1.3 (July 1989, p. 36, by William Kennedy), SoftSpoken, P.O. Box 97623, Raleigh, NC 27624, (919) 878-7725. \$79.95

Rating: ♦ ♦ ♦ ♦

If you're looking for a way to share word-processor documents, spread-sheets, databases, and other files between your Apple II and IBM-PC or PC clone, look no further. SoftSpoken's Cross-Works carries the biggest stick in the file translation/transportation business.

Cross-Works is a comprehensive package—including communications hardware, cabling, and support software to link your Apple II directly or via modem to just about any MS-DOS-compatible microcomputer. It also provides the widest selection of translators available for no-fuss conversion of data files (AppleWorks to Lotus 1-2-3 and back again, for example).

Geometry (July 1989, p. 80, by Jeanne Dietsch), Broderbund Software, 17 Paul Drive, San Rafael, CA 94903, (800) 527-6263, (415) 492-3500, \$79.95 Rating: ◆ ◆ ◆ ◆

Just think where mathematics would be today if Euclid and Pythagoras had had a computer and a program like Geometry to play with. With Geometry, you can see the angles of a triangle

Continued

Baudville had to place a limit on the graphics detail in each series of panes. Mad Match could have become unplayable with an overemphasis on details. Trying to match a face with hundreds of freckles, for example, would be ludicrous and would defeat the purpose of the game. You still get the feeling, though, that Baudville could have worked in better graphics without losing too much playability.

Mad Match can be quite challenging when you select the proper options. Determining which options you should or shouldn't choose depends entirely on the age of the players. For example, older kids will want to choose the Eagle-Eye difficulty level, the most stringent time limit, penalties for incorrect pairs, and six new panes after a match.

Mad Match uses the IIGS user interface (the mouse, pull-down menus, windows, and so on), although you can use the keyboard in place of the mouse. In fact, you have to use the keyboard in conjunction with the mouse when running the two-player game.

Educationally, Mad Match does stress—and probably strengthens—some fundamental learning skills. Paying attention to detail and discriminating between similar but slightly different objects are basic skills used in many areas. Visual skills such as reading, writing, and drawing depend on the ability to distinguish subtle details.

Mad Match has no Save Game feature, but because of each game's relative brevity, you really don't need it. The Relax command lets you pause indefinitely if you need a break. Other options are equally basic—you can start a new game at any time, quit playing Mad Match, or examine the progress of the current game.

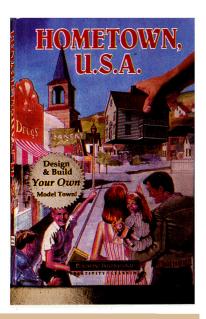
The latter feature presents you with a colored graph that indicates the time you spent on each level of play, the elapsed playing time, the number of points you scored, even the number of breaks you took during play. If you're using Mad Match in an educational setting, this type of monitoring can be helpful.

Mad Match comes on a single protected 3½-inch disk, and Baudville will provide a backup disk for \$10.

Mad Match provides an enjoyable way to work on perception skills. It won't replace crayons or building blocks, but for younger children (it's recommended for ages 4 and up), Mad Match can be an interesting diversion.

James Trunzo Leechburg, PA

HOMETOWN, U.S.A.



Publishing International, 533 West El Camino Real, Suite 222, unnyvale, CA 94087, (408) 738-4311

Creativity/clip-art program;
Apple IIGS; any paint program compatible with
Apple Preferred files; memory requirement
depends on paint program; \$39.95

Rating: ♦ ♦ ♦ ♦

n the beginning the software publisher created the paint program, and saw that it was good. In fact, it was great—a wonderful tool for the artist or would-be artist. Enter the clip-art disk—instant art for the rest of us. Right there on disk was everything you'd ever need—illustrations for school, office, and home

Then we entered the age of specialization—whole disks based on a single theme, such as sports figures, Art Deco borders, or digitized Edwardian silhouettes. Now comes Hometown, U.S.A.—a scale-model town you can design, print, and assemble.

YOUR HOMETOWN

You don't need this program. You're a grownup and you don't play with toys anymore, right? You've put away your train set and that collection of model airplanes and just don't have time for fun and games with your Apple.

If you're nodding your head, then you'd better stop reading this and go back to crunching numbers, because Hometown, U.S.A. is a lot of fun.

You can even share it with the kids—older kids, that is. Hometown, U.S.A. isn't a disk you'd turn over to your 6-year-old while you watch a ball game.

Remember, it's an art disk. Unless your 6-year-old is familiar with the inner workings of DeluxePaint or PaintWorks Gold, you'll want to be on hand to supervise, dispense kindly advice, and say, "Hey kid, why don't you move over and let me do just one little thing."

Just what is it about Hometown, U.S.A. that's so fascinating? After all, there's a lot of work involved here.

Publishing International provides only two sample buildings with the set, and you have to print and assemble those. The rest of the disk consists of blank building templates with a selection of black-and-white windows, doors, storefronts, columns, signs, and all kinds of other architectural accessories.

Unlike other clip-art programs in which what you see is what you get, the finished product is up to you—and therein lies its charm. With Hometown, U.S.A. you can create a modern city or a turn-of-the-century village. You could even build a replica of the Taj Mahal or a gas station with a soda-fountain sign on one side and your own Big Ben on the other.

Children love designing buildings with Hometown, U.S.A. Unfortunately though, the HO-scale structures are quite small, and your 6-year-old may not have the manual dexterity or the patience to assemble some of the structures without help.

Publishing International seems to be aware of this, however; the manual suggests you try using enlarged photocopies of your printouts.

If you're printing in color on an Image-Writer II, there's another solution. You can pick up smaller buildings as you would a paint program's brush and double their size.

Because your paint program probably won't allow brushes larger than the screen, you'll have to use a little judicious cutting and splicing to get the pieces back together.

Conversely, a teenager or adult may want to shrink the larger buildings down to N scale to dress up a tiny railroad layout.

BUILDING BLOCKS

The disk comes with plans for 16 basic structures and suggestions for combining them to create many more. Accessory screens contain doors of all types, windows (including several stained-glass versions), staircases, ticket booths, skylights, awnings, and chimneys. The

houses you build range from simple to complex structures with overhangs, porches, bay windows, and doors that open and shut.

You can construct your buildings of paper alone, but mounting the printouts on cardboard or thin balsa wood will make for a sturdier model. You can also cover your buildings with clear plastic laminate or spray them with varnish for greater durability.

The well-written manual includes step-bystep directions for assembling the buildings. It's chock full of ideas for additional activities, such as greeting cards, gift boxes, pop-ups, dollhouses, Christmas decorations, and so on.

Hometown, U.S.A. is compatible with any Apple IIGS paint program that uses Apple Preferred paint files, but if your only paint program is the graphics segment of AppleWorks GS, you're out of luck—at least for now. If you don't have a GS, there's also a IIe version of Hometown, U.S.A., which comes with its own graphics editor.

Hometown, U.S.A. is a unique addition to the world of art and printing programs. You'll do a lot of designing and building before getting tired of this one.

Sharon Webb Blairsville, GA

SUPER SIGN MAKER



SUNBURST COMMUNICATIONS, 39 Washington Avenue, Pleasantville, NY 10570, (914) 769-5030

Sign- and banner-printing program; 128K Apple lle, llc, llc Plus, llcs; printer (color recommended); \$75

Rating: 💠 💠 💠

raphics programs, like games and word-processing software, are all the rage on home computers. The ubiquitous Print Shop and its many imitators have set a high standard for the latest Apple II

AT A GLANCE

Continued

change as you move one of its vertices. You can compare the slope formulae for a line as you drag its points about the screen. With a tool like this, you can master trapezoids and rhombuses, even if you aren't a master mathematician.

Geometry spans the subject from points, lines, and planes through the formulae for areas of polygons and the areas and volumes of solids. It also introduces analytic, or coordinate, geometry from the Cartesian coordinate system through the slope-intercept formula for a line, plus the theorems relating slope to the concepts of parallelism and perpendicularity. If you aren't a math teacher, translated that means that Geometry covers the same topics as most high-school geometry courses.

You might describe the course format as a living textbook. It has ten chapters—five each on two disks—with a third disk containing startup and printer-driver files.

Map Skills (July 1989, p. 81, by Carol Holzberg), Optimum Resource, 10 Station Place, Norfolk, CT 06058, (800) 327-1473, (203) 542-5553, \$49.95 Rating: ◆ ◆ ◆

Map Skills invites children to sharpen their map-reading abilities by "driving" and finding their way through five different communities. With ten levels of difficulty, children can take as many as 100 trips. They must reach the assigned destination quickly, following travel directions as closely as possible to navigate the most direct route.

Map Skills includes two paper versions of the program's five travel maps. One is a colorful full-detail poster showing all five communities. The other consists of five smaller black-line master maps, suitable for copying.

Map Skills is an entertaining simulation. It teaches children how to navigate, gives them an understanding of the concept of relative position, and helps them learn to read maps with confidence.

5/1/2



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!

APPLIED ENGINEERING

(Additional AE items in stock)

"0" K Boards now available Call

Timemaster HO \$67

Z-RAM Ultra 1, 256K \$161

Z-RAM Ultra 2, 256K \$205

Z-RAM Ultra 3, 256K \$266

GS-RAM Ultra, 256K \$178

GS-RAM Ultra, 1 Meg \$298

GS-RAM PLUS, 1 Meg \$279 (limited quantity)

RamWorks Basic, 256K

RamWorks III, 256K \$161

Power Supply (II+, //e)

ORDERS ONLY:

1-800-438-2883

Serial Pro (Serial Interface w/clock)

FAX: 1-619-274-2440

on refunded items only

APPLIED ENGINEERING

Transwarp (II+, //e Accelerator)

Phasor (II+, //e Stereo Card)

DataLink 2400 (Internal Modem) \$174

GS RamKeeper \$139

Ram Express, 256K (//c+)

Ram Express Clock Option

Sonic Blaster (GS Stereo Card)

Parallel Pro (Parallel Card w/Cable) \$74

Buffer Pro, 32K (for Parallel Pro) \$81

Transwarp GS (GS Accelerator)

\$299 PC Transporter (640/768K)

PC Transporter GS installation kit

Ext. 80 Col Card \$54

Vulcan 20 Meg Int HD \$479

Vulcan 40 Meg Int HD

Vulcan 100 Meg 👭 Int HD \$1299

TransDrive (for PC Transporter) \$189 Single \$286 Dual

Audio Animator



HARDWARE

Supra 2400 Baud External Modem

Numeric Keypad (//e)

Numeric Keypad (//c) \$99 AMR 30 Meg w/SCSI (//e, GS)

\$659 AMR 43 Meg w/SCSI (//e, GS)

AMR 60 Meg w/SCSI (//e, GS)

\$829 Kensington System Saver GS

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

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

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

No Slot Clock Pro (Apricorn)

don't miss out on

ROGER'S DEAL

OF THE MONTH

HYPERSTUDIO

by Roger Wagner Publishing

Multi-Media now here

for your IIGS

inCider Editor's Choice

list \$129.95

NOW \$79

Parallel Interface Adapter (Apricorn)

HARDWARE

Thunderscan (//e, //c, GS Scanner)

AB Switchbox (Ser/Par)

ABCD Switchbox (Ser/Par)

AB Switchbox (Mini 8) \$38

ABCD Switchbox (Mini 8) \$48

//e Fan and Surge Protector

GS Sound System speakers & 15 watt amp

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

//e Enhancement Kit

Kensington Turbo Mouse ADB

ImageBuffer, 64K (IWII Internal)

Cables (all types, 10 ft)

CH Mach II Joystick

CH FlightStick \$47

Apple 3.5 Drive **\$324**

Apple ImageWriter II **\$459**

FingerPrint GSi vII

CHIPS

All Memory Chips Carry a 5 -Year Warranty!

(set of 8) 256K, 120ns \$69 (set of 8) 1 Meg 100 or 120ns

Circle 90 on Reader Service Card.

CALL US!



PRICE QUOTES & TECHNICAL SUPPORT 1-619-274-1253 8am - 5pm PST Monday-Friday Committed to value since 1985

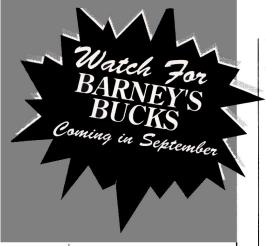
Authorized Applied Engineering Dealer

15% (\$15/min.) restocking fee

WE ACCEPT: VISA and MasterCard • Bank Wires • School Purchase Orders • Certified Checks • Money Orders • NO PERSONAL or COMPANY CHECKS • Sorry, no shipping, handling, or insurance refunds • Not responsible for product compatibility • Prices subject to change without notice

P.O. BOX 171466





OUR CUSTOMERS SPEAK...

"It's nice to know there are folks willing to help those of us who are novices next to them."

> -- Robert Gage Stockton, CA

SOFTWARE

(Sorry, no software refunds)

Appleworks GS \$197

DB Master Professional **\$189**

RAMUP 4.0 (RAMdisk Utilities) **\$29**

Repair Works (Repair AW Files) **\$29**

EASY DRIVE (Program Selector) **\$54**

Path Finder (AW2.0 patch) \$16

Late Nite (AW 2.0 patch) \$16

Patch Mania (AW2.0 patch) **\$16**

Mini Paint (GS Paint Program) \$19

FOR A TIMEOUT: **COMPLETE** Ultra Macros \$37 CATALOG OF Graph OUR PRODUCTS. \$52 FILL OUT THE Thesaurus Power Pack READER SERVICE Desk Tools CARD IN THIS Desk Tools II MAGAZINE

\$31/ea
ProTERM v2.1

Publish It 2!

HyperStudio

Musicwriter LE/SE/Pro \$79/\$199/\$399

Design your own Home Series \$47/ea (//+, e, c) \$59/ea (GS)



SUPER Zip Chip by Zip Technology 4.0 Mhz accelerator

REVIEWS

graphics programs. Those that succeed, such as Sunburst's Super Sign Maker, do so because they have something special to offer.

Sign-making programs aren't rare by any means. What sets Super Sign Maker apart is its flexibility.

Instead of being restricted to one print size, Super Sign Maker offers font sizes ranging from one-half to 8 inches high; you can change the print size to suit your needs.

You can print your sign's text in a variety of styles (plain, inverse, underline, and outline) and textures (filled in with hearts, bricks, or beads, thin lines, or wide lines).

For the ultimate in variety, you could even print each line with a different texture—one with stripes, another with beads, another with shading.

There's a foreign-symbols mode, too, which lets Super Sign Maker print banners and signs in a variety of European languages.

Super Sign Maker will print in any of four print qualities—light, normal, dark, and extra dark. Check your printer, though, because not all can execute these different print qualities. Also, depending on your printer, you may be able to produce your sign in color.

If you have problems with any portion of Super Sign Maker, try the troubleshooting list included. (If that doesn't work, Sunburst's excellent technical support offers a toll-free phone line.)

Want to surround your text with a border? Choose from a multitude of textures, patterns, and symbols contained right on the Super Sign Maker disk.

You can even repeat a picture around the entire sign. Be careful, though: Because the sign can be only 8 inches high, borders cut down on the size and number of lines of text.

If you want to use pictures, either as a border or as a graphic on the banner, Super Sign Maker includes a library disk with 33 graphics and two additional fonts—digital and stencil. While that may seem like a small number of graphics—only one-third of what you usually find in a Print Shop graphics library—Sunburst has already issued a second graphics disk.

Super Sign Maker can also import Print Shop graphics, but not Print Shop borders or fonts. That leaves you with about 500 graphics from which to choose. You can use two different graphics as often as you want on each sign.

Super Sign Maker is pretty easy to use. Commands are simple to remember (ControlS adjusts size, for example), and there's a help screen and a small command card.

Sunburst includes a short tutorial in the documentation that should have anyone creating a sign in ten minutes. There's also an overview that provides a succinct summary of the program's parameters. (For example, you can print up to eight lines of text with a maximum of 80 characters per line.)

For the first-time user, two preliminary, easy tasks are in order. You must configure the program for your printer and format a data disk.

To make a sign, first enter a name for the file. Then select a font style; press Control-G to get into the graphics keyboard and choose a fill pattern for the font.

At this point, you'll have to do a little planning. Because Super Sign Maker won't print a sign taller than 8 inches, it's important that you think out what you want to say and how big you want to say it.

For signs with borders, allow 2 inches for a picture border and 1 inch (1/2 inch on the top and bottom) for a patterned border. Also, keep in mind that signs will be longer with a border.

When you've finished making your sign, press Escape or Control-E to return to the main menu. The printing menu shows several options for running out your super sign. To preview your creation, choose to print to the screen first. If you select standard format, the sign will print in standard quality.

You can customize your printer settings, though, to change shading, print lengthwise rather than sideways, and adjust centering from right, left, or center.

SLOWLY BUT SURELY

Printing may take some time, but the results are worth the wait. The complexity of the sign determines its printing time. For example, signs with pictures and borders will take longer to print than those with just text.

One particularly nice feature of Super Sign Maker is the editing screen; it lets you see the length and height of your sign and the arrangement of your borders, graphics, and text.

Super Sign Maker is a must if you use a graphics program on the Apple IIe. It's easy to operate, it's flexible, and it produces superior signs and banners. Teachers and parents will find Super Sign Maker especially useful, and students will have a ball with it.

Ken Carlson Joliet, IL

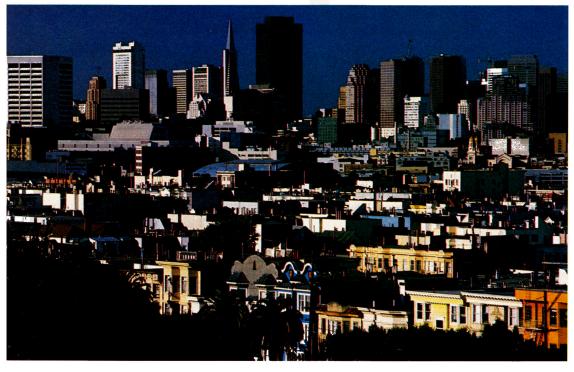
AppleFest'89SanFrancisco

Discover How to Make the Most of Your Apple® Computer!

September 22-24, 1989 Brooks Hall / Civic Auditorium San Francisco, California













It's the ultimate experience for Apple users — and prospective users. The all-new AppleFest®'89, at San Francisco's Brooks Hall and Civic Auditorium, September 22-24, 1989. Bigger and more exciting than ever, with more than 200 companies exhibiting the latest

products for Apple II and Macintosh® computers.

There's more. Aside from all of the good things AppleFest '89 will do for your mind, registering right now will do something great for your wallet. You can save \$5, \$30... even more, off of the regular admission price if you register now. This is your best chance to get the scoop on the hottest new Apple II and Macintosh products and applications. Like AppleWorks GS. HyperMedia. Desktop publishing and presentations. Using Apple computers in multi-media. And much, much more.

AppleFest '89. There's only one thing smarter than deciding to be there.

Deciding now.

Call 1-800-262-FEST to order tickets or for more information. (In Massachusetts, call 617-860-7100.) Remember: act today, to receive the advance registration savings.



Your Best Chance to Learn About Apple Computing -All Year Long



3-Day Conference & Exhibits

10. An Introduction to HyperCard®

Applications and Issues

11. Desktop Publishing on Macintosh 12. Macintosh in the Classroom:



Comments from attendees at previous AppleFests:

"I felt like I'd died and gone to heaven!" – Apple enthusiast

"It was an Apple user's dream come true." – user group leader

"I learned exactly what I wanted to learn." - parent

"My district spent \$1000 sending me to this conference. And it was worth every penny." - educator

Save with Advance Discount Prices

Mail Now or Call 1-800-262-FEST

(Group Orders of 10 or More — Call for Special Rates!)

PM

AM

AM

AM PM

3-Day Exhibits Only	\$15	\$10	_
Family/Educator Package (four to nine individuals) 3-Day Conference & Exhibits (per person) 3-Day Exhibits Only (per person) Submit all names and single check or credit card number with your order. This discount available only in advance. Children five and under admitted free.	\$75 \$15	\$35 \$7.50	
AppleFest Half-Day Intensive Seminars	\$135	\$99	_
The first seminar is \$99; individuals may purchase additional seminars for \$75 each. Includes 3-day conference and exhibits. AM=8:00-12:00; PM=1:00-5:00			
Circle the day and time of the desired seminar(s):	THUR	FRI	SAT
1. AppleWorks: Great Classroom Applications			AM
2. AppleWorks — Beyond the Basics	PM		AM
3. AppleWorks GS: Using All the Power	PM		PM
4. Desktop Publishing on the Apple II: Tools and Applications	AM	PM	
5. Graphics on the IIGS		AM	
6. Beginning Programming on the Apple IIGS: How to Get Started	AM		
7. Intermediate Programming on the Apple IIGS: The Apple IIGS Toolbox		PM	
8. Advanced Programming on the Apple IIGS: Techniques to Improve Your Programs			PM
9. Telecommunications on the Apple II		AM	

Name			
Company			
Address			
City			
Day Phone			
Hotel Reservations			# of Rooms
San Francisco Hilton (415-771-1400)	\$100	\$115	
Westin St. Francis (415-397-7000)	\$105-155	\$130-18	30
Arrival Date:	Departur	e Date: _	
Hotel reservations must be guarantee	ed by one	night's de	eposit.
$\ \square$ Please use the credit card I have i	ndicated l	oelow.	
$\ \square$ I have enclosed a check payable t	o the hote	el.	
Payment (payment must accompar	ny all orde	ers)	
Total Amount Due:			
☐ Check ☐ Credit Card (circle one) (Checks should be made payable to Cambridge Mendel by the hotel of your choose of the control of the hotel of your choose of the hote	Marketing, Inc		Amex hotel reservation
Credit Card #	Ex	kp. Date: -	
Cardholder's Name			
Authorized Signature			
Amex Billing Address			
Mail this form to Cambridge Marketing, Inc., One Orders received after September 8 will be held at		l, Lexington,	MA 02173.
	Septem	ber 22	-24, 1989

AppleFest'89SanFrancisco



a new Classic

Sound the trumpets! AppleWorks 3.0 has arrived, and the classic 8-bit program has gone from greatness to grandeur.

New features in all three modules enhance its superior stature without altering its simplicity.



PPLEWORKS 3.0 IS TERRIFIC. THAT SOUNDS LIKE FAINT praise, because AppleWorks was already terrific—the best 8-bit computer program ever written, the unchallenged standard in Apple II productivity software. But Claris Corporation's new release is big news, much

bigger than the advent of AppleWorks 2.0 in 1986. That upgrade brought merely mail merge, a couple of spreadsheet improvements, and expanded memory support. AppleWorks 3.0 has new features everywhere you look: a spelling checker, 26 more spreadsheet functions, formatting and file-handling enhancements galore, all-around better integration. It's well worth Claris' \$79 upgrade price.

The new edition lacks some extras, such as macros and graphics, that many AppleWorks 2.0 and 2.1 users already enjoy thanks to Beagle Bros' TimeOut add-ons. But several former options

PRODUCT NFORMATION

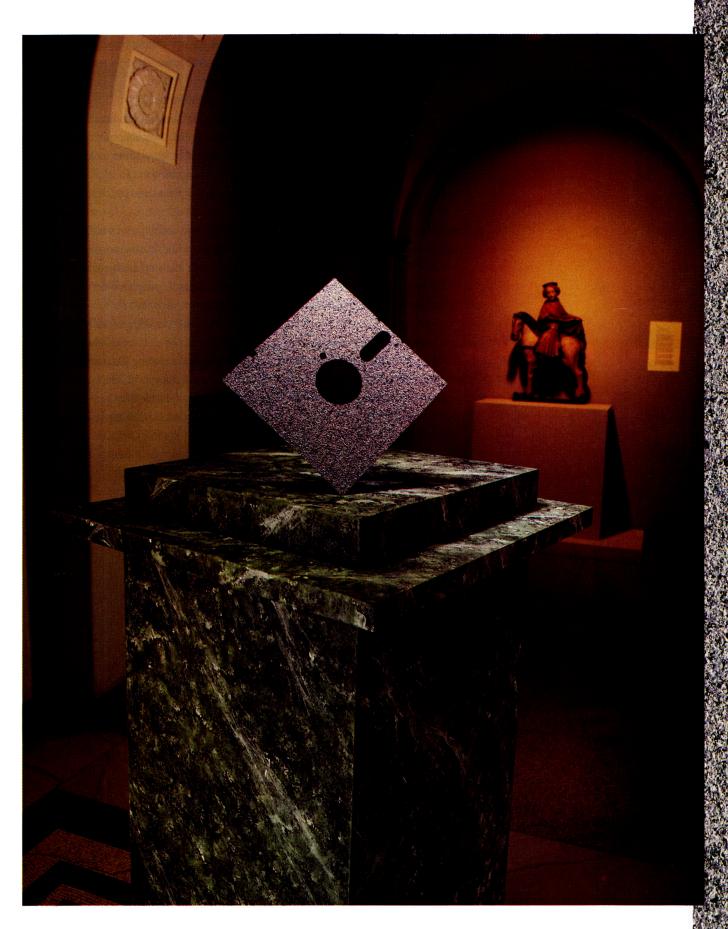
AppleWorks 3.0

Cleris Corporation 5201 Patrick Henry Drive Box 58168 Sente Clere, CA 95052-8168 (408) 987-7000 \$249 \$79 upgrade for registered AppleWorks 1.3, 2.0, 2.1 users

By ERIC GREVSTAD
CONTRIBUTING EDITOR

and patches are now standard equipment, and Beagle is ready to supply the rest in a stack of upgraded, 3.0-compatible TimeOut products. (The first of these is AppleWorks 3.0 itself in a way: Beagle helped Claris develop the program. The names of Beagle boys Alan Bird, Randy Brandt, and Rob Renstrom have joined creator R.J. Lissner's and Claris' on the title screen.)

The most important news, however, is that the improved word processor, spreadsheet, database, and desktop don't change AppleWorks' personality. The program still runs on a 128K, one-drive Apple IIe or IIc. It's still fast and simple to use. It still says, "Carefully saving this file," and asks, "Do you really want to do this?" You'll really want to get AppleWorks 3.0.







his article is a preview, not a review. Claris let inCider see a not-quite-crashproof test disk in late April, well before the program's scheduled June 20 debut. While

future issues will carry complete details, we couldn't wait to share some first impressions.

If you're using 51/4-inch drives, you'll notice immediately that AppleWorks 3.0 requires some disk swapping. Instead of one startup and one program disk, there's a startup disk, two program disks—one for the database and word processor, one for the spreadsheet-and a fourth disk for the spelling dictionary.

For IIc Plus or GS owners, an 800K 31/2-inch disk holds everything with room to spare-that's maximum convenience.

There's also good news if you often use just one application such as the word processor: You can copy ProDOS, the startup and desktop files, and any one of the three programs to a personalized, single-sided 51/4-inch disk.

Having a 31/2-inch drive is nice, but having expanded memory is better. On 128K machines, desktop workspace has shrunk from 56K to 40K, and AppleWorks' appetite for disk access has become insatiable.

Using a 128K Apple IIc Plus, I spent far less time enjoying the fast 4-megahertz processor than I did waiting for the disk. Switching from a word-processing document to a spreadsheet took eight seconds; simply switching between an application and the main menu with the escape key often ate up several seconds.

The good news about memory is that AppleWorks 3.0 uses all it can find. It now recognizes RamWorks/ Checkmate-style memory cards (auxiliary-slot) as well as "Apple-standard" (peripheral-slot) cards and IIGS memory.

As with AppleWorks GS, you can configure 3.0 to preload one, two, or all three modules into RAM at startup, though the spelling dictionary stays on disk. The desktop still stops at 12 files, but the clipboard is limited only by available RAM-no more annoying messages about that old 250-line limit.

Review/Add/Change: A 3.0 Wrapup

MAJOR IMPROVEMENTS IN APPLEWORKS 3.0:

 ENHANCED MEMORY RamWorks/Checkmate support, unlimited clipboard, mega-files on 256K or USE:

larger machines (9999 spreadsheet rows, 16,000 + database records or

word-processor lines)

• FILE HANDLING: subdirectory navigation, improved ASCII import/export

· CLIPBOARD: automatic transfer between applications (no more "print to clipboard")

 WORD PROCESSOR: spelling checker with "context" and "list" modes, spelling summary

 WORD PROCESSOR: real tabs (left, right, center, decimal), formatting shortcut keys

SPREADSHEET: 26 new functions, from @PI to @PMT; formulas use both labels and values

• SPREADSHEET: copy/move blocks as well as rows or columns DATABASE: sort on multiple categories, find on just one

• DATABASE: multirecord layout has horizontal scrolling; create record layouts based on

report layouts and vice versa

POSSIBLE DRAWBACKS:

heavy disk swapping for 51/4-inch-disk users; more disk access and smaller DISK DISTRESS:

desktop on 128K machines

ONE-WAY 3.0 reads earlier versions' data files, but older AppleWorks can't read files COMPATIBILITY:

containing 3.0 features (word processor's tabs, new spreadsheet func-

tions, and so onl

CAUGHT IN THE bad luck for TimeOut QuickSpell owners; Beagle Bros promises low-cost

MARKET: upgrades for other TimeOut products



ven before you enter an application, you'll notice AppleWorks 3.0's extra convenience. There are more standard printer choices, including Brother and Oki-

data models. You can also customize your choice with six special codes to print italics, characters not found on the keyboard, or other favorite features.

Formerly an idiot, AppleWorks is now a genius when it comes to navigating among ProDOS directories. If you want to fetch files from a subdirectory, the program offers a list of directories on the current drive (the tab key changes to a different drive) instead of making you type pathnames and slashes. If you've loaded files from different directories onto the desktop, you can save each one to the current path with Open apple-S (OA-S) as usual, or to its original source with OA-Control-S.

A similar menu helps import text files into the word processor, letting you pick from a list of ASCII files on disk instead of remembering and typing filenames and pathnames. Moving in the other direction, you can export ASCII files with carriage returns after each paragraph instead of after every line.

Besides offering more directory listings, Apple-Works 3.0 scrolls through them faster. The OA-Up and -Down (page up and page down) commands work in directories as they do in applications. Equally neat details include a "forward delete" key (OA-Delete, the reverse of the delete key's backspace) and OA-< and -> (or comma and period), quick ways to move the cursor to the beginning and end of a line.



t doesn't have the fancy type styles of AppleWorks GS or TimeOut SuperFonts, but 3.0's word processor offers increased printing flexibility. New features include

the ability to print a specified range of pages, OA-O (format option) codes to print the date or time as well as the page number, and support for multiline headers and footers.

Besides flush-left, justified, and centered text, you can now specify flush-right text (aligned at the right margin), and you don't need to press OA-O and type two letters to do it. Joining the shortcut keys Control-

B (boldface) and Control-U (underlining) are Control-N, -R, -F, and -C for normal, right, full, and center justification, and Control-P for page break.

AppleWorks 3.0 has "real tabs," in that the tab key actually types a tab character (a formatting code, shown on screen as a caret like other codes) instead of just adding spaces. There's still a tab ruler atop the screen, but it shows different markers for left, right, center, and decimal tabs. The OA-T command lets you place multiple rulers in a document, so tab settings—and the on-screen ruler—can change as you move the cursor from one paragraph to another.

These features give you much greater formatting power, without sacrificing ease of use or speed of execution. In a simple search-andreplace test, the new word processor was about 20 percent faster than the old. But the biggest bonus is the spelling checker, based on Beagle Bros' QuickSpell (the one TimeOut product AppleWorks 3.0 has rendered obsolete).

After scanning your document (in RAM) and its dictionaries (on disk), the speller offers the usual choices of skipping one or ignoring all occurrences of a word, adding it to a personal dictionary, typing a replacement, or seeing a list of possible spellings. Its suggestions are usually accurate, if you don't mind waiting a few seconds and pressing a few keys to end the disk search (which goes on for a while after the right word has appeared) and select a correction. The speller catches doubled words as well as typos.

I like its choice of spelling "in context," highlighting questionable words one at a time with the spelling menu at the bottom of the screen below your document, or "from a list." The latter option is an alphabetical display of all unknown words, from which you can easily jump to the context display to check individual items. To complete the spelling lesson, AppleWorks offers a summary of results, which you can move to a word-processing file via the clipboard.





File Acme Cli Selection All			E CEM 400 CHANGE		Escape Mach Menu
City	State	Zip	Phone	Contact Date	Balance
Sewark Eleveland	N.J DH	30121	412-555-3882 216-555-8913	May 1 89 Feb 11 89	\$1758 \$2878
Bayton Keene	OH HH	58121	331-555-1910 201-555-1910	Mar 3 89	\$1028 \$2518
Gardner Miaxi	13 F	81448 44811	588-555-8711 84-555-8711	Sep 4 88 Oct 13 88	\$1238
Port Land		85418 83458	788-555-8233 683-555-9471	Nov 28 86 Nay 9 89	\$1688 \$1488
Peterborough Iowa City Hartford	MM IA CTL MA CT RI	52241 86186	319-555-9787 283-555-6859	Dec 12 88 Feb 11 89	\$1548 \$988
Chicago Boston	IL MA	6 868 1 82121	312-555-18 89 617-555-5812	Jun 1 89 Mar 18 89	\$2858 \$1188
Hartford Harvick	CT RI	85186 21821	283-555-2128 516-555-3319	Aug 2 88 Apr 12 89	\$1328 \$1828
Morfolk	94	35812	583-555-2424	Feb 15 89	\$1588

Top, old and new default options appear on 3.0's "Select standard settings" menu.

Middle, opening ASCII files or subdirectories is as easy as choosing regular data files.

Bottom, horizontal database: With first two categories as titles, we've scrolled past "Address" and "City" to review other fields.



Now you can work with a list of unknown words and their corrections (or notes on whether they were skipped or added to the dictionary). AppleWorks 3.0 could make English teachers' jobs a lot easier.



hile 3.0 has speeded up its search-and-replace feature, the pre-release spreadsheet was

0.2 of a second slower than AppleWorks 2.1 in a 1000-cell recalculation test. But you'd have to be crazy to complain about that when you have 9000 more rows to fill (on machines with expanded RAM) and more than two dozen new functions with which to fill them.

Does Claris hope to get AppleWorks into more math classrooms? Check out the new math and trigonometric keywords: @ACOS, @ASIN, @ATAN, @ATAN2, @COS, @SIN, @TAN, @EXP, @LN, @LOG, and @MOD, plus @DEG and @RAD to convert between degrees and radians and @PI.

Economics majors and small-business owners aren't left out. They can go to work with six new financial functions: @IRR (internal rate of return), @FV (future value), @PV (present value), @TERM, @PMT, and @RATE.

There are also six new logical functions: @FALSE, @TRUE, @NOT, @ISBLANK, @ISERROR, @ISNA. Each of these returns a word (TRUE or FALSE) instead of a number (1 or 0) as a value, illustrating a major spreadsheet improvement: Like AppleWorks GS, version 3.0 can handle labels as values. It'll return a text string instead of an error message if you write a formula such as @IF(G6<180, "Slim", "Overweight"). Depending on the number in cell G6, AppleWorks will display either the word Slim or Overweight.

Even if you never use the new functions, you'll admire AppleWorks 3.0's adaptation of a swell trick from TimeOut SpreadTools: You can move or copy blocks of cells, as well as rigid rows or columns, within a worksheet or to the clipboard. Better yet, you can paste data on the clipboard into any application. Spreadsheet rows or database records reach the word processor with no "print to clipboard" or "print to

Something New for Young and Old

Normally, a software company plans a product upgrade with one eye on its competition. In Claris' case, says AppleWorks product manager Elisa Nakata, "We have no competition." Claris' Apple II product-line manager, Kevin Harvey, quips, "I'd like to see us gain some market share, but we mostly have it all." But though they didn't worry about rival programs, AppleWorks 3.0's designers had to worry about hitting two different targets: the program's legions of loyal, productivity-minded adult users, and an Apple sales trend that's made K-12 AppleWorks' top priority.

"Our Apple II strategy," says Harvey, "is to sell to whatever people are using Apple IIs for, and now we're seeing that makeup change—K-12 is a bigger piece of Apple II sales each year. I think AppleWorks is a personal-productivity tool second; I would have put personal productivity first last year, but this year with II CPUs selling less it's about a tie with education."

That's why, Nakata explains, the 3.0 spelling checker works as it does. "When we looked at

the educational market, we said, 'Oh, what about a spelling summary, something the teacher can return to the students so they can try to correct their own mistakes.' For math classes, we put the trig functions in the spreadsheet."

On the other hand, Harvey says, AppleWorks "has always been a home/education product with a lot of business users. And a lot of the enhancements we made, since we were looking at the installed base, benefit business users or power users, people who were running into limitations in 2.0."

It's those users who should be happy to recognize some Beagle Bros names on 3.0's title screen ("I had to fight for that," Nakata says proudly), a public declaration of Claris' alliance with the folks who know power users best.

The result, says Harvey, is a program potent enough to fit "side by side" with AppleWorks GS. While Nakata admits "there has been some confusion about the positioning of the two products," she says Claris plans to promote the pair based on whether you want to "get your work

disk" rigmarole. They arrive in good order, too, with returns between rows and tabs between columns, to take advantage of the word processor's precise formatting.



Ithough less altered than its two partners, AppleWorks' database has moved forward by moving sideways. At last, multiple-record layout offers horizontal

scrolling of databases with too many columns or categories to fit on screen. The tab key moves to the next category to the right, instead of wrapping around to the first category in the next record. Left-side titles, as in the spreadsheet, let you freeze a field or two so horizontal scrolling affects only part of the screen.

As for single-record layout, you can make it a bit easier to read by displaying category names such as *Address:* in inverse video. When you're ready to print, you can now create two- or three-across mailing labels, instead of producing just one row at a time. You

done quickly" or "take advantage of graphics." Says Harvey, "There are a lot of power users out there who think they need everything in AppleWorks GS, and a lot of power users who think they need the speed of 3.0."

Harvey points to steady improvements and "a very dedicated base of users" for Apple-Works GS. "While the initial reviews weren't that great, the sales were fantastic. New users faced with learning AppleWorks are learning AppleWorks GS." But those users can't match the devotion of 8-bit AppleWorks enthusiasts, the people who made Claris' goal, in Nakata's words, "basically to add to the functionality but not to change the look and feel of AppleWorks."

Beagle programmer Randy Brandt says, "You couldn't have imagined AppleWorks being used in the 1990s, but here we are only a few months away. I think five years from now there'll be a lot of AppleWorks users. In the 21st century, there are going to be people running small businesses with AppleWorks. They'll be pounding away on those keyboards."

can also create a report layout from the current record layout or vice versa, working with records on screen as they'll appear on paper. Version 3 gives you more versatile report formatting, although nothing like Beagle Bros' dazzling TimeOut ReportWriter.

The 3.0 database can save you time by sorting on one, two, or three categories with a single OA-A (Arrange) command. Now a three-level sort (sorting by customers' last name, then first name, then zip code, for example) doesn't require three separate sorts. A more efficient OA-F (Find) command searches for text in a specific category or, as before, in every category. Now you can find

clients who live in Boston with or without finding James Bostonetti, who lives in Cleveland.



ince AppleWorks GS appeared, some people have started calling the 8-bit program "AppleWorks Classic"—a redundant phrase if ever there was

one. Some Apple II grouches can't forgive Claris for also making Macintosh software, while others are bitterly disappointed by AppleWorks GS. But AppleWorks 3.0 shows Claris and Beagle at their best.

The new release may not have any single supercolossal feature, but it'll make users thankful for small favors—subdirectory menus, cursor-movement commands—as much as for its spelling checker or powerful spreadsheet. It improves on things AppleWorks users take for granted; it'll astonish outsiders who think 8-bit programs are ancient history.

Finally, AppleWorks 3.0 is a much-improved platform for future additions and enhancements. Maybe no one at Apple headquarters says "Apple II Forever" these days, but "AppleWorks Forever" is a slogan with staying power.

ERIC GREVSTAD IS A FREE-LANCE JOURNALIST. WRITE TO HIM C/O INCIDER, 80 ELM STREET, PETERBOROUGH, NH 03458.

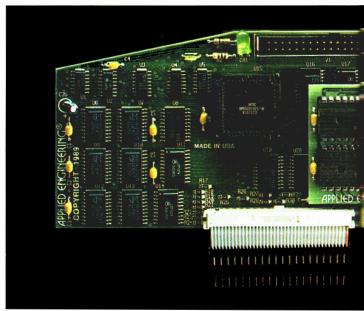




Top, multiple tab rulers and formatting options highlight AppleWorks 3.0 word processor.

Bottom, spelling checker lets you face mistakes all at once (shown here) or singly, from wordprocessor screen.

By JOE ABERNATHY * PAUL HUTMACHER



Here's one time when patience is no virtue.

Don't wait around for sorts and calculations—get yourself an accelerator chip or speedup board and give your tired old (or new) II a needed shot in the arm.

HAT'S THE FASTEST-GROWING category of Apple II products? Accelerators, of course.

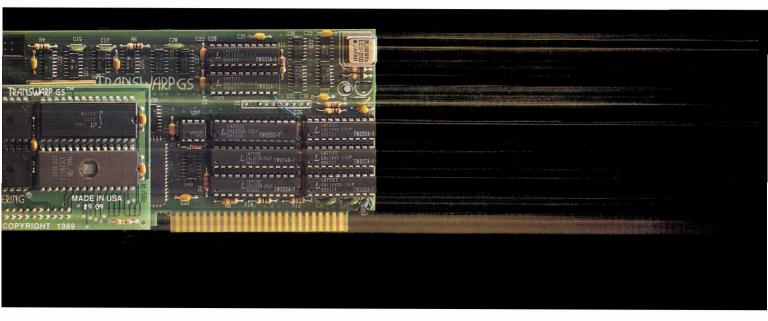
Accelerator boards and chips give your Apple

Accelerator boards and chips give your Apple
II a shot of adrenalin, increasing the speed at
which software or even external hardware operates. Whether you're a writer, designer, teacher, businessperson, or
a combination of all four, you can benefit from an accelerator.

Accelerators aren't new to the Apple II. Applied Engineering's TransWarp has been speeding up Apple IIs for years, but you've never had the array of options available today. Applied Engineering, Bits & Pieces, and Zip Technology offer products that make your II run faster and jump higher. Or if you call on your Apple II for heavy mathematical calculations (huge spreadsheets and complex graphics), you may want to look at Innovative Systems' Floating Point Engine. If you want your disk drives to spin faster and work harder, check out the Multi-Kache Card from Ohio Kache Systems.

Before you decide to buy an accelerator, though, make sure it's a faster microprocessor you need. If you're frustrated by the amount of disk swapping you're doing, your first priority is probably a hard-disk drive. Or if your word-processor documents have grown so large you can't work with them on the desktop, you need a memory-expansion board. If you use AppleWorks, for instance, you know how important memory is. Using extra memory as a RAM disk eliminates the incessant disk access you encounter when you run AppleWorks on a 128K system. A RAM disk lets your program store and access data at lightning speed.

If your problem is sitting and waiting while your computer calculates a spreadsheet, sorts a database, or flows text into a template in a page-layout program, though, it's time for an accelerator. For writing and page design in programs such as Springboard Publisher and AppleWorks GS, for example, a faster microprocessor means



the difference between working and waiting. Most areas of standard AppleWorks are also good candidates for an accelerator. If you never stray beyond the AppleWorks word processor, however, you can probably live without an accelerator.

Now if you've sold yourself on an accelerator, don't rush out and buy the first one you hear about or see advertised. Make sure you decide on the one that's right for you. To help you get started with your research, here's a look at six speedy products.

TRANSWARP GS TO THE RESCUE

It's the toast of the town. Recently released by Applied Engineering, **TransWarp GS** addresses the biggest rap against the Apple IIGS—sluggish operation. With TransWarp GS, your computer will run nearly three times faster.

The standard GS is almost three times faster than the IIe, but you don't hear a lot of talk about those numbers. That's because comparing computers based purely on raw speed is deceiving. The IIGS is a perfect example: Because it does so much work maintaining the desktop environment when running 16-bit software, it seems slow. But if all you use on the GS is AppleWorks, Publish It!, and maybe a few other IIe/IIc programs, your GS runs like Bo Jackson. Load AppleWorks GS or Medley and it's William "The Refrigerator" Perry running uphill.

With TransWarp GS, the GS/OS Finder, or Desktop, becomes a tool instead of a colorful novelty; complex programs such as AppleWorks GS are more useful, because you don't waste time waiting when you should be working. Because nearly all GS software is graphics intensive, even casual users can justify TransWarp GS. For Apple IIc and IIe users, faster processing is a luxury; if you own a GS and want to run 16-bit software, it's a necessity.

TransWarp GS is an expansion card that fits into slot 3 or 4 inside the GS. Because of the short length of ribbon cable attaching the

replacement chip to the expansion board, slot 3 is the most practical home for TransWarp GS. To install it, use a screwdriver to remove the main logic chip (65C816) from the IIGS motherboard. Then plug in a TransWarp cable where the chip used to be. The process is easy, and generously illustrated in the user's manual. Applied Engineering's documentation is the best belonging to those six products tested here, although TransWarp GS doesn't need much documentation.

After you've plugged it in, TransWarp GS operates invisibly. There's no configuration or hassle; if you want to slow down for some reason, you can do so at any time by using the TransWarp GS classic desk accessory (CDA), which you access the same way you do the Control Panel. Probably the only reason to change speed would be for game playing or running some other time-dependent software. But unlike IIe games, most GS games are still playable—and even more enjoyable—at full TransWarp GS speed.

When talking about TransWarp GS and other accelerators, you're bound to hear the word *megahertz* (MHz), which refers to the speed at which your computer processes information. The IIe runs at 1 MHz; the IIGS operates in native mode at 2.6 MHz, but can also run in IIe emulation mode at 1 MHz. The current TransWarp GS speed is 7 MHz; as technology advances you'll be able to upgrade it to a predicted speed of 10 MHz.

If you want an even higher-performance IIGS, you can combine TransWarp GS with a math coprocessor, such as the Floating Point Engine, and a disk accelerator, such as the Multi-Kache Card. Adding these three products will drain your bank account by more than \$1000, but the results are dramatic.

When we tested the first production version of TransWarp GS on a fully expanded GS, the only compatibility problem involved the Floating Point Engine. Applied Engineering has corrected the difficulty, though; if you have one of the earlier versions of TransWarp

GS and want to use the Floating Point Engine, an update is available from Applied Engineering.

Zip Technology has announced a GS accelerator of its own, and others are rumored. As this issue of *inCider* goes to press, however, TransWarp GS is the only product of its kind. It's available; it works great; and it's the productivity boost IIGS owners have been waiting for.

ORIGINAL TRANSWARP: STILL SPEEDING ALONG

The original **TransWarp** increases the speed of the IIe or II Plus by more than three and a half times. Like its new GS cousin, it operates reliably and invisibly.

TransWarp wasn't the first Apple II accelerator, but it's the only remaining accelerator for the II Plus and IIe that operates as an expansion card rather than a replacement chip, like Zip Chip and Rocket Chip. Note that if you own a IIc, your options are limited to such chips.

While Zip Chip and Rocket Chip don't take up an expansion slot and are faster in most operations, TransWarp still offers many benefits. For starters, it's been in production long enough to ensure against compatibility problems. Accelerator technology is so sophisticated that difficulties can arise unexpectedly as you add new software and hardware to your system. Buying a TransWarp is no guarantee against that, but it's at least a strong hedge.

To achieve its speed, TransWarp employs both a faster main logic chip (also known as the central processing unit, CPU, or microprocessor)



and 256K of fast RAM (random-access memory), memory designed to operate at accelerated speed. (In contrast, slow RAM is memory that operates with 1-MHz microprocessors.) TransWarp uses this fast memory as temporary internal storage for information the computer would otherwise have to read from a (slow) disk. In the Apple II Plus, TransWarp doubles as a 16K "language card" to bring system memory up to 64K without requiring a separate board.

For overall usability, reliability, and sturdiness, the TransWarp card may still be the best bet. Sturdiness is a concern that comes up in any discussion of accelerator chips: Whether it's a replacement microprocessor or the original 65C02, every time you pull a chip you risk weakening its legs, and replacement chips are bulkier and have flimsier legs than the original part. If you have to swap them in and out several times as you try to isolate a system problem, for example, they may not hold up to the strain. In addition, Applied



AppleWorks then.

Introducing the most powerful, most versatile AppleWorks® in history.

AppleWorks 3.0, with everything you expect from AppleWorks. Plus a lightning-fast spell checker. Advanced spreadsheet

functions. More mailing labels across a page. Built-in support for more printers and memory cards. An expanded, easier-to-use clipboard. An even bigger spreadsheet, word processor and data base. And more.

© 1989 Claris Corporation, 5201 Patrick Henry Drive. Box 58168, Santa Clara. California 95052; 408-727-8227. Claris is a trademark of Claris Corporation. Apple Works is a registered trademark of Apple Computer, Inc., licensed to Claris Corporation. Apple is a registered trademark of Apple Computer, Inc.



Engineering recently cut TransWarp's price to \$169, making it even more competitive with the faster chip products.

ZIP CHIP: FAST AND GETTING FASTER

The 4-MHz **Zip Chip** was the first chip-based accelerator available for the Apple II, and at \$149 it still offers the best price. But there's also a new 8-MHz Zip Chip available for \$199—only \$20 more than the price of the original Zip Chip.

Zip Chips compete with the 5-MHz Rocket Chip (\$159) and the new 10-MHz Rocket Chip (\$219). Zip has also announced that in the fall it will ship a IIGS accelerator to compete with TransWarp GS.

Zip directly replaces the II Plus' 6502 or the IIe/IIc's 65C02 main logic chip. Remove the original chip with a small screwdriver or pulling tool (which Zip Technology provides). Both the Zip and Rocket manuals include illustrations to clarify the process.

Plug in Zip Chip, then run a program that records your configuration preferences. A replacement for the ProDOS file STARTUP reads the parameters each time you turn on your computer. If you choose to not configure Zip Chip, it will default to the following

system speed: 4.0 MHz

slots fast: 1, 3, 4 paddles: normal sound: fast

If you have a disk drive in slot 1, 3, or 4, you'll probably want to change the settings back to standard 1-MHz speed.

To boot at normal speed (1 MHz), press the escape key while turning on the power. You can configure Zip Chip to run at 20 different speeds, from about half the standard 1 MHz to 4 MHz. Most people will probably leave it at full speed unless running an arcade game or other program requiring the slower speed.

The configuration program lets you set the speed for each slot. The Zip utility disk, provided with the chip, also contains a diagnostic program and a memory-testing program, plus ZIP.HELLO and ZIP.STARTUP to boot DOS 3.3 and ProDOS disks, respectively, in any configuration you want. Run STARTUP or HELLO every time you use Zip Chip, unless you're happy with the default settings. If you own a II Plus, early versions of the diagnostic program may fail, even though everything's working properly. Contact Zip Technology for an upgrade.

Your Zip Chip can accelerate up to 30 64K banks of auxiliary-slot▶



AppleWorks now.

In fact, AppleWorks has expanded in all directions. But it still runs on a modest 128K. Very fast.

For more information, call Claris at

800-628-2100. We'll race you a copy of the AppleWorks upgrade.

Then your Apple II will cover even more ground than it does now.

Introducing AppleWorks 3.0. CLARIS

memory (RamWorks, for example), and it can take advantage of *caching*, a memory-management technique that further enhances the speed of your Apple. (See the accompanying sidebar, "Cache as Cache Can.") Because of this sophisticated RAM management, Zip Chip has hidden speed advantages over TransWarp, most noticeable in the acceleration of an auxiliary-slot RAM card. Zip's memory-management system, however, doesn't work with peripheral-slot RAM boards, such as the Apple Extended Memory Card.

Zip Chip's memory-management scheme won't work in conjunction with a DMA (direct memory access) card such as the Multi-Kache disk accelerator or CP/M coprocessors, either. To get around this conflict, you can configure slots containing these cards to work at normal speed. (In the case of Multi-Kache, you can remove a jumper cable to disable the DMA mechanism. Multi-Kache won't work as fast, but it still offers a performance increase.) Zip Technology has corrected a previous Zip Chip compatibility problem; you can

now use it with Corvus-brand hard-disk drives.

Note that the Zip Chip instruction manual provides detailed information for programmers; this lets you create "Zip Chip aware" software to manipulate system-speed options individually.

ROCKET CHIP: THE FASTEST YET

The new 10 MHz **Rocket Chip** is the fastest Apple II accelerator. Even the original 5-MHz Rocket Chip performs at a level close to that of the 8-MHz Zip Chip in some areas. Its speed advantage stems from its acceleration *and caching* of devices in slots 1–7.

Rocket Chip accelerates all slots at full speed, except for 5 and 6, which are reserved for disk drives. If your drives are in slots other than 5 or 6, use the configuration program to set the appropriate slots to 1 MHz. Remember, even though your computer is now running at fast speed, your disk drives are still operating at 1 MHz.

As Zip does, Rocket Chip uses a 16K memory cache to speed up



Better then.

History repeats itself. Beagle Bros unleashes the power of AppleWorks. Again.

Two years ago, Beagle Bros introduced the TimeOut series—easy

to use productivity programs that run right inside AppleWorks.

And now we've added even more.

And now we've added even more. A new number 3.0. You see, Beagle Bros programmers wrote the new operations, including up to 30 64K banks of auxiliary-slot memory. It allows caching for any device that isn't dependent on speed. Modems, printers, and most hard drives, for instance, aren't compatible.

Rocket Chip configuration options include eight speeds from 0.050 MHz (much slower than the normal 1 MHz speed of the Apple II) to 5 MHz; five sound options; Applied Engineering TransWarp protocol (for compatibility with smart software); speed for slots 1–7; caching for slots 1–7; and expansion-RAM caching. As with Zip Chip, pressing the escape key while turning on your computer slows the entire system down to 1 MHz. Like Zip, Rocket Chip can't accelerate DMA devices. It's also incompatible with the SMT no-slot clock. Both Bits & Pieces and SMT offer patches to correct the problem, however.

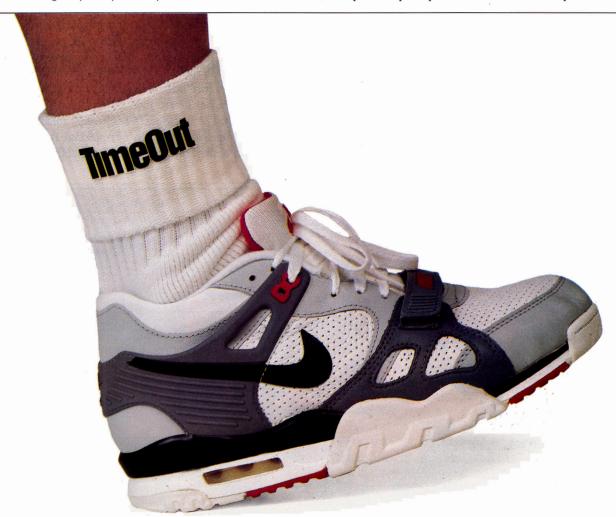
Rocket Chip lets you individually select which operations to accelerate, but it assumes you have a standard computer setup; you don't have to configure your system if you want to match the defaults. If you have, say, a modem card in slot 2, though, you'll run a program every time you start your computer to slow down this slot. And if you want to cache a hard disk in slot 7, you'll run a separate program to configure it.

Note that hard-drive caching isn't possible with many drives, including Apple SCSIs. The SCSI card from CMS Enhancements allows caching, but don't attempt it unless you're expert enough to know the risks involved, particularly in network situations.

Unlike Zip Chip, Rocket doesn't provide a BASIC program for easy custom configuration. You must configure the chip every time you turn on your computer, unless you choose to stay with the default settings.

If you have experience with Applesoft BASIC, writing a HELLO (DOS 3.3) or STARTUP (ProDOS) program that configures Rocket Chip's speed is simple.

Rocket Chip and Zip Chip offer similar features. Zip is less



Even better now.

AppleWorks 3.0.
But this should come as no surprise.
We're always improving AppleWorks.
TimeOut and AppleWorks 3.0.

Because we're here for the long run. For more information, call Beagle Bros at 800-345-1750 (in California

call 800-992-4022).

Unleash the Power.

expensive; however, Bits & Pieces offers a faster chip. In deciding between the two, consider price and features, but support as well. Ask around to see whether people have had problems with either company.

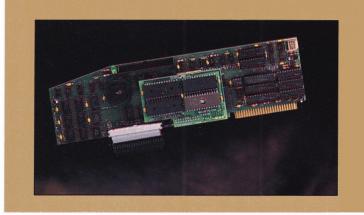
FLOATING-POINT WHAT?

If a marketing professional had named this floating-point math coprocessor, we'd be calling it Business Partner or Graphics Manager. As it is, this unique and useful accelerator has the intimidating tag of Floating Point Engine (FPE).

Innovative Systems' FPE intercepts internal math calls that require extended-precision results and routes them through its faster math circuitry. (See the accompanying Tables for benchmarks.) In fact, FPE is the most efficient accelerator for computer-aided-design graphics, AppleWorks spreadsheets, and scientific models.

Teachers or students exploring the relationships between math and computer science (fractal geometry, for example) will enjoy using FPE. Math and graphics-intensive programs are most likely to benefit, but you'll find acceleration hidden in many other applications written in languages whose internal structure requires extended-precision mathematics. On the GS, any program that issues calls through the Standard Apple Numerics Environment (SANE) toolset will benefit from FPE. These typically include drawing, scientific, and other math-oriented programs.

A program patch included with FPE lets you enhance the speed of standard AppleWorks spreadsheets. Otherwise, Apple IIe pro-



grams must be specifically written to take advantage of a math coprocessor. Few are, but software tools included with the card will help you develop your own software if you have the interest and the programming experience. Also, many of the new compilers, such as ByteWorks' ORCA/Pascal and ORCA/C, marketed to professional software designers include support for FPE.

FPE works in the background, in conjunction with a traditional accelerator. If you're sketching a complex graphic-in TopDraw, for example, or some fractal-imaging program—you could have a TransWarp GS speeding up the screen drawing while your FPE boosts the internal math of the graphics calculations.

While FPE isn't for everyone, it's fascinating to look at the people who own it. The list includes Glen Bredon, author of ProSel; Scott Gentry, graphics-forum leader on AppleLink Personal Edition; the people at Western Design Center, creators of the IIGS' 65C816 main

Table 1. GS speed benchmarks

bie 1. 00 speed benchmarks.	GS	GS with FPE	GS with TWGS	
Draw fractal-graphics image	870	407		
Boot GS Finder	110	110	103	
Calculate capital gains with AW spreadsheet	19	10	7	
Lauch AW from GS/OS	26	25	20	
Import 60K of AW text into Springboard Publisher layout	117	117	72	
Import 32K AW database into AWGS	169	N/A	84	
Calculate sales tax with AWGS spreadsheet	85	N/A	35	

all times in seconds N/A = not applicableAW = AppleWorks

AWGS = AppleWorks GS

FPE = Floating Point Engine

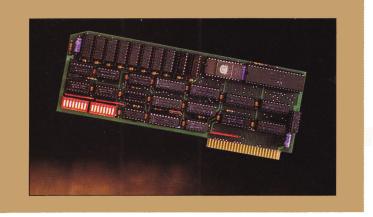
TW = TransWarp

TWGS = TransWarp GS

Table 2. Ile/Ilc speed henchmarks

Table 2. He/HC Speed Delicilitiat ks.	lle/llc	Rocket 5MHz	Rocket 10MHz	Zip 4MHz	Zip 8MHz	TW
Sales tax	36	10	6.7	11.8	7.3	12.3
Capital gains	46	13.1	7.3	15.3	9.7	16.1
Find & replace "the" with "my" in 60K AW file	5	1.7	1	2.1	1.3	2.2
Springboard	165	77.3	37.7	128.9	111.8	139

Note: Fractal images are created using Mandelbrot math; because of the number of calculations involved, one image may take 20 hours to draw on the GS. Although this test is designed to reveal a floating-point math coprocessor, it sheds a positive light on TransWarp as well. The various AppleWorks and AppleWorks GS timings were chosen to show the performance of typical home and business undertakings. Other pursuits in which speed is of special benefit include drawing, painting, programming, running a bulletin-board host system, database sorting, list handling, and various science and engineering applications. For many games acceleration isn't desirable because it destroys the balance of play, but if you're a big fan of simulations, you might enjoy faster processing.



logic chip; and technologists at Applied Engineering, Apple Computer, and several major software houses. Many astronomers, mathematicians, and physicists also use FPE.

If the Floating Point Engine is such a great idea, why doesn't anyone else sell a math coprocessor for the Apple II? The idea is catching on: Applied Engineering has already announced Fast Math, which it plans to ship this summer.

MULTI-KACHE CARD: STASHING YOUR DATA

Disk drives for the Apple II are designed to operate at a particular speed. Regardless of how fast your current microprocessor hums, your drives churn at a rate designed for the original microprocessor in your Apple—and that seems pretty slow to most II users. There's a way to boost your disk drive's performance, though: The Multi-Kache Card from Ohio Kache Systems (OKS) accelerates the speed

at which you can access information from external drives.

We evaluated a Multi-Kache Card that worked with 5½-inch and 3½-inch drives, but OKS also offers one for SCSI hard-disk drives. Tests on the prerelease SCSI version running in conjunction with TransWarp GS show up to a 40-fold speed increase in some typical operations in comparison to the stock IIGS. (Note that currently some copy-protected 3½-inch disks—primarily game software—fail when you run them with Multi-Kache installed.)

The Multi-Kache Card attacks from two directions: It reads and writes to your disks at 8 MHz, eight times faster than any other Apple II disk drive; and it stores disk-based information in hidden memory so that disk access takes place at RAM-disk speed. When you insert a new disk, your computer reads it into this background RAM—and your keyboard operations aren't slowed by waiting for even fast disk access. When you save a file, writing to disk occurs in the background, too, freeing your computer immediately for further operations. When your disk drive's red light goes on, you don't have to wait before getting back to work.

Multi-Kache is as impressive in its own way as TransWarp GS or the 10-MHz Rocket Chip. If you want to solve the Apple II speed problem completely, the Multi-Kache Card is the other half of the acceleration equation.

NO REASON TO WAIT

Acceleration technology for the Apple II has reached the point at which it's affordable for the average user. This lets you rejuvenate ►



Circle 156 on Reader Service Card.

Cache As Cache Can

A hunter's *cache* is a place where he or she hides ammunition or food along the way. Your Apple II uses *cache memory* to hide programs or data it will need along its way to finishing a task. Getting a program or piece of data from a cache is quicker than

going all the way back to the source, usually a disk.

PRODUCT INFORMATION

Floating Point Engine

Innovative Systems P.O. Box 444 Severn, MD 21144-0444 (301) 987-8688 (301) 768-4599 \$229 software interfaces included

Multi-Kache Card

Ohio Kache Systems
4162 Little York Rd.
Suite E
Dayton, OH 45414
(800) 338-0050
(513) 890-3913 (OH)
\$375 256K version
\$550 1MB version
\$40 disk-expander option
\$95 SCSI hard-drive option

Rocket Chip

Bits & Pieces Technology 31332 Via Colinas Suite 112 Westlake Village, CA 91362 (818) 706-2978 \$159 5 MHz, Ile, Ilc, Ilc Plus \$219 10 MHz

TransWarp, \$169 TransWarp GS, \$399 Applied Engineering P.O. Box 5100 Carrollton, TX 75011 (214) 241-6060

Zip Chip

Zip Technology 5601 West Slausen Ave. Culver City, CA 90230 (800) 628-3278 (213) 337-1313 \$149 4 MHz, Ile, Ilc, Ilc Plus \$199 8 MHz In contrast, the slowest way to get information into your computer's central processing unit (CPU), or microprocessor (6502, 65C02, or 65816), is to load it from a floppy disk. (The *very* slowest way is from a cassette player—but nobody uses that anymore, although lles still can.) Newer $3\frac{1}{2}$ -inch disks are faster than their bulky cousins, the $5\frac{1}{4}$ -inch floppies; hard disks are the fastest of all.

But the quickest way of all to get information to the CPU is from the computer's random-access memory (RAM). The 6502 or 65C02 in an Apple IIe or IIc gets all the data and programs it needs from 64,896 bytes, or units of memory, abbreviated as 64K of RAM.

Some programs require more than 64K. To feed these memory hogs, the microprocessor gets information from a second block of 64K of RAM, called the auxiliary bank. Many popular programs, such as AppleWorks and Publish It!, require 128K. All Apple Iles and Ilcs sold today come with those two banks of 64K, for a total of 128K.

You can add more than one

bank of memory—memory-expansion cards such as Applied Engineering's RamWorks fit into an auxiliary slot on the IIe and can add megabytes of memory. AppleWorks needs only two banks (128K), but AppleWorks with TimeOut applications or AppleWorks 3.0 can fill much more. Remember, the quickest way to run a program is to run it from RAM. That's why AppleWorks loads as much of itself as it can into your computer's available memory.

That's the speed limit for the 6502 or 65C02 microprocessor. The only way to work faster than running every program from RAM is to install a faster microprocessor. The GS has a 65816, which is 2.6 times faster; TransWarp (3.6 times), Zip Chip (4–8 times), and Rocket Chip (5–10 times) use still faster microprocessors.

The trouble with installing a speedier microprocessor is that your RAM is probably too slow to keep up with it. TransWarp gets around this with an extra 256K (four banks of 64K) of "fast RAM" that its faster microprocessor can use.

TransWarp duplicates all the built-in software of your Ile—called *ROM*, for *read-only memory*—in two banks, and uses the other two to duplicate main and auxiliary memory. Because the Apple ROM is accelerated, TransWarp can speed up things like disk access, telecommunications, and printing, if the hardware involved uses *direct memory access* (DMA). That means that control of the machine is turned over to the device connected to the slot and that TransWarp won't accelerate the peripheral by much.

Zip Chip and Rocket Chip, on the other hand, don't add any RAM. Instead, each includes on the card itself a small "cache" of 16K of fast RAM that holds the most commonly used parts of programs for quick access. Caching lets Zip and Rocket accelerate more than two banks of extra RAM. They won't speed up DMA devices, though. That's probably not something to worry about, because the gains would be small anyway.

Caching isn't limited to Zip Chip and Rocket Chip. The GS operating-system software, GS/OS, includes a built-in caching program. It's a new desk accessory (NDA) that lets you designate as much as 32K of RAM as a cache to hold the most frequently used GS/OS commands. After you use a pull-down menu, for example, that portion of GS/OS is "cached" and the menu draws much faster the next time you open it.

Another option: Bill Basham's GS program *Diversi-Cache* (Diversified Software Research, 34880 Bunker Hill, Farmington, MI 48331, 313-553-9460, \$35), a classic desk accessory (CDA), creates a cache as big as you need, and can stash as much material as you like from any program you choose, and from any disk except a hard drive. Whatever method you prefer, if you're on a productivity mission, caching some data is a good way to get it done faster.

a machine that's grown tired or—in the case of the GS—tiring. The emergence of these products means more than running existing software faster, however. When a software developer is confident that you want and can afford an accelerator, you'll see more powerful software for your Apple II.

Which one should you buy? Among the IIe-style accelerators, Zip Chip has the price advantage, Rocket Chip the performance, and TransWarp the greatest reliability. (And at \$169 it's now competitive with lower-priced chips.) TransWarp GS, the Multi-Kache Card, and the Floating Point Engine stand alone in their categories.

It's a great time for you to build a faster Apple. Acceleration is shaping up as the best thing for the II since the disk drive. Why let your machine walk when you can make it run?□

CONTRIBUTING EDITOR JOE ABERNATHY IS THE AUTHOR OF INCIDER'S BI-MONTHLY COLUMN GS BASICS. HE'S A JOURNALIST WITH THE HOUSTON CHRONICLE AND AS A CERTIFIED APPLE DEVELOPER HAS WRITTEN EIGHT APPLE II PROGRAMS. WRITE TO HIM AT P.O. BOX 66046, HOUSTON, TX 77266-6046. PAUL HUTMACHER IS THE TELECOMMUNICATIONS FORUM LEADER FOR A HOUSTON-AREA APPLE USER GROUP. WRITE TO HIM C/O INCIDER, 80 ELM STREET, PETERBOROUGH, NH 03458.



5¼" 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



Shipping & Handling \$5.50

We have the ABSOLUTE Lowest Prices on CHECKMATE PRODUCTS		LASER 128 EX Three Times the Speed of a III Built in Memory Expansion Boa	
PRO TERM \$79.95	MultiRam RGB IIe 0K to 1 Meg. from \$121.00	\$445.00 800K DISK DRIVE 3%"	Disk Controller Card For Apple II, II+ & IIe
MultiRam Ile 0K to 768K from \$88.50	MultiRam IIc 0K to 1 Meg. from \$105.00	for II+, IIe, MAC, LASER 128 \$179.00 Extended 80 Column Card	
Memory Saver GS \$109.00	MultiRam GS 0K to 2 Meg. from \$117.50	With 64K For Apple Ile 100% Appleworks Compatible S38.9	Cooling Fan For Apple II+ & IIe
AI Juice 0K to 4 Meg	Plus GS from \$65.00	5 Year Warranty	DISKETTE STORAGE W/Lock 51/4 Holds 70 Disks \$6.95
Super Expander IIe 1 Year Warranty W/Appleworks Expansion S-ware 0K to 1 Meg		Super Serial Card 100% Apple Compatible 5 Year Warranty \$48.95	5¼ Holds 100 Disks \$8.95 5¼ Holds 120 Disks \$10.95 3½ Holds 50 Disks \$6.95 3½ Holds 100 Disks \$8.95
	Call	Graphics Printer Card w/Cabl	Cables From \$9.95 Ile to Modem IIc to Modem
LASER 190A Printer		For Apple II+ & IIe 5 Year Warranty \$44.95	Ile to IMG I IIc to IMG II Ile to IMG II Others Talk & Data Kits ————————————————————————————————————
Amber Monitor \$99.00		II+ Owners 16K Card \$34.9: 128K Card \$64.9:	
EPIC 2400 B	Marie Land	80 Column Card \$48.90 Plus Works \$49.00 5 Year Warranty	5 Disk Notcher \$4.50
MINI DIN 8 Switch Box A/B\$24.95	5 Amp Power Supply \$49.00 Apple II, II+ & IIe	ZIP CHIP \$149.00	Numeric Keypad RF Modulator For Apple IIe II+ & IIe \$34.95 \$15.95
A/B/C/D \$29.95	MINI	CPM Card for Apple II+ 8	Joystick for Apple IIe, IIc,

Ship Air Only 2nd Day Us Only

Replacement

Keyboard For Ile

\$55.00

VISA & MASTERCARD — NO EXTRA CHARGE

A/B Switch Box

Serial or Parallel

\$24.95

DEALER PRICING

IIc+, & IIGS

With Fire Button

Same as Mach III

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

Prices subject to change without notice

MEMORY PLUS DISTRIBUTORS, INC.

We carry only the Highest Quality products for your Apple. That's why we are the LARGEST and

the BEST!

505 South 48th Street, Suite #104 Tempe, Arizona 85281 (602) 820-8819 (602) 830-6457 FAX# (602) 968-3211

10 a.m. to 5 p.m. M.S.T. Mon - Fri. University & School P.O. Accepted

Continental US

20% Restocking charge on returned items

The Medium Is the Message

By ROBERTA SCHWARTZ * MICHAEL CALLERY

Did you notice a few yawns the last time you reported the results of the rummage sale to your organization? Were your salespeople moaning with boredom when you lectured them about your company's new products? Have you been putting your students to sleep with long strings of facts and figures? If you're losing your audience, it's time you considered a more dynamic way of presenting your information.

GET GRAPHIC!

When you think of presentation graphics, you probably conjure up an image of pie or bar charts. While these are useful ingredients in many presentations, they're only a part of the picture. Presentation graphics includes any type of illustration that conveys information to an audience. It may be as simple as the time and location of a garage sale or as complicated as an interactive point-of-

sale advertising piece, such as those some cosmetic companies are installing in department stores.

For years, Apple II users have relied on **The Print Shop** and other elementary desktop-publishing programs to create simple information sheets; now video technology and the recent introduction of the **Apple II Video Overlay Card** are paving the way for more sophisticated types of presentations.

Most presentations are projected, whether it's a 35mm slide show, a computer-generated slide show, or a videotape; printed materials are often included as supplements, however. Presentations are normally accompanied by a speaker, but many consist of self-

Wake up your audience!
A wide array of Apple II graphics, video,
and desktop-presentation programs give you
the tools you need to grab people's attention
and deliver a dynamic message.

running displays. No matter what the medium or the format, an effective presentation is the sum of several parts; the projected material, the printed material, and the spoken material must relate to one another and shouldn't be redundant. Much of the preparation takes place before the actual creation of the

graphics.

Before we look at the tools that are available to help you create presentation graphics on your Apple II, let's look at what you should do before you even turn on your computer.

ORGANIZE, ORGANIZE

The key to successful presentations is organization. Consider not only what you want to say, but why you want to say it. Presentations are intended to convince. Whether you want to persuade the officers of a club that a new membership drive is necessary, the administra-

tion that new computers are needed, or management that sales are exceptionally good in a certain region, know why you want to make the presentation, or you'll have a difficult time making it.

As you define the purpose of your presentation, define your audience. Are members young or old? Enthusiastic or disinterested? If they're already familiar with your subject, you'll present the information differently from the way you would if you had to introduce them to the subject in addition to making your points.

Decide on your delivery format. Is your presenta-tion going to be live with overhead transparencies or ▶

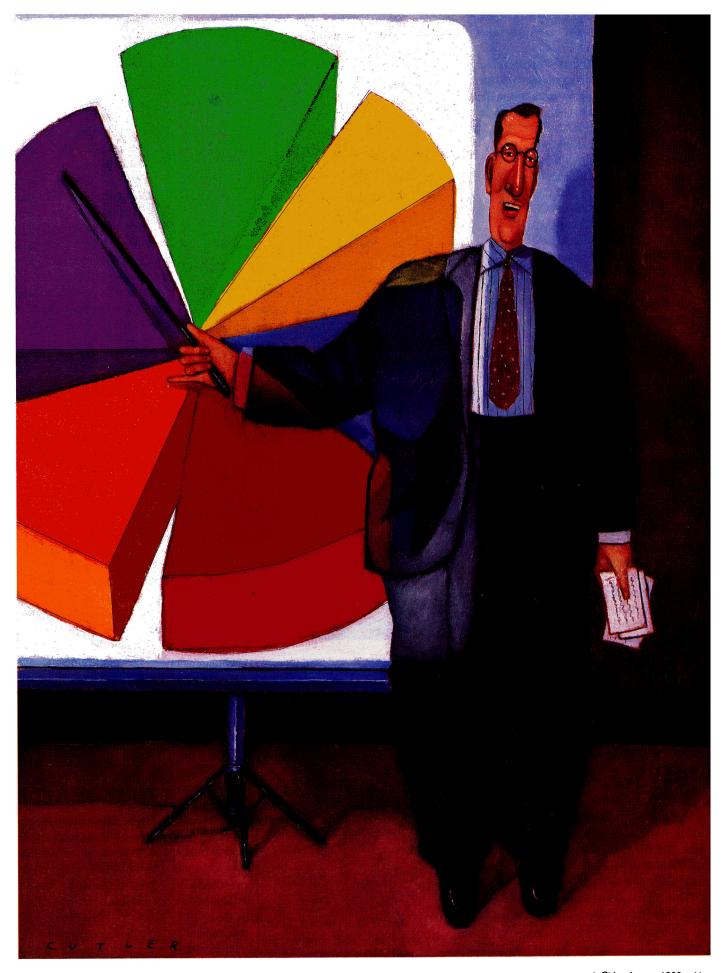


Illustration * Dave Cutler inCider August 1989 * 61

35mm slides, or is it going to be taped or filmed?

WRITE IT DOWN

After defining the purpose of your presentation, list the specific items of information you need to reach your goal. If you're working in a group, brainstorm. Don't get lost in a sea of small details; just

gather as many ideas as you can.

After you've listed all the things you'd like to include in your presentation, evaluate and edit them. If you have an outliner, such as the one included in Addison-Wesley's WordBench, use it to organize your thoughts and put them in sequence. If you don't have an outliner, use a word processor's cut-and-paste command to rearrange your ideas.

Ask yourself the following questions about the items you'll present: Which should come first? Do I need transitional material? Should I split this point into several?

VISUALIZE

After you edit your notes, put them in sequence so that you can visualize how to present them best. Sometimes just a few words are enough to make a point; at other times a graph, a drawing, or even a snippit of animation is more effective. Presentations should have rhythm. A series of ten pie charts might bore your audience, while a combination of word, pie, and bar charts might hold its interest.

Also consider that projected material shouldn't contain the detail that printed materials can. If you need to present a lot of numbers,

put them in handouts and use summary figures for your visuals. A general rule of thumb is that a visual should be on screen no more than a minute. If your material demands more time, break it into a build—a sequence of visuals, each of which highlights another part of the information you're presenting.

SCRIPT TO STORYBOARD

Develop a script for the audio portion of your presentation. If you've done advance planning, the script will flow naturally from the points you've identified as essential. The components of the script should mold the visuals and vice versa. Make rough sketches of your visuals.

The script combined with these sketches is called a *storyboard*. Don't be overly concerned about details at this point. One of the great things about using computers to develop presentations is that you can

Benefits of Membership

Monthly Meetings with
Question & Answer Session

Benefits of Membership

Monthly Meetings with
Question & Answer Session

Monthly Mewsletter

Benefits of Membership

Monthly Mewsletter

Monthly Mewsletter

Special Interest Groups

ShowOff from Broderbund:
When you're presenting a
set of related points, use a
"build" in which each slide
adds information. Individual
slides should be on screen
no longer than a minute
apiece. If your material
requires more time and a
more complex explanation,
break it down, as shown
here. This lets you make
your points in sequence
without overwhelming your
audience.

experiment. Pie chart's not working? Try it as a bar graph. With storyboard in hand, you're ready to begin production.

PRESENTATION

Although it's easier to create and organize your visuals with a specialized presentation program,

you can use any good paint program, such as Blazing Paddles (hires), Dazzle Draw (double hires), PaintWorks Plus, PaintWorks Gold (super hires), or Deluxe-Paint II (super hires).

Charts and graphs convey information effectively. You can draw them freehand in any paint program, but you'll find it's simpler and more accurate to use a business graphing program, such as that found in AppleWorks GS, TimeOut Graph, or Graph It!. (ShowOff, a presentation program that we'll be discussing later, also offers a graph module.)

Volumes have been written on how to make your charts and graphs readable and accurate. (For instance, it's easy to distort the data by improper scaling of axes.) The key point to remember is that your audience will have only a brief time to absorb the graphs; keep them simple.

Free-form graphics and diagrams add pizzazz. You can create them in any paint program. If you have a laser printer, use a drawing program such as **TopDraw** or **Draw Plus** for the most professional output. If you have a digitizer, such as **ThunderScan** or

ComputerEyes, you can easily bring illustrations from other media into your presentations. And if you don't have the skill or time to draw your own, clip art can save the day.

WHEN IN DOUBT, SPECIALIZE

We've been stressing that you don't have to use a specialized program to create presentations on your Apple II. Read on, however—you might find that such products produce more professional results while easing your chore considerably.

SLIDE SHOP: STANDARD HI-RES

Slide Shop, from Scholastic Software, works in standard-hi-res mode and runs on any 128K Apple IIe, IIc, or IIGS. Because Slide Shop employs the Apple desktop interface, a mouse is recommended.

A Slide Shop presentation is a sequence of text or

graphics frames that replay automatically from a self-booting slide-show data disk. Your screens can have borders, a variety of typefaces, and sound effects. Graphics frames, of course, require more disk space than text frames. A 5½-inch disk can hold 14–18 graphics slides or more than 100 text slides.

To create a text frame, choose New Frame from

the File Menu; then click on Text Frame in the dialog box. Next, select a border, background color, text color, sound, and typeface for the slide. A simple text editor lets you type your text. You can change any of your choices anytime.

To create a graphics frame, choose that option from the New Frame dialog box and you'll find yourself in a paint program with geometric objects (ovals, rectangles, and so on), brushes, lines, and more.

You can also load a background—Scholastic provides both templates (graphics that have large blank areas for your message) and full-screen graphics. The program will import any standard, nonpacked (8K) hi-res graphic as background. If you'd like to modify the graphic in your favorite standardhi-res paint program, you can export Slide Shop backgrounds.

Slide Shop also supports clip art in its own format or Print Shop format. It lets you flip and colorize your clip art as well; you can even make your own by selecting any area of a graphic with the copy tool and using the Save Clip Art command.

Once you've created your screens, use the script editor to put them in sequence. Just fill in a form with the proper filenames in the order of the presentation screens. You can select from a wide range of transitions between frames (transitions affect the way one graphics element blends into another) and designate whether the presentation should progress automatically or manually (with a mouse click or keypress).

You can save the script along with your slides on a slide-show disk, which boots itself and runs the presentation. Slide Shop works well, and the documentation is clear and filled with tips on using the program. It's a potent tool for almost any type of presentation.

SHOWOFF: SUPER HI-RES

ShowOff works on the Apple IIGS. At first glance, the screen resembles a paint or drawing program.

..... Anytown Annle Club Discover ******* The Power ***** Membership Benefits Monthly Meetings with Question & Answer Session Membership Breakdown by System 200000000 Apple IIc Apple lle Apple ligs

Repeated elements such as borders, rules, or icons give your presentations consistency. Visuals shown here were created with Scholastic's Slide Shop.
Slide Shop provides a full-featured painting environment in standard hires, plus graphics templates with blank message areas, full-screen graphics, clip-art import, text editor, and typeface options.

Because ShowOff operates in super-hi-res mode, your screens can be much more colorful than, those created with Slide Shop.

Instead of clip art, ShowOff features beautifully executed "stickers," small graphics blocks you can "stamp" onto your slides, and "icons" (small pictures of objects) you can stamp onto your graphic.

ShowOff's graphics tools are limited to lines and geometric shapes the program handles as a drawing package does objects. That is, you can resize, reposition, and recolor objects, among other things; just click on an object to select it and alter it as you like. For more detailed "painted" graphics, you can import a standard super-hi-res image from a paint program such as Deluxe-Paint II, 816/Paint, PaintWorks Plus, or PaintWorks Gold.

A great plus is that ShowOff provides a simple graphing module, offering pie, bar, or line graphs with a maximum of 12 pieces of data per graph. It may not handle all your graphing needs, but it's nice to have that function integrated into a presentation program.

Once you've created your frames, save them along with your script or put them in sequence on a disk that will boot and run your presentation. The program's Sequence editor lets you branch to a specific frame at a specific keypress, letting you create interactive presentations in which the user determines the flow of the screens. ShowOff can also control an external device, such as a slide projector, connected via a stan-

dard RS-232 serial interface to the Apple IIGS.

Both Slide Shop and ShowOff provide you with just about all you need to create a presentation. Read on to learn more about some specialized programs that are also good choices for this task, especially if you're working with video.

VIDEO MEETS GRAPHICS

inCider has already covered working with video from your Apple IIe or IIGS. (See "Roll Video," May 1989, p. 42, and "Reel-World Images," July 1989, p. 40, for more information.) If you have the Apple II Video Overlay Card, your options increase: You can overlay your computer graphics onto live or prerecorded video. (This is also called genlock technology.) You'll need a second videocassette recorder (VCR) if you want to record your merged images for later playback.

Remember, if you don't have a genlock such as the Apple II Video Overlay Card, you can't merge video with computer graphics; your computer graphics will be separate from the video. Be aware, too, that unless your VCR has a good pause function, you may produce glitches when you switch between the computer graphics and the video.

These factors aside, all you need is your Apple II computer, a VCR, and one of the programs described below to create effective video presentations easily.

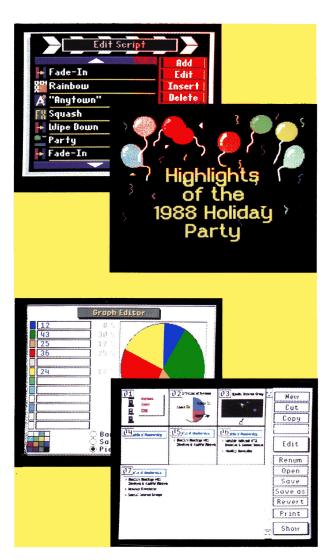
VCR COMPANION

VCR Companion, from Broderbund, works in double-hi-res mode on any 128K Apple IIe, IIc, or 1Ics. While the program was designed to let you customize home videotapes by adding titles, credits, and intermissions, you can also use it to create a presentation from scratch.

Once you've chosen the option Make a Video, go to the Edit Script Screen. Here you can add, edit, insert, delete, clone, and preview all the elements of your video script. For each frame, select a background from the VCR Companion disk-a solid color, pattern, full-screen picture, or an icon (such as a picture of a director's chair) for any of nine positions on screen. Add your text by typing into a mini-text editor; you have a choice of fonts, colors, and sizes as well as the ability to make your text static or make it scroll. Build up one frame after another. That's it-your script is complete. Well, sort of.

As your script progresses, you can add pauses, transitions, and special effects. For example, if you want a line of text to remain on screen a few seconds before the icon of the director's chair appears, you'd add a short, medium, or long pause. Using transitions, you can have that chair fade in, fizzle in, spiral on, or just pop on and off the screen. VCR Companion offers a wide selection of transitions, and, as in Slide Shop, you can control their speed to get a fast fizzle, a slow spiral, and so on. You can add special effects to background or individual graphics elements, too, including flash, meltdown, rain, and other items.

The package includes ready-made animations, such as a flying plane, you can insert anywhere. You can set them to remain stationary on screen or to move across it in either direction at slow.



Top left: Broderbund's VCR Companion provides an easy way to sequence graphics and text slides, transitions, and effects. Right, VCR Companion screen created from graphics background (balloons) overlaid with text slide. Text comes on screen with "fade-in" transition. Bottom left: ShowOff's integrated graphing module lets you create simple pie, bar, and line charts. Right, ShowOff's sequence editor displays miniatures of your slides and lets you rearrange the order of your presentation visually.

medium, or fast speed. VCR Companion also lets you include movies created with Broderbund's popular animation program, **Fantavision**.

All these features, the comfortable interface, and the ease of use would be enough to make VCR Companion worth having, but Broderbund didn't stop there. The package also includes some helpful

> bonus utilities. A special editor lets you design your own transitions; a graphics converter imports any full-screen, double-hi-res picture for use as a background. Or you can design you own icons or animations with any character created with **Animate**.

> With all this power you should be able to create a dynamic script. With a VCR hooked up to your computer, play it back. Audio or visual indicators inform you when to turn on or pause the VCR. These clues—and the program's ability to incorporate animation—make VCR Companion superior to either Slide Shop or ShowOff if you're making a videotaped presentation.

Even if you don't have a videocassette recorder, consider VCR Companion anyway. The program lets you produce "film disks" on standard floppies. Film disks are self-booting, and each disk contains one video script.

MORE FOR VIDEO

Video Title Shop from Datasoft (distributed by Electronic Arts) and Epyx's Home Video Producer offer many of the same features found in VCR Companion. These programs, however, lack VCR Companion's elegant interface.

Home Video Producer is a double-hi-res program with an icon-based interface. It works with film strips; each strip holds up to 16 frames, and you can link two or more strips to create a movie. Each frame can include a block of text, a graphic, and a background consisting of a border or a solid color. For each element in your frame, you can select one of four effects (transitions), along with a speed and a delay for each effect.

The program includes templates for producing standard video sequences. Select a template, such as Birthday, Vacation, or Credits, and fill in its blanks to create an instant personalized greeting or video title. The program's documentation, while not as attractive as VCR Companion's, is excellent.

Video Title Shop, the weakest of the three, ▶

Overhead Projection

The world of desktop presentations doesn't end with the computer and some software. Unless your audience sees your graphics images, none of the other hardware matters.

Fortunately, unlike computers such as the Mac Plus, Apple Ils have external RCA-type video connectors that let you connect large screen displays to your computer. Until a few years ago, the most common form of presentation graphics was to

With the variety of

display options

available, the traditional

overhead transparency

may soon go the way

of the floor-model

black-and-white TV.

place several monitors throughout the meeting room and connect them so that everyone could see the images. This approach, still appropriate in some settings, has drawbacks when you use it with a large audience. First, the audience's attention is directed to the sides of the room where the monitors are located rather than to the speaker. Second, many people have a hard time reading the content of a screen when it's more than a few feet away.

One of the best solutions for

audiences of almost any size is to use a three-beam video projector. These monsters (some of which are designed for home use) contain three powerful color tubes (red, green, and blue) whose beams combine on screen to generate a full-color image that can be viewed by more than 2000 people. Some of the more widely known manufacturers of these systems include Sony, ElectroHome, and InFlight. These are the types of projectors used when you watch movies on airplanes.

While it's hard to beat the high-quality image of such projection systems, they have several drawbacks. First, some of the better ones are expensive. Second, unless you never move them, you have to adjust them before you use them. Third, they're heavy and bulky. If you're giving a presentation and someone else is providing the projection system, this is the type of equipment you want. But when you're spending your own money, some other choices may make more sense.

About three years ago several companies announced liquidcrystal display (LCD) plates—flat-panel transparent displays you set on top of a standard overhead projector and connect to your computer. The display acts like a standard transparency whose image is the same as that of the computer display. Several versions of these displays are on the market today. Kodak and Telex catalogues list some good offerings, as do those of some other manufacturers. Your local audio/visual supply house probably has a whole section devoted to this category.

Basically these products come in two configurations (for Apple II users). One includes a card you plug into a spare slot in your IIe or GS. This allows the display to provide a little better quality than you'd get if you connected the display to the video-out port. For example, the Telex display maps hi-res colors into gray scales. The second configuration is designed for people who, like me, do their presentations with an Apple

IIc. These display plates connect to the video jack just like a monitor. They're fairly inexpensive (in the \$600 range) and are portable. I put mine in the outside pocket of my IIc carrying case when I'm on the road.

Keep the following points in mind as you explore this technology. First, display plates work only with overheads whose light source is in the base of the projector. That's how most overheads work, but some reflect light from above. This second kind of projector won't work at all with plates.

While we're on the topic, make sure your overhead projector doesn't overheat. If it does, you'll see "hot spots" forming on the display plate. They disappear when the display cools down, but they can ruin an otherwise perfect presentation.

Although you can adjust contrast on these displays, the light/dark ratio is still pretty bad. White areas tend to appear as light green and black as dark blue-green. As long as no room light is directed at the projection screen and the

group is small enough (50-100 people), these displays work pretty well.

Another problem is sluggishness. You can't use such displays with programs like Fantavision, for example; the response time isn't fast enough. You can turn that to your advantage, though: My "slide shows" have nice "dissolves" that come free because of sluggish response time. As the technology improves, response time will quicken.

Our last category of projectors gives you a glimpse into the wonderful developments that lie ahead of us. The Kodak LC500 video projector is about the size of a traditional 35mm slide projector. It accepts composite video as well as both digital and analog RGB inputs and has a built-in amplifier and speaker for audio. The projector itself uses a full-color liquid-crystal display that sits where a slide would otherwise be.

This display has excellent contrast and a fast enough response time that you can use it for showing videotapes. While the image on the LC500 is sharp and fairly bright, it works best in a somewhat darkened room. Also, the color bleeding found in Apple II hi-res mode is fairly pronounced in this projector, but you can minimize it by reducing color saturation.

The compact size of this Kodak projector makes it transportable. It's also fairly rugged; I've taken it across the country several times (as carry-on baggage) and it has held up well. The only part you can replace is the projector bulb, the same kind you'd find in a slide projector. If you're interested, shop around a bit. The price is in the \$3000 range, but, with history as our guide, that cost will drop soon.

If you're in the business of designing and showing presentation graphics, stay tuned—with the variety of display options available, the traditional overhead transparency may soon go the way of the floor-model black-and-white TV.

-David D. Thornburg

PRODUCT INFORMATION

Animate, \$69.95 Fantavision, \$49.95 Dazzle Draw, \$59.95 The Print Shop, \$49.95 ShowOff, \$59.95 VCR Companion, \$54.95 Broderbund Software 17 Paul Drive San Rafael, CA 94903-2101 (415) 492-3500

Apple II Video Overlay Card

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

AppleWorks GS

Claris Corporation 5201 Patrick Henry Drive Santa Clara, CA 95052-8168 (408) 987-7000

Blazing Paddles, \$34.95 816/Paint, \$75 Baudville

5380 52nd Street S.E. Grand Rapids, MI 49512 (616) 698-0888

ComputerEyes, \$129.95 Color ComputerEyes, \$249.95 Digital Vision

66 Eastern Avenue Dedham, MA 02026 (617) 329-5400

DeluxePaint II, \$99.95 Video Title Shop (Datasoft), \$39.95

Electronic Arts 1820 Gateway Drive San Mateo, CA 94404 (415) 571-7171 Draw Plus, \$69.95 PaintWorks Gold, \$99.95 PaintWorks Plus, \$79.95 Mediagenic

3885 Bohannon Drive Menlo Park, CA 94025 (415) 329-0500

Graph It!

Timeworks 444 Lake Cook Road Deerfield, IL 60015-4919 (312) 948-9200 \$69.95

Home Video Producer

Epyx 600 Galveston Drive Redwood City, CA 94063 (415) 366-0606 \$49.95

Slide Shop

Scholastic Inc. 730 Broadway New York, NY 10003 (212) 505-3000 \$69.95

ThunderScan

Thunderware 21 Orinda Way Orinda, CA 94563 (415) 254-6581 \$219

TimeOut Graph, \$89.95 TopDraw, price undetermined at press time Beagle Bros 6215 Ferris Square San Diego, CA 92121 (619) 452-5500

WordBench

WordBench
Addison-Wesley Publishing
Route 128
Reading, MA 01867
(617) 944-3700
\$149

might be for you if you want a standard-hi-res presentation. Along with many of the features listed above, it includes a paint program so that you can create your graphics slides within the program.

All three video products come with an assortment of typefaces and clip art specific to each program—you can't use them with other software. Neither Video Title Shop nor Home Video Producer lets you incorporate animations from other software.

Don't settle for dry lecture style. With any of the programs described here, you can spice up your talks, lessons, and sales pitches. It's time to turn those yawns and moans into "oohs" and "ahs!"

ROBERTA SCHWARTZ AND MICHAEL CALLERY TEACH COMPUTER GRAPHICS AND DESKTOP PUBLISHING AT THE NEW SCHOOL FOR SOCIAL RESEARCH. WRITE TO THEM C/O INCIDER, 80 ELM STREET, PETERBOROUGH, NH 03458.



AppleWorksGS in 15 Sec, All modules.

Using GS/OS 5.0 and Version 2 of AppleWorksGS. It only takes 50 seconds to load all modules using GS/OS 4.0. Talk about an increase in productivity, when it takes about 7 minutes to load all modules from a 3.5" floppy drive! The internal hard drive for the IIgs was innovated by Applied Ingenuity, not only because we know that you don't have a lot of desktop space, but we also know that you don't want to spend a lot of time searching for your programs and data on your floppy disks and then to wait for them to load from the disk drive. InnerDrive is the fastest, most affordable, and only internal hard disk for your IIgs. A IIe version is also available. Others are scrambling to play a game of catch up, while InnerDrive has proven itself for the past year, to be of high quality and reliability. Using the standard operating system Inner Drive is 100% compatible with ProDos and GS/OS. InnerDrive is also the first hard drive for the IIgs to transfer data in 16 bits. InnerDrive comes formatted, with the operating system installed, the controller card and all cables, ready to just pop in within about 5 minutes, and a bonus 3 megabytes of programs FREE!

Applied Ingenuity, Inc.

14922M Ramona Blvd, Baldwin Park, CA 91706 CALL TOLL FREE: **800-346-0811**, or in CA:818-960-1485

20 meg. \$499, 30 Meg \$599, 40 meg \$699 all prices subject to change without notice



The 21st century is sure to present a whole new set of challenges to your students. To succeed, they need Scholastic now. Scholastic Software gives your students the tools they need for success: problem solving, critical thinking, basic literacy and communication skills.

And, Scholastic Software is the leader in learning environments of the future with a wide array of network compatible educational software. With Scholastic in your classroom today, you can help your students become success stories tomorrow.

For your free 1989-90 Scholastic Software Catalog, filled with curriculum-based software programs for your classroom, call

1-800-541-5513 (in Missouri call 1-800-392-2174).

Circle 41 on Reader Service Card.

Scholastic Software—Learning Tools for the Next Generation



ATABASE DOINGS 2

There's more to AppleWorks' database than meets the eye.

A few special tips let you produce clearly labeled headings for professional-looking reports and documents.

By RUTH K. WITKIN

LIKE THE RUBIK'S CUBE CHALLENGE, this one's a dilly. August's endeavor puts you through your database paces, stretching mental muscles, strengthening your skills, and helping you learn more about your own abilities.

By the end of last session ("Database Doings," July 1989, p. 62) you had created a database for the Long Island Bowling Association, set a standard value in the COUNT category, filled six records, and copied records to create two more.

You also designed a tables format and printed a tables report with category names—but no AppleWorks header—at the top of columns. This last step is significant because when you turn off the AppleWorks header, the category names disappear!

Now let's begin anew. Recall that "TA-DAs" herald those special tricks and techniques that make AppleWorks really work for you. **Figure 1** shows one of them.

Let's look at this tables report, whose heading consists of category names, underscores, and a blank line before the first data record. And again, there's no AppleWorks header. You'll find more TA-DA treasures as you go along.

Now load the AppleWorks program and bring DBDOINGS to the Desktop. You should see eight records in the multiplerecord layout of the Review/Add/Change screen. Press Open apple-E (OA-E) to switch to the overtype cursor.

TA-DA 4: CATEGORY NAMES PLUS

You can use two different methods to print category names across a tables report. The first method involves typing category names in the blank line above the names in the Report Format screen, using spaces to separate one from another. (You can get to the blank line by pressing OA-N, then Return.) The disadvantage is that you're limited to 78 characters' worth of category names, including spaces. The advantage is that these headings print on each page of a report.

The second method lets you print every category name (no matter how many), underscore category names, and leave a blank line between the underscores and first data record, all of which give the report a more professional look. The disadvantage here is that headings appear only on the report's first page.

Figure 2 shows the first step—creating a record containing the category name in each category. With the cursor on the Baldwin Bowl-O-Rama entry, press OA-I to insert a new record. Type ALLEY NAME and hit Return. Type TOWN and hit Return again. Continue this way, typing the category name (overtyping the standard 1 in the COUNT category) and hitting Return after each one.

After the SPARE category, AppleWorks brings up another new record.

Figure 3 shows the next step—creating a record that contains a string of equal signs in each category. With the cursor in the ALLEY NAME category, hold down the equal-sign key until the beep, then release the key and hit Return. A long line of equal signs ensures that the underscore will be long enough if you increase column widths in your report. Now, with the cursor in the TOWN category, hold down the equal sign until the beep, release, and hit Return. Continue entering equal signs in other categories.

After the SPARE category, AppleWorks brings up yet another new record. The last step is to create a record that produces a blank line below the underscores. Move the cursor to the COUNT category, press OA-Y to erase the standard entry, and hit Return. The record is now devoid of all entries. That should do it, right? Wrong.

AppleWorks is stingy. It doesn't like wasting paper on empty records. AppleWorks won't let this record produce a blank line (it simply ignores the record when you print) unless you can prove the record is active. And how do you do that? By entering something into a category. Because the spare category doesn't appear on screen, it's the ideal candidate.

With the cursor in the SPARE category, type 1 and hit Return. Press Escape to return to the multiple-record screen. The three records that will produce the heading now sit neatly at the head of the data records. The dashes in the "empty" record are screen characters only. Unless you specify otherwise by toggling PD (Print a Dash) in the Printer Option screen, they won't print.

Now, it's always a good idea to arrange (sort) records before printing a report. Arrange these records by alley name: With the cursor in the ALLEY NAME category, press OA-A and hit Return. Hmmn, those three header

F.Y.1.

Count on Quill to help you save hundreds (even thousands) of dollars per year on microcomputer products

Send today for your FREE Quill Microcomputer Sale Catalog...Plus a FREE bonus booklet!





records are now in topsy-turvy order, with the "empty" one at the top of the list, followed by underscores, then category names.

Here's why: AppleWorks follows certain rules when arranging, giving top priority to records with no entry in the sort category. A group of symbols including the equal sign holds the next highest priority, followed by numbers and other symbols, then letters and more symbols. (You can find the complete sort order in the AppleWorks manual.)

So, each time you arrange records, be prepared to rearrange the header records so that they're in proper order. Here's how to do it: Place the cursor on ALLEY NAME and press OA-M to start the Move command; type T to confirm To clipboard and hit Return again; move the cursor up to the "empty" record and press OA-M again; this time, type F (for From Clipboard). Instantly, AppleWorks plunks the category-name record into first place. Repeat these steps to move the underscore record to second place, leaving the "empty" record in third place.

	•					
ALLEY NAME	TOWN	LEAGUE NAME	START	DATE	SECRETARY	CO
			=====			==
Baldwin Bowl-O-Rama	Baldwin	Thursday Night Men	Sep	7 89	Corey Thompson	
Hav-A-Ball	Wantagh	Women's Wednesday Matinee	Sep	6 89	Joan Corallo	
Plainuiou Poul	Plaisuisu	Tuesday Night Mixed	Con	E 00	Vacca Caalbasa	

Figure 1. Tables report with no AppleWorks header.

				===	===		===	
Baldwin Bowl-O-Rama	Baldwin	Thursday Night Men	Sep	7	89	Corey Thompson	1	
Hav-A-Ball	Wantagh	Women's Wednesday Matinee	Sep	6	89	Joan Corallo	1	
Plainview Bowl	Plainview	Tuesday Night Mixed	Sep	5	89	Karen Spolberg	1	
Plainview Bowl	Plainview	Friday Night Men	Sep	8	89	Mike Sheridan	1	
Plainview Bowl	Plainview	Monday Afternoon Juniors	Sep	11	89	Harriet Chong	1	
Sayville 300 Bowl	Sayville	Sunday Morning Mixed	Sep	10	89	Larry Merow	1	
Stewart Bowling Center	Garden City	Tuesday Night Women	Sep	5	89	Champie LeCatt	1	
Village Bowling	Huntington	Friday Night Mixed	Sep	8	89	Burtie Byrd	1	
							8*	

INSERT NEW RECORDS	Escape: Erase entry

Never buy another ribbon!

Macinker Over 100,000 sold since 1982

Free bottle of ink, reservoir cover, ink meter and dispenser

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 truly better than new print quali-ty and helps extend print-head life. Average number of re-inkings/cartridge is 60-100. With the Multicolor Adaptor (mod M422, \$40.00) your MacInker can re-ink the 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

ı		orange, silver, gold. Ask for free	catalog.
	Imagewriter I/II MacInker (mod 234IM)		.42.00
	Multicolor Adaptor (mod M422)		.40.00
ı	Epson MacInker (mod 271EP)		.42.00
ı	Universal MacInker		.68.50
ı	Imagewriter cartridges3.15/ea (qty	y 6) 4-color10	
ı	ImageWriter LQ cartridges14.50	/ea LQ 4 Color	.16.90
	Extra ink bottle3.00	D/ea pint	.18.50

	Data Switches	
mamo ಎತ್ತಿ	4 port 9 pin50.00	Autoswitch 2 port ser or par149.00 Autoswitch 4 port ser or par169.00 Full range of cables, switches available

Order Toll Free (800)547-3303

Computer Friends, Inc., 14250 NW Science Park Dr. Portland OR 97229 tel. (503)626-2291 - fax (503)643-5379

Major credit cards accepted, cod, immediate shipment, 30 days money back guarantee

Now print this report, which should match the one in Figure 1: Press OA-P; hit Return twice to confirm Get a Report format and TABLES; press OA-P again, select the printer, and hit Return to confirm one copy. When the printer stops, press OA-S to store the database on disk.

TA-DA 5: KEEPING COUNT

The next TA-DA involves counting records all of them first, then in groups by bowling alley. Return to the Report Format: Hit OA-P, then press Return twice. Now press Right Arrow five times to move the cursor to the COUNT category (shown as COU). Tell AppleWorks to produce category totals by pressing OA-T, hitting Return to confirm zero decimal places, then typing 1 to specify one blank space.

Nines and a double line appear in the COUNT category, meaning that AppleWorks will add these entries. To see the result on paper, press OA-P, type the printer number, and hit Return twice. The report contains a total of eight records.

Now press the left-arrow key five times to reach the ALLEY NAME category. Tell AppleWorks to produce group totals by pressing OA-G, then typing N twice. In the left corner of the screen, above the double line, AppleWorks shows Group totals on: ALLEY NAME.

Figure 3. Record underscores category names. File: DBD0INGS INSERT NEW RECORDS Escape: Erase entry Record 2 of 10 Type entry or use @ commands 1030K Avail.

Figure 4. Labels report.

DBDOINGS

```
Report: LABELS
Selection: COUNT equals 1
ALLEY NAME: Baldwin Bowl-O-Rama
TOWN: Baldwin
LEAGUE NAME: Thursday Night Men
START DATE: Sep 7 89
SECRETARY: Corey Thompson
SPARE:
ALLEY NAME: Hav-A-Ball'
TOWN: Wantagh
LEAGUE NAME: Women's Wednesday Matinee
```

START DATE: Sep 6 89 SECRETARY: Joan Corallo SPARE:

ALLEY NAME: Plainview Bowl TOWN: Plainview LEAGUE NAME: Tuesday Night Mixed START DATE: Sep 5 89 SECRETARY: Karen Spolberg COUNT: 1 SPARE:

ALLEY NAME: Plainview Bowl TOWN: Plainview LEAGUE NAME: Friday Night Men START DATE: Sep 8 89 SECRETARY: Mike Sheridan COUNT: 1

ALLEY NAME: Plainview Bowl TOWN: Plainview LEAGUE NAME: Monday Afternoon Juniors START DATE: Sep 11 89 SECRETARY: Harriet Chong COUNT: 1 SPARE:

ALLEY NAME: Sayville 300 Bowl TOWN: Sayville LEAGUE NAME: Sunday Morning Mixed START DATE: Sep 10 89 SECRETARY: Larry Merow COUNT: 1 SPARE:

ALLEY NAME: Stewart Bowling Center TOWN: Garden City LEAGUE NAME: Tuesday Night Women START DATE: Sep 5 89 SECRETARY: Champie LeCatt SPARE:

To see these totals on paper, press OA-P and hit Return twice. Notice that AppleWorks grouped the records (including headers), separating groups by a blank line, then added 1s in COUNT. Plainview Bowl shows a total of three records; all others show one. Press OA-G to remove group totals.

SELECTING RECORDS

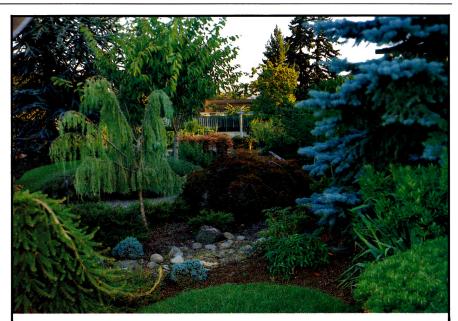
AppleWorks can't distinguish between header records and legitimate data records. So, when you print in a labels format (that is, one record after another instead of across the page), AppleWorks will print the header records, too.

To see what happens, first create a labels format: Press Escape, type 3, and hit Return; type LABELS and hit Return again. The Report Format screen for labels shows category names in a vertical arrangement.

Instead of printing on paper, view the records on screen: Press OA-P, type the number corresponding to the screen, and hit Return twice.

And here's the category and underscore records-definitely not what you want to see in a labels printout. Press the spacebar six times to cycle through the other records and return to the Report Format screen.

To prevent the header records from printing, you can delete them temporarily from the database, but you run the risk of forgetting you've deleted them and saving the database without them. Instead, simply select all other records: Press OA-R to bring up the Select ►



DESIGN YOUR OWN HOME: LANDSCAPE

Enhance your property and living environment and create the perfect landscape design.

FREE Introductory Offer

FREE landscape Library Disk (\$29.95 value, including 4 dozen landscape designs, with every direct order for Design Your Own Home: Landscape (GS: \$89.95; Apple II: \$69.95) ordered by July 31, 1989, that mentions this ad!

1-800-451-4871

CALL TO **ORDER**



EUGENE, OR 97402 (503) 342-3030

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).



Circle 240 on Reader Service Card.

APPLEWORKSIN ACTION

Figure 5. Category names, labels for	rmat.			
File: DBDOINGS Report: LABELS Selection: COUNT equals 1	REPORT I	FORMAT	Escape:	Report Menu
ALLEY NAME: Baldwin Bowl-O-Rama TOWN: Baldwin LEAGUE NAME: Thursday Night Men START DATE: Sep 7 89 SECRETARY: Corey Thompson COUNT: 1 SPARE:	=====	=======		
Each rec	ord will	print 8 1		
Use options shown on Help Screen			3 -	? for Help

Records screen and a list of categories. The only item all records but the header records have in common is the number 1 in the COUNT category. This, therefore, is the place to start. Type 6 and press Return.

The screen shows 12 selection criteria, with the highlight on equals. This is what you want, so hit Return. AppleWorks asks for comparison information. Type 1 and hit Return again. The top left of the screen now displays Selection: COUNT equals 1. AppleWorks offers connectors and, or, and through so that you can narrow or expand this selection. You have no more comparison information, so press Escape to return to the Report Format screen.

AppleWorks selects the records, and you can view them on screen: Press OA-P and hit Return twice. The Baldwin and Wantagh records have replaced the header records. Press the spacebar four times to view the other records and return to the Report Format screen. Leave record selection activated.

TA-DA 6: CATEGORY NAMES

Figure 4 shows a labels report with category names. Printing these names can be useful. For instance, you can distinguish between similar entries such as home and business phone numbers, or identify ambiguous entries. Anticipating that you'll use the labels format to print mailing labels, AppleWorks doesn't provide category names even when the standard header is active. In a database such as this one, with its diverse entries, category names are

Figure 5 shows the report format that produces the category names. You're still in the Report Format screen. With the cursor on ALLEY NAME, press OA-V. Instantly,

AppleWorks plunks the alley-name entry in the first record—Baldwin Bowl-O-Rama—into the ALLEY NAME category.

Press the down-arrow key to reach the TOWN category and hit OA-V again. This time, the entry is *Baldwin*. Continue this way until the screen shows an entry next to each category name except SPARE, which is empty. After the SPARE category, press the down-arrow key once more to insert a blank line. The screen should now display *Each record will print 8 lines*.

Print the labels report: Press OA-P, select the printer and hit Return, type today's date, and hit Return twice. Now return the selection to all records: Press OA-R and type Y. That's all there is to it. Now press OA-S to store the database on disk.

Here's another tip: To center this type of labels listing, you can simply increase the left margin to the Printer Options field; 2-2½ inches should do it.

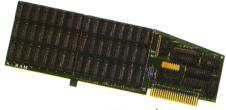
I hope you've learned from—and enjoyed—Database Doings. Next month you'll find a spreadsheet to help you check out the productivity of your sales force. Keep an eye out for more tips in Spreadsheet Shenanigans and Word-Processor Wonders as well, coming to your small screen in the near future. □

RUTH K. WITKIN IS THE AUTHOR OF THE POPULAR TEMPLATE/HANDBOOK SERIES SUCCESS WITH APPLEWORKS I-IV (INCIDER, IDG COMMUNICATIONS/PETERBOROUGH), MANAGING WITH APPLEWORKS (HOWARD W. SAMS & CO.), AND PERSONAL MONEY MANAGEMENT WITH APPLEWORKS (JOHN WILEY & SONS). WRITE TO HER AT 5 PATRICIA STREET, PLAINVIEW, NY 11803. ENCLOSE A STAMPED, SELF-ADDESSED ENVELOPE IF YOU'D LIKE A REPLY.

Three good reasons to buy a memory card from Applied Engineering.

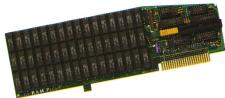
Applied Engineering makes three different memory cards for the IIGS because every IIGS owner is different. Each card was designed to suit specific needs:

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 \$209 1 MEG \$509 1.5 MEG \$709

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 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 \$259 512K \$349 768K-4 MEG CALL

We've also added ROM sockets to the GS-RAM Ultra. ROM sockets allow hard-ware-based applications to be loaded permanently into EPROMs...an increasingly important feature when application 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.

Trade in your Apple card.

We even offer a trade-in credit for your Apple IIGS memory card, so you can switch to an AE card with more features and greater capacity. Still have questions? 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.

Æ 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 bolders.

*When purchased from Applied Engineering or thru a participating dealer.



IVING COLOR

Join the likes of Ted Turner and colorize your black-and-white pictures! Take advantage of a variety of color ribbons to give your Publish It! documents maximum visual impact.

By CYNTHIA E. FIELD, Ph.D.

NOTHING'S EVER JUST BLACK AND white. Ask desktop publishers to name one drawback of **Publish It!**, and they're bound to mention the program's apparent inability to support multicolor printing. Even if you use a so-called color printer such as the ImageWriter II, churning out Publish It! documents in black ink is the best it gets. Or so it would seem.

But thanks to its click-and-cut flexibility, Publish It! is *ideally* suited to helping you create multicolor documents. You can achieve this effect even with non-color-capable printers such as those made by Epson.

To demonstrate the program's unheralded strength, let's create a multicolor sign for a hypothetical "Summer Paint Sale." Post it near the cash register to foster repeat business or on a display window to capture the attention of passers-by.

For this promotional piece, I used **Publish** It! 2 on an Apple IIGS with 1.25 megabytes of memory. Many aspects of this project, including multicolor printing features, are compatible with the program's original version running on an Apple IIc or enhanced IIe.

LOOK BEFORE YOU LEAP

Starting up Publish It!, begin a New file (File menu or Open apple-Z). Call the new file Paint,Sale. Press Open apple-4 (or pull down the Special menu) to activate Size to Fit pagelayout mode.

Park the mouse, open your Publish It! manual, and glance through the Art Library (pp. 11–14). If you use Timeworks' Art Portfolios—Education Graphics, People, Places & Things, or Symbols & Slogans—peruse their respective printed guides to window-shop for potential illustrations. Be sure to consider DOS 3.3 Print Shop graphics for possible inclusion in your publication, if you're using Publish It! 2.

For my sign, I opted for three illustrations from the People, Places & Things disk: a calendar, a paintbrush, and a paint bucket. You'll find all three pieces of clip art in the "Home.Cooking" file, oddly enough.

Customers often don't have time to study signs in great detail, so keep your layout simple. Feature the main idea ("Summer Paint Sale"), vital information about the sale (the dates and items offered), and any "hooks" you can use to entice folks into your store ("Buy 2, Get 1 Free" and "Free Custom Mixing").

A PICTURE'S WORTH A THOUSAND WORDS

Select the graphics tool from the palette, and "rubber-band" (press and drag) a graphics area approximately in the center of the page. For the moment, the size of the graphics area is unimportant. Use Import Picture from the File menu and select the clip-art file you

want to view. Crop the calendar graphic and press Return to transfer this illustration to your page.

If you're using Publish It! 2, magnify the calendar graphic until it's about 5 inches wide and 7 inches high, as shown in **Figure 1**. Refer to the **Table** for the precise dimensions of this and all other objects in the sign. With the pointer, click on any object to select it and use Open apple-M (or the Objects menu) to view its specifications.

If you're using the original version of Publish It!, you won't be able to enlarge the calendar illustration and may have to forego using it.

With the graphics tool, rubber-band two more areas: one near the top right-hand corner of the page and one on top of—and in—the lower left-hand corner of the calendar graphic. Select the uppermost graphics area and import the paint-bucket illustration. Select the one remaining graphics area and import the paintbrush picture. Save this file as Paint.Sale.1.

COME ONE, COME ALL

Use the text tool to rubber-band three text areas near the paint-bucket illustration: one to the left, one above, and one to the right. Refer to the accompanying **Table** for placement and size details. The first text area will later accommodate the word *Summer*; the second, the word *Paint*; and the third, the word *Sale*.

Rubber-band a text area on top of the enlarged calendar graphic. Be careful not to interfere with the calendar or the paintbrush illustration.

You want your sign to be easy to read, so choose a thick, bold font such as Westwood. Place the I-beam in the leftmost of the three upper text areas. Pull down the Font menu and click on Select Font. Scroll through the directory and choose 36-point Westwood by





highlighting the name and double-clicking on it or by clicking on the OK button. Type the word *Summer*. Place the I-beam in the next text area and type *Paint*. In the third area, type *Sale*.

ADVERTISING PAYS

Place the I-beam in the text area atop the calendar graphic. Select 18-point Westwood. Type the dates of the sale (August 11-21), the featured products (Our best, Interior Satin Latex, Exterior Semi-gloss Enamel), the special deal (Buy 2, Get 1 Free!), the information about paint accessories (Specials on brushes, rollers, and covers), and the final lure (Free Custom Mixing).

Beginning at the top left-hand corner of the text area, drag the I-beam down and across the text to select it for formatting. Pull down the Format menu, click on Justify, and Center everything ("de-select" Use Page Standard).

Drag the I-beam across the words *Our best*, and press Open apple-U (or use the Font menu) to underline the phrase. Similarly, select and underline *Free* in *Free Custom Mixing*. Finally, select the line *Buy 2*, *Get 1 Free!*, and press Open apple-B (or pull down the Font menu) to make this sentence boldface. Save this file as Paint.Sale.2.

FINISHING TOUCHES

With a black ribbon in your printer, print a draft of the sign. Check carefully for the orientation of text areas and the placement of graphics.

Shift any object's position by first selecting and then dragging it. With the I-beam, enter text areas and fix any typos. Save the file (its screen appearance should look like **Figure 2**) as Paint.Sale.3. Print the completed sign (**Figure 3**).

RAINBOWS

Now for the fun! Printing any Publish It! document in full color requires an assortment of single-color ribbons. I purchased a Rainbow Pack (one each in blue, brown, green, red, purple, and yellow) from Programs Plus for \$20. Other colors, even silver and gold, are available from this company as well as from other suppliers including Computer Friends and Ribbonland. (See the accompanying Product Information box for company addresses.)

Because multicolor printing is a somewhat fastidious process, plan the colors that will look best in your publication. I decided to print

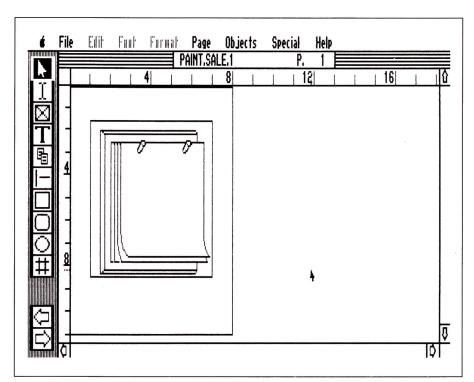


Figure 1. Enlarged calendar graphics area.

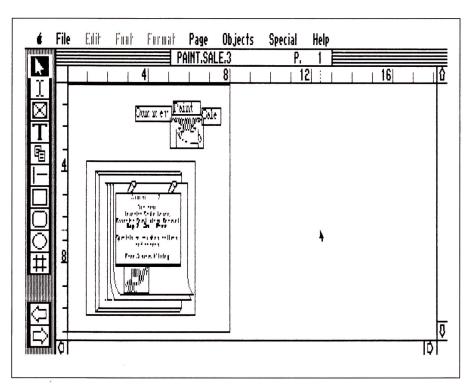


Figure 2. Seven objects on screen.

Summer in blue, Paint (and the paintbrush) in orange, Sale in green, the paint bucket in red, the calendar in brown, and the information in black. Because I used six colors in all, I had to create six color-separated pages.

This process sounds difficult, but it's a snap. In my multicolored sign, for example, I printed in blue only the text area with the word *Summer*. I needed to create a page with just that object on it and then print that page



Figure 3. Completed sign.

PRODUCT INFORMATION

Art Portfolios
Design Ideas
Eduation Graphics
People, Places & Things
Symbols & Slogans
\$39.95 each
4-pack, \$120
Publish It! 2, \$129.95
Timeworks
444 Lake Cook Road
Deerfield, IL 60015
(312) 948-9200

Computer Friends 14250 N.W. Science Park Dr. Portland, OR 97229 (800) 547-3303 (503) 626-2291

The Print Shop Broderbund Software 17 Paul Drive San Refael, CA 94903-2101 (800) 521-6263 (415) 492-3200 \$44.95 Rainbow Pack Programs Plus 75 Research Drive Stratford, CT 06497 (800) 832-3201 \$20 6 single-color ribbons

for ImageWriter II

Ribbonland
P.O. Box 506

Exton, PA 19341

(215) 524-9760

	LEFT START	TOP START	WIDTH	HEIGHT
"Summer" Text Area	3.334	1.108	1.740	0.593
"Paint" Text Area	5.219	0.869	1.287	0.537
"Sale" Text Area	6.580	1.243	0.890	0.665
Sale Info. Text Area	2.406	4.961	3.148	3.037
Calendar Graphic	0.925	3.423	5.370	6.870
Paint Bucket Graphic	5.018	1.333	1.650	1.629
Paintbrush Graphic	2.759	8.034	1.241	1.225

Table. Object specifications for "Paint Sale" sign (all dimensions in inches).

with a blue ribbon. Let's get started.

To begin, click on the word "Paint" and Apple-click (hold down the open-apple key while clicking with the mouse) on the word Sale. Apple-click on the remaining objects, leaving only the Summer text area unselected. As you select each object, corner handles appear.

COLOR ME BLUE

Press the delete key and erase the unwanted objects in one fell swoop. Respond "OK" to each dialog that warns *This Cut/Delete will permanently delete an article's text*. Remember, the text is still safe and secure in the Paint.Sale.3 file on your data disk.

Save this file as Paint.Sale.3Blu. Place a blue ribbon in your printer. Line up your paper carefully that so you can start at the same precise place each time you run the page through the printer—six times in all for this project. For convenience and a crisp appearance, use single sheets of good-quality paper (25 percent cotton content white bond).

Carefully line up the paper's left edge with the "single-sheet guide" on the ImageWriter's back cover; line up the top edge with the red line on the "paper guide" near the printhead. Use equivalent guides on other types of printers. If such guides don't exist, create your own by fastening strips of masking or electrical tape to the *outside* of the printer. But don't do anything to the printer's internal workings!

Print the page in double-strike mode. Remove the blue ribbon and insert a red one. Open (File menu or Open apple-O) the file Paint.Sale.3, which you saved earlier. Delete all objects except the word "Paint," the paint bucket, and the paintbrush. Save this file as Paint.Sale.Red. Carefully reinsert the page you already printed with the word Summer on it, and print the three red objects. Remove the red ribbon and replace it with a green one.

Reopen the Paint.Sale.3 file and delete everything but the text area with the word *Sale*. Save this file as Paint.Sale.3Grn. Reinsert the partially printed page and print the green object. Replace the green ribbon with a brown one.

Open the file Paint.Sale.3, delete everything except the calendar graphic. Save this file as Paint.Sale.3Brn. Print the brown calendar illustration.

Finally, insert a black ribbon in your printer. Reopen the Paint.Sale.3 file, delete everything except the informational text. Save this file as Paint.Sale.3Blk and print it by reinserting the original page for the fifth time.

This method even lets you do color mixing.

Open the Paint.Sale.3 file. Delete everything *except* the word *Paint* and the paintbrush graphic. Save this file as Paint.Sale.3Yel, and place a yellow ribbon into your printer. Reinsert the paper carefully and print over these two areas (originally red) to create two orange-colored objects.

DISCRETION ADVISED

Though you might consider color-highlighting one or two objects in a newsletter's masthead, you'll probably agree that multicolor printing is best suited to documents that are *not* mass-produced. After all, you want to be creative, not enslaved by your printer.

But for small press runs of eye-catching documents, multicolor printing is well worth the effort. And, once again, hardware-unintensive, unassuming Publish It! proves it can compete with the best of desktop publishing's big guns.

CYNTHIA E. FIELD IS A FREE-LANCE JOURNALIST SPECIALIZING IN COMPUTER-RELATED TOPICS. SHE IS A CONTRIBUTING EDITOR AND THE AUTHOR OF FIELD TRIP, INCIDER'S COLUMN ON EDUCATIONAL SOFTWARE. WRITE TO HER AT 60 BORDER DRIVE, WAKEFIELD, RI 02879. ENCLOSE A STAMPED, SELF-ADDRESSED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.



OOLS TO DRAW ON

Take control of the powerful drawing tools built into your GS.

Several techniques and shortcuts help you design advanced graphics and build animation into your programs.

By JOE ABERNATHY

LEARNING TO USE THE GS' BUILT-IN PROGRAMMER'S toolbox is much like learning to use the computer itself. You should begin exploring it region by region. As a BASIC programmer, you also have access to some of the finest tools available in any language.

The Toolbox is a set of some 900 procedures that let you implement such features as pull-down menus, sound, graphics, dialog boxes, and so on. These various tools are organized into topical kits such as Menu Manager, Sound Manager, QuickDraw II, and Dialog Manager.

START SMALL

Learning how to program all 900 tool calls would seem to be a career in itself. This indeed can be the case with languages that take a traditional approach to implementing the Toolbox (following the sophisticated syntax of Apple's Toolbox documentation faithfully). Within the various dialects of BASIC, however, are numerous techniques and shortcuts that can bring tool programming more within reach.

One good starting point is graphics. It's much of what makes the IIGS special. A subset of the Toolbox entitled QuickDraw II lets you display pictures, build in animation, and design sophisticated dialogs.

Most QuickDraw commands create primitive graphics such as points, lines, rectangles, circles, and polygons. So animation using QuickDraw might follow this simple recipe: Draw an oject, erase it, then redraw it at a new location.

ANIMATION BASICS

Working in structured, modular BASIC, the most elegant approach is to design a set of tools to handle each phase of this simple animation. And they'll give you full access to QuickDraw graphics via easy one-line calls in the programs you write.

The first step in using QuickDraw or any toolset is to turn it on. Traditionally, this involves making sure other toolsets that QuickDraw

uses internally are active, allocating memory for QuickDraw's functions, and finally issuing a call to activate the toolset. Fortunately, our IIGS BASICs simplify that process. In Micol Advanced BASIC, for example, single commands enable the various graphics modes:

GR { 40x40 low-res graphics mode }
HGR { super-high-res 320x200 mode }
HGR2 { super-high-res 640x200 mode }
TEXT { turn off any graphics mode }

Here we must diverge from a general discussion of the various dialects, since there are significant differences among their QuickDraw commands. Although you might not own and use a particular language, you should read each section.

MICOL ADVANCED BASIC

Micol offers a gentle introduction to graphics, much of it being familiar if you've done Applesoft programming with Micol. There are a number of built-in shortcuts, and you can easily build tools based on the Toolbox. By combining the two, you can create uniquely powerful tools for advanced graphics and fast animation.

A number of built-in commands afford drawing capabilities that otherwise are more difficult to program. For example:

PROGRAM SHRDemo:

```
ROUTINE Main

HGR { start up QuickDraw, 320 mode }

BKCOLOR = 14 { light gray background }

HCOLOR = 4 { blue drawing pen }

HPLOT 4, 4 { locate pen at position 4, 4 }

DRAWSTR ("Hit any key to continue...")

HPLOT 4, 5 { horizontal = 4, vertical = 5 }

HPLOT TO 314, 186 { draw a line }

GET a$ { await keypress }

TEXT { shutdown QDII, restore text screen }

END
```

The graphics shortcuts demonstrated above can provide a lot of flexibility, but you need to call QuickDraw directly to achieve more sophisticated IIGS graphics. The following sample shows two ways to accomplish animation using a combination of simple commands and direct QuickDraw calls:



Sonic Blaster.™ It's why they put the "S" in IIGS.

Sonic Blaster™, the IIGs's first full-featured stereo digitizer, brings a new dimension to computing...the element of fun.

Record sounds, tailor them with extensive editing options and play your own amplified versions back through your home stereo speakers. Sonic Blaster automatically digitizes and plays back GS games that use the computer's built-in Ensoniq sound chip (as almost all do), with thundering results.

Kick back with your favorite computer game and immerse yourself in a roomful of sound effects. Create strange answering machine messages. Drop an interesting background sound into your phone conversations (we provide 17 to get you started). Change screen colors with a virtually infinite pallette of color.



Sonic Blaster's ultra-low-noise digital design is certified by the FCC.

Use your own equipment.

Use the equipment you already have. You don't need special amplified speakers because Sonic Blaster's built-in amplifier works with standard 8 Ohm speakers, small or large, including those monsters next to your stereo. Take sounds from your favorite TV show, album, compact disk, VCR, even a microphone. Then amplify, play backward, create echoes and

fades, cut, copy and paste with the Super Hi-Res software we include.

We designed Sonic Blaster to be complete. Here's a quick tour of part of the software screen:

The Buttons

Stop, Play, Pause and Record buttons, perform the same functions they do on a tape recorder. Also included are Single and Continuous Play buttons and a VU Meter to visually represent input levels.

The Sound Graph

The Sound Graph is the waveform at the bottom of the screen. Portions of the Sound Graph are selected with the mouse and then edited using the cut, copy and paste options within the Edit menu.



Seventeen sound effects to get you started. Add your own collection of sounds.

The Bars

The Volume bar controls amplitude of the playback. Playback and Record mode sample rates are adjusted with the next pair of bars and the Record Level bar adjusts the level from the source connected to the Sonic Blaster's input connector.

The Blocks

Three blocks give readouts of file length, available memory, bytes selected and resolution ratio.



"See" the sound on the oscilloscope.

The Oscilloscope

Sonic Blaster's built-in oscilloscope gives you a real-time display of input sounds. Use it to set your input levels before recording. Or use the Auto Gain feature to adjust the level automatically.

Sonic Blaster

\$129

Order Today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering.

MasterCard, VISA and C.O.D. welcome.

Texas residents add 7% sales tax. Add \$10 outside U.S.A.

APPLIED ENGINEERING®

The Apple enhancement experts.

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice.



```
Listing 1. Program ShowAPic.
  ShowAPic (C)1989, inCider
  By Joe Abernathy. All Rights Reserved
  Compiler: Micol Advanced BASIC (GS)
{ Requires an uncompressed SHR picture.
{ PROC DoShowPic -- display SHR picture }
PROC DoShowPic[picfile$]
  { DoShowPic is based on an example
    written by Ron Lewin of Micol
    Systems Canada. Our thanks.
  IF FILE(picfile$) THEN BEGIN
    HGR { start QuickDraw II
    BLOAD picfile$,14753792,32766
    { the BLOAD command copies 32766
      bytes -- 65 disk blocks, the
      length of an uncompressed pic
      file -- from the picture file
      name passed in picfile$, to the
      screen at location 14753792 }
    GET a$ { await key press }
    TEXT { Shut down QuickDraw II }
    ENDIF
ENDPROC { DoShowPic }
  ShowPic -- DoShowPic control routine
             for use with inCider prog
             SHOWFILE.CDA (June 1989).
PROC ShowPic
  HOME
  HTAB (1)
  VTAB (6)
PRINT "
  PRINT " Display Picture VTAB (8)
  INPUT "Enter full pathname of picture -> ";x$
  IF x$ = "" THEN Terror! = TRUE
  IF FILE (x$) THEN BEGIN
    GOSUB DoShowPic[x$]
    ENDIF
  InputErr! = FALSE
ENDPROC { ShowPic }
  { Main loop -- DoShowPic demo
  ROUTINE Main
    Terror! = FALSE
    REPEAT
      GOSUB ShowPic
      UNTIL Terror!
   Terror! = FALSE
                    { ShowPic
```

```
PROGRAM Graphics
INT (A-Z)
DIM Buffer (10)
PROC Draw_Rect [ Func_Num, Min_X, Min_Y, Max_X, Max_Y ]
   { Draw_Rect by Ron Lewin of Micol Systems }
   LSB = ADDR (Buffer() { address of buffer; syntax cq }
   MSB = PEEK (202) { bank num of buffer }
   TOOLBOX (4, 74: MSB, LSB, Min_X, Min_Y, Max_X, Max_Y)
   TOOLBOX (4, Func_Num: MSB, LSB)
   ENDPROC { Draw_Rect }
ROUTINE Main
   HGR { Start QuickDraw in 320 mode }
   HCOLOR = 4 { drawing color blue }
   BKCOLOR = 0 { black background, used also to erase }
   { draw a line of circles .. }
  j\% = 5
   FOR i\% = 100 \text{ TO } 320 \text{ STEP } 5
      j\% = j\% + 5
      GOSUB Draw_Rect [89, j%, 5, i%, 70]
      NEXT i%
   { erase sequentially ... }
  j\% = 5
   FOR i\% = 100 \text{ TO } 320 \text{ STEP } 5
      i\% = i\% + 5
      GOSUB Draw_Rect [90, j%, 5, i%, 70]
      NEXT i%
   { by changing the draw/erase order, }
   { you get another kind of animation .. }
  i\% = 5
   FOR i\% = 100 \text{ TO } 320 \text{ STEP } 5
      i\% = i\% + 5
      GOSUB Draw_Rect [89, j%, 5, i%, 70]
      GOSUB Draw_Rect [90, j%, 5, i%, 70]
      NEXT i%
   GET a$
   TEXT
END { PROGRAM Graphics }
```

ROUND IT OFF

This example achieves its effects by calling the flexible Draw_Rect procedure. This tool can draw rectangles or ovals in any size, and in one of three capacities: framed, color-fill, or background color-fill, which will erase a previously drawn color-fill object.

A similar procedure, Draw_Arc, provides the same capabilities for round-cornered rectangles and arcs:

```
PROC Draw_Arc [ Func_Num, Min_X, Min_Y, Max_X, Max_Y,
                Start_Angle, Angle_Length]
```

```
{ Draw_Arc by Ron Lewin of Micol Systems }

LSB = ADDR (Buffer() {Syntax is correct}

MSB = PEEK (202)

TOOL BOX (4, 74: MSB, LSB, Min_X, Min_Y, Max_X, Max_Y)

TOOLBOX (4, Func_Num: MSB, LSB)
```

ENDPROC

Together, Draw_Rect and Draw_Arc generate a complete set of QuickDraw graphics primitives, and you should enter them into your permanent programmer's library. The Func_Num values that determine what you draw are listed in the Micol manual and in volume 2 of the Toolbox Reference Manual.

Listing 1 is another example of super-high-resolution (SHR) graphics in Micol Advanced BASIC. It illustrates how to load a "full-sized" (32K) SHR picture from disk and display it on screen. This procedure is designed so that you can add it to the *inCider* Show File utility presented in June's GS BASICs ("Think It Through," p. 86) or add it as a procedure to your permanent programmer's library.

AC/BASIC

AC/BASIC is also designed to give you the power of the Toolbox without the trouble of tool calls. Hence, you can draw most graphics primitives with a one-word command. AC's slick mouse-interface calls also offer convenient on-screen graphics control of objects.

Different AC graphics commands affect different objects, which you can combine to create sophisticated images. You can add graphics and disk-based pictures to your programs, enhance on-screen text, and even record to disk the composite picture your program's commands create.

AC/BASIC graphics objects include lines, boxes, arcs, ovals, polygons, rectangles, and round-cornered rectangles. You can choose to paint, invert, frame, fill, or erase the last five of those objects. To get a feel for this, type in **Listing 2**, and compile it with the default menus and window selections on.

This AC/BASIC example shows how to accomplish animation similar to that of the Micol program above, but apparently without making any tool calls. The compiler is making them for you in the background. Listing 2 also shows how to manipulate fonts and colors quickly. Using polygon commands, you can create figures or objects as complex as your imagination.

And as you can see by comparing source code, much of your knowledge will be portable if you later add another BASIC compiler, or even another language, to your repertoire. One consideration that counts against AC/BASIC is its lack of speed, which manifests itself as "flashy" animation. So try to keep the size of animated figures small.

Another technique to use is pseudo animation—manipulating the color palette as demonstrated in the DoMenu routine in Listing 3. Listing 3 also shows how to load a picture from disk and display it in either 320 or 640 mode. (Listing 3 requires the original inCider.Shell for AC/BASIC. See "Studio BASIC," April 1989, p. 86.)

TML BASIC

TML BASIC is unique in letting you write unfettered desktop-style programs. AC/BASIC limits you to those desktop capabilities built into the language (unless you know machine language), and Micol Advanced >

```
Listing 2. Graphics plotting example.
' Graphics plotting example
' By Joe Abernathy. (C)1989, inCider
 All Rights Reserved.
 Compiler: AC/BASIC for Apple IIGS
 DIM rect%(3) ' for QDII plotting
DIM pat%(3) ' QDII pen pattern
SCREEN 1 ' 320x200 screen
 TEXTBCOLOR 14 ' light gray background
 TEXTECOLOR 14
TEXTCOLOR Ø ' black ' Venice
                 ' 14-pt.
 TEXTSIZE 14
  PRINT
 PRINT "This is Venice 14, black on gray."
 PRINT
  PRINT "Click mouse to continue."
 WHILE MOUSE (Ø) <> Ø
WEND 'Clear mouse buffer
 WHILE MOUSE (\emptyset) = \emptyset
                    Await real mouse click
 WEND 'Await real mouse BACKCOLOR 2' brown background
                  ' clear screen to brown
 CLS
 FORECOLOR 6 ' orange graphics pen color
 rect%(0) = 5 ' upper left y rect%(1) = 5 ' upper left x
 rect%(2) = 70  'lower right y rect%(3) = 150 'lower right x
 FRAMERECT VARPTR(rect%(0))
 MOVETO 10, 100 'x, y
PRINT "Click mouse to continue."
 WHILE MOUSE (Ø) <> Ø
                   Clear mouse buffer
    WEND
 WHILE MOUSE (Ø) <> 1
   WEND 'Await real mouse click
 ERASERECT VARPTR(rect%(0))
                    clear to brown
 ' animate with a line of circles ..
 rect%(0) = 5 ' upper left y rect%(2) = 70 ' lower right y
 FOR i = 100 TO 300 STEP 5
    rect%(1) = j
    rect%(1) = j ' upper left x
rect%(3) = i ' lower right x
                        ' upper left x
   FILLOVAL VARPTR(rect%(0)), VARPTR(pat%(0))
    ERASEOVAL VARPTR(rect%(Ø))
 MOVETO 10, 100 'x, y
 PRINT "Click mouse to continue."
   WHILE MOUSE (Ø) <> Ø
                    ' Clear mouse buffer
   WHILE MOUSE (Ø) <> 1
WEND ' Await real mouse click
   FOR i = 1 TO 1000
     NEXT i
END
```



```
Listing 3. File: inCider, Shell, v1.1 revisions.
   File: inCider.Shell, vl.1 revisions
By Joe Abernathy
(C)1989, Joe Abernathy. All Rights Reserved.
Compiler: AC/BASIC for the Apple IIGS.
   Make these changes to the shell to implement picture-handling.
' Add this at beginning of program:
                                                                         ' Picture array
DIM Pict%(16384+4)
' Replace previous "menuproc" with this:
                                                                     ' Interpret menu events
' Read which menu
' Read which item
menuproc:
    menunum = MENU(Ø)
itemnum = MENU(1)
   IF menunum = 1 THEN
IF itemnum = 1 THEN
GOSUB 10
ELSEIF itemnum = 2 THEN
                                                                             .. FILE menu
                                                                         ' Edit
      GOSUB 20

ELSEIF itemnum = 2 THEN
GOSUB 30

ELSEIF itemnum = 3 THEN
GOSUB 30

ELSEIF itemnum = 4 THEN
GOSUB 40
                                                                        ' Delete
                                                                         ' Print
      ELSEIF itemnum = 5 THEN GOSUB 50
                                                                         ' Type File
                                                                         ' Quit
      ELSEIF itemnum = 6 THEN
      GOSUB 60
END IF
   END IF
ELSEIF menunum = 2 THEN
IF itemnum = 1 THEN
GOSUB 70
                                                                         ' GOODIES menu
                                                                         ' Show picture
   END IF
RETURN
   Add capability to view SHR picture:
                                                                 ' Show SHR picture
   WHILE f$ <> ""
      f$ = FILES$(1)
IF f$ <> "" TH
WINDOW 2
                                                                ' Open file dialog
         OPEN f$ AS #1
                                                                ' Open picture
' Load 32K of pic data
         OPEN TS AS #1
BLOAD #1.Pict$(4),32768
CLOSE #1
Pict$(0) = 640
Pict$(1) = 200
Pict$(2) = 128
Pict$(3) = 160
                                                                ' Width can be 320 or 640
                                                   ' line bytes rounded to mult of 8
' Show picture
' Clear event queue of
          PUT (Ø,Ø),Pict%
WHILE MOUSE(Ø) <> Ø
             WEND
                                                                ' ghost mouse clicks
' Await real mouse click
         WHILE MOUSE(Ø) = Ø
WEND
WINDOW CLOSE 2
          END IF
      WEND
   MENII
  Replace old DoMenu with this:
SUB DoMenu
                                                                         ' Create menu bar
' No screen flicker
   FOR p = 1 to 6

FOR e = Ø to 12 STEP 4

PALETTE p,e+Ø,1,1,1
                                                                         ' white out menu bar
  NEXT
NEXT
MENU 1,0,1," File"
MENU 1,1,1,"New"
MENU 1,2,1,"Edit"
MENU 1,3,1,"Delete"
MENU 1,4,1,"Print"
MENU 1,5,1,"Type"
MENU 1,6,1,"Quit"
MENU 2,0,1," Goodies"
MENU 2,1,1,"View Picture"
FOR D = 1 to 6
         NEXT
                                                                         ' Build FILE menu
                                                                               and its entries.
                                                                         ' New Goodies menu
' View SHR picture
   FOR p = 1 to 6
FOR e = Ø to 12 STEP 4
PALETTE p,e+Ø,Ø,Ø,Ø
                                                                         ' Restore palette ..
         NEXT
END SUB
  End of inCider.Shell vl.1.
```

```
Listing 4. TML BASIC animation demo.
  TML BASIC Animation Demo
' By Joe Abernathy. (C)1989, inCider
  All Rights Reserved.
  Compiler: TML BASIC v1.10 for Apple IIGS
                            ' Load QDII toolset
LIBRARY "QuickDraw"
                            ' rectangle
DIM arect%(3)
                            ' color palette
DIM colors%(15)
                            ' 320x200 graphics screen
GRAF INIT 320
                            ' Turn it on
GRAF ON
                            ' Clear screen to white
 ClearScreen(-1)
                            Draw line of ovals
and sequentially erase
PROC Ovals
PROC ErasOvals
                            ' Animated ovals
PROC AnimOvals
                             ' Press a key
PROC Finis
GET$ Key$
                             ' Animation example
END
DEF PROC Ovals
' Based on example written by TML Systems
   LOCAL i%
   j% = 20
    SetSolidPenPat(13) ' Light blue
   FOR i% = 100 TO 300 STEP 5
j% = j% + 5
      SetRect(VARPTR(aRect%(0)),j%,20,i%,100)
PaintOval(VARPTR(aRect%(0)))
     NEXT i%
END PROC
DEF PROC ErasOvals
   LOCAL j%
    j% = 2Ø
    FOR i% = 100 TO 300 STEP 5
      j% = j% + 5
      SetRect(VARPTR(aRect%(Ø)),j%,20,i%,100)
      __EraseOval(VARPTR(aRect%(Ø)))
      NEXT i%
END PROC
DEF PROC Animovals
   LOCAL j%
    j% = 2Ø
     SetSolidPenPat(13) ' Light blue
   FOR i% = 100 TO 300 STEP 5
j% = j% + 5
      _SetRect(VARPTR(aRect%(0)),j%,20,i%,100)
_PaintOval(VARPTR(aRect%(0)))
       EraseOval(VARPTR(aRect%(Ø)))
      NEXT i%
 END PROC
 DEF PROC Finis
    MoveTo(10,150)
DrawString("Press any key to continue.")
 END PROC
```

PRODUCT INFORMATION

AC/BASIC

Absoft Corporation 2781 Bond Street Rochester Hills, MI 48307 (313) 853-0050 \$125

Micol Advanced BASIC

Micol Systems 9 Lynch Road Willowdale, Ontario M2J 2V6 Canada (416) 495-6864 \$145

TML BASIC TML System

TML Systems 8837-B Goodbys Executive Drive Jacksonville, FL 32217 (904) 636-8592 \$125 BASIC lacks the intent and documentation to do desktop applications, even though the ability ostensibly is there.

However, TML offers only one high-level shortcut to QuickDraw graphics, the GRAF INIT command, which starts up QuickDraw and its interdependent toolsets. But sophistication in data handling takes a lot of the sting out of TML's tool interface.

Listing 4 shows how to implement our simple animation techniques using TML BASIC. It also shows readily portable examples of other tool calls that may be useful to Micol programmers. TML has no readymade shortcuts for displaying an SHR picture, as do the other BASICs. If you need this capability, you must program it in traditional Toolbox fashion as prescribed in the Toolbox References and in the TML manual.

In addition to strong support for desktop programming, TML includes a broad-ranging discussion of QuickDraw graphics in its manual—the best of any of the BASICs. On-disk source-code examples show how to implement every QuickDraw graphics primitive and a number of useful screen-display techniques.

PROJECTS

There are many programs you might write to further explore QuickDraw graphics, while creating something worthy in the process. For instance, using AC/BASIC, you have access to powerful mousetracking commands that will let you program an art-capture function easily.

In conjunction with automated scaling demonstrated in Listing 3, this can become the basis for applications such as an SHR label-making program or a database that mixes text and graphics. Refer to chapter 16, "Advanced Memory," in the AC/BASIC manual.

TRICKS OF THE TRADE

Micol Advanced BASIC has the speed, tools, and Applesoft compatibility to bring a lot of good but outdated software back to life. You can add backgrounds to Applesoft adventure games, or use object-oriented graphics to make a simulation or educational program more exciting. I like these kinds of projects because you can do them in a weekend and get a good upload to the networks with your name on it.

In addition, Micol promises to release an upgrade for the GS Advanced BASIC (version 3.0) by early this fall that should make graphics a snap, especially IIGS desktop windows, dialogs, menus, and mouse control.

With TML BASIC, the disk examples and manual treatment of QuickDraw enhance TML's status as the best compiler for desktop programming. You may even prefer it for game design, because of the wide availability of examples (in TML Pascal as well as BASIC). The only feature missing in TML is a GS/OS-compatible compiler update.

MOVING ON

You don't need advanced knowledge to do significant graphics programming. After a couple of hours of experimentation, you'll have a great deal of confidence. And after a couple of projects, you'll no doubt feel-and program-like a graphics pro.□

CONTRIBUTING EDITOR JOE ABERNATHY IS A JOURNALIST WITH THE HOUS-TON CHRONICLE. HE'S A CERTIFIED APPLE DEVELOPER AND THE AUTHOR OR COAUTHOR OF EIGHT APPLE II PROGRAMS. WRITE TO HIM AT P.O. BOX 66046, HOUSTON, TX 77266-6046. ENCLOSE A STAMPED, SELF-ADDRESSED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

GET ON THE FAS-TRACK!



Call us for your FREE 1989 School and Home Computer Products Catalog—More than 100 pages of software, hardware and accessories.

DISCOUNTS UP TO 45% EVERYDAY!

aser 128EX Computer System with RGB Monitor



\$684.95 Three Times Faster than Apple IIe

\$CALL

 128K Ram (expandable to 1 Meg) · Built-in Disk Drive

aser 128EX

Free Shipping!

Much More!

\$CALL Laser 128

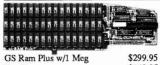
Laser Extras

Laser 190A Printer \$199.95 FD 100 Apple Compatible Drives \$99.95 FD 356 3.5" 800K Drive \$199.95 \$54.95 Laser Mouse

256K Drams (set of 8) \$75 1 Meg Drams (set of 8) \$160

TimeOut Series

QuickSpell, Superfonts, Teleconts	comm\$37.95
GS Font Editor \$28	
Thesaurus or Powerpack	ea \$28.45
Desktools I or II	ea \$28.45
Sidespread or File Master	\$28.45
Spreadtools or Ultramacros	ea \$34.45
Macrotools I or II	ea \$14.95
Graph or ReportWriter	ea \$47.95



9.95
4.95
14.95
19.95
9.95
9.95
9.95
1

Other Hardware	
Apple IIe 80 Column 64K Card	\$34.95
Zip Chip 4mhz	\$119.00
Zip Chip 8mhz	\$169.00
Zip IIgs	\$CA.LL
Computer Eyes for IIgs	\$204.95
Thunderscan	\$169.95
FingerPrint GSI	\$79.95

Productivity !	Software
LaWasha 2.1	¢10

\$199.95
\$23.95

Desktop Publishing & Gr	raphics
Publish It! 2	\$74.95
4 in one Graphics Pack \$7	
Childrens' Writing and Pub Cen	ter\$36.95
Print Shop	\$28.95
Print Shop IIgs	\$36.95
VCR Companion	\$29.95
Print Shop Lovers Utility Set	\$25.95
Labels, Labels	\$25.95

Entertamment	
Test Drive II-The Dual (IIgs)	\$29.95
Jack Nicklaus Golf (IIgs)	\$29.95
California Games (IIe or IIgs)	ea \$26.95
Kings Quest IV (IIe or IIgs)	ea \$33.95
War in Middle Earth (IIgs)	\$33.95
Wheel of Fortune 1, 2 or 3	ea \$9.95
Jeopardy 1, 2 or Sports Edition	ea \$9.95
Chessmaster 2100 (IIgs)	ea \$34.95
Arkanoid (IIe or IIgs)	\$20.95
Mean 18 or Hardball (IIgs)	ea \$31.95

Accessories	
ImageWriter Black Ribbon	\$2.95
ImageWriter 4-Color Ribbon	\$6.95
10 DS/DD 3.5" Bulk Diskettes	\$11.95
25 DS/DD 5.25" Bulk Diskettes	\$9.95
5.25" Disk Case (Holds 60)	\$7.45
3.5" Disk Case (Holds 40)	\$7.45
System Saver IIgs	\$75.95

Fas-Track Computer Products

7030C Huntley Road Columbus, Ohio 43229

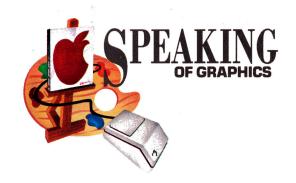
ALWAYS CALL 1-800-272-1600

TOLL-FREE

1-800-438-1168 (Ohio) 1-614-847-4050 (Central Ohio)

U.S., F.P.O., and A.P.O., add 3% (mimimum \$3.00) for each shipment. No C.O.D. In Ohio, add 5.5% Sales Tax. MasterCard and VISA—No extra charge. We accepturchase orders from schools, universities and other qualified organizations.

FROM HOME TO SCHOOL AND BACK AGAIN. FAS TRACK DELIVERS



OUSING AROUND

Don't let a mouse curtail your creativity. Look into some options that'll make drawing on screen as easy as sketching with traditional pencil and paper.

By ROBERTA SCHWARTZ and MICHAEL CALLERY

"IT'S UNNATURAL. IT'S UNCOMFORTable. It's impossible!" If that's how you feel when you draw with a mouse, you're not alone.

Most people find it takes practice to get used to drawing with an object that feels like a bar of soap. Aside from its shape, another problem is that the mouse works in *relative* mode, meaning that actions occur relative to the device's original position. To move the cursor and draw lines, you have to first drag the mouse and then hold down its button. If you're used to sketching with short, quick strokes rather than smooth contour lines, the adjustment is even harder and the frustration is greater.

Don't give up. With time, you'll see that it's possible, even easy, to draw this way. The following suggestions should help you overcome the ICDWTM (I-can't-draw-with-the-mouse) syndrome.

If the mouse is your only problem, the best solution, though it's also the most expensive, is to replace it with a graphics tablet. This large, flat surface (8½ by 11 inches or larger) is sensitive to the movements of an electronic stylus that looks and feels like a pen. As you move the stylus across the tablet, your marks appear on the computer screen.

Unlike mice, tablets are usually *absolute* devices that let you map the pad's surface directly to the screen. Point the stylus at the lower left-

hand corner of the tablet, and your cursor will appear in the screen's lower left-hand corner. Lift the stylus from the pad, move it to the upper right-hand corner, and the cursor will reappear in the screen's corresponding location. Pick up your mouse, on the other hand,

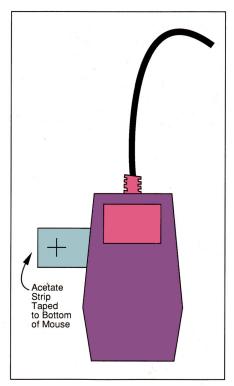


Figure 1. Creating tracing tool.

move it six inches, and the cursor remains stationary.Drawing with a tablet, then, is very similar to drawing with traditional tools.

Apple used to manufacture a graphics tablet, and if you poke around you may be able to find a used—or even new—device. Check out computer flea markets, as well as ads placed by local user-group members. Roberta got hers by placing a classified ad in a computer newspaper.

The Apple tablet will work on any Apple II with slots. Only older hi-res and double-hi-res software support the tablet directly. However, thanks to a classic desk accessory (CDA) distributed as part of Clyde Godfrey's shareware program, Paint.256, you can use the tablet with super-hi-res software as well.

If you own an Apple IIGS look at the IS/GS from Kurta Corporation. This graphics tablet connects to the GS through the ADB (Apple desktop bus) port, just as the mouse and keyboard do. With the Kurta software you should be able switch the tablet between absolute and relative mode, but there's a glitch in the current system software. Once you invoke the desk accessory, the tablet locks into absolute mode and you can't switch back. Though annoying, it's only a minor inconvenience; because the mouse remains connected and active, you can use it whenever needed. According to Kurta, the newest software version, expected in June, will have fixed this bug.

If your problem isn't just using the mouse, but learning to draw with your Apple, try tracing your art onto the computer. Many artists find they have better control, and thus greater accuracy, drawing on paper first, then transferring their illustration to the computer.

You have several tracing techniques to choose from, but digitizing is the easiest. Both hardcopy-based digitizers such as **Thunder-Scan** and video digitizers such as **Color ComputerEyes** transform existing artwork from paper to digital computer images. (See

The Secret of Apple Works Success...

Success with

AppleWorks III

- ► Plan Your Retirement
- ► Organize Credit Cards
 - ► Publish a Handbook
 - ► Prepare Your Taxes
 - ► Track Travel Expenses
 - ► Calculate Car Costs
 - ► Produce Labels
 - ► Format a Document
 - ► Calculate a Loan
 - ► Total Living Expenses

Introducing the Third in a Popular Series. Success with AppleWorks' ten time-saving templates will boost your productivity with the AppleWorks word processor, database manager, and spreadsheet. Ruth Witkin, inCider's AppleWorks in Action columnist, has created these templates exclusively for Success with AppleWorks III.

"I use Success with AppleWorks Volumes I and II to teach my students AppleWorks. I also use it at home."

Ronald Jacobs, Laurel, MD.

"With AppleWorks and inCider's Success with AppleWorks, I don't need any other software."

J. Miller, Fullerton, CA

"These templates have helped me manage my home finances, while teaching me how to use Apple-Works more effectively."

Nancy Ward, Friedens, PA.

YES! I want to order Success With AppleWorks. Please send me the following for only \$29.97 each or buy two for \$49.94 and save \$10.00. Buy all three for \$59.91 and save \$30.00!

T	Volume II	
	VOILING II	

☐ Volume III

□Check enclosed □ MasterCard □ Visa □ American Expres
Card # Exp
Name
Address
City ST Zip
Price includes postage and handling. Foreign Air Mail
please add \$3.95 per order.

Mail to: Success With AppleWorks

IDG/Peterborough

80 Elm St. Peterborough NH 03458

ORDER TODAY!

Complete and mail the coupon or attached order card or CALL TOLL FREE.

1-800-343-0728

Success with AppleWorks Volume I templates let you prepare a price quote...personalize a form letter...build a mailing list...create a customer database...publish a newsletter...plan a budget...figure a loan amortization...analyze a balance sheet...prepare an annual expense summary.

Success with AppleWorks Volume II templates let you calculate car payments before you buy...make three-across mailing labels...create a cashflow spreadsheet...prepare a professional-looking cover letter...dress up your document with fancy formatting...figure personal income...determine breakeven points...decide whether to buy or rent a home...make a credit-card registry...track your net worth.



"Reel-World Images," July 1989, p. 40.)

The second easiest solution is using a graphics tablet. Just put the art on the tablet and trace over the lines with the stylus. Because of the screen's aspect ratio, circles may look like ovals, but once you have the basic image in the computer, you can correct this.

Both digitizers and graphics tablets, however, are expensive. A less costly approach is to transform your mouse into a tracing tool by performing some minor surgery. Carefully draw cross hairs on a small piece of stiff acetate (you might want to scratch them out with a sharp knife or razor blade) and tape it to the bottom of your mouse. If you're right-handed, the acetate should stick out from the left side of the mouse; if you're left-handed, the right side. (See **Figure 1**.) Place the artwork you're tracing under the mouse, and move the device so the crosshairs follow the lines.

This method's a bit tricky, because the acetate will slip as you move the mouse. Previously, you could purchase lucite blocks with cross-hairs that snapped onto the bottom of the mouse. These were intended to transform the device specifically into a tracing tool. As

far as we know, they're no longer available, but you can keep your eyes open for one. Just be sure it will fit your particular mouse.

Acetate transparencies are also handy for tracing artwork. First, reduce or enlarge your drawing to fit the transparency. Then, if you have your own copier, use 3M transparency film made especially for copy machines to reproduce your illustration. (Don't use ordinary transparency film, as the copier's heat can melt it; bye-bye copier!) Otherwise, most copy shops can reproduce images onto overhead-transparency acetate for you. Tape the transparency to your monitor and, moving the mouse gingerly, follow the lines on the acetate.

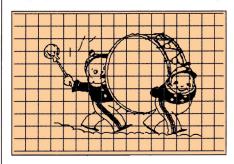


Figure 2. Using grid to copy artwork.

Creating a grid is a tried-and-true traditional technique that works splendidly on computers. Draw a grid of lines one-half to one inch apart either on the artwork you're copying or on a piece of tracing paper laid over the artwork. The grid divides your artwork into tiny pieces. Use your drawing program's line tool to divide the screen into the same grid. If you're working in standard-hires, draw your grid using white on black or black on white. If you're using super-hi-res, select a palette color you'll use for the grid only, and choose other colors for drawing. Now copy your artwork, box by box, onto the screen. (See **Figure 2.**)

Be sure to erase the grid lines if you're working in hi-res or double-hi-res. In super-hi-res, simply change the grid color to the same hue as your background when you've completed the drawing. Like magic, the grid disappears.

This technique also lets you scale drawings easily to fit the computer screen. If you divide the original artwork into one-inch areas on the grid, for example, and divide the screen grid into half-inch areas, your Apple will scale your artwork by half automatically.

After a while, you'll probably want to have model grids available whenever you start a



If you're like most IIGS users, you've probably realized that a one megabyte memory card just isn't enough anymore. Not only are applications getting larger, it seems every new release of GS/OS takes a bit more memory. Now add a few desk accessories that are really useful, and you're asking for "Out of Memory" errors (or worse, unexplained system crashes).

Applied Ingenuity has the answer. The GS Juice Plus is a one to four megabyte memory expansion card that is expandable, compatible, and affordable. At \$299 with 1 Meg installed (\$549 with 2 Meg), the Juice Plus is the logical choice. And of course, its fully DMA compatible in all banks, using standard 1MB X 1 DRAMs.

To order your Juice Plus, simply call our toll-free number above (sorry, double-clicking won't work) or call:

Applied Ingenuity, Inc.

800-346-0811 or 818-960-1485 14922M Ramona Blvd, Baldwin Park, CA 91706 Prices subject to change without notice

new illustration. One option is to create a series of grid templates you can load into the computer. A better solution, though, is to use the copier method described above to create grids on sheets of transparent acetate. This procedure eliminates having to remove grid lines when your drawing's finshed. Tape one acetate grid to your artwork, tape another to the monitor screen, and you're ready to go.

Don't stop with boxed grids. Having trouble with three-dimensional techniques and perspective? Commercial perspective grids sold in most art stores can help fix the problem. Copy these sheets onto acetate, tape it to the screen, and—well, you've got the idea by now.

PRODUCT INFORMATION

Color ComputerEyes, \$249.95 ComputerEyes/2,\$129.95

Digital Vision 66 Eastern Avenue Dedham, MA 02026 (617) 329-5400

Kurta IS/GS

Kurta Corporation 3007 East Chambers Phoenix, AZ 85040 (602) 276-5533 (800) 445-8782 \$395

ThunderScan

Thunderscan Thunderware 21 Orinda Way Orinda, CA 04563 (415) 254-6581 \$219

That solves the ICDWTM syndrome. Some of you, though, may be suffering more from ICDAA (I can't draw at all). It's not too late to discover and refine your talents. Read on!

You've no formal art training—perhaps you even used to color outside the lines-yet your Apple has inspired you to create. Follow the urge. Your local library as well as most artsupply stores have many "how-to-draw" books. Follow some of the lessons with pencil and paper, and practice others with your computer. Your II is a natural for many of these exercises. One instruction that crops up early, for example, is breaking a scene, such as a still life, into geometrics: circles, squares, and so on. Because the programs' drawing tools sketch circles more precisely than you could by hand, you can concentrate solely on finding the circles in the scene. "I can't draw a straight line" is no longer an excuse.

None of these tools or techniques will turn

you into a Rembrandt, but they'll enable you to transfer images from paper into the computer easily. For practice, it's fine to work from others' art; many art students copy the works of the Old Masters repeatedly to best learn about composition, balance, rhythm, and so on. But remember, if you're copying another's artwork, it's for learning only—not for reproduction, publication, or commercial use. Most artwork is copyrighted and you may be liable for damages if you publish or distribute it without the copyright holder's permission.

With that word of caution, start following

the prescribed steps mentioned above to beat those I-can't-draw-with-the-mouse blues. Whether you're using hi-res, double-hi-res, or super-hi-res, you'll enjoy creating something that's worthy of any serious artist.□

ROBERTA SCHWARTZ AND MICHAEL CALLERY TEACH COMPUTER GRAPHICS AND DESKTOP PUBLISHING AT THE NEW SCHOOL FOR SOCIAL RESEARCH IN NEW YORK. WRITE TO THEM C/O INCIDER, 80 ELM STREET, PETERBOROUGH, NH 03458





READ 'N ROLL



DAVIDSON & ASSOCIATES, INC. 3135 Kashiwa Street, Torrance, CA 90505, (800) 556-6141

Reading-comprehension program; 128K Apple Ile, Ilc, Ilc Plus, Ilgs; \$49.95

Rating: ♦ ♦ ♦ ♦

earning to read is the most important skill taught in elementary school, yet most teachers are frustrated by the lack of materials that address this subject effec-

tively. Read 'N Roll is one program that'll help fill the void.

Davidson has collected 320 short passages from widely used reading textbooks illustrating the four main areas of comprehensionunderstanding the main idea, recalling facts, recalling sequence, and making inferences. Students select one of these areas from the main menu, pick the difficulty level, and begin reading a set number of paragraphs.

The questions following the stories test a student's command of the chosen skill. Regular report cards and recordkeeping capabilities help student and teacher chart progress and plan for future study. Healthy doses of animation, color, and fun ensure that kids will be reading and rolling for a long time.

GET ROLLING

Read 'N Roll comes in Davidson's familiar hard-cover binder with documentation and two double-sided disks. The program and Read 'N Roll game are on one disk; all reading selections are on the other. (You can trade in your 51/4-inch disks for 31/9-inch ones for \$7.50.

You can also purchase backup disks for the same price.)

After logging on, students can select either a skill activity or Read 'N Roll, a bowling game that helps develop vocabulary awareness. Additional pull-down menus-File, Activity, and Level—are located at the top of the screen. File holds student records, printer setup, and an editor function for writing your own questions and problems. The Activity menu lets the student decide if he or she wants to see a timer in the top right corner of the screen. Other options include sound and a review function, which returns you to a story for a second look after seeing the questions.

The Level menu lets the student plug into stories written at his or her grade level. Using the Fry Readability Scale, the program's authors have designed the level 1 stories to correspond to grade 3 material; level 2 to grade 4; level 3 to grade 5; and level 4 to grade 6.

READING FOR MEANING

The program presents the four comprehension skills in a paragraph for the kids to read;

PRINTER CARD \$39.95

16K RAM Card (Language Card) for Apple II and II+ expand

JE860.....\$39.95 \$34.95

Extended 80-Column Card for Apple IIe. Doubles the display

JE864.....\$39.95 Disk Drive Controller Card for Apple II.II+ and IIe. Capable of

JE875.....\$49.95 \$34.95

Parallel Printer Card for Apple II. II+ and IIe. Compatible with

JE880.....\$49.95 \$39.95

12" Monochrome Green Monitor for Apple II. II+. IIe & IIc and

AMON.....\$99.95

No-Slot Clock for Apple Ile. IIc and IIGS. Plugs directly into your

IB137.....\$39.95

ory cupacity of your Apple Ile.

drives (including ADD12, right)

10 year battery

JE1027 Disk Drive (for II, II+ and I/e).....

5.25"

for Apple II,

II+, Ile and Ilc

Half Height

Disk Drives

Apple Compatible Cards and **Products**







Features: • Cursor control numeric keypad Predefined function

Predefined function
keys (Applesoft)
68 keys with 15-key
keypad • Direct connection to motherboard with 16-pin DIP jumper • Pop-up lid for easy a to motherboard with 16-pin DIP jumper supply • Pits original Apple IIIII mother and power supply • Color. Beige with brown grey keys

**ESO 95 \$45

II/II+ KEYBOARD \$39.95

AEKB.....\$59.95 \$49.95

Apple II, II+ and IIe Replacement Keyboards



Keyboard features: • Apple II/II+ and IIe compatible replacements available • Includes Cursor Control (AKB2E only) • Keyboards feature all the same keys as the original II/II+ and IIe · Software Compatible

AKB Apple II/II+ Replacement Keyboard \$39.95 AKB2E Apple Ile Replacement Keyboard...\$44.95

Apple Cable Assemblies

APC2	Apple to Imgwtr. or GS/Mac to Modem Cable. \$4	.95
APC3	Apple IIGS/Mac to Imgwtr. or LsrWrtr. Cable \$4	1.95
APC4	Apple IIGS/Mac Adapter Cable\$7	.95
MAC1	Apple II/II+/IIe/IIGS to ImageWriter Cable \$5	.95
RCA10RCA	Composite Monitor/Audio RCA Cable\$1	.95

ZIP CHIP \$159.95

Apple ZIP CHIP Increase the Speed of Your Apple up to 400% Apple II. II+, I/e and I/c compatible • Replaces the microprocessor • Gives you the equivalent speed of an IBM AT • Addresses all Apple memory. Addresses all Apple memory • Runs
Apple compatible software • Manual included • Lifetime Warrant ZIP ZIP CHIP for Apple II, II+, Ile & Ikc......\$159.95

2400/1200/300 Baud External Modems for Apple II, II+,

Ile. Ilc and IIGS Hayes command compatible • Bell 103/2/2A compatible • Auto-dral/auto-answer • Auto sense set-up • FCC approved • 1-yr, warranty • Software not included • Serial card needed for operation excluding IIGS (See AP140, below)

\$99.95 .\$69.95

Zoom 300 Baud Modems



 Hayes compatible • ZOOM communications software in cluded . Two-year Warranty NM300 Manual Dial/Manual Answer Modem.

\$19.95 ZM300 Auto dial/Auto Answer Modem......\$49.95 NMS Software Enhancement.... \$19.95

• For Apple II, II+ and /le • Line surge suppression • Snaps on the side

APF.....\$29.95

Switching Power Supply For Apple II, II+ and IIe • 110V 220V +5 @ 5A. +12 @ 2.5A. -5 @ .5A. -12 @ .5A KHP4007......\$44.95



1355 SHOREWAY ROAD BELMONT, CALIFORNIA 94002 24 HR. ORDER HOTLINE (415) 592-8097 Telex #176043 FAX (415) 592-2503 CUSTOMER SERVICE 7ÁM-5PM PST (415) 592-8121

Direct drive • 160K storage • 40 tracks • Super quiet • Works ple Controllers or other Apple compatible controllers (JE8 above) • Complete with connector - just plug into your controller.

JE1028 Disk Drive - no controller needed (for Ilc)...... \$79.95







\$20.00 Minimum Order - U.S. Funds Only CA Residents Add 6%, 6.5% or 7% Sales Tax Shipping - Add 5% plus \$1.50 Insurance (May vary according to weight) Send \$2.00 postage for your FREE 48-Page Flyer Prices Subject to Change 1989 Jameco Electronics APPLE, APPLE II, II+, IIe, IIc, IIGS and Macintosh are registered trademarks of APPLE Computer, Inc. 8/8

when they're ready, they can answer a question. In all cases, the correct answer will be among four possibilities. Multiple choice can be a useful evaluation method in reading comprehension, but the questions must be carefully designed, or the required thinking will be superficial.

Most of the time, Read 'N Roll offers carefully constructed questions. Occasionally, though, some of the questions seem a bit off the mark. For instance, a paragraph from Main Idea—defined in the documentation as "what the passage is all about"—reads as follows:

"If you tried to ride a bicycle in deep snow, the wheels would sink. It is not easy to walk in deep snow either. So some special ways of moving across the snow have been invented. Sleds and snowmobiles have long runners which slide on top of the snow. Skis or snow-shoes can be worn on the feet.

"The story is mainly about...
A) skis

- B) snowmobiles
- C) deep snow
- D) ways of moving across the snow."

This paragraph's central theme would be apparent to most third-graders. They could easily distinguish the details in A through C from the generalization in D. Also, the program has already formulated the answer and offered it as one of the choices, so a student wouldn't have to construct a main idea on his or her own.

These problems would be offset somewhat if the multiple choices were closer in concept—for example, if C said "methods of transportation." Subtle differences among choices would demand greater evaluation by the student. Granted, the example I used is from a level 1 reading question, but I still think it could evoke deeper thinking.

IN THE RIGHT ORDER

On the positive side, the Sequence questions are well constructed. The usual method is to ask what happened first or what happened

after an event, and to offer closely related, feasible alternatives as choices. As a result, readers are forced to review the whole story mentally and to analyze it in temporal order. Thus, the Sequence questions put excellent demands on upper-level thinking skills.

Questions evaluating fact recollection achieve their purpose fairly well, but my criticism mentioned above applies here, too. In some fact questions, the answer choices have no connection to the paragraph's content. For example, in Facts, level 1 story 1, an entry tells us about a boy named Junior who returns to a movie theater 77 times to see *Rocky*. After 50 times, the manager lets him in free. The story tells us that the manager doesn't lose any money, because Junior gobbles up a lot of popcorn and soda.

The Facts question asks why the manager let Junior in free. One of the alternatives suggests that Junior is the manager's nephew—true or false. This idea doesn't appear anywhere in the story, so a student who's paying only superficial attention can eliminate this as a possible answer. To make the task more

NOW HEAR THIS! DIVERSI-TUNE IS THE BEST!

DIVERSI-TUNE was chosen as the best Apple Itgs music program by Applelink subscribers! Why? Great Sound! Family sing-a-long fun! And full-power MIDI capability!

- "Outstanding!!! Everyone in the store cannot believe how great the sound is. I think if I turned the volume control up it would break out my windows!"—John Licari, Rock Valley Computers, Rockford, IL.
- "DIVERSI-TUNE's sound quality is unmatched... The music is crisp, clear and, most noticeably, avoids the typical static heard on more expensive programs" Apple 11gs Buyer's Quide
- "DIVERSI-TUNE makes your GS sound like a compact-disc player ... Teachers will like the keyboard diagrams showing proper finger placement/ Because of DIVERSI-TUNE, inCider's alive with the sound of Apple music. We hear that real musicians love it, too." inCider Editors' Choice/Top Ten Star.
- "The screen displays the words to the song and a bouncing ball! I found that it was just like magic, seeing (and hearing) the family all together around the Apple, singing like meadowlarks. This is fun gang." — Washington Apple PI Journal.
- "I am thrilled with this program! You have carried me back to my childhood days when we used to go over to a neighbor's house and spend the afternoon playing the piano and singing arong. I couldn't believe my ears when I heard what was coming from my Ilgs!" Dorothy F. Bell, Lynchburg, VA.
- "DIVERSI-TUNE is a remarkable product, one that brings together playback audio quality for musical couch potatoes, turns the Ilgs into a good-quality instrument for hands-on musicians, and provides a flexible and powerful MIDI recorder. It's truly an all-in-one music studio." A+ Magazine.

DIVERSI-TUNE... Program Disk...\$75.00

Once you have DIVERSI-TUNE, you can add to your fun by ordering a whole variety of pre-recorded song disks:

#101 Nathen Page Live Jazz Plano.	\$29.95
#102 Gay Nineties	\$19.95
#103 American Felk/Patriotic	\$19.95
#104 Christmas Songs	\$19.95
#105 Jewish Songs	
#186 Gospel Songs	
#107 Nathen Page Studio Jazz	\$29.95
#106 Classical Organ Favorites	
#100 Classical Harpsichord Duets.	
#118 Bill Basham - Rock Improv	

ORDER TOLL FREE

800-835-2246 ext. 127 (orders only) 313-553-7822 (dealers and foreign orders) 313-553-9460 (technical questions)

Price includes 1 st class postage to US/Canada. Foreign orders add \$5 airmail fee. Return for full refund within 30 days if not satisfied. Visa/MC (with exp. date), checks, P.O.'s accepted.

DEALER INQUIRIES INVITED

Diversified Software Research, Inc. 34880 Bunker Hill Farmington Hills MI 48331-3236 CST

ALLTECH ELECTRONICS, Co., INC.

1300 E. EDINGER, STE D, SANTA ANA, CA 92705 208 W. LOMITA BLVD., SUITE #1, LOMITA, CA 90717

TEL: (714) 543-5011 FAX (714) 543-0553

Full Height Drives for Apple II, II+, IIe\$65.00 IIc\$75.00	Apple II, IIe, Power Supply Refurbished\$35.00 w/Exchange\$29.00	
MANUALS FOR APPLE Apple Works w/Diskette	BOARDS FOR APPLE IIGS 1MB Ram Board OK	
CABLES FOR APPLE	Graphic Card w/2K BFR\$45.00	
Laser 128 Parallel Cable	COMREX DELUXE JOYSITCK For Apple II, II+, IIe	
Centronics M/M, M/F, F/F	41256-15 or 12 Ram Chip (each)\$Call 4164-15 Ram Chip (each)\$1.50 4164-20 Ram Chip (each)\$.99 Apple Hc Carrying Case	
	Quantity Limited\$29.00	

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.

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+, & //e or & //c

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 echnical Products, Inc

Upgrades - return diskette and \$20.00

Technical Products, Inc.
176 Fort Pond Road ♦ Shirley, MA. 01464

Circle 271 on Reader Service Card.

WE STILL SUPPORT APPLE II+ SCHOOL P.O.'S WELCOME

\$35

APPLE II+ APPLEWORKS!

Also works for Ace 1000

Plusworks 2 will configure your A.W. startup/program diskette to run on your Apple II+ or Ace. Not a preboot, a one-time configure package. (Requires 80 column bd, minimum 64K, & shift key mod)

SUPER PRICES ON PERIPHERALS!

16K RAM Board expands II+ to	
64K Dos/ProDos compatible	\$34
128K RAM BD expands II+ to	
192K. Combine with Plusworks 2	
for an Appleworks desktop to	
136K. Will double as 16K RAM bd	
in slot 0.	\$64
DOS/Prodos RAM disk emulator	
for above 128K RAM board.	\$24
80 Column BD expands II+ display	
to 80 columns. (Videx Compatible)	\$48
40/80 Column Hardswitch for above	\$7
40/80 Column Softswitch for above	\$15
Shift Key Modification	\$7
Lower Case Adapter (Rev 7 & up)	\$12
Appleworks 1.2 package Closeout	\$59
Appleworks 1.3 package Closeout	\$79
(above not Claris upgradable)	
Disk Drive H/H w/speed adjust.	\$119
Disk Controller Board	\$34
SuperFan II with surge/spike pro-	
tect, kensington style.	\$27
5 Amp Power Supply a drop in	
replacement for II+ supply with	

APPLE COMPATIBLE PERIPHERALS!

Low Factory Direct Prices!

Super Serial Board 100% replace	
for Apple Super Serial Card. For	
all modems & all serial printers.	\$48
SSB to imagewriter Cable 10 ft.	\$12
SSB to imagewriter II Cbl. 10 ft.	\$12
SSB to Modem Cable 10 ft.	\$12
Graphic Parallel BD w/6 ft. cable.	
Text & graphic screen print. Ver-	
satile graphics including normal &	
inverse, enhanced, 90 degree	
rotate & double size print.	\$44
Parallel Printer BD w/cable. Used	
where graphics are not required.	
Text screen print capability.	\$35
Z80 CP/M BD Opens the CP/M	
world for the II+. Microsoft and	
Turbo Pascal compatible.	\$34
TV Modulator. Connect your II+ to	
any color TV.	\$15
Joystick 101	\$17
Joystick III Similar to the Hayes	
Mach III w/LG fire button on stick	\$24
ZIPCHIP by Zip Tech. Speeds the	
operation of your II+ FOUR times	
faster. Free Diagnostics.	\$149
GamePort Extender	\$ 5
4 Port GamePort Extender	\$15
Disk Notcher	\$5
Mini Vacuum Cleaner w/access.	\$15
A/B Switchbox Serial or Parallel	\$29
A/B/C/D Switchbox Ser or Par	\$39

WE ALSO CARRY PERIPHERALS FOR APPLE IIe-IIc-IIgs See our ad this issue.

TWO YEAR WARRANTY ON ALL PRODUCTS CALL OR WRITE FOR OUR COLOR CATALOG ADD S3 SHIP/C.O.D. OKAY/VISA/MC NO EXTRA FEE



double the amperage power

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.

REVIEWS

challenging, why not suggest alternatives that relate to the content and, therefore, require critical evaluation? Instead of the nephew alternative, the program could suggest that the manager let Junior in free because he bought a lot of food at the snack bar.

A similar weakness appears occassionally in Inference questions. Here Read 'N Roll presents one logical conclusion and three other choices that are details or statements unconnected to any information in the paragraph. A better test of deduction would involve choosing among four closely related logical conclusions. On the whole, though, I feel that the Inference questions make good demands on elementary students' thinking skills, and all four activities do a great deal to increase reading for meaning.

READ 'N ROLL

The Read 'N Roll game is a realistic bowling simulation that lures kids into vocabulary practice. Before being allowed to shoot, the student must correctly answer one multiple-choice question about a word taken from the skill area he or she has selected (main ideas, facts, sequence, or inference). At the bottom of the screen, a ten-frame score card keeps track of the pins knocked down. After playing all ten frames, the program informs the player of his or her final bowling and vocabulary score.

By reinforcing the program's content, the bowling game demonstrates good instructional design. It could easily become the student's favorite program activity. I enjoyed it immensely.

As a teacher, however, my appreciation for the game is enhanced by the activity-composition function it shares with the other modules. Teachers will find several uses for it, such as entering vocabulary from any reading activity or loading spelling lists into the game.

Read 'N Roll is a lively, colorful program that will effectively improve the reading skills of children in grades 3–9. The wide range of readability, interesting selections, and the activity-composition function make it a useful tool for elementary teachers and junior-high special-education teachers. Kids will enjoy the graphics and game elements of Read 'N Roll, as they improve their reading comprehension and vocabulary skills. □

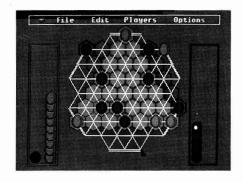
Jack Emberly Maple Ridge, BC Canada



LAFE LOW PLAYS...

TrianGO GS, California Dreams, 780 Montague Expressway #403, San Jose, CA 95131, (408) 435-1445, \$39.95

HUS FAR, GAMES FROM CALIfornia Dreams have shown an interesting slant. The company has taken what are basically board games—some traditional and some unusual or new—and transformed them into graphically superb computer games. We've seen Club Backgam-



mon, Vegas Gambler, Mancala (an ancient African game of cups and stones), and now TrianGO.

TrianGO is like Chinese checkers in the 23rd century—with a "galactic" background and excellent graphics for the game board and

playing pieces. You move your pieces to the board, trying to capture your opponent's within a triangle. You can play against the computer (at the novice, intermediate, expert, master, or grandmaster level) or as many as three other players. While you're still learning TrianGO, you can play against the computer at the novice level and choose to see hints, which show you your best next move.

TrianGO is fun against the computer, at whatever level you dare to play at, but it's even better if you can find a friend to play with. The unpredictable human element always makes games like this more fun.

...and plays...

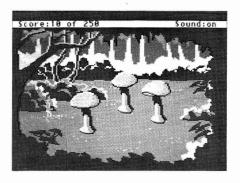
Space Quest II GS, Sierra On-Line, Coarsegold, CA 93614, (209) 683-6858, \$49.95

ARGH, INSURANCE SALESMEN from outer space! That's what the intergalactic slimeball Sludge Vohaul has planned for you in Space Quest II (to avenge your ruination of his plans for destruction in Space Quest I). He's going to launch a massive invasion of genetically mutated insurancemen who won't take no for an answer if you, Roger Wilco—janitor of the universe and all-around hero—don't stop him again.

Early on in Space Quest II, however, you're

lured into an interplanetary shuttle and overpowered. You awake at the feet of the vile villain Vohaul, who fiendishly outlines his plans, then has you whisked away to labor in his mines on the planet Labion (which resembles the forest moon Endor in the movie *Return* of the Jedi).

Assuming you don't get chowed down by giant purple mushrooms or snagged by a huge, glowing-blue, octopus-like creature right away, you've got your work cut out for you if you're going to save the world from obnoxious salesmen.



Exploring the weird and wild world of Space Quest II is, well, weird and wild. It's also a lot of fun to play. I can't think of any greater motivation for saving the world than to thwart an invasion of insurancemen who refuse to take no for an answer.

SHORT TAKES

UNINVITED GS

Mindscape, 3444 Dundee Road, Northbrook, IL 60062. (312) 480-7667. \$49.95

An eerie exploration of an "uninviting" Victorian mansion. Be careful as you wander the hallways, or you won't get any further than we did before meeting an untimely demise. (See Games Editors Play, July 1989, p. 84.)

Rating: ♦ ♦ ♦

THE GAMES: SUMMER EDITION Epyx, 600 Galveston Drive, P.O. Box 8020, Redwood City, CA 94063, (415) 366-0606, \$49.95

Diving, rings, hammer throw, pole vault, archery, uneven parallel bars, bicycling, and hurdles. For originality, Epyx will go home with the gold. As for the individual games themselves, they'll take a few silvers. (See Games Editors Play, July 1989, p. 85.)

Rating: ♦ ♦ ♦

WAR IN MIDDLE EARTH Melbourne House, 711 West 17th Street, Costa

Mesa, CA 92627, (714) 631-1001, \$49.99

The familiar characters of J.R.R. Tolkien's *Lord of the Rings* trilogy are brought to life on a beautifully detailed man of Middle Earth. It's just as interest.

the Rings trilogy are brought to life on a beautifully detailed map of Middle Earth. It's just as interesting to scout about as it is to carry out your quest. (See Games Editors Play, July 1989, p. 85.)

Rating: ♦ ♦ ♦



If drill-and-practice software is the only kind of computing environment students encounter, their creativity will atrophy and we will have produced a nation of automatons.

AKING CHANCES

By DAVID THORNBURG

DR. KATHLEEN FORSYTHE, A COLLEAGUE of mine from British Columbia, defines *learning* as the *perception of newness*. The idea is that whenever we learn something new we perceive it as a discovery.

As with discoveries in other domains—such as artistic creativity—learning is risky. We're exposed to new paradigms—to new ways of thinking, which may conflict with our habitual view of the subject at hand and thereby cause anxiety. This anxiety may in turn make further learning difficult as we feel our pulses quicken and our hands perspire.

As we explore ways that computer technology can enhance education, it's clear that some "educational" software supports the student's perception of newness and some doesn't.

Over the years I've devoted my energies to openended software that lets students explore a subject freely—and that stand has put me at loggerheads with those who say computers should be used for drill-and-practice. Is there common ground?

HOW DO WE LEARN?

According to Chuck House, an educational philosopher who's also a vice president of Hewlett-Packard, learning takes place in four stages:

- 1) We don't know that we don't know.
- 2) We know that we don't know.
- 3) We know that we know.
- 4) We don't know that we know.

To illustrate this model, most 5-year-old children don't know (aren't aware) that they don't know integral calculus. By the time they get to high school, some of them may move to the second stage—they'll know that they don't know calculus.

A few of these students will then progress to the third stage—typically by taking a course in the subject—and they'll then know that they know calculus.

Finally, after working with this branch of mathematics a long time, some will become so proficient at it, it will be so much a part of the way they think, that their knowledge will be automatic—they won't "know" that they know the subject.

TOOLS FOR LEARNING

Much of the conflict between those who endorse computers as drill tools and those who prefer more open-ended applications is just a difference of opinion: Should we use computers to move students from stage 3 to stage 4 (the domain of practice), or from stage 2 to stage 3?

All learning takes place as we move between stages, and there's no question that computers can be effective tools in the two learning stages described above.

Still, if we look at the ways computers are used in many classrooms, much time is being devoted to drill at the expense of discovery learning.

THE TIMES THEY ARE A'CHANGIN'

It's easy to speculate why that's the case. First, in contrast to open-ended applications such as LCSI's **LogoWriter** (1000 Roche Blvd., Vaudreuil, Quebec, Canada J7V 6B3, 800-321-LOGO, \$99), drill activities require very little teacher support. You place the child in front of the computer with a program, then leave him or her alone to complete the practice in isolation from the rest of the class.

Some computer labs I've seen look like a page from Orwell's *Nineteen Eighty-Four*, as 30 or more students sit silently in front of machines that move them step by step through activities in which the computer programs the learner. The faces of these students are generally devoid of expression—much like the zombie stare they acquire in front of a television set.

QUESTIONABLE BENEFITS

The result is a student who knows that Springfield is the capital of Illinois, for example, but who has no idea why the capital is located there or, worse yet, has no inclination to even ask the question.

To the creators of such programs, the student's mind is a vessel to be filled. Still, because many standardized tests look for exactly the kind of informa-

SOFTWARE DISCOUNTERS OF AMERICA

S.D. of A

USA/Canada Orders-1-800-225-7638 PA Orders-1-800-223-7784 **Customer Service 412-361-5291**

- Free shipping on orders over \$100 in continental USA
- No Surcharge for VISA/MasterCard
- Your Card is not charged until we ship

ORDER LINE HOURS: Mon.-Thurs. 9:00 AM-9:00 PM Fri. 9:00 AM-7:00 PM Sat. 10:00 AM-4:00 PM Eastern Time.

SDA Brings you **New Low Prices** on **EPYX**: Software

Sub Battle Simulator 64K or GS Summer Games 64K Winter Games 64K or GS World Games 128K or GS

NOW ONLY \$9.88 Each!

ACCOLADE	Strip Poker
Bubble Ghost GS \$25	S.P. Data Male
4th & Inches Football GS\$29	S.P. Data Female
4th & Inches	Strip Poker 2 G
Team Const. GS \$9.88	S.P. 2 Data Fema
Hardball \$9.88	BERKELEY
Hardball GS\$25	Geos 128K
Mean 18 Golf GS \$25	Geocalc
Famous Course Disks #2	Geopublish
for Mean 18 GS\$14	BOX OFFICE
Famous Course Disks #3 &	Alf's First Adv.
#4 for Mean 18 GS . \$23	High Rollers
Mini Putt GS \$25	\$100,000 Pyran
Serve & Volley GS\$25	BRODERBUND
Test Drive 128K \$23	Ancient Art of V
T. Drive 2: The Duel GS\$29	at Sea 128K .
T.D. 2 Calif. Scenery GS\$14	Bank St. Writer +
T.D. 2 Super Cars GS . \$14	Carmen San Die
ACTIVISION	Europe 128K
Battle Chess GS\$32	USA
Black Jack Academy GS\$25	World
Last Ninja 128K \$23	World GS
Last Ninja GS\$25	Dazzle Draw 12
Maniac Mansion 128K \$23	Fantavision GS
Might & Magic 1 or 2 \$32	Geometry GS .
Music Studio 2.0 GS\$65	Print Shop (Enh.
Neuromancer 128K \$29	Print Shop Com
Neuromancer GS\$32	Print Shop GS.
Paintworks Gold GS \$65	P.S. Graphics Li
Paint/Write/Draw GS . \$79	#1, 2, 3
Rampage 128K \$23	P.S. Graphics Li
Shanghai \$9.88	Party Edition
Teleworks Plus GS\$65	Sampler Edition
AMERICAN EDUCATIONAL	VCR Companion
Return of the Dinosaurs\$24	Wings of Fury 1
ARTWORX	CENTRAL POIN
Bridge 5.0 \$19	Copy 2
Kaleidokubes GS \$19	

dominoes the fast

paced, strategy pro-

voking fun of color

Kaleidokubes GS

SDA Discount Price \$19

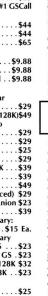
Kaleidokubes is

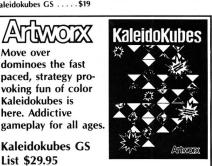
here. Addictive

List \$29.95

Move over

ээ.оо Еасп:
Strip Poker \$19
S.P. Data Male #2\$14
S.P. Data Female #1 or 3\$14
Strip Poker 2 GS\$25
S.P. 2 Data Female #1 GSCall
BERKELEY
Geos 128K\$44
Geocalc \$44
Geopublish \$65
BOX OFFICE
Alf's First Adv \$9.88
High Rollers \$9.88
\$100,000 Pyramid \$9.88
BRODERBUND
Ancient Art of War
at Sea 128K \$29
Bank St. Writer + (128K)\$49
Carmen San Diego
Europe 128K\$29
USA \$29
World\$25
World GS\$29
Dazzle Draw 128K \$39
Fantavision GS\$39
Geometry GS\$49
Print Shop (Enhanced) \$29
Print Shop Companion \$23
Print Shop GS \$39
P.S. Graphics Library:
#1, 2, 3\$15 Ea.
P.S. Graphics Library Party Edition GS\$23
Sampler Edition GS \$23
VCR Companion 128K \$32
Wings of Fury 128K \$22
Wings of Fury 128K \$23 CENTRAL POINT
Copy 2\$25
CODY 4





FTL
Dungeon Master GS \$25
GAMESTAR
Champ, Baseball\$9.88
Champ. Basketball GS \$29
Champ. Basketball \$9.88
Champ. Football\$9.88
Star Rank Boxing 2 .\$9.88
*All II e/c titles require 128K!
GAMETEK
Hollywood Squares .\$9.88
Super Password \$9.88
*All titles req. 128K!
HI-TECH EXPRESSIONS
Big Bird's Spc. Delivery\$6.88
Desk Power \$9.88
Ernie's Magic Shapes \$6.88
Fun HouseCall
Muppet Adventure Call
Muppet Print Kit \$9.88
Print Power \$9.88
Remote Control \$8.88
Sesame St. Print Kit . \$9.88
Sesame St. Writing Kit Call
Win, Lose or Draw .\$8.88
INFOCOM
Battletech \$32
Beyond Zork 128K\$9.88
Hitchhikers Guide \$9.88
Leather Goddesses \$9.88
Shogun\$32
Zork Trilogy \$16
Zork Zero \$32

Ask your salesperson: "What's on Sale this Month?"

Legacy of Ancients .\$9.88 M. Beacon Typing GS .\$29 Madden Football\$32 Magic Candle \$32 Marble Madness 128K\$9.88	LEARNING COMPANY Math Rabbit\$24 Reader Rabbit GS\$39 Reader Rabbit\$24
Marble Madness GS \$14	Think Quick! \$32 Writer Rabbit \$32
Music Const. Set GS \$14 Reach for the Stars GS \$26	MASTERTRONIC
Skate or Die GS \$26	Risk \$26 Scrabble \$26
Strike Fleet \$23	Scruples \$26
Wasteland	MECA
Zany Golf GS\$26	Andrew Tobias: Managing Your Money \$95
EPYX	MELBOURNE HOUSE
Art & Film Director GS\$49 California Games GS .\$29	Elway's Quarterback \$19
California Games 128K\$24	War In Middle Earth GS\$32 MICROPROSE
Destroyer GS\$14	F-15 Strike Eagle \$23
Final Assault GS \$14 Home Video	Pirates 128K or GS\$25 Ea.
Producer 128K \$32	Silent Service\$25
Impossible Mission 2 . \$14	Silent Service GS\$25 MINDSCAPE
L.A. Crackdown 128K.\$19 Print Magic 128K \$32	Balance of Power 128K\$25
S.S. Baseball 128K\$14	Balance of Power 1990 GS\$32
S.S. Basketball 128K \$14	Captain Blood GS \$29 De Ja Vu 1 or 2 GS \$32
S.S. Football\$14 Street Sports Soccer GS\$14	Gauntlet 128K\$25
Sub Battle 64K or GS\$9.88 Ea.	Gauntlet 2 (128K) \$25
Summer Games 1 or 2 .\$9.88 Ea. The Games:	Gauntlet GS \$29 Hostage GS \$25
Summer Edition 128K\$32	Paperboy GS \$25
Winter Edition 128K \$32	Perfect Score SAT \$44 Super Star Ice Hockey 128K\$25
Technocop \$24 Winter Games 64K or GS\$9.88 Ea.	Super Star Ice Hockey GS\$29
World Games 128K . \$9.88	Uninvited GS \$29
World Games GS\$9.88	ORIGIN
World Karate Champ .\$14	Tangled Tales\$19

SIERRA

Japan's hottest new action game grabs you and never lets go. Fight your way thru 20 space battlefields against 30 types of alien spacecraft.



Silpheed GS List \$34.95

SDA Discount Price \$23

tima 4 or 5 \$39 Ea. tima Trilogy \$39 IARE DATA oncentration 1 or 2\$9.88 pardy Jr \$9.88 orts Jeopardy \$8.88 heel of Fortune 3 128K\$9.88 heel of Fortune 3 128K\$9.88 heel of Fortune 3 128K\$9.88 jee Out \$25 old Rush GS \$25 old Rush GS \$25 old Rush GS \$25 isure Suit Larry GS . \$23 culter Goose GS \$19 olfice Quest GS \$19 olfice Quest GS \$32 lice Quest 128K . \$32 ace Quest 128K . \$32 ace Quest 1 Or 2 GS\$32 Ea. R TECH eart of Maelstrom . \$32 iight of Diamonds . \$32 gacy of Llylgamyn . \$32 oving Ground \$32 turn of Werdna . \$39 RINGBOARD las Explorer \$32	First Over Germany . Call Overrun . \$32 Phantasie 3 . \$26 Pool of Radiance . \$29 Pyphoon of Steel . \$32 SUBLOGIC Flight Simulator 2 . \$32 Hawaii Scenery . Call Jet . \$26 TAITO . \$9.88 Arkanoid . \$9.88 Arkanoid GS . \$23 Bubble Bobble . \$19 Qix . Call Renegade . \$19 Renegade GS . \$23 THREE SIXTY Dark Castle GS . \$23 THREE SIXTY Dark Castle GS . \$24 TIMEWORKS Publish It Clip Art . Call Publish It 2 . \$84 UNICORN Aesop's Fables GS . \$29 All About America GS \$39 Kinderama GS . \$32 Magical Myths GS . \$29 Math Wizard GS . \$29 MYEKLY READER Stickybear Series: ABC'S . \$24 Math 1 or 2 . \$24
RINGBOARD	
M. Library Vol. 1\$19 ewsroom\$23 R. Clip Art 1, 2, 3\$14	Numbers \$24 Reading \$24 Spell Grabber \$32 Talking Alphabet GS \$32
blisher 128K \$84 <u>l</u> emon's Winter \$21	WORD PERFECT Word Perfect 128K or GS\$97

Demon's Winter \$21 TAITO

Po Po Sill Sp Sp Sp SII He Kn Leg Pro

They've got clubs, chains and blades. You've got karate kicks, punches and other moves to defeat groups of thugs in 5 forbidding inner city locales.

Renegade 128K List \$29.95 SDA Price \$19



Renegade GS List \$34.95 SDA Price \$23

P.O. BOX 111327—DEPT. INC—BLAWNOX, PA 15238

Times of Lore\$25

*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—19:10 Status of order or back order (2)if any merchandise purchased within 60 days from S.D.of A. is defective, please call for a return authorization number. We will not process a return without a return auth. #I Defective merchandise will be replaced with the same merchandise only. Other returns subject to a 20% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased & return directly to the manufacturer. Customer service will not accept collect calls or calls on S.D.of A.'s 800# order lines! Prices & availability are subject to change! New titles are arriving daily! Please call for more information.

Sizzling Summer Hits



APPLE IIGS 31/2" DISKS

□ GS6 FreeTerm Telecommunications: rated A+ Mag's All Stars (REO. 512K)
GS2,GS3,GS4 DAs: Picsaver, Notepad, Calendar, melting screen! (3 DISKS)
GS85 Control Panel NDA: Get to Control Panel from Apple menu, + 20 other DA's \$9
Games
GS15 Games: Blackjack, Othello, plus more. \$9 GS27 Bounce-Itt: Ilos adaptation of the Little BrickOut game (shareware). \$9 GS36,GS37 Play the treacherous fairways of 12 courses (rec. MEAN 18 [™]) * (2 DISKS). \$18 GS46 Six more addictive courses for computer golf junkies (REO. MEAN 18 [™]) * \$9 GS58 F1 Race: Formula one racing game (shareware). \$9 GS86 Wheel: Vanna's game is now on the IIGS!. \$9 GS89 Backgammon, Video Poker, and much more. \$9
Graphics/Graphic Utilities
GS5 Graphic utilities: convert pics from any computer to Ilcs format
Print Shop TM Graphics
GS30 Color Print Shop pics to use w/your Print Shop™, plus customize your startup screen
Utilities
□ GS1 Diversi-Cache/Copy/Key/Hack 1.6 (shareware) (REO. 512K) \$9 □ GS32 15 icons to change those on your desktop \$9 □ GS73 Fast disk copier, quick program launcher, FKeys, etc. \$9 □ GS87 Iconed: Design, edit, and color your own icons (shareware) \$9 □ ANY 10 DISKS FOR ONLY \$59.95

APPLE II 51/4" DISKS SPECIAL! Business Any 6 disks □ 037 Full-featured word processor (II+ requires paddles or joystick + lower case display chip) . . \$5 plus □ 056 Versatile check balancer, with documentation \$5 ☐ 404 Personal and home accounting **Apple Directory** 1 Yr. Membership (ligs disks may be included) □ 406 Address/phone Dbase w/RAM drive (SHAREWARE) . \$5 □ 840 Financial Wizard: loans, depreciation, investments, interest (SHAREWARE) . Only CAD/Communications ☐ **310,311,312** CAD & graphing pkg. (NEED YOUR OWN PRINTING PACKAGE) (3 DISKS ☐ 832 ATP-PRO: Term. emul. for IIc, IIe, or IIGS w/80-col.

card & Super Serial Card. (Reg. ProDOS) (s/ware) \$5	(plus \$4 s/n)
Education / Tutorials 000 Learn BASIC programming, assembler \$5 062 Games such as What's My Word make spelling an adventure \$5 064 Drills: typing, spelling, history, SAT \$5 066 Teacher's aid: grader, make tests 085 Elementary math drills: +,-,x,÷, 23 levels 194 Genealogy program: Trace your Family Tree 505 Grammar Quest II adventure game. "Great education 517 Spelling tutor with multiple levels	\$5 \$5 onal fun!" (lle & llc)\$5
518 History, vocabulary, math, astronomy (shareware)	
123 Missile Command, Star Trek, Life	
Passion 190,191 X-Rated graphics and games for adults only (2 to	
Utilities	
779,780 Drive cleaner, disk & memory tester, etc. (2 DISK	
* The following commercial programs are available from PE Paintworks Gold [™] and Copy II Plus [™] at low, low prices!	DE: Print Shop™, Mean 18™,
Add \$4 (\$10 Canada + Mexico, \$14 all other foreign count disk orders. CA orders add sales tax. Offer good for the	

TO ORDER: 800-331-8125 In CA 408-496-0624

Exp.

2074-C Walsh Ave., #772

Santa Clara, CA 95050

DEALER INQUIRIES INVITED

_____ by | | Check | | VISA | | MC

State

TEARNING

tion these programs help students learn, software manufacturers point proudly to the "benefits" of their packages in terms of higher test scores.

If that's the only kind of computing environment students encounter, their creativity and natural curiosity about the world will atrophy, and we will have produced a nation of automatons.

JUST THE FACTS?

Our national obsession with fact acquisition has generated some problems. In the area of language arts, for example, I've seen students who know the difference between adverbs and adjectives, but who are incapable of writing a coherent sentence.

Other students may know *how* to write, but have a horrible time creating a story—they seem bereft of ideas.

Although it's wrong to blame technology, there's little question that increased use of computers as drill machines can easily lead us even further down this path. Ideas, ideas everywhere, but nary a thought to think!

Fortunately, some states have seen the pendulum swing too far and are working to find a healthy equilibrium point.

California, for example, has revamped its math and English courses and is working on its other curricula as well. In language arts, for instance, students are moving from worksheets to literature, from multiple-choice questions to essays. They're learning that to write you must first have an idea to express.

How we ever lost sight of these fundamental concepts is beyond me, but I'm happy to see the direction in which the pendulum is now moving.

ACCEPTING THE CHALLENGE

If we're in fact changing our educational system in some basic ways, we need to explore how we can use technology best to help students become active, selfdirected learners.

Much of the current multimedia hoopla suggests that anyone with less than a Mac II at his or her fingertips belongs to the technological backwater. That's simply not true. The challenges facing educational computing have never been technological. They're challenges of the mind.

A NEW LEVER

Archimedes is reputed to have said, "Give me a lever and a place to put the fulcrum and I can move the world." Computers and their assorted attachments are phenomenal educational levers.

The insight and love of learning the teacher provides are the fulcrum. If the teacher has sufficient vision, any computer can support true educational discovery.

If vision is lacking, on the other hand, the computer is likely to become nothing more than a desk ornament.

TEACHER'S ROLE

The funny thing is that the hardest step in educational reform seems to be finding the part that costs nothing—vision.

You could place an Apple IIGS with Video Overlay Card, CD-ROM player, and laser discs on the desk of each child in the classroom, but without the vision of an inspired teacher, nothing of value would happen.

Plutarch said, "The mind is a fire to be kindled, not a vessel to be filled." Fires are kindled with ideas, not computers. Have you kindled any lately? □

DAVID THORNBURG IS INVOLVED IN THE CREATIVE USES OF COMPUTERS IN EDUCATION. WRITE TO HIM C/O INCIDER, 80 ELM STREET, PETERBOROUGH, NH 03458. ENCLOSE A STAMPED, SELF-ADDRESSED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

Card #

Name

City

Address

CDA Computer Sales

The Affordable Source for Apple® Hardware, Software & Accessories

Apple IIGS® 512K Color System

Complete system includes:

- Apple IIGS 256K with Mouse & Pad

- Apple RGB Analog Monitor
 Apple 3.5" & 5.25" Disk Drives
 Apple ImageWriter II 220 cps Printer
- ImageWriter II Cable
- Apple Memory Card with 256K
- Color Rainbow Ribbon
- 3.5" & 5.25" Diskettes Box of 10 ea. Set of Dust Covers for System
- Computer Faper Pkg. of 500

Suggested List Price \$3257

CDA Price \$2399 Save Over \$850

Package #8920

Apple IIc Plus Color System

- Complete system includes:
 Apple IIc Plus w/built in 3.5" Disk Drive
- Apple Color Composite Monitor
- Olympia ImageWriter Compatible Printer
- Printer Interface Cable
- 3.5" Diskettes Box of 10
- Computer Paper Pkg. of 500

Suggested List Price \$1599

CDA Price \$ 1095 Save Over \$500

Package #8921

Apple ImageWriter II® **Color Printer Package**

Package includes:

- ImageWriter II 220 cps Printer
- ImageWriter Black Ribbon
- ImageWriter Rainbow Color Ribbon
- Printer Dust Cover
- Package of Computer Paper

CDA Price for IIc/IIGS \$475 for IIe \$549

For the IIGs/IIcPlus - package # 8922 For the IIc - package # 8923 For the IIe - package # 8924 (The IIe pkg. includes printer interface

\$ 835 \$ 895 \$ 499 \$ 465 \$ 339 \$ 135 \$ 299 ves \$ 349 \$ 118 \$ 259 \$ Call \$ 659 \$ 786 \$ 839 \$ 259 \$ 786 \$ 839 \$ 279 \$ 279 \$ 289 \$ 289 \$ 289 \$ 289 \$ 289 \$ 289 \$ 289 \$ 289 289 289 289 289 289 289 289 289 289	Engineering Memory Car Complete with 5 year wo Applied GS-RAM ØK Applied GS-RAM 556K Applied GS-RAM 512K Applied GS-RAM 1 Meg	ds. stranty. \$ 89 \$ 169 \$ 279 \$ 498	ory card. Most memory take the 150ns chips, while revisions of the Applied Couse 120ns chips. 256K Chip Set 150ns 256K Chip Set 120ns	y cards e recent GS-RAM \$ 69 \$ 79	Bose Roommate Speaker System Passport MIDI Interface with Drum Sync Passport MIDI Interface w/Tape & Drum sync Power & Surge Protection Applied Heavy Duty Power Supply for IIe/II+ \$ 58 EPD EC-1 6 Outlet Surge Protector \$ 29 Kensington Sys. Saver IIe \$ 68 Kensington Sys. Saver III \$ 399 Input Devices & Joysticks Apple IIc Mouse \$ 79 Apple IIe Mouse w/Card \$ 119 CH Mach II Joystick \$ 29 CH Mach III Joystick \$ 36 CH Flight Stick \$ 48 Digitizers & Scanners ComputerEyes IIG \$ 208 ComputerEyes IIG or IIe ThunderScan \$ 179 Time & Accelerators TransWarp GS TransWarp GS TransWarp Accelerator SMT No Slot Clock \$ 36
	\$ 895 \$ 499 \$ 465 \$ 339 \$ 135 \$ 299 7es \$ 349 \$ 118 \$ 59 \$ 259 \$ Call \$ 579 \$ 659 \$ 786 \$ 839 \$ 219 \$ 2219 \$ 2219 \$ 289 ards \$ 109	\$ 835 \$ 895 \$ 499 Memory Upgrades We sell only pure Applied Engineering Memory Car \$ 330 Complete with 5 year wo \$ 312 Applied GS-RAM ØK Applied GS-RAM 256K Applied GS-RAM 1.5 Me \$ 349 Applied GS-RAM 1.5 Me \$ 349 GS-RAM Ultra 256K Applied GS-RAM 1.5 Me \$ 319 GS-RAM Ultra 256K \$ 118 GS-RAM Ultra 256K S 118 GS-RAM Ultra 2 Meg \$ 259 S 59 GS-RAM Plus 1 Meg GS-RAM Plus 2 Meg RamKeeper RamKeeper Slot Mover RamWorks III 256K RamWorks III 256K RamWorks III 1 Meg RamFactor 256K RamWorks III 1 Meg RamFactor 1 Meg RamFactor 1 Meg RamCharger Backup Ram Express 256K Ram Express 512K Ram Express 1 Meg Clock Option	\$ 835 \$ 499 Memory Upgrades We sell only pure Applied Engineering Memory Cards. Complete with 5 year warranty. \$ 312 Applied GS-RAM ØK \$ 89 \$ 135 Applied GS-RAM 256K \$ 169 Applied GS-RAM 512K \$ 279 Applied GS-RAM 1.5 Meg \$ 498 \$ 349 Applied GS-RAM 1.5 Meg \$ 709 \$ 319 GS-RAM Ultra 256K \$ 185 GS-RAM Ultra 256K \$ 185 GS-RAM Ultra 2 Meg \$ 815 \$ 59 GS-RAM Ultra 1 Meg \$ 498 \$ 59 GS-RAM Plus 1 Meg \$ 465 Call GS-RAM Plus 1 Meg \$ 465 Call GS-RAM Plus 1 Meg \$ 815 \$ 59 GS-RAM Wiltra 2 Meg \$ 815 \$ 59 GS-RAM Ultra 2 Meg \$ 815 \$ 59 GS-RAM Flus 2 Meg \$ 815 \$ 839 RamKeeper Slot Mover \$ 32 RamKeeper Slot Mover \$ 32 RamWorks III 256K \$ 189 RamFactor 1 Meg \$ 519 RamFactor 256K \$ 229 RamFactor 1 Meg \$ 559 RamFactor 1 Meg \$ 559 RamCharger Backup \$ 145 Ram Express 256K \$ 189 Ram Express 512K \$ 299 Ram Express 512K \$ 299 Ram Express 512K \$ 299 Ram Express 1 Meg \$ 539 \$ 109 Clock Option \$ 49	\$ 835 \$ 895 \$ 499 Memory Upgrades We sell only pure Applied Engineering Memory Cards. Complete with 5 year warranty. \$ 312 Applied GS-RAM ØK \$ 89 \$ 135 Applied GS-RAM 256K \$ 169 \$ 135 Applied GS-RAM 512K \$ 279 Applied GS-RAM 512K \$ 279 Applied GS-RAM 1.5 Meg \$ 498 \$ 319 GS-RAM Ultra 256K \$ 185 \$ 118 GS-RAM Ultra 256K \$ 185 \$ 118 GS-RAM Ultra 512K \$ 295 GS-RAM Ultra 1 Meg \$ 465 S 59 GS-RAM Ultra 1 Meg \$ 465 Call GS-RAM Plus 1 Meg \$ 465 Call GS-RAM Plus 2 Meg \$ 815 S 79 RamKeeper Slot Mover RamWorks III 512K \$ 299 S 786 RamWorks III 512K \$ 299 RamGactor 512K \$ 299 RamFactor 256K \$ 189 \$ 209 RamFactor 1 Meg \$ 459 RamFactor 512K \$ 299 RamCharger Backup Ram Express 256K Ram Express 1 Meg \$ 459 Ram Express 1 Meg \$ 539 Ramd Express 1 Meg \$ 499 Ram Express 1 Meg \$ 499 Ram Express 1 Meg \$ 539 Ram Express 1 Meg \$ 499 Ram Express 1 Meg \$ 499 Ram Express 1 Meg \$ 539 Ram Express 1 Meg \$ 539 Ram Express 1 Meg \$ 499 Ram Express 1 Meg \$ 539 Ram Express 2 Ram	\$ 835

Call for our low prices on hundreds of popular software titles for your Apple II

Write for CDA's free Apple Users' Catalog

A complete line of Apple Systems, Hardware, Software and Accessories 30-Day Customer Satisfaction Period

At CDA our goal is customer satisfaction. If you're not 100% satisfied simply return the purchased goods within 30 days of receipt for a quick, courteous refund (software, media, internal components and shipping charges excluded).

Service and Support

CDA offers a full 90 day warranty. **Apple Computers** - CDA is not an authorized Apple dealer, therefore during the 90-day warranty period Apple items must be returned to CDA for warranty repair. Tech-support: Mon-Fri 9am-4pm, (201)832-5004.

Shipping Information and Policies

Shipping Charges - UPS Ground, add 3% (\$3.50 min); UPS Blue 2-day service, add 5% (\$5.50 min.): Alaska, Hawaii, PR, add 6% (\$6.50 min); APO/FPO shipping, add 8% (\$8.50 min). Foreign orders ship via DHL. Please call or fax for rates and more info. Payment via Visa, MC, Amex. Discover, Optima welcome. Personal checks are held 10 days for clearing. No CODs please.

US/Canada Call Toll Free 800-526-5313 NJ/Outside US 201-832-9004



CDA Computer Sales 1 CDA Plaza

Rt 513 Califon, NJ 07830

Hours: Mon-Fri 9am-10pm Sat. 9am-5pm EST
Customer Service (201) 832-9007
Fax# (201) 832-9740
Compuserve's Electronic Mall- GO CDA

Mailorder Exclusively Since 1980

Leasing now available to qualified businesses.

All prices subject to change. Apple, IIGS, & ImageWriter are registered trademarks and UniDisk is a trademark of Apple Computer Inc.



CALL FOR FREE 104 PAGE CATALOG



YOUR SINGLE SOURCE SUPPLIER FOR COMPUTER SOFTWARE ullet DISKETTES ullet ACCESSORIES

USA/CANADA TOLLFREE 1-800-624-2926



IN ILLINOIS CALL 312-884-7040

NOW YOU CAN BUY WHERE THE SCHOOLS BUY SAVE UP TO **50%** EVERYDAY!

- OVER 5.000 SOFTWARE TITLES AVAILABLE
- LOWEST PRICES EVERYDAY
 WIDEST SELECTION
 BEST SERVICE
- NAMED BY EDUCATORS AS ONE OF THE MOST RELIABLE SOFTWARE DISTRIBUTORS IN AMERICA
- **HUNDREDS OF PUBLISHERS AND TOPICS TO CHOOSE FROM**
- SCHOOL VERSIONS AND LAB PACKS



Your Cost **\$54**95 APL Ilgs compatible 2.0 Version **\$74**95

APL Ilgs compatible



Your Cost \$2595 ea. APL/IIgs



Your Cost \$3495

APL/IIgs/IBM School Version \$44.95 Lab Pack (5) \$83.95



Your Cost

\$2795 **\$35**95

APL IBM/IIgs School & Business/Sampler/Party Edition \$23.00 ea. School version add \$7.00

\$37995 Laser 128 compute

128 EX computer (3 x faster!)

12" Mono. Monitor

14" RGR Monitor

190 E Printer

\$43995 \$ 8500

\$24900

\$19900





PC Viewer \$**647**00

4.00

3.50

- World's Largest Computer Display! • 640 x 200 Pixel Res.
- High Impact Case

ACCESSORIES

System Saver IIgs

Disk Notcher . . .

80 Col. Printer Stand

Diskette Storage 60

Mouse Pad

\$104.95 \$209.95

- Eight levels of gray scale • High heat resistant supertwist LCD
- APL/IBM compatible



(Quantities of 6)

Imagewriter I & II*

Your Cost

\$2795

*Available in Most Colors Red, Green, Blue, Brown, Purple & Yellow — Add \$1.00 Each

LOWEST RIBBON & ACCESSORY PRICES

Epson LX 80/90* Epson MX 100 IBM Pro Printer Okidata 182/192/193* Call If You Don't See It!

DISKETTES/PAPER

Your Cost

\$**9**95

Diskettes - 5¼", DS/DD Diskettes - 3½", DS/DD Color Diskettes (10 Pk., Asst.) 5¼", DS/DD Color Diskettes (10 Pk., Asst.) 3½", DS/DD \$ 1.19 \$ 6.95 \$14.50 \$10.95

Computer Eyes, B/W IIe/IIc Computer Eyes, Color, Ilgs Thunderscan Kraft KC3 Joysticks Surge Protector (6 Outlet - 6' Cord)

\$189.95 \$19.95 \$19.95

Your Cost

\$1995

\$2295 Ilgs/IBM

\$**179**95

\$19995

MAIL SCHOOL P.O.'S TO:

ENEW

EDUCATIONAL RESOURCES**

2360 HASSELL ROAD HOFFMAN ESTATES, IL 60195





Prices effective July-Aug. \$50 min. on charge No min. on checks Add 5% shipping; \$3.00 min. *Free shipping over \$300

CALL FOR FREE 104 PAGE CATALOG



MACE ON GAMES

EW ADVENTURES

By SCOTT MACE

Just when you think you've fought every army, The Magic Candle offers several firsts that make it a fresh challenge. EVER SINCE ULTIMA SPAWNED AN ARMY OF imitators, game designers have striven to create just the right mix of action and strategy. Not all have succeeded, and most Apple II gamers know by now that endless clashes can lead to endless boredom. Besides, even adventurers have to rest and recuperate sometime.

LIKE MAGIC

Game designers at Mindcraft (2341 205th Street, Suite 102, Torrance, CA 90501, 213-320-5214) apparently agree. Just when you think you've fought every army, **The Magic Candle** (\$49.95) offers several firsts that make this one a fresh challenge.

tinuous income to other members of your party to supplement their adventures.

Electronic Arts' Wasteland introduced the concept of separating your group into two parties; The Magic Candle takes that one step further and lets you create as many subgroups as you like. You can send a member off to either fighter's school or to work, for instance; switching among groups is easy, but you can reunite two groups only if they're in close proximity.

The Magic Candle breaks new ground in other ways. Instead of having to type in all your requests, the game lets you choose actions from a menu. You can also save up to four games, as opposed to only

one in other adventures such as the Ultima series.

THE WANDERER

As in most games, you'll find and purchase better weapons, as you search for ways to keep the evil Dreax from escaping from his imprisonment inside a huge candle. But now you must deal with the "wear and tear" factor—your weapons gradually becoming old and rusty and losing their effectiveness. You'll have to spend time refurbishing them, or they'll break down. Also, The Magic Candle doesn't feature as many varieties of weapons as other games do—another refreshing change.

As you wander from town to town in the land of Deruvia, keep track of the clock. Towns tend to be closed at night, and each character you encounter will have his or her

own schedule, which may include sleeping during the day. You'll also travel in ships from time to time, but unlike those in Ultima, these boats don't belong to you. Instead, you have to hire a captain and ask him to take you places. There are also lots of hidden treasures, so don't forget your equipment—it's wise



Magic Candle offers a number of innovative developments, including action menus that save typing time.

In most adventure games, you accumulate wealth by plundering your slain enemies' corpses (seems a little ghoulish). This is the first game in which members of your party make money the old-fashioned way. They earn it by holding "civilian" jobs such as metalsmithing. You can transfer this coninCider's Desktop Publishing Contest

SHOWUS WHAT YOU'RE PRINTING!

What does desktop publishing mean to you? Font-filled newsletters? Fact-filled newpapers? Fancy greeting cards? Four-foot banners? Whatever your specialty, we want to see what you're up to.



If you impress us with your creations, we'll publish them in inCider and display them in our AppleFest booth. You'll also win thousands of dollars worth of top-selling Apple II hardware and software from Abracadata, Berkeley Softworks, Big Red Computer Club, Claris, Compu-Teach, Electronic Arts, Epyx, Scholastic Software, Seven Hills Software, Softsync Inc., The Learning Co., Thirdware, Thunderware, Timeworks, Tom Snyder Productions, and others!

PaintWorks Gold.

Name Address			Computer used: Apple IIGS	
City		Zip	or compatible	
Telephone () Deadline for entries		Entries cannot be returned		Business Nonprofit
Plan	FingerPrint GSi		1 to: Desktop Publishing Contest ider, 80 Elm Street, Peterborough, N	ARTGE
SUP EN THE STATE OF THE STATE O	Corper of the Work of the State	Personal Newsletter	CLASIS A	GEOPUBLISH Writing & Publishing Center

MACE ON

to carry a shovel.

Many games let you accumulate numerous hit points at the start, making your characters virtually invulnerable. In Magic Candle, however, the maximum equivalent of stamina is only 99 points, which makes for greater challenge.

The game replenishes monsters and guards, whom you encounter in the wilderness every three months.

Once you clear a dungeon, though, it stays that way. This seems logical and strikes a balance between a game that's too easy and one that's too hard.

TIME TUNNEL

The Magic Candle has its share of magic potions, too, some of which you can take before battles to reduce your injuries. This is a less innovative feature, but it helps to even the odds in your favor.

There are no hidden doors, butevery once in a while you'll find a teleporter along with fiendish time traps that rob you of ten hours.

Efficient use of time is critically important; you'll miss these hours later, as you try to finish the quest within the allotted time. Just getting fitted for a suit of armor takes five "game" days.

THE POWER OF WORDS

Ready for more challenges? Thanks to Sir-Tech's **The Usurper: The Mines of Qyntarr** (P.O. Box 245, Ogdensburg, NY 13669, 315-393-6633, \$29.95), the all-text adventure lives on.

Qyntarr establishes a simple, two-window, text-game system (the top window is like a permanent "look" command; the bottom window is where you type dialogue), and gives us a dose of much-needed humor in the Infocom tradition.

In this bizarre underground realm, you'll meet the dread "blooble," who eats anything. You'll also find a dragon with hay fever and a subway that leads to a hilarious town with its strange real-estate office and country club. From looking at the box, you may not realize this game is full of laughs, but trust me—it is.

There's no obvious logic to Qyntarr's puzzles, so try everything, and save your moves often; you can also keep up to ten games. As usual, you'll have to make maps as you go along. So far only a few Apple II adventure games include built-in mapmaking, and none can display multiple levels. For now, a thick pad of graph paper's your best friend.

FAREWELL FOR NOW

This month marks the last Mace on Games column, but look for my reviews in the new, expanded game section in future issues of inCider.

Games have come a long way since this column began more than three years ago, growing from infancy to maturity—at least on the Apple II. We've seen both innovation and imitation, and the promise of multimedia entertainment beginning with the Apple IIcs.

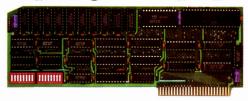
I believe the Apple II family will continue to be a platform for today's most innovative games, and I'll continue to champion the best of the best.

There's no reason why GS owners should have to consider other hardware. Keep the heat on gamesoftware developers. Let them know how important original game designs are by purchasing the best and avoiding the rest.

Games exist to entertain and stimulate you, so long may the world of Apple II games continue to flourish. □

SCOTT MACE IS EDITOR AND PUBLISHER OF MICROCOSM, A MONTHLY NEWSLETTER ON COMPUTER GAMES. WRITE TO HIM AT 9350F SNOWDON RIVER PARKWAY, SUITE 277, COLUMBIA, MD 21045-5260. ENCLOSE A STAMPED, SELF-ADDRESSED ENVELOPE IF YOUTD LIKE A PERSONAL REPLY.

Computing at Warp Speed



Only with AE's TransWarp™

AE's TransWarp,™ the proven accelerator for the Apple IIe, II+ or II, still leads the industry. In recent benchmark tests by a leading Apple II publication, the reliable TransWarp surprised the experts by stacking up quite nicely against the competition.

Full compatibility

But that's only part of the story, because *unlike* others, TransWarp works with ALL Apple standard software including AppleWorks and all educational, graphics and entertainment packages. And unlike others, TransWarp is compatible with ALL standard peripheral cards. You don't have to guess about your specific combinations.

Complete acceleration

Running software 3.6 times faster is only one reason we were recently selected the All Time Best Accelerator by Incider Magazine. The fact is, only TransWarp has 256K of on-board, ultra-fast RAM and accelerates not just main memory, but ROM memory and auxiliary memory as well.

Easier to use .

Only TransWarp expands the memory of a 48K II+ or a 64K IIe, and often eliminates the need for a separate memory card. And you won't need to waste time with pre-boot disks because TransWarp is competely transparent. Just plug it into any slot (including slot 3 on the IIe), turn your Apple on and ZOOM . . . off you go at Warp Speed.



"TransWarp is great! I have replaced all my other accelerators with it!"

Steve Wozniak, the creator of Apple Computer

Backed by the leader

And only TransWarp features Applied Engineering's meticulous craftsmanship, 5-year warranty, 15-day moneyback guarantee* and our American-made pride.

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.



The Apple enhancement experts.

A Division of AE Research Corporation.

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

Prices subject to change without notice.

*When purchased from Applied Engineering or thru a participating dealer.





Apple users know there's always an easier way to get the job done. A shortcut here, an elegant twist there—that's what Hints & Techniques is all about. It's an information swap for readers who want to share their programming pointers, hardware secrets, AppleWorks applications, and all kinds of other insights.

PRODOS BETTER BYE

by Gordon Macfarlane

ERE'S A PATCH THAT'LL MAKE Bird's Better Bye (BBB) even better. Alan Bird's version improves Apple's ProDOS "quit" routine by cataloging each disk in your Apple drives. It then lets you select, with a single keypress, the next system application to launch.

In the unmodified version of ProDOS-BBB, pressing the escape key enables and catalogs the next available drive.

But what happens if you forget to insert the

right disk into the drive? You curse once or twice, install the desired disk, then press Escape repeatedly to get back to that drive.

The BASIC program in Listing 1 should help. When RUN, it modifies the BBB portion of ProDOS, so that you can press the spacebar to recatalog the current drive.

If you've inserted the wrong disk, just remove it, insert the correct one, and press the spacebar to catalog and select the program you want.

Run the BBB modification program just once for each ProDOS-BBB system disk. After typing in the program listing and SAVEing it as BBB.MOD on disk, LOAD it, insert the system disk you want to modify into the drive, and RUN.

ProDOS installs the spacebar-modified version of ProDOS-BBB automatically and SAVEs it back to that system disk. Just reboot using the newly modified disk and stop cursing.

I've used this BBB modification program successfully with ProDOS versions 1.0.2, 1.1.1, 1.2, 1.3, 1.4, and 1.7.

Be sure to have a backup copy of your original ProDOS-BBB. Then, should the modification not work because of typos or an incompatible version of ProDOS, you can restore ProDOS to the disk.

Write to Gordon Macfarlane at 16 Namao Drive, Trenton, Ontario, Canada K8V-1C2.

TIME COMMANDS

by Kan Chi Keung

HE MACHINE-LANGUAGE PROgram whose source code appears in **Listing 2** lets you access the normally inaccessible IIGS clock.

The program enables three ampersand (&) commands you can use in Applesoft BASIC programs to display the current time, date, or both.

Type in the listing and compile it using any IIGS-compatible (65816) editor/assembler, such as the Apple IIGS Programmer's Workshop, available from the Apple Programmers and Developers Association (Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014, 408-996-1010). Name the resulting ProDOS-8 binary program TIME.COMMANDS.

When you BRUN TIME.COMMANDS directly or within your Applesoft program [PRINT CHR\$(4);"BRUN TIME.COM-MANDS"], it enables the &TIME, &DAY, and ▶

Listing 1. Modified Bird's Better Bye.

- 10 REM BBB Enhancement [3217]
- by Gordon Macfarlane [3930] 20
- REM 30
- Copyright 1989, inCider [4733] NT CHR\$ (4)"BLOAD PRODOS,A\$2000,TSYS" 100
- PEEK (23481) < > 193 AND PEEK (23484) 20 THEN A = 512: IF PEEK (22969) AND PEEK (2297 2) < > 20 THEN PRINT "ProDOS doesn't contain an unmodified BBB.": END [7047]
- FOR Z = 23124 A TO 23126 A: READ ZZ: POKE Z, 130 [4260]
- 140 POKE 23208 - A,160: POKE 23210 - A,201 [2743]
- FOR Z = 23463 A TO 23489 A: READ ZZ: POKE Z, [4256]
- CHR\$ (4) "UNLOCKPRODOS" PRINT [4077] 160
- 17Ø PRINT CHR\$ (4) "BSAVE PRODOS, A\$2000, TSYS": END [6648]
- 180 DATA
- [1447] 234,234,234,194,217,160,193,204,193,206 [1475]
- 160,194,201,210,196,160,160,168,205,207 200 196,160,194,217,160,199,207,210,196,169 [4027]

DATA

190

Read	er Service Page	
58	Abbys Discount Software · · · · · · 106	
286	Abracadata ·····71	
103	Alltech Elec. Co. Inc89	
33	Alpha One Computers Unlimited · · · · · 103	
*	Applied Engineering	
54	Applied Ingenuity ······86	
47	Applied Ingenuity ······66	
179	Beagle Bros54, 55	
87	Bible Systems Research ······104	
225	Black Sun106	
66	Borg Industries ······104	
287	Cambridge Marketing ······42, 43	
116	Canadian Computer Outlet · · · · · 105	
8	CDA Computer Sales · · · · 95	
*	Central Point Software29	
94	Choice Computer Products ······104	
*	Claris Corporation52, 53	
*	Compucraft·····106	
205	Computer Direct, Inc22, 23	
288	Computer Friends ·······70	
142	Computers Plus Company · · · · · · 103	

268	Data East Inc. 21	
134	Dayton Computer Supply104	
108	Diversified Software Research89	
73	DMA Technologies 104	
220	Educational Resources 96	
85	Fas-Track Computer Prod. ·····83	
132	First Class Peripherals · · · · · 27	
61	GE Ridge Services ······102	
*	Golem Computers 2, 3	
27	Gosselin Computer Services ··········104	
23	International Software Library106	
43	Island Computer Services · · · · · · · · · · · · · · · · · · ·	
70	Island Computer Supply · · · · · · 103	
199	Jameco Electronics 88	
*	Kensington MicrowareCV4	
131	Kinson Products ······87	
175	Laser Computer Inc. · · · · · · CV2	
44	Lynx Computesr Prods. Inc	
248	Memory Plus Distribution	
4	Merritt Computer Products102	
55	NAUG106	
173	New Science Prospects·····104	
271	Nikrom90	
89	North Forty Enterprises ······105	
37	Ohio Kache Systems · · · · · 6	
77	PIE105	
84	Precision Data Products ······103	
*	Preferred Computing · · · · · 37	
105	Price Busters28	
215	Price Busters90	

Reader Service

128	Programs Plus 32	, 3
	Public Domain Exchange·····	.94
136	Quality Computers 14,	, 13
*	Ouill Corporation	. 69
7	Ramco Computer Supplies · · · · · · · · · · · · · · · · · · ·	104
90	Roger Coats40.	4
185	S.A. AuTeur Company	103
*	Scholastic · · · · · · · · · · · · · · · · · · ·	.6'
240	Sensible Software	.79
29	Shreve Systems	103
143	Silicon Express	.7
292	Softdisk	
96	Softronics ·····	
127	SoftSpoken · · · · · · · · · · · · · · · · · · ·	103
270	Software Disc. of America	
18	Sports Software Assoc.	102
*	Street Electronics	V:
156	subLOGIC Corp.	.5
104	Supra Corp.	-15
110	Taito Software Inc.	
78	TCX Ltd.	
10	The Experts ·····	
297	USA Micro	12
283	Virginia Reel Company ·····	103
260	Zimco Int.	

Page

This index is provided as an additional service. The publisher does not assume liability for errors or omissions.

Attractions

- Not for Macs only: The latest buzzword among Apple II users is *hypermedia*. *inCider*'s West Coast editor takes a look at Roger Wagner's HyperStudio for the GS, plus a number of other recent developments in multimedia programming.
- New Apple II spelling and math programs represent the latest developments in skills research. inCider goes back to school to examine what's new in everything from drill and practice to whole-language learning.
- Risky business or safe bet: Does mail-order shopping deliver the goods? inCider offers some sound advice to Apple II users in the market for equipment and software via long-distance purchase.
- Reviews: The Perfect Career, Design Your Own Home/Interiors, Flodd the Bad Guy, Instant Synthesizer, and more.

inCider

Reader Service

inCider magazine is published monthly by IDG Communications/Peterborough, Inc. Entire contents copyright 1988 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.

publisher. All programs are published for personal use only. All rights reserved.

inCider is a publication of IDG Communications, the world's largest publisher of computer-related information. IDG Communications publishes over 90 computer publications in 33 countries. Fourteen million people read one or more IDG Communications publications each month. IDG Communications publications entribute to the new IDG News Service offering the latest on domestic and international computer news. IDG Communications publications include: ARGENTINAS Computerworld Argentina, ASIAS Communications IDG Computerworld Malaysia, Computerworld Singapore, Computerworld SE Asia, PC Review; AUSTRALIAS Computerworld Australia, Communications World, Australian PC World, Australian Macworld; AUSTRALIAS Computerworld Australia, Communications World, Australian PC World, Australian Macworld; AUSTRALIAS Computerworld Australia, Communications World, Australian PC World, Australian Macworld; AUSTRALIAS Computerworld Australia, Communications World, Australian PC World, Australian Macworld; AUSTRALIAS Computerworld Australia, Communications World, Australian PC World, Australian Macworld; AUSTRALIAS Computerworld Australia, Computer Data; CHILLES Informatica, Computer Data; Etc. Monde Informational Dammark, PC World Dammark; FIN-ANDYS Mikro, Telocomis Mermational.

GREECE'S Micro & Computer Age; HUNGARY'S Computerworld Dammark, PC World Dammark; FIN-People & Computer Meely, Proble & Computers Biweely, ITALY'S Computerworld India; JAPAN'S Computerworld India; JAPAN'S Computerworld Mozico, THE NETHERIANDS Computerworld India; JAPAN'S Computerworld

Problems with Advertisers: Send a description of the problem and your current address to inCider, Route 101 and 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 80522-8618. Or call (800) 525-6643, or (303) 447-9330 in Colorado, 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

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, WCI R4EJ, England.

Dealers: Contact Linda Ruth, Direct and Newsstand Sales Manager, inCider, Route 101 and Elm Street, Peter-borough, NH 03458. Call (800) 343-0728.

Back Issues: Send \$3.50, plus \$1.00 postage for each copy to inCider, Back Issues Dept., Route 101 and 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) 258-5473.



Listing 2. Enabling BASIC GS-clock commands. Time.Commands by Kan, Chi Keung Copyright 1989, inCider 65816 \$8500 org TIMEDAY start COUT SEDED equ equ lda #\$4C ;set jump ;for & command \$3F5 #<START \$3F6 lda ; the address of sta lda #>START sta \$3F7 ;program entry point rts h'444159AE54494D45AE' ;the "DAY & TIME" h'424F5448AE00' ;"BOTH" CODE dc dc h'091414' LENGTH dc LENGTH1 h'000900' ; for date & time's data STORE ds 21 TEMP ds LENG LENG1 ds START ldx #0 ;clear flag TEMP stx READ ldv #0 CODE, x lda beq ERROR (PC), y CAMP :cmp with instr cmp NEXT bne inx ; use for count iny lda CODE, x cmp #\$AE bea GETCLK CAMP bne NEXT1 inx ; get next instr. NEXT code, x lda #\$AE :is dot cmp bne NEXT1 inx TEMP ; use point to instr inc READ bne ERROR rts GETCLK ; add y to pc tya adc PC sta PC GOTOOL bcc PC+1 inc GOTOOL clc xce #\$30 ;full 16 bits mode rep SØØØØ ; bank Ø pea STORE pea ;tool Number ldx #\$FØ3 ; call GS toolbox \$E10000 jsl sec ; reset to emulation хсе TEMP ldy LENGTH, y ;Restore parameters 1da LENG sta lda LENGTH1, y sta LENG1 LENG1 ldx ;Print Time/Day PRINT STORE, x lda jsr COUT CPX PRINT lda #\$8D COUT jsr rts ; of TIMEDAY

&BOTH command handlers, which display the current IIGS time, date, and time/date combination, respectively, starting at the current text-cursor position. Use the HTAB and VTAB BASIC commands to control the cursor's position.

Write to Kan Chi Keung at 3149 Alemany Boulevard, San Francisco, CA 94112.



WIN LOTTO MILLIONS\$!

NOW FOR APPLE! LOTTO PICKER PLUS, the original lottery selection software, allows you to store winning Lotto, Keno, & Pick ¾ 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 PICKSnot a bunch of jumbled statistics! \$34.95 for 5.25" disk. \$44.95 for 3.5". For all Apple II, Lazer, MS-DOS, and Commodore 64/128. NY residents please add sales tax. NOT Copyprotected!

CREDIT CARD ORDERS: 1-800-634-5463 ext. 293 GE RIDGE SERVICES



170 Broadway, Suite 201-IC New York, NY 10038 Info 718-317-1961

Circle 61 on Reader Service Card.



Sports Scheduler

Any league or category with 4 to 22 teams. No limit on the no. of categories that can be

-No limit on the no. or categories unat 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.

99.95 + 3.00 \$102.95

Send check or money order to: SPORTS SOFTWARE ASSOCIATES ecreation Park Drive, Hingham, MA 02043 (617) 749-7880

Circle 18 on Reader Service Card.



- Soft, Flexible, retains normal keyboard feel.
 Washable, Durable High-Tech Polymer lasts years.
- Hundreds of Models. PCs, laptops, clones.
- Office Home Factory Classroom Labora List Price \$29.95. Please call or write for free color brochure. Dealer inquiries encouraged.



tter Products, Inc. 5565 Red Bird Center Drive Texas 75234/(214) 339-0753 • FAX (214) 339-1313 In Canada call 1-800-663-1061

Circle 4 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, Softkeys, ProDos (floppy), DOS, CP/M, Pascal, & most vendor boards/modems.

> Comes with Keyboard enhancer. For the Apple II, II+, IIe, IIc, 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.



Marketplace Ads get results! You can place an ad in this attention-getting section at a very reasonable cost. Call Fiona toll-free at

for helpful advice and reservations. Start seeing your ad here next month!

FACTORY FRESH RIBBONS Ribbon Black Color \$ 2.50 Apple Imagewriter I, II \$ 3.00 Imagewriter II 4 color \$ 7.95 Imagewriter II 4 color Heat transfer \$10.50 Imagewriter LQ \$15.95 \$12.50 Epson LX80/90 \$3.35 \$ 4.25 Epson MX/FX/RX80 \$2.90 \$ 3.50 Epson MX/FX/RX100 \$3.80 \$ 4.00 Okidata 182/192 (Seamless Loop) \$5.50 Panasonic 1080/90 (Seamless Loop) \$5.50 Star NX1000 \$4.50 \$ 5.50

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.

For IIGS & Ile

Transwarp GS Accelerator ... \$289 40 Med Hard Drive(AE Vulcan)\$599 GSRAM PLUS 1Meg \$349; 2 Meg \$499 1 Meg memory set for GSRam\$199 256K 150ns set for IIGS/IIe card\$80

System Saver IIGS or Mac.....\$65 CONSERVER for IIGS by MDIdeas \$79 ThunderScan Ile,c,IIGS for Imagewriter \$189 Mousecard for IIe \$79, Turbo Mouse V1 .\$39 Compatible 5.25" Drive for IIe \$139, IIc .. \$139 Anchor 2400Modem....\$159, 1200Baud\$99 DRIVE ADAPTOR for IIGS/IIc+..\$39 (permits old type 20 pin 5.25""rives)

HyperStudio for IIGS\$79 DB Master Professional\$189 MathBlaster Mystery 3.5" or 5.25" \$35 Talking Math & Me IIGS\$35 Talking Reading & Me IIGS ..\$35 Talking Stickybear Alphabet IIGS\$39 Universal File Conversion program IIe,c.....\$35 Mousetalk Version 1.5 commun. program .\$59 Easylink communications program by AE ... \$79 Proterm comm. program Checkmate \$89

Ten 3.5" Disks \$19, 5.25"disks ... \$15 MousePad....\$7, Disk Notcher.....\$5 MousePad....\$7, Disk Notcher....\$5 6 Ribbons for Scribe Printer \$36 6 Ribbons for Imagewriter,Black\$24 6 Ribbons for Imagwriter multicolor \$42 Circle Reader Service Card for a catalog.

Note 1: Shipping \$4 per\$100 by surface in USA.

Extra for other modes of shipment.

Note 2: Prices subject to change wo note.

Note 3: For Defective Merchandise, call in 10 days of receipt for Authorization.

Refund/Replacement at our option. SCHOOL ORDERS WELCOME.

Computers Plus Company

2303 N. 44th St. #2, Phoenix AZ 85008 PH:602-955-1404 FAX:602-840-3767 Prepared: 5/30/89

AUTHORIZED DASEN HEFAIN CENTER
LASER 128
LASER 128EX
LASER 190A PRINTER (IMAGEWRITER I) \$209.00
STAR NX-1000 PRINTER
5.25 EXTERNAL DRIVE II + IIc IIe
5.25 DAISY CHAIN DRIVE IIGS
3.5 800K DISK DRIVE \$185.00 with UDC \$255.00
LASER/APPLE II COMPATIBLE MOUSE \$ 54.95
LASER/APPLE SELF-CENTER JOYSTICK
HOME VIDEO PRODUCER by EPYX \$ 31.95
TIMEWORKS PUBLISH IT!
CENTRAL POINT COPY II PLUS
QUICKEN by INTUIT
WORDPERFECT
TETRIS by SPECTRUM HOLOBYTE \$ 24.95
MATH BLASTER PLUS by DAVIDSON
CHUCK YEAGER'S AFT
CALIFORNIA GAMES by EPYX
F-15 STRIKE EAGLE by MICROPROSE \$ 22.95
SILENT SERVICE GS by MICROPROSE
JEOPARDY, JEOPARDY 11, FAMILY FEUD each \$ 9.95
WHEEL OF FORTUNE, CARD SHARKS each \$ 9.95
SONY 3.5 DS/DD DISKETTES10 PACK \$ 19.95
OAK FINISH DISK HOLDER HOLDS 50 3.5 \$ 24.95

ALPHA-ONE COMPUTERS Ltd. 1671 East 16th St., Suite 146 Dept. IC589, Brooklyn, NY 11229 (718) 692-4120, S/H \$4.00 USA. \$6.00 CANADA SCHOOL AND COLLEGE P.O.S ACCEPTED

Circle 33 on Reader Service Card

GERMAN FRENCH EuroWorks™ SPANISH ITALIAN

Type accented French, German, Italian, or Spanish quickly and simply with the Classic AppleWorks® word processor. Then, from inside AppleWorks, EuroWorks prints your foreign text on an ImageWriter® I, ImageWriter II, or compatible.

No goofy key equivalents: type e' (not "{") to print é. No taboo keys either: foreign files may include every character on your American keyboard plus 13 French, 7 German, 10 Italian, or 10 Spanish. EuroWorks gives you 8 new characters for English too!

EuroWorks requires Classic AppleWorks v2.0 or v2.1 USA and an Apple DMP, ImageWriter I, ImageWriter II, or Scribe; and MT85 or MT86; or a Seikosha SP-1000AP printer.

→ \$20 for ONE foreign language + \$30 for all FOUR

POSTPAID TO USA, Canada, Mexico; others add \$3.00

Check, Money Order, Net-30 School PO, Visa, or MC

The S.A. AuTeur Co: A66 (503) 645-2306



Circle 185 on Reader Service Card.

Genuine Sony Disks 3.5 " DSDD (1.0 MB)

50/Pkg. #SB-2DD



3.5" or 5.25" Head Cleaner Good for 15 cleanings Takes 30 Seconds!

\$2.99 ea.



5.25" DSDD Disk W/Env. & WP Tabs

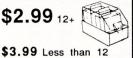
Lifetime Warranty



29¢ ea. Min. 50

3.5" Storage Box Protects 45 Diskettes

\$2.99₁₂₊



6 Outlet Surge & Dust Covers
Spike Protector For all Apple ✓ 6' Cord

✓ Lighted Switch ✓ U.L. Approved #PP112 \$9.95 ea.

(I)

For all Apple Models...Call for Price and Delivery.

-800-258-0028 Order Tol Free:

Minimun Order \$25.00 S&H: F.O.B. Grand Rapids, MI Prices Subject to Change.



Precision Data Products™ P.O. Box 8367, Grand Rapids, MI 49518 616-452-3457 · 313-645-4980 FAX: 616-452-4914



Circle 84 on Reader Service Card.

COLOR RIBBONS

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, Il 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

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.

envelopes/pk

RAMCO COMPUTER SUPPLIES

PO Box 475, Manteno, IL 60950 U.S.A. 800-522-6922 or 815-468-8081

Circle 7 on Reader Service Card.



The Best of both Worlds in the LASER Turbo XT MILASER TURBO XT \$79500

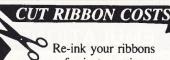
Monochrome monitor, printer & game ports, clock, color card, MS-DOS & GW Basic 512K, 2-FDD

NSP's **LASER DUO**

NEW SCIENCE PROSPECTS

Your full Laser® Computer Service Center
P.O. Box 430304 Houston, TX 77243
713-464-7071
School orders welcome

Circle 173 on Reader Service Card.



for just pennies
with the

E-ZEE INKER II

For crisp, black professional results that makes gray-faded printing a thing of the past

Choose from 3 Models
Prices start at just \$39.50

800-553-2404

Borg Industries, Ltd. Janesville, IA 50647

In Iowa 319-987-2976

Circle 66 on Reader Service Card.

Choice Computer Products

\$11.95/pk

PO BOX 8432 CEDAR RAPIDS IA 52408

AUTHORIZED A APPLIED ENGINEERING" DEALER

THE PERSON OF TH			
FACTORY INSTALLED / WARRANTED	D RAM	4 (26.5)	entaunt a
PC TRANSPORTER			
SINGLE TRANSDRIVE			
IIQS KIT			134
IIIE KIT 29 DATALINK 2400 RAMPWORKS III 256K 187 SERIAL PRO RAMPWOTOR 256K 224 PARALLEL PRO			
RAMFACTOR 256K			74
GS RAM 256K			119
GS-RAM ULTRA 256K			
RAMKEEPER	PLY		59
RAM EXPRESS 256K			112
TRANSWARP GS			127

Call us for the lowest prices on all Æ products
OTHER FINE PRODUCTS

KENSINGTON SYSTEM SA/ER IIGS 3 76 KENSINGTON SYSTEM SA/ER IIE 5 67 CHINOOK 20MEG 5.575 SCSI INTERFACE 121 CHINOOK 30MEG 6.500 APPLEWORKS GS 225 CHINOOK 40MEG 7.566					
CHINOUK 40MEG.,	KENSINGTON SYSTEM	SA/ER IIGS \$ 76			
CHINOUK 40MEG.,	CHINOOK 20MEG				
O-II 040 000 (0 t- 0)	CHINOOK 40MEG	756	APPLEWORKS GS		 223
Call 319-396-2306 (9 am to 9 pm)	(b) 特 的有点的。1000年的自由	Call 319-396-2306	(9 am to 9 pm)	जेन्द्र हर	

MasterCard, Visa, COD, P.O. & Checks Accepted Prices subject to change

Circle 94 on Reader Service Card.

REMOVABLE HARD DISK DATA STORAGE

DMA cartridge hard disk drives provide random access mass storage with unlimited capacity, total data removability, and complete data security. Reliable winchester technology. Operate on both PC and Apple IIos systems. 10MB formatted storage per cartridge. Higher capacities available. Extended warranty.

DMA 360, Controller Enclosure/PS, Manual \$560.00 MEGABOARD HARD DRIVE CONTROLLER

The only ST506 winchester controller for the Apple II and IIGs. Install ProDOS, GS/OS, DOS 3.3, CPM, and UCSD Pascal. Standard ST506 interface works with low cost PC hard drives up to 64MB. Adjustable partitions for each operating system. Operating systems are bootable. Installs in IIe slots 1-7 or IIGs slot 7. MEGABOARD, Software util., Cable, Manual \$195.00

Payment by VISA/MASTERCARD, or COD. Add \$5.00 shipping. CA residents add 6% sales tax. DMA TECHNOLOGIES, INC.

601 Pine Ave., Goleta, CA 93117 Call 805-964-0733 for information Fax: 805-964-0734

Circle 73 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.

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	2.60	3.60	
APPLE 4-COLOR	_	8.95	
DIABLO HT II M/S	2.25	_	
EPSON LX-80/90	2.10	3.50	
EPSON MX-FX 80	2.50	3.50	
EPSON MX-FX 100	3.50	4.50	
IBM PROPRINTER	3.50	5.95	
NEC P1, 2, 6	4.50		
OKIDATA 182-192	3.50	4.50	
PANASONIC 1080	3.50	4.50	
PANASONIC 1124	5.75	_	
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.

ATTENTION ROLE PLAYERS

Make these games easier using the following:

CHARACTER EDITORS—\$19.95 each Might and Magic, Deathlord, Ultima 3, Ultima 4, Ultima 5, Bard's Tale 1, Bard's Tale 2, Bard's Tale 3, Wasteland, Wizardry (1-3), Wizardry 4, Wizardry 5, Might and Magic 2, The Magic Candle, and Pool of Radiance.

HINT BOOKS—\$9.95 each

Might and Magic, Wizardry 1, Wizardry 2, Wizardry 3, Wizardry 4, Wizardry 5, Legacy of the Ancients.

OTHER MIGHT AND MAGIC PRODUCTS

Monster Editor (Change the monsters)—\$12.95 Construction Set (Make new scenarios)—\$24.95 Halbardon (New scenario for M&M I)—\$19.95

Commodore and IBM versions also available. Add \$3.00 for shipping and handling.

GOSSELIN COMPUTER CONSULATANTS



P.O. Box 1083 Brighton, MI 48116 (313) 229-2453



Circle 27 on Reader Service Card.

NEW LOWER PRICES

CARDS: LOWEST PRICES

Extended 80 Column w/64K (IIe)	\$33.95
Disk controller (II + e)	29.95
16K RAM \$29.95 128K RAM(II, +)	. 99.95
Graphic printer card w/cable	33.95
Ile/ + Cooling fan w/surge protect	. 29.95
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	49.95
Hi-speed eprom burner	49.95
lle Keyboard replacement	59.95
IIGS 1 Meg/Ram card	.CALL
Disk Notcher	

1 year warranty. Add 5% shipping (minimum \$5); APO/Canada add \$2 extra). VISA/MC add 4% Minnesota resi-Canada add \$2 eaus, dents add 6% sales tax.

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.

New & Used Apple Stuff!!

We Buy, Sell & Horsetrade Popular Computers!!

Specials of the Month!! Ilgs CPU.....\$825. II+ Extended Keyboard \$12.

Need Parts-CALL!!!! 318-635-1121 **Shreve Systems**

2421 Malcolm St. Shreveport, La. 71108

Fax 318-865-2006

C.O.D. & visa/mc o.k.

Circle 29 on Reader Service Card.

AppleWorks * IBM

You can easily exchange AppleWorks data files with the most popular IBM PC programs:

AppleWorks IBM PC

Word Proc. 4 WordPerfect

Keeps underline, bold, center, margins, etc!

Spreadsheet (a) Lotus 123

Keeps formulas, cell formats, col. widths, etc!

Data Base 🕪 dBase III +

Keeps category/field names, etc!

It's easy! Just select file names to send from the menu: CROSS-WORKS does the rest! Includes universal 19,200 baud cable (IIe, IIc, & IIgs to PC, XT, AT, PS/2 & compatibles). Supports modem transfers too.

51/4 & 31/2 inch disks. Only \$79.95!

Call (919) 878-7725 for free information. Soft Spoken

P.O. Box 97623 Raleigh, NC 27624

Circle 127 on Reader Service Card.

QUALITY AT A DISCOUNT

HARD DISK DRIVES: Warp SCSI, Hi Speed, Auto Parking, Multi Language, Stackable, Includes GS/OS & ProSel: 38ms: 35Mb \$790 57Mb 35ms875 84Mb 19ms \$1399 104Mb 25ms:......1365 CMS Stackable SCSI: 20Mb 65ms665 43Mb 40ms \$835 60Mb 40ms......935 Chinook 20Mb 560 40Mb \$725 llc 21Mb......670 Cutting Edge SCSI (GS only): 30Mb 525 45Mb . . 669 Inner Drive 20Mb \$474 40Mb \$660 (specify 2e/GS)

APPLIED ENGINEERING:
Transwarp for GS \$292 Transwarp 2e/2 +14
Sonic Blaster \$99 Audio Animator19
GS Ram OK \$112 256K \$175 512K 240 1Mb 36
1.25Mb 429 1.5Mb \$498 2.5Mb 942 3.5Mb 114
GS Ram Plus: 1Mb \$300 2Mb \$470 3Mb64
4Mb \$810 5Mb 980 6Mb 1150 7Mb 159
GS Ram Ultra: OK 135 256K 191 512K28
1Mb 495 1.5Mb 720 2Mb 914 3Mb 102

	RamCharger \$135 RamKeeper \$147 Slot Mover 32
	Ram Express: 256K 199 512K \$263 1Mb399
	Ramfactor OK 149 256K 210 512K275
	1Mb \$400 2Mb 725 3Mb 895 4Mb 1065
,	RamWorks III OK 111 64K 149 256K179
	512K 239 1Mb 367 2Mb 636 3Mb800
	PC Transporter 768K \$525 Math Co-Processor179
1	Keyboard 110 Installation Kit GS \$39 IIe/+31
	Single Drive 199 Dual \$299 Extra Dr110
	DataLink Modem 1200 Bd \$135 2400 Bd179
	Parallel Pro \$79 BufferPro 32K 85 Addl 32K15
	Phasor \$129 ViewMaster \$127 Hvy Duty Power 63
	Z Ram Ultra 1 OK \$110 256K 179 512K 240
	Z Ram Ultra 2 OK 169 256K 229 512K 299
	768K \$360 1Mb 425 Z Ram Ultra 3 OK 232
	256K 279 512K 360 768K 424 1Mb 488
1	Z80c \$129 Z80 Plus
	Ram Chips 128K for PC Transporter 119
	256K 100ns or 120ns \$5.75/set \$46 150ns \$10

1Mb 100ns/120n \$18 set of 8 \$10144
LASER COMPUTERS:
Laser 128 \$365 128EX \$445 EX2 Due 9/89 Call
3.5" Drive + UDC Controller \$255 3.5" Dr190
Mouse \$49 Ext Slot Expan Bx \$56
TV Interfc29
OTHER HARDWARE AND SOFTWARE
AppleWorks 2.1 \$195 AppleWorks GS 210
Bose RoomMate Speakers \$229 C/Mac/GS99
Business Acctnt. AR AP GL Inv. ea. \$95 set 220
Business Wks. AR AP GL Inv ea. \$155 set 298
Computer Eyes: Ilc \$104 lle/+ 99 Color/GS190
Dazzle Draw 39 Deluxe Paint II \$65 816 Paint46
Digitizer Pro \$152 FantaVision \$39 Clip Art21
FingerPrint GSI #2 \$79 Plus \$89 G+59
GS System Saver \$73 2e/2+ 69 Geo Publish75
ImageWriter II Buffer 64K \$63 128K93
Kurta Tablet IS/GS ADB \$299 IS/1376
Magnavox Amber or green
Composite Monitor105
Color Composite/RGB \$269

RGB GS Compatible375
Master Tracks Pro IIe \$190 NEW GS Pro299
Master Tracks \$170 Master Tracks Jr99
MultiScribe 3.0 \$59 GS \$65 Music Tutor172
Music Writer #1 \$95 #2 \$225 #3 445 specify 2e/GS
PaintWorks Gold \$66 Printech \$39
ProGrappler89
Panasonic DM Printers: 1124 \$380 1180199 1191 \$265 1092 \$399 1592 \$475 1595515
Passport: MIDI w/Drum Sync \$90
Tape + Drum
PolyWriter \$190 Utilities \$65 MIDI 8+110
Rocket Chip \$159 Quicken \$32 Top Draw58
Supersonic \$49 Digitizer \$49 Tomahawk30
ThunderScan \$173 Turbo Mouse ADB126
Word Attack Plus \$29 WorkBench 99 Zip Chip149

RAM CHIP PRICES ARE FALLING CALL US FOR THE LATEST PRICES

Free illustrated catalog. Pay by check. Free Shipping: in the 48 states: Canada, AK, HA \$5. extra. Credit card & COD: Shipping added. COD \$10. charge. We honor Master Chg, Visa, Discover Card, also accept with 4% surchage: Amer. Exp., Diners & Carte Blanche, NY residents add sales tax. Federal, State and local government agencies, school and college orders accepted Net 30 Days, FOB shipping point.

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.

Circle 89 on Reader Service Card.

NEW! A REAL TREASURE HUNT **ADVENTURE**

Problems seem insurmountable but nothing quite prepares you for the Great Temple.







REALISTIC **BOWLING**

'the next best thing to a trip to the local bowling alley." Neil Shapiro, **nibble** "really is good fun." Lafe Low, **inCider Satisfaction Guaranteed**

irginia

VISA/MC CALL (804) 587-4952 Virginia Real Software, Inc. Box 8545, Norfolk, VA 23503

Circle 283 on Reader Service Card



CANADIA



128 EX/2



CT-20C \$899 CT-20 \$829

CT-40



\$999

cordata

APPLE & IBM COMPATIBLE \$1799

WE CARRY A COMPLETE LINE OF APPLIED ENGINEERING, ORANGE MICRO AND OTHER BRAND NAME PRODUCTS.

WRITE FOR YOUR **FREE** CATALOGUE.

Educational Discounts Available Dealer Inquires Invited Canadian Inquiries Only

Showroom: 134 Randall St. Oakville, ONTARIO L6J-IP4 Mail Order Warehouse: Box 7081, Oakville, ONT.L6J 6J5 Collect Calls For Orders Only! (416) 849-0737

Circle 116 on Reader Service Card.

SOFT WARE

OVER 2500 APPLE TITLES!

- Nation's largest library
- Name Brand Software
- 21 Day rental period
- Rent applied to purchase
- 10 to 20% of list price
- \$20.00 Membership fee
- Money-Back Guarantee!!

Black Sun, Inc. 1988 Chestnut Street

Emmaus, PA 18049 1-800-BLACKSUN





Circle 225 on Reader Service Card.

BBYS

DISCOUNT SOFTWARE

11 S. Wright Avenue Fairborn, Ohio 45324

CALL TOLL FREE: 1-(800)-282-0333 CUSTOMER SERVICE



1-(513)-879-9699

APPLE COMPATIBLE

Laser 128 . . . \$369.00, Laser 128 EX . . . \$429.00

ACCESSORIES & PERIPHERALS

5¼" Disk Drive	Laser 128 Mouse
3½" Disk Drive 179.00	Laser 128 Cables 16.95
2-Slot Expansion Box 54.95	Laser Tech Ref. Manual 22.95
Universal Disk Controller74.95	Laser Carrying Case 54.95



CALL ON THESE AND OTHER PRODUCTS. WE CARRY A COMPLETE LINE OF SOFTWARE.

10 a.m.-8 p.m. Monday-Thursday • 10 a.m.-6 p.m. Friday • 10 a.m. to 3 p.m. Saturday

SOFTWARE ONLY-Prepaid orders over \$50 receive free shipping via UPS in continental U.S. Please and \$3 orders under \$50. HARDWARE and all orders requiring shipment via U.S. Please subject to additional frieight charges. C.O.D. orders under \$100.00 are accepted-add \$5. Charge card orders add \$2 service charge. Only residents add \$64 sease tax. Personal checks require a three-week veiting pendod. All ferms subject to enablability and price charge. ALL RETURNS MUST BE ACCOMPANIED BY AN AUTHORIZATION NUMBER. FOR YOUR PROTECTION WE CHECK FOR CREDIT CARD FRAUD.

Circle 58 on Reader Service Card.

FREE APPLE SHAREWARE

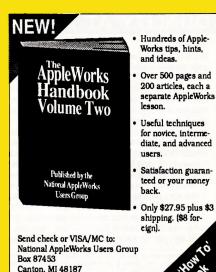
Get 5 disks monthly with 10+ latest programs plus catalog-FREE! Pay only \$5.00 shipping/handling. Join today for only \$9.95 annual membership fee and get 5 bonus disks full of software. VISA/MC/AMEX ONLY

Software of the Month Club 511-104 Encinitas Blvd., Encinitas CA. 92024 Toll free 800 669-2669

Circle 23 on Reader Service Card.



The Experts • PO BOX 928 • Brighton, MI 48116 Circle 10 on Reader Service Card.



Circle 55 on Reader Service Card.

(313) 454-1115

Schools! NI 1 30 YOUR P.O.'S ARE WELCOME 30 Day Money Back Guarantee

80 Col./64K Card \$29.95 (100% AppleWorks Comp.) 1/2 Height Drive

\$77.00 (100% Apple Comp.)

Graphic Parallel Printer Card	

W/Cable	
Super Serial Card	\$48.00
(Orig. Apple Super serial card of	comp).
Disk 2 Controller Card	\$29.00
16K RAM Card	\$30.00
Z-80 (Cpm Card)	\$19.95
One year warranty on all products. Prices sub	
\$4.00 min. per \$100.00 for shipping. (Cash or schools.)	bank check. Net 30 to univ. &
(516) 249-1200 41 N. Mall	THE WAY LTD
41 N. Mall	IIII men Viil

Circle 78 on Reader Service Card.

TAX PLANNING MADE SIMPLE WITH TAXMASTER



IS THIS YOU?
IF YOU HAVE
APPLEWORKS
AND 128K, IT
DOESN'T HAVE
TO BE LIKE THIS!

(Mac & IBM versions too!)

TAXMASTER users don't worry about their tax situation. You can stop worrying too. Order today, or call us for more information on how you can solve your tax preparation and planning problems. Only \$50.00. Upgrade to 1989 Prep next year.



(800) 826-7146



Ask about the Home Money Pack too! ISLAND COMPUTER SERVICES 3501 E. YACHT DRIVE LONG BEACH, N.C. 28465 (919) 278-9483

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 support software). IBM version supports all IBM Graphics / Epson compatible printers.

Plainview, NY 11803

Public Domain

APPLE PUBLIC DOMAIN DISKS

Request free catalog or send \$2 for sample disk & catalog (REFUNDA-BLE). Categories include education, utilities, games, business, Print Shop graphics, shareware, EAMON and more. Rent for \$1 or buy as low as \$1.50 per disk. \$20 order gets 3 free disks of your choice. NEXT DAY SHIPPING!

CALOKE INDUSTRIES (Dept. SK) P.O. Box 18477 Raytown, MO 64133

PUBLIC DOMAIN & SHAREWARE

Big 48 page catalog with descriptions of many programs Over 40 programs on some disks. Program disks cost as low as \$1.99 each. Thousands of programs available. Our catalog gives you descriptions of many programs, not just a program name. Our seventh year. No membership fee to pay. Software programs in all fields, Education & School, Games, Art & Graphics, Astronomy, Business & Finance, Chemistry & Biology, Electronics, Ham Radio, Math & Statistics, Music & Sound, Appleworks^{ns} templates, plus much more. Something for everyone no matter what your age or occupation. Send only \$2 for big 48 page catalog sent by return First Class

COMPUTER BUDGET SHOPPER (CBS)

2203 Park Ave., Suite 17 Cheyenne, Wyoming 82007

Software

SX STATISTIX

Easy to learn and use—Fast Free Support—Money Back Guarantee. The best education package on the market for Apple II and the best prices, up to 75% off list! At only \$119 SX is the no nonsense package which delivers! Call today for FREE info: 612-631-9852

ANALYTICAL SOFTWARE Box 13204 Roseville, MD 55113



FANTASY FOOTBALL LEAGUE

The football season begins soon and there is no better way to enjoy it than being a part of a Fantasy football league. You will draft players, decide who plays, make trades, and compete against other teams. It's just like owning a team (only cheaper). And you don't need to be a football expert. This easy-to-run Apple II program does all the confusing and tedious work that used to take hours, and makes it a pleasure. Even printing out statistics sheets for each week is a breeze. Order now and get set for the new season. Send \$69.00 or call/write for more information.

PRE-PRESS SERVICE P.O. Box 5033 So. San Francisco, CA 94080 415-952-7029 GEnie: PRE-PRESS.

APPLEWORKS TEMPLATES

These practical templaces are fully compatible with the newly released AppleWorks Version 3.0. Personal financial wisdom: A collection of files for personal financial needs \$24.95. Teachers Tools: A grading system for storing test results and total grades \$49.95. Homebuilder Tools: A job estimation and evaluation system for contractors \$69.95. Business Letters: Business form letters professionally written for style and clarity \$29.95. For a free catalog of all of our templates write to:

ATE (formerly Sage Productions) P.O. Box 160 Poway, CA 92064

Use inCider's Classified Section to showcase your Apple II products. Contact Fiona Davies at 1-800-441-4403 for further details.

PROJECT MANAGEMENT PLUS

For Apple II+, IIe, IIc, IIc+, IIGS! 64K. EVERYBODY'S PLANNER: the only full-featured project manager for Apple II's. PERT charts have Projects to 5 years, 54 tasks, 216 resources, optional costing, critical path, early & late, start & finish dates, 8 reports and graphs. Included flowchart utility has 19 shapes, 9 sizes, 3 fonts. All for \$99.95! 13 more reports: \$39.95. Enhance above projects with WELCOME! It creates databases of project milestones, tasks, resources, etc. \$79.95. Special: all 3 programs: \$199! Ck/Visa/MC/Amex/MO.

ABRACADATA PO Box 2440 Dept. DD Eugene, OR 97402 orders only: 1-800-451-4871 all others: 503-342-3030

MIGHT & MAGIC II AIDS

A complete list of equipment with attributes is now available. When you find an item, know all about it immediately without having to visit a blacksmith shop. Also includes a complete list of monsters giving hit points, armor class, and other information. Why waste time during battle to identify monsters? Only \$5.00, 5\(^1_4\)" disk for AppleWorks \$10.00.

KEN RICE 4110 North 17th St. Arlington, VA 22207

RETAIL SUPERVISOR

A retail management system for small business. Point-of-Sale & Inventory Control. Interfaces Bar Code Scanner and Cash Drawer. Prints as well as Reads bar code. Provides detailed & Summary sales reports, inventory value & re-order reports, sales receipts. We handle Scanners, Cash Drawers, Software & Accessories for Retailers. Retail Supervisor™ will help eliminate over stocks, identify slow movers, reduce stock outs, save time & improve profit margins. For detailed info and pricing, call or write today! Apple Ile and Ilc compatible.

ABACUS SYSTEMS 707 Cass St. La Crosse, WI 54601 (608) 785-1740

ELECTRONIC MUSIC MIDI HELP

A Guide to Computer Music An Introcudtory Resource \$16.95. MIDI Starter & ProPacs: Interface, Sequencer, Cables, Music Printing, Software from \$99.00 to \$699.00. Apple II, IIe, GS, Mac, Atari, Commodore, IBM, Customized MIDI Systems. MasterTracks \$169.00, Jr. \$109.00, Pro \$199.00, Polywriter \$209.00, Music Tutor \$169.00, Glass Tracks \$89.00. Super Sequencer \$179.00. MIDI Thru Box \$89.00. Studio Plus Two \$185.00. Music Writer GS \$119.00. MIDI Translator GS \$79.00, HyperStudio GS \$99.00, MIDI Interfaces from \$89.00. Call for catalog, RAM up-grades, and MIDI Librarians, TransWarp prices, Sonic Blaster, Audio Animator and Phaser.

SOUND MANAGEMENT P.O. Box 3053 Peabody, MA 01961 Check, MO, VISA, MC, School P.O. (800) 548-4907 US (508) 531-6192 MA

NFL APPLEWORKS DATAFILES

NFL team rosters for the 1989 season, including 1989 draft. Team data for 1988 and 1987. 1989 schedules and team strength charts. Send \$24.95 plus \$3 postage and handling to:

H&R SPORTS Rte. 3, Box 20 Ackerman, MS 39735 Ask about our weekly updates, or call: (601) 387-4425 or 387-4402

Insurance

INSURE YOUR COMPUTER

Safeware provides full replacement of hardware, media, and purchased software. As little as \$39 a year provides comprehensive coverage. With blanket coverage, no lists of equipment are needed. One phone call does it all! Call 8am to 10pm ET (Sat 9 to 5).

SAFEWARE, THE INSURANCE AGENCY INC. 2929 N. High St. P.O. Box 02211 Columbus, OH 43202 (800) 848-3469 Nat; (614) 262-0559 (OH)



YPER STUDIO: HYPERTEXT FOR YOUR GS

DON'T EVEN THINK of the word *hypertext* for the next five minutes.

Have you ever wondered, though, why your Apple IIGS painting or drawing programs can't work with your music

or sound programs? Why you can't combine your digitized and retouched paintings of the family with your digitized recordings of everybody's voices?

You can. Roger Wagner's Hyper-Studio—reason enough to buy a GS in the first place—finally combines the graphics and sound that the name GS promised. HyperStudio is a simple, easy-to-understand package of hardware and software that lets you combine video images from a laser-disc player with computer text and graphics, plus sounds from any source, in a single GS. But don't let "that word" enter your mind.

With HyperStudio you can create something that looks remarkably like a computer program without ever writing a line of code. You can create works to be seen, listened to, or read—or all three at once—on your Apple IIGS even if you've never programmed anything more complicated than your wristwatch.

Teachers can create their own lessons—combining human voices, computer graphics, even video images—without learning how to program. Schools have the technology; the trouble has always been putting it all together. That's what HyperStudio does. (But stop right now if "that word" is creeping into your consciousness.)

HyperStudio also helps jaded families still wondering, "What can we do with this computer?" Here's an idea from the demo disk. Imagine a computer screen that displays your mom's digitized portrait. Above her, you see the names of her mom and dad, and below her your name and those of your siblings. Next to mom's smiling face is dad's name. On the

intro help saddress hookschelf to do weekly calendar sinds show stack ideas card ideas button ideas art library sounds sound shop sught-n-sound tomily shrurkry animals

other side of mom's portrait are pictures of a record player and a globe.

Click on the globe and the screen suddenly shows a map of County Kerry, Ireland, where she was born. Click on the record player and you hear *When Irish Eyes Are Smiling*, her favorite song. Click on one of the names and the screen shows a picture with names of another generation of parents and children along with birthplaces and favorite songs.

This sci-fi family history isn't something you have to wait to see. It's not something you'll have to buy thousands of dollars' worth of equipment to do. HyperStudio includes a sound digitizer, microphone, and speaker, and can import files from your current Apple IIGS paint program. Best of all, you don't have to graduate from Cal Tech or MIT to create....

There's that word again. We might as well ad-

mit it—you can create "hypertext" for your GS. But don't let that scare you. HyperStudio isn't really a new idea—it's what everybody always

HyperStudio"

expected a computer should be able to do. Just don't use the H-word.

Stress studio.

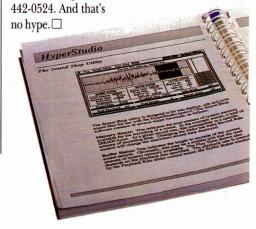
"I like HyperStudio a lot more than

Apple's HyperCard,"

says Senior Editor Paul Statt. "For one thing, you get the tools with the package that make it immediately useful. You can also use images created with other paint programs. And schools, the biggest potential market for hypertext, have GSes, not Macs." As Editor in Chief Dan Muse quips, "HyperStudio's one more reason not to buy a Macintosh."

"It's hard to give you anything on this page but a cursory glance at what HyperStudio is all about, simply because there's so much to it," adds Review Editor Lafe Low.

Keep your eye on *inCider*'s feature section for a full-length description and evaluation of HyperStudio in September. HyperStudio requires an Apple IIGS with 768K of RAM. It comes with all the necessary hardware—amplified speaker, microphone, even batteries for the speaker—and will be available at an introductory price of \$129.95 from Roger Wagner Publishing, Inc., 1050 PioneerWay, Suite P, El Cajon, CA 92020, (619)



Six Great Reasons to Buy an ECHO for Your Computer.









(617) 252-3000



Hartley."

(800) 247-1380



(800) 527-4747



(800) 541-5513



edmark.corporation (800) 426-0856

reachers and parents have found that talking software greatly enhances computer-based learning. Children enjoy the novelty of having their computer talk to them; their attention span is increased, verbal cues and reinforce-

ment help non-readers, and learning becomes more personalized and fun.

While there are a few programs that use the Apple IIGS® built-in voice

capability, for most of the Apple II family "talking software" it is still necessary to use an Echo Speech Processor.

These six leading software companies have helped the Echo® become the voice standard for educational computing. Call the telephone numbers listed above to find out more about these great programs.





"If it didn't say
Kensington on the
front, you might
think it came
from Cupertino."

Editors' Choice inCider magazine



















That's why inCider magazine named System Saver IIGS Editors' Choice for March '88.

Apple® Security System, \$49.95

They were impressed at how well its styling blends in with the IIcs. They appreciated the convenience of its front-mounted switches. And they loved the way it offers surge suppression, extra outlets and a cooling fan, all for \$99.95. In summary, they thought it went "a long way toward making the computer easy to use."

Of course, we were delighted with their reaction.

After all, making the Apple II easier to use is something we've been working on for the last seven years. In fact, we've figured out so many ways to do it, we can't fit them all on one page.

That's why we've also made it easy for you to get more information. Just call the toll-free number below, and we'll send you a free 20 page brochure. Or write to us at Kensington, 251 Park Ave. S., NY, NY 10010. (212) 475-5200.

Call (800) 535-4242



Setting new standards of performance.