

NOW INCORPORATED

# incider

THE APPLE II MAGAZINE

## HAVE APPLE, WILL TRAVEL

Graphy Software  
Takes You Around the World

Play It Again, Apple  
Music Products  
For Preschoolers & Pros

New and  
Improved GS!

p. 16

### Reviews:

- Graph It! 1.0
- Math Blaster Mystery
- Certificates and More!
- TimeOut MacroTools & MacroTools II
- The Duel: Test Drive II
- Bad Dudes





# Let Your Child Play With A Power Tool.



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

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

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

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

valuable lesson in getting more for your money.

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

Follow their advice. Call 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.

**LASER**  
Laser Computer, Inc./A Video Technology Company



# 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, IIe, or IIGs.

### 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 role-playing games to recipe programs, from home office to telecommunications programs. Using clearly-written documentation, you will master each new application with ease and confidence.



### Reviewers Love Softdisk!

*"Boot the disk, and you're hooked! Every issue guarantees hours of adventure and fun. In a world where real bargains are hard to find, Softdisk is a very pleasant surprise..."*

—Electronic Learning

### Contents of Issue #89\*

- **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 your 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, **Softdisk** 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 5 1/4" disks or one 3 1/2" 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 price of \$9.95. ProDOS, AppleWorks, and Apple are trademarks of Apple Computer, Inc. Print Shop is a trademark of Broderbund Software.

# FREE!

**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!

\*Premium Graphics in 3 1/2" format compatible only with Apple II GS.

# YES!

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 • LA residents add 4% sales tax.*

**Check One:** ☐ Two 5 1/4" disks ☐ One 3 1/2" disk

Name \_\_\_\_\_

Street Address \_\_\_\_\_

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

Daytime Phone \_\_\_\_\_

☐ Discover ☐ Visa/MC ☐ Am Ex ☐ Payment Enclosed (U.S. Funds)

Card# \_\_\_\_\_ Exp. date \_\_\_\_\_

Signature \_\_\_\_\_

Make check or money order payable to Softdisk Publishing.

## Call Toll-Free 1-800-831-2694

SOFTDISK PUBLISHING P.O. Box 30008 • Shreveport, LA 71130-0008 • 318-221-8718 **IN109**  
Circle 292 on Reader Service Card.



# GOLEM COMPUTERS

## PRESENTS

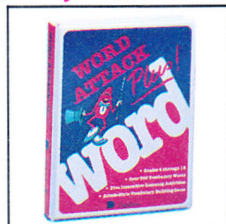
# Hot Dicks!

### COMPUTER LEARNING MONTH

Ages 10 & Up

Ages 10 & Up

Ages 10 & Up



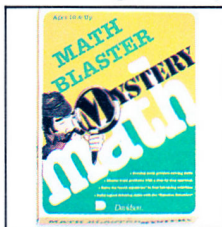
Teaches new words and definitions as students build vocabulary skills. Ilc/Ile, IIGS

**Word Attack Plus \$29.**



Spelling becomes fun as you master 1,000 commonly misspelled words & more than 20 spelling rules. Ilc/Ile, IIGS

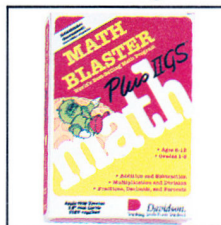
**Spell It Plus \$29.**



Builds confidence as children master word problems and develop critical thinking skills. Ilc/Ile, IIGS

**Math Blaster Mystery \$29.**

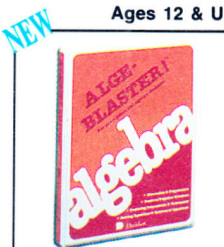
Ages 5-12



Builds basic math skills using colorful graphics and animation to motivate students. IIGS Talking, Ilc/Ile

**Math Blaster Plus \$29.**

Ages 12 & Up



Helps pre-algebra and algebra students develop an understanding of the algebraic process. Ilc/Ile, IIGS

**Alge Blaster Plus \$29.**

**Davidson.**



Makes geography fun -while teaching to analyze information, use reference materials, and take notes. Ilc/Ile, IIGS

**Where in the World IIGS \$30.**  
**Ilc/Ile \$24.**



Students can enhance their school video-tapes and their creativity, improve problem solving and communication skills. Ilc/Ile, IIGS

**VCR Companion \$33.**



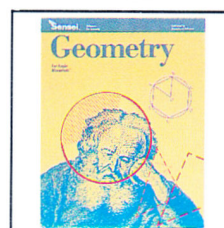
Sharpen students' problem-solving skills and knowledge of geography as they chase Carmen through the U.S.A. Ilc/Ile, IIGS

**Where in the U.S.A. \$27.**



Student can turn their computers into micro-computer based science laboratories. Ilc/Ile, IIGS

**Science ToolKit \$49.**



Interactive geometry tutor with all the excitement of graphics. IIGS

**Geometry \$53.**

**Broderbund®**

#### EDUCATION

**BARRON'S** Study Program For SAT V2.0  
**BRITANICA** Jigsaw (IIGS)  
Algebra 1, 2, 3, 4  
Algebra 5 & 6  
Writing Skills 1-5  
**BRODERBUND**  
Science Tool Kit Module 1, 2, 3  
Type!  
VCR Companion Film Library  
Where in Europe  
**COMPU-TEACH** Once Upon A Time  
Once Upon A Time II  
**ONCE UPON A TIME (IIGS)**  
Sea the USA  
Stepin Stones, Level I, II  
**DAVIDSON & ASSOCIATES**  
Read & Roll  
Word Attack Plus - Spanish, French  
Math & Me  
Math & Me (IIGS), Reading & Me (IIGS)  
Spell It, Grammar Gremlins  
**DESIGNWARE** Spellcopier, Math Maze

Designasaurus (Ilc/Ile)  
**DESIGNASAUROUS (IIGS)**  
**REVOLUTION 78 (IIGS)**  
25. Grammar Examiner, States & Traits  
ea. 25. The Body Transparent, European Nations  
ea. 25. **ELECTRONIC ARTS**  
30. Mavis Beacon Teaches Typing (IIGS)  
30. Mavis Beacon Teaches Typing (Ilc/Ile)  
ea. 27. **FIRST BYTE** (for IIGS) (768K Req.)  
19. Mathtalk, First Shapes, Kidtalk  
17. The Rhyming Notebook  
27. The Dinosaur Discovery Kit  
26. The Puzzle Story Book  
26. Speller Bee, Smoothtalker  
40. Mathtalk Fractions, First Letter & Words  
30. **GREAT WAVE** Kids Time II (IIGS)  
ea. 26. **HARDCOURT, BRACE, JOVANOVICH**  
Computer Prep for the ACT  
Computer Prep for the SAT  
29. **ILS SOFTWARE**  
ea. 29. Computer Preparation SAT, GRE  
24. Computer Preparation LSAT, MBE  
ea. 29. **MECC - WORLD GEOGRAPHY (IIGS)**  
ea. 26. Oregon Trail (Ilc/Ile)

ea. 25. Oregon Trail (IIGS)  
32. Jenny's Journey, Number Muncher  
32. Word Muncher  
ea. 25. **MINDSCAPE** Crossword Magic  
ea. 25. **NATURE BOY** Soft Animal Tracker (IIGS)  
32. **PASPORT DESIGN** Master Tracks  
25. Master Track Pro (IIGS)  
25. Master Track Jr. (IIGS)  
ea. 30. **PYGROPHICS**  
30. Music Writer Level 1 (IIGS)  
30. Music Writer Level 2 (IIGS)  
30. Music Writer Level 3 (IIGS)  
ea. 30. **SIMON & SCHUSTER**  
ea. 30. Typing Tutor IV (IIGS)  
24. Speed Reading Tutor IV  
**THE LEARNING COMPANY**  
Reader Rabbit (IIGS)  
29. Writer Rabbit, Think Quick,  
Rocky's Boots (Ilc/Ile/IIGS)  
ea. 33. Math Rabbit, Reader Rabbit, Gertrudes  
ea. 59. Secrets, Magic Spells (Ilc/Ile/IIGS)  
86. Children's Writing  
20. Publishing Center (Ilc/Ile, IIGS)  
**TOM SNYDER** GeoWorld

23. Flood the Bad Guy  
ea. 20. Jack in the Beanstalk  
20. Snooper Troop I, II  
33. **UNICORN SOFTWARE (IIGS Only)**  
65. All About America, Read A Rama  
165. Math Wizard, Animal Kingdom  
260. Kinderama, Aesop's Fables  
100. **WEEKLY READER** Sticky Bears - ABC's,  
Basketbounc, Bop, Math, Math II,  
80. Numbers, Shapes, Opposites, Reading  
210. ea. 24. Sticky Bears - Basic, Drawing, Music,  
425. Music Library, Parts of Speech,  
ea. 27. Printer, Reading Comprehension,  
27. Spellgrabber, Town Builder, Typing,  
Word Problems  
36. ea. 30. Car Builder, Codes & Hyphens,  
Exploring Tables & Graphs-Level I, II,  
ea. 30. Map Skills, Math Word Problems,  
Punctuation Rules, Reading  
26. Comprehension, Vocabulary Devel.  
ea. 26. Shapes (Talking, IIGS)  
40. **OPPOSITES (TALKING, IIGS)**  
53. ABC's Talking (IIGS)

School Versions and Lab Packs Available. Call for a full line of Educational Software.



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

Mon. thru Fri. 7am - 6pm

Sat. 9am - 4pm - Pacific Time

# GOLEM COMPUTERS

P.O. BOX 6698

WESTLAKE VILLAGE, CA 91360

Special  
of the Month!  
GS JUICE 2MB  
\$350.00

## ENTERTAINMENT

- ACCOLADE Mini Putt (IIGS), Mean 18 (GS) ea. 27.  
Jack Nicklaus Golf (IIGS) 32.  
Test Drive II (GS) 30.  
Test Drive (Ile/IIC), Bubble Ghost (IIGS) ea. 23.  
4TH & INCHES, SERVE & VOLLEY (IIGS) ea. 27.  
**BRODERBUND** Wings of Fury 23.  
Ancient Art of War at Sea 27.  
Ultima Trilogy, Ultima IV, V ea. 40.  
Tangled Tales (Ile/IIC) 20.  
**CINEMWARE** King of Chicago (IIGS) 32.  
Defender of the Crown (IIGS) 32.  
**ROCKET RANGER** (IIGS) 32.  
**DISCOVERY** Sword of Sodan (IIGS 768K) 32.  
**ELECTRONIC ARTS** Bard's Tale 30.  
Cartooner (IIGS) 40.  
Skate or Die (IIGS), Zany Golf (IIGS) ea. 26.  
Bard's Tale (IIGS), Bard's Tale II (IIGS) ea. 32.  
Bard's Tale II, III ea. 32.  
Chessmaster 2100, Chuck Yeager AFT ea. 26.  
Hunt For Red October (IIGS) 35.  
Hunt for Red October (Ile/IIC) 27.  
John Madden Football (Ile/IIC) 33.  
Tomahawk (IIGS) 27.  
Halls of Montezuma (IIGS) 27.  
Marble Madness (IIGS) 17.  
Chessmaster 2100 (IIGS) 33.  
**EPYX** World Games, Winter Games ea. 14.  
World Games (IIGS), Winter Games (IIGS) ea. 14.  
Street Sports: Soccer (IIGS) 14.  
Sub Battle (Ile/IIC, IIGS) ea. 26.  
California Games, Destroyer (Ile/IIC/IIGS) ea. 26.  
California Games (IIGS) 30.  
Project Neptune (IIGS) 30.  
Technocop (Ile/IIC) 27.  
Impossible Mission II (IIGS) 30.  
**P.T.L. - DUNGEON MASTER** (IIGS) 27.  
**LOGICAL DESIGN WORKS**  
Vegas Gambler (IIGS), Vegas Craps (IIGS) ea. 27.  
**MASTERPLAY** Star Saga I 53.  
**MASTERTRONICS**  
John Elway's Quarterback (Ile/IIC, IIGS) ea. 27.  
War in Middle Earth (IIGS) 32.  
**MEDIAGENIC/ACTIVISION**  
Last Ninja (IIGS) 27.  
Black Jack Academy (IIGS) 32.  
Neuromancer (IIGS) 32.  
Battlechess (IIGS) 32.  
**MICROPROSE** Pirates (Ile/IIC, IIGS) ea. 26.  
Silent Service (IIGS) 25.  
**MINDSCAPE** Balance of Power (IIGS) 32.  
Gauntlet, Paper Boy, Paper Boy (IIGS) ea. 25.  
Gauntlet (IIGS) 29.  
Super Star Ice Hockey (IIGS) 29.  
Captain Blood (IIGS) 30.  
Uninvited (IIGS), DejaVu I, II (IIGS) ea. 32.  
**PBI SOFTWARE** (All IIGS)  
Sea Strike, Monte Carlo ea. 26.  
Tower of Myrarglen, Alien Mind ea. 33.  
Cavern Cobra, Strategic Conquest ea. 32.  
**SIERRA ON-LINE** King's Quest I, II, III ea. 31.  
Black Cauldron (IIGS) 27.  
Thexder (Ile/IIC, IIGS) ea. 24.  
King Quest I, II, III, IV (IIGS) ea. 32.  
Space Quest I, II (IIGS) ea. 32.  
Leisure Suit Larry (Ile/IIC, IIGS) ea. 26.  
**GOLD RUSH** (GS) 27.  
Police Quest (IIGS), Manhunter NY (IIGS) ea. 32.  
Silphed (IIGS) 33.  
**SIR-TECH** Wizardry, Wizardry 5 ea. 32.  
Knight of Diamonds, Legacy of Lylgarnyn ea. 32.  
Return of Werda 39.

- SPECTRUM** Tetris (Ile, IIGS) 25.  
**SUBLOGIC** Flight Simulator II 32.  
Scenary Disks 1 thru 6 ea. 16.  
**TAITO - ARKANOID II** (IIGS) 24.  
Bubble Bobble (IIGS) 24.

## BUSINESS

- BEAGLE BROS.** BeagleWrite GS (IIGS) 62.  
BeagleWrite Picture Manager GS (IIGS) 31.  
BeagleWrite Font Library GS (IIGS) 25.  
**BERKLEY SOFTWAREWORKS** GeoPublish 66.  
GeoFile, GeoCalc ea. 46.  
**BRODERBUND** Bank Street Writer Plus 47.  
On Balance 39.  
**CLARIS** Appleworks GS 205.  
Appleworks (Ile/IIC) 175.  
**DAC SOFTWARE** DAC-Easy Accounting 60.  
**ELECTRONIC ARTS** Deluxe Write II (IIGS) 53.  
Delux Write II/Paint II Combo (IIGS) 89.  
**MANZANITA**  
Business Works (ProDos, 2x3 1/2" Drives) 287.  
MILLIKEN Medley (IIGS) 119.  
**SENSIBLE SOFTWARE** Sensible Writer 62.  
Sensible Speller IV (PRO DOS) ea. 68.  
Sensible Grammar Checker 55.  
**SEVEN HILLS** Graphic Writer III 85.  
**SOFTWARE PUBLISHING**  
PFS: Graph (128K PRO DOS) 66.  
PFS: File & Report (128K PRO DOS) 66.  
PFS: Workmates (128K PRO DOS) 110.  
PFS: Write w/Speller (128K PRO DOS) 66.  
**TIMEWORKS - PUBLISH IT 2** 74.  
Graph It! 47.  
Font Pack I, II, Symbols & Slogans, ea. 27.  
People, Places & Things ea. 27.  
**WORDPERFECT**  
Wordperfect (IIGS), (Ile/IIC) ea. 93.

## HOME/PERSONAL

- ABRACADATA** Design Your Own Home 59.  
Architecture (IIGS), Interior (IIGS) ea. 59.  
Landscape (IIGS) 59.  
**BAUDVILLE 816** /Paint (IIGS) 26.  
Award Maker Plus 46.  
**BEAGLE BROS.**  
**BEAGLE DRAW GS** (IIGS) 53.  
Beagle Draw GS Clip Art (IIGS) 31.  
**BRODERBUND** The Print Shop 29.  
The Print Shop (IIGS), Fantavision (IIGS) ea. 37.  
The Print Shop Library (IIGS)-  
Sampler, Party ea. 23.  
The Print Shop Library 1, 2, 3 ea. 15.  
Dazzle Draw 20.  
**ELECTRONIC ARTS** Deluxe Paint II (IIGS) 65.  
Instant Synthesizer (IIGS) 56.  
**INTUIT** Quickpen 33.  
**MECA** Managing Your Money 89.  
**MECC** Calendar Crafter 33.  
**MEDIAGENIC/ACTIVISION**  
Paintworks Plus (IIGS) 46.  
Paintworks Gold (1.25MB Req.) 66.  
Draw Plus (IIGS), Music Studio (IIGS) 59.  
Paint, Write, Draw Bundle (IIGS) 80.  
**OLTRAD** Graphics Images (Ile/IIC) 20.  
Graphics Images (IIGS) 33.

## UTILITY/LANGUAGE

- BEAGLE BROS.** Timeout Graph 52.  
Designworks Accessories (IIGS) 35.  
Timeout-Superfont, Quickspell, Telecom ea. 45.

- Timeout-Filemaster, Sidespread, ea. 31.  
Power Pack, DeskTools II, Thesaurus 48.  
Desktools 35.  
Timeout-Reportwriter 18.  
Timeout-Ultramacros, Spreadtools 68.  
Timeout-Macrotools, Macrotools II 31.  
Point to Point 31.  
GS Font Editor, Program Writer 31.  
**BIG RED COMPUTER**  
PS Lovers (IIGS, Ile/IIC) ea. 27.  
Labels, Labels, Labels 27.  
**BYTE WORKS** ORCA/C, Pascal (IIGS) ea. 88.  
ORCA/Desktop (IIGS) 38.  
ORCA/M 1.1 42.  
**CENTRAL POINT** Copy Two Plus 25.  
**CHECKMATE TECHNOLOGY** Proterm 79.  
**LYNX** Spectragraphics (IIGS) 64.  
**MICOL** Advanced BASIC (IIGS) 95.  
**ROGER WAGNER** Merlin 8/16(PRO DOS) 75.  
Softswitch (IIGS) 40.  
Graphix Exchange 32.  
**HYPER STUDIO** (IIGS) 92.  
Macromate (IIGS) 32.  
**TERRAPIN** Logo Plus 90.  
**TML** Pascal (IIGS), Basic (IIGS) ea. 83.  
Source Code Library (IIGS) 32.  
Speech Toolkit (IIGS) 46.  
**VERSACAD** CAD Apple IIe/Ile 66.

## COMPUTERS

- LASER COMPUTER**  
Laser 128E 375.  
Laser 128EX 440.  
**MONITORS**  
**LASER COMPUTER**  
Color RGB Monitor 298.  
Amber, Green Monitor ea. 105.  
**MAGNAVOX**  
RGB/Composit (CM8762) 285.

## HARD/FLOPPY DISK DRIVES

- AMERICAN MICRO**  
5 1/4 Drive (IIGS, Daisychainable) 145.  
3 1/2 DRIVE (Ile/IIC, IIGS) ea. 190.  
60MB Hard Drive w/ SCSI 817.  
**CHINOOK** Apple SCSI, Software 565.  
CT-20 (Ile, IIGS) 715.  
CT-40 (Ile, IIGS) 560.  
CT-20c (Ile/IIC) 477.  
**APPLIED ENGINEERING**  
Vulcan Hard Drive 20MB 624.  
Vulcan Hard Drive 40MB 119.  
5 1/4 Drive (Ile/IIC, IIGS) 294.  
Trans Drive Dual 195.  
Trans Drive Single 455.  
**APPLIED INGENUITY**  
InnerDrive 20MB (Ile, IIGS) ea. 600.  
InnerDrive 40MB (Ile, IIGS) Call.  
Overdrive 20MB (Ile, IIGS, Laser) Call.  
Overdrive 40MB (Ile, IIGS, Laser) Call.  
**LASER COMPUTER**  
External Disk Drive (5 1/4" Laser) 90.  
External Disk Drive (5 1/4", Ile/IIC) 95.  
External Disk Drive (3 1/2" Laser) 185.  
Universal Disk Controller 45.

## MODEMS

- APPLIED ENGINEERING** Datalink 1200 132.  
Datalink 2400 178.  
**SUPRA** 2400 External 135.

## MEMORY & INTERFACE

- APPLIED ENGINEERING**  
**AUDIO ANIMATOR** 180.  
Conserver 88.  
Ram Factor 1MB (Ile +, Ile, IIGS) 345.  
Ram Works III 512K (Ile) 205.  
Ram Works III 1MB (Ile) 308.  
Ram Works III OK 106.  
GS-Ram 1MB (IIGS) 286.  
GS-Ram PLUS OK 125.  
GS-Ram PLUS 1MB 308.  
GS-Ram PLUS 2MB 492.  
GS-Ram Ultra 1MB 301.  
Trans Warp (Ile +, Ile) 125.  
Ram Express 256K (Ile +) 198.  
Ram Express 1MB 352.  
Phasor (Ile +, Ile) 125.  
Serial Pro (Ile +, Ile, IIGS) 105.  
Parallel Pro, Timemaster HO ea. 73.  
PC Transporter 768K 367.  
RamKeeper 139.  
Sonic Blaster 95.  
Transwarp GS 294.  
**APPLIED INGENUITY**  
Juice Plus 1MB (IIGS) 250.  
GS Juice 2MB (Ile/IIC) 425.  
GS Juice 4MB 750.  
**BITS & PIECES**  
Rocket Chip 5MHz 139.  
Rocket Chip 10MHz 199.  
**DIGITAL VISION** Computer Eyes (IIGS) 200.  
**MEMORY** Ram's Call.  
**ORANGE MICRO** Hotlink (Ile) 49.  
Grappler C/MAC/GS, Proprietary ea. 74.  
**STREET ELECTRONICS - ECHO IIB** 96.  
Echo Plus 122.  
**THIRDWARE** Fingerprint GSI (IIGS) 79.  
**THUNDERWARE** ThunderScan 153.  
**ZIP TECHNOLOGY** Zip Chip 4MHz (Ile/IIC) 120.  
Zip Chip 8MHz (Ile/IIC) 167.

## ACCESSORIES

- BLANK MEDIA** (Bulk) Call.  
**CH PRODUCTS** Flight Stick 50.  
Mach III w/ire Button (Ile/IIC, IIGS) ea. 34.  
Mach IV Plus (IIGS/Ile) ea. 59.  
**KENSLINGTON** System Saver 64.  
Turbo Mouse ADB (IIGS) 115.  
System Saver IIGS 69.  
Mousepad 8.  
Anti-Glare Filter (IIGS) 34.  
**KURTA** IS/ADB Tablet w/stylus (IIGS) 289.  
**LASER COMPUTER** Mouse 45.  
Expansion Box 55.  
Cables - Parallel, Serial, RGB, Modem ea. 16.  
**RIBBONS** Imagewriter II, (4 Colors) 8.  
Imagewriter (Black, Red, Brown, etc.) ea. 4.

## 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) 195.  
KX P1191 (240 cps/48 cps NLQ) 259.  
KX 1092i (240 cps/NLQ) 289.  
**STAR MICRONICS** NX-1000 195.  
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 discretion. Call for Return Authorization number. We are not responsible for suitability or compatibility. Restocking fee of 15% will apply. Shipping and handling: Continental U.S.: Software: add \$5.00; Hardware: add 5% (\$5.00 min). APO, FPO Alaska, Hawaii, Puerto Rico and Canada. Software: add \$5.00 min. Hardware: add 10% (\$10.00 min). INTERNATIONAL ORDERS WELCOME

ALL SOFTWARE SHIPPED STANDARD AIR. NEXT DAY AIR AVAILABLE ON REQUEST.

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

1111 Rancho Conejo Blvd. #407

IN CALIFORNIA CALL 1-805-499-0197

Newbury Park, CA 91320

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

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



# ZIMCO

INTERNATIONAL, INC.  
85-39 213 St., Queens Village, NY 11427

**FREE SHIPPING\***  
**ON ALL ORDERS**

## COMPUTERS

LASER 128 Computer .....	\$365
LASER 128EX Computer ..	\$423
<b>GENUINE APPLE:</b>	
Apple IIc+ CPU .....	\$534
Apple IIe CPU .....	\$656
Apple IIgs .....	\$885
Apple MacPlus, SE, II, IIX call	

## DRIVES

Genuine Apple 3.5", 800K drive (IIgs/Mac) .....	\$335
Apple UniDisk 3.5 .....	\$316
w/Catalyst .....	\$339

<b>Applied Engineering</b>	
with a 1 year warranty	
5.25" drive .....	\$111
Controller .....	\$52

Genuine Apple 5.25" drive for IIc, IIgs .....	\$260
Harddisk 20SC .....	\$711
Harddisk 40SC .....	\$1028

CENTRAL POINT 3.5" Drive .....	\$187
Controller .....	\$69

CMS Stack Drive for IIc/IIgs .....	\$650
SD20-A2S .....	\$815
SD43-A2S .....	\$815

<b>RODIME</b>	
20 Plus ext. IIe/GS .....	\$665
40 Plus ext. IIe/GS .....	\$999
60 Plus ext. IIe/GS .....	\$1200

## HARDWARE

<b>GENUINE APPLE:</b>	
Apple IIc MOUSE .....	\$79
Apple IIe MOUSE .....	\$119
Apple IIe enhance. kit ..	\$59
Apple IIe mem.exp.cd. ..	\$182
Apple IIe 256k exp. kit ..	\$125
Apple Numeric Keypad ..	\$55
Apple SCSI card .....	\$119
Apple Super Serial Card ..	\$110

<b>APPLIED ENGINEERING:</b>	
16 Channel 12-bit A/D ..	\$205
Buffer Pro 32K .....	\$81
Buffer Pro 256K .....	\$179

IBM Keyboard w/cable ..	\$101
PC Transporter 768K .....	\$375
PC Transporter Inst. II+/IIe	\$29
PC Transporter Inst. IIgs ..	\$37

Parallel Pro .....	\$74
Phosor .....	\$126
Packet Rocket 16K II+ ..	\$74

RamCharger .....	\$134
RGB Colorlink .....	\$96
Ramfactor w/0K .....	\$141

Ramfactor w/256K .....	\$194
Ramfactor w/512K .....	\$246
Ramfactor w/1 Meg .....	\$351

Ramfactor Exp. w/0K .....	\$149
Ramfactor Exp. w/1 M ..	\$336
Ramfactor Exp. w/2 M ..	\$523

Ramfactor Exp. w/3 M ..	\$709
Ramfactor Exp. w/3 M ..	\$896
RamKeeper .....	\$139

Ramworks OK .....	\$89
Ramworks w/64 .....	\$111
Ramworks w/256K .....	\$141

Ramworks w/512K .....	\$196
Ramworks 2 Meg. exp. card	\$262
w/1 Meg .....	\$262

Ramworks III w/0K .....	\$104
Ramworks III w/256K .....	\$156
Ramworks III w/512K .....	\$209

Ramworks III w/1 Meg .....	\$209
Ramworks III w/1.5 Meg ..	\$313
Ramworks III w/2 Meg .....	\$448

Ramworks III w/2.5 Meg ..	\$762
RGB Digital Prism .....	\$96
Serial Pro .....	\$104

TimeMaster II H.O. ....	\$75
Transdrive Single .....	\$194
Transdrive Double .....	\$298

Transwrap II+, IIe .....	\$125
Viewmaster 80 II+ .....	\$119
Z-80 Plus .....	\$111

Z-80C .....	\$119
Z-Ram 16-bit chip .....	\$59
Z-RAM ULTRA 1 w/0K .....	\$104

Z-RAM ULTRA 1 w/256K ..	\$156
Z-RAM ULTRA 1 w/512K ..	\$209
Z-RAM ULTRA 2 w/0K .....	\$156

Z-RAM ULTRA 2 w/512K ..	\$209
Z-RAM ULTRA 2 w/1 M .....	\$366
Z-RAM ULTRA 3 w/0K .....	\$216
Z-RAM ULTRA 3 w/256K ..	\$268

## MONITORS

APPLE Color Comp .....	\$316
APPLE Monochrome .....	\$126
APPLE RGB Analog GS ..	\$475
Amber or Green Mono .....	\$110
MAGNAVOX Amber/Green ..	\$110
MAGNAVOX RGB 14" .....	\$269

## PRINTERS

APPLE Imagewriter 32K Op. ..	\$80
Imagewriter II .....	\$465
Imagewriter LQ .....	\$1080
LASERWRITER IINT .....	\$3955
LASERWRITER IISC .....	\$2200

LASERWRITER IINTX .....	\$5536
CITIZEN 120D .....	\$171
MSP-15 .....	\$401
EPSON LX800 .....	\$205

LQ500 .....	\$360
LQ800 .....	\$410
FX850 .....	\$375
<b>PANASONIC</b>	

KXP-1180 .....	\$185
KXP-1191 .....	\$243
KXP-1124 .....	\$327
Panasonic Laser 4450 .....	\$1785

STAR NX-1000 Parallel .....	\$185
NX-1000 Rainbow .....	\$235
TOSHIBA P321SL .....	\$558

## SOFTWARE

<b>ACTIVISION</b>	
Beyond Zork .....	\$30
Zork Trilogy .....	\$30
Zork Zero .....	\$30
Rampage (or) Shanghai ..	\$22

<b>PBI Software</b>	
Sea Strike GS .....	\$24
Monte Carlo GS .....	\$24
Tower of Miraglen GS ..	\$31

Allen Mind GS .....	\$31
Visualizer GS .....	\$54
Pinpoint IGS Starter Pack ..	\$97
PRINT SHOP .....	\$36
Random Hs. II Write GS ..	\$49

<b>Roger Wagner</b>	
Mousewrite GS .....	\$90
Softswitch GS .....	\$38

<b>SPECTRUM HOLOBYTE</b>	
Gato .....	\$25
Orbiter .....	\$33
Wilderness .....	\$31

<b>SIERRA ONLINE</b>	
King's Quest 1/2/3GS .....	\$30
Leisure Suit Larry GS ..	\$25
Space Quest IGS .....	\$31

Softview Taxview GS .....	\$64
Talking Textwriter GS .....	\$150
TOP DRAWER GS .....	\$54
Typing Tutor IV GS .....	\$30
WORDPERFECT GS .....	\$95

Writer's Choice Elite IGS ..	\$54
<b>IIGS</b>	

APPLE IIGS Computer .....	\$885
Apple IIGS mem.exp. ....	\$182
<b>Applied Engineering:</b>	

Colorlink GS/Analog .....	\$97
GS-RAM 0K .....	\$81
GS-RAM 256K .....	\$161

GS-RAM 512K .....	\$263
GS-RAM 1Meg .....	\$464
GS-RAM 1.5Meg .....	\$687
GS-RAM Plus 1 Meg .....	\$439

GS-RAM Plus 2 Meg .....	\$770
GS-RAM Plus 3 Meg .....	\$1121
GS-RAM Plus 4 Meg .....	\$1457
PC Trans. Inst. IIGS .....	\$37

<b>NEW from Applied Engineering:</b>	
SONIC BLASTER GS .....	\$94
TRANSWARP GS .....	\$293
Kensington Sys.Saver IIGS ..	\$79

KURTA IS GS Digitizing Tablet	
w/ stylus .....	\$299
Joystick for IIGS .....	\$24

<b>MDIDEAS</b>	
Conservator IIGS .....	\$124
Professional Digitizer .....	\$139
Supersonic (Stereo) .....	\$59
Supersonic Digitizer .....	\$59

<b>ORANGE MICRO</b>	
Juice Box GS .....	\$62
Grappler C/Mac/GS .....	\$84
Rampac 512K GS .....	\$239

Street Elec. Echo IIGS for the	
IIe+/IIgs .....	\$122
<b>SUMMAGRAPHICS</b>	

Bit Pad Plus ADB IIGS .....	\$329
-----------------------------	-------

## SOFTWARE FOR THE IIGS!

(Please ask for the IIGS version)

DELUXE PAINT .....	\$73
GRAPHIC WRITER .....	\$109
HACKER .....	\$25
INSTANT MUSIC .....	\$37

<b>LEARNING CO.</b>	
Reader Rabbit GS .....	\$37
Writer Rabbit GS .....	\$30

Magic Spells GS .....	\$25
Math Spells GS .....	\$25
Mastertracks MIDI .....	\$170

<b>MICROPROSE</b>	
Silent Service GS .....	\$25
Pirates GS .....	\$25

<b>MINDSCAPE</b>	
Defender o.t. Crown .....	\$31
King of Chicago GS .....	\$31
SDI .....	\$31

Paperboy .....	\$25
Gauntlet .....	\$25
MIGHT & MAGIC .....	\$34

MUSIC CONSTRUCTION .....	\$38
MUSIC STUDIO .....	\$54
NEWSMAKER .....	\$55
PAINTWORKS PLUS .....	\$54

<b>PBI Software</b>	
Sea Strike GS .....	\$24
Monte Carlo GS .....	\$24
Tower of Miraglen GS .....	\$31

Allen Mind GS .....	\$31
Visualizer GS .....	\$54
Pinpoint IGS Starter Pack ..	\$97
PRINT SHOP .....	\$36
Random Hs. II Write GS .....	\$49

<b>Roger Wagner</b>	
Mousewrite GS .....	\$90
Softswitch GS .....	\$38

<b>SPECTRUM HOLOBYTE</b>	
Gato .....	\$25
Orbiter .....	\$33
Wilderness .....	\$31

<b>SIERRA ONLINE</b>	
King's Quest 1/2/3GS .....	\$30
Leisure Suit Larry GS .....	\$25
Space Quest IIGS .....	\$31

Softview Taxview GS .....	\$64
Talking Textwriter GS .....	\$150
TOP DRAWER GS .....	\$54
Typing Tutor IV GS .....	\$30
WORDPERFECT GS .....	\$95

Writer's Choice Elite IIGS ..	\$54
<b>HARDWARE</b>	

APPLE IIGS Computer .....	\$885
Apple IIGS mem.exp. ....	\$182
<b>Applied Engineering:</b>	

Colorlink GS/Analog .....	\$97
GS-RAM 0K .....	\$81
GS-RAM 256K .....	\$161

GS-RAM 512K .....	\$263
GS-RAM 1Meg .....	\$464
GS-RAM 1.5Meg .....	\$687
GS-RAM Plus 1 Meg .....	\$439

GS-RAM Plus 2 Meg .....	\$770
GS-RAM Plus 3 Meg .....	\$1121
GS-RAM Plus 4 Meg .....	\$1457
PC Trans. Inst. IIGS .....	\$37

<b>NEW from Applied Engineering:</b>	
SONIC BLASTER GS .....	\$94
TRANSWARP GS .....	\$293
Kensington Sys.Saver IIGS ..	\$79

KURTA IS GS Digitizing Tablet	
w/ stylus .....	\$299
Joystick for IIGS .....	\$24

<b>MDIDEAS</b>	
Conservator IIGS .....	\$124
Professional Digitizer .....	\$139
Supersonic (Stereo) .....	\$59
Supersonic Digitizer .....	\$59

<b>ORANGE MICRO</b>	
Juice Box GS .....	\$62
Grappler C/Mac/GS .....	\$84
Rampac 512K GS .....	\$239

Street Elec. Echo IIGS for the	
IIe+/IIgs .....	\$122
<b>SUMMAGRAPHICS</b>	

Bit Pad Plus ADB IIGS .....	\$329
-----------------------------	-------

PUBLISHER Paul Boule

EDITOR IN CHIEF Dan Muse

MANAGING EDITOR Eileen T. Terrill

SENIOR EDITOR Paul Statt

SENIOR TECHNICAL EDITOR William Kennedy, Ph.D.

REVIEW EDITOR Lefe 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. Widkin

FIELD EDITOR Babs Cringely

## DESIGN

ART DIRECTOR Linda Sweeney-Sullivan

SENIOR DESIGNER/AD GRAPHICS Dianne K. Ritson

PRODUCTION MANAGER/DESIGNER Varvara Auer

## ADVERTISING

ASSOCIATE PUBLISHER/Dale Strang

NATIONAL SALES MANAGER (800) 441-4403

EASTERN SALES REPRESENTATIVE Peter Slinghoff

(800) 441-4403

MARKETPLACE/CLASSIFIEDS Diane Maguire

SALES REPRESENTATIVE (800) 441-4403

ADVERTISING COORDINATOR Mary Hartwell

(800) 441-4403

ADMINISTRATIVE ASSISTANT Carmen Bryer

SOUTHWEST SALES REPRESENTATIVE James Burns

3350 W. Bayshore Rd.

Suite 201

Palo Alto, CA 94303

(415) 328-3470

NORTHWEST SALES REPRESENTATIVE Janet Wright

(415) 328-3470

WESTERN SALES ASSISTANT Kathleen Roberts

## MARKETING SERVICES/PROMOTION

MARKETING MANAGER Peg Brown

MARKETING ASSISTANT Rita Rivard

## CORPORATE PRODUCTION

MANUFACTURING MANAGER Sue Gross

TYPESETTING MANAGER Lindy Palmisano

TYPOGRAPHER Heidi N. Thomas

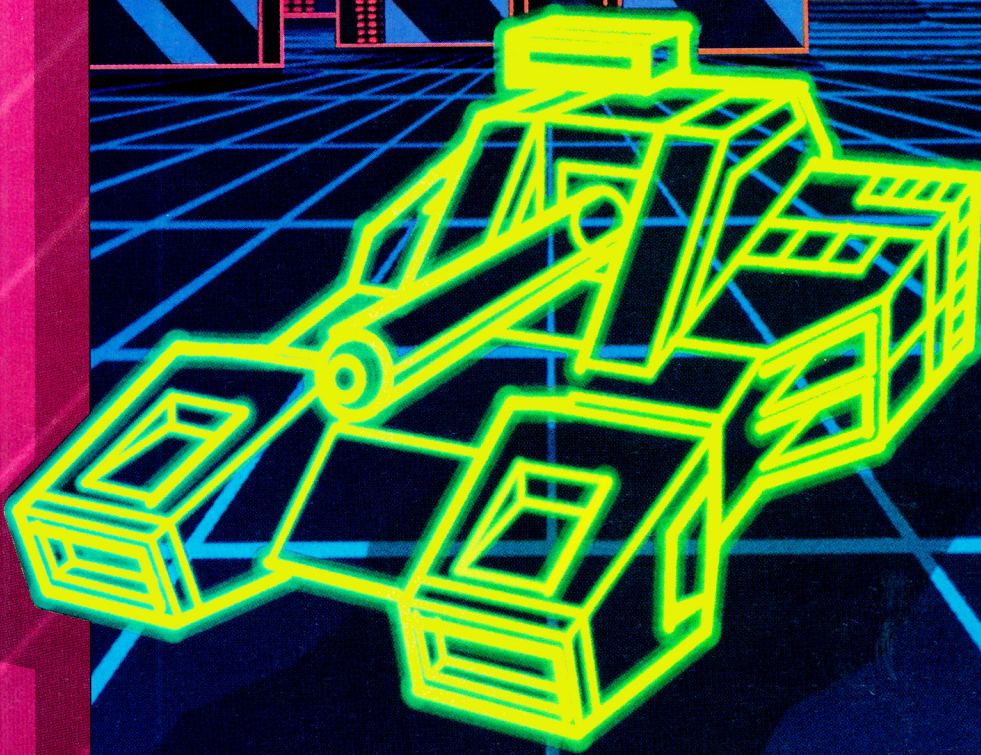
## IDG COMMUNICATIONS/PETERBOROUGH

PRESIDENT Roger J. Murphy

EXECUTIVE VICE PRESIDENT/Stephen D



# OMEGA™



## Neural Cybertank Design and Simulation

Cybertank engineers control the destiny of the Organization for Strategic Intelligence. They're the heart of the OMEGA Project, a classified military contract that's shaping combat's future. Employing tomorrow's technology, OSI cybertank engineers design the chassis and artificial intelligence (AI) for the next generation of neural armored warriors — and they gauge their success on a simulated field of battle. Join these elite ranks, and pit your designs against the world's best.



IBM/COMPATIBLE VERSION



IBM/COMPATIBLE VERSION



APPLE VERSION

**ORIGIN™**  
We create worlds.™

Available for: IBM/Tandy compatibles, C-64/128, Apple II series, Atari ST and Amiga, *coming soon for* Macintosh and Apple IIGx; actual screens may vary.

Can't find OMEGA at your local retailer? Call 1-800-999-4939 (8am to 5pm EST) for Visa/MC orders, or mail check or money order (U.S.\$) to ORIGIN. All versions \$49.95, shipping is FREE via UPS. Allow 1-2 weeks for delivery. ORIGIN, P.O. Box 161750, Austin, Texas 78716.

Circle 42 on Reader Service Card.



# BIG TALKERS



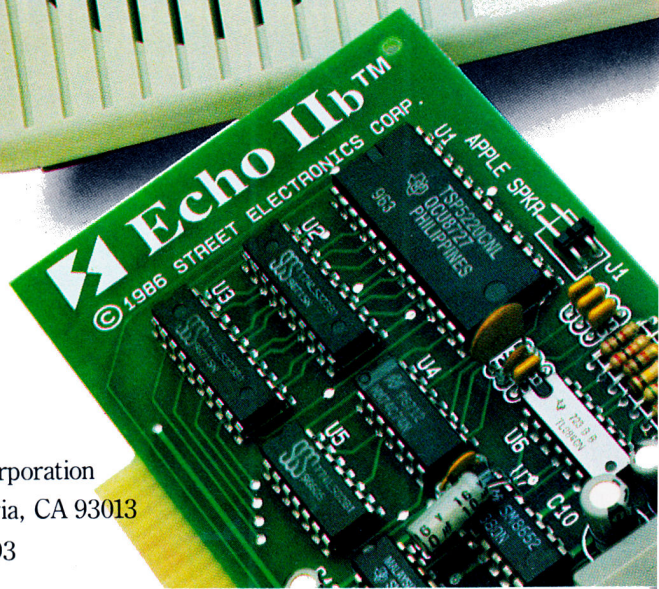
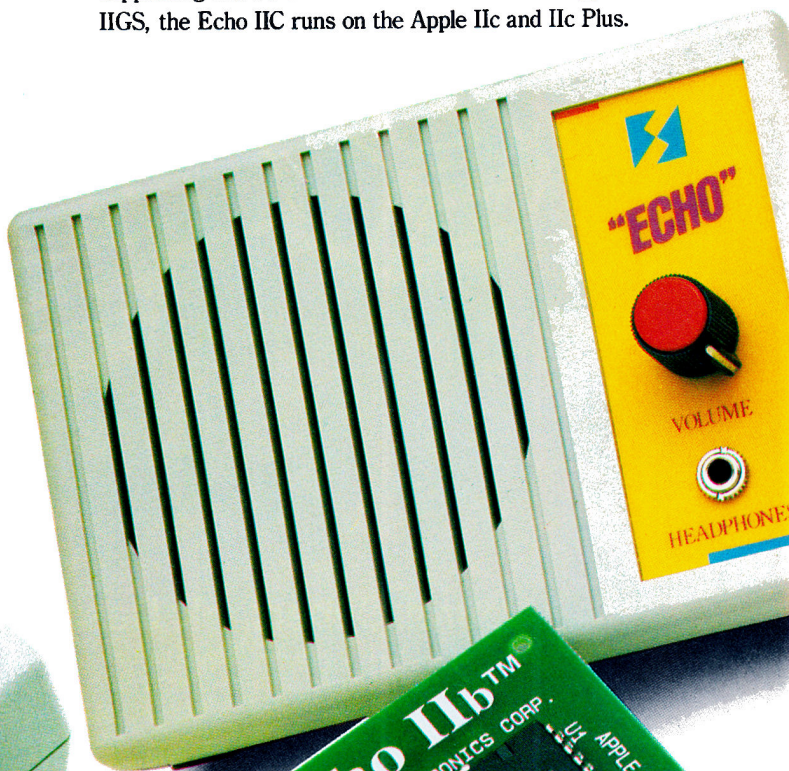
Street Electronics' Echo® products have set the standard for microcomputer voice output for over eight years. Teachers and parents have found that talking software adds a whole new dimension to computer-based learning.

Children not only enjoy the novelty of having their computer talk to them, their attention span is increased, verbal cues and reinforcement keep them motivated as well as assisting non-readers, and learning becomes more personalized and fun.

Although there are a few quality programs which process "software only" voice, it is still necessary to use a dedicated speech add-on peripheral or plug-in board for nearly all of the "talking" educational software. There are over 100 software manufacturers including *Scholastic*, *Optimum Resource/Weekly Reader*, *Houghton Mifflin*, *Hartley Courseware*, *DLM*, *Edmark*, and *Laureate Learning Systems* who presently offer Echo compatible educational and special needs programs, and the number is constantly growing.

Most of the educational programs which are compatible with the Echos take advantage of the high quality female voice output. However, in those programs which require an unlimited vocabulary; for example, a talking word processor, the Echos' text-to-speech capability produces speech in an intelligible robotic-type voice.

The Echos come with a tutorial style manual, an external speaker with a volume control knob and headphone jack, and supporting software. The Echo IIB runs on the Apple® IIe and IIGS, the Echo IIC runs on the Apple IIc and IIc Plus.



Street Electronics Corporation  
6420 Via Real, Carpinteria, CA 93013  
(805) 684-4593



# OCTOBER

1989 • Vol. 7 No. 10



p. 48

## ARTICLES

### 48 Where the Heck Am I?

Pardon our language, but...you *can* get there from here, as several Apple II programs demonstrate. Put those boarding passes away—you don't need trains, boats, or planes to travel the globe. Just turn on your II and take off for places unknown.

### 54 Face the Music

From Beethoven's Fifth to the Fab Four, the beat goes on.... Whether you're the leader of the band or a novice at the keyboard, you can put together a musical repertoire with Apple II hardware and software products.

### 60 Apple Computer Clubs—A Class Act

Join a group that'll inspire class projects and test your computing know-how. Don't just take our word for it—meet the 1989 club members who earned the highest marks in Apple's National Merit Competition and won country-wide recognition.



p. 54

## COLUMNS

### **inCider's View** • Dan Muse

Fighting Temptation . . . . . 8

### **Status Report** • Paul Statt

Apples and Oranges . . . . . 22

### **AppleWorks in Action** • Ruth Witkin

Personal Worth . . . . . 66

### **Press Room** • Cynthia E. Field, Ph.D.

Word's Out . . . . . 72

### **Apple IIgs BASICS** • Joe Abernathy

Sound It Out . . . . . 82

### **Speaking of Graphics** • Roberta Schwartz and Michael Callery

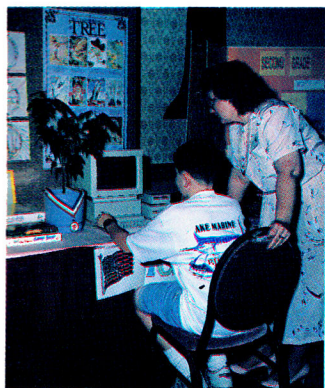
In the Cards . . . . . 94

### **inCider On Line** • Seth Itzkahn

Citizens of the World . . . . . 104

### **Learning Curve** • David D. Thornburg

Fishing for Questions . . . . . 108



p. 60

## DEPARTMENTS

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

### **What's New**

Hardware, Software, Games, Resources . . . . 16

### **Apple Clinic**

Death and the IIgs: GS Senility, Fatal Error  
0911, RAM Crash, GS Text Colors,  
Quickies. . . . . 24

### **Reviews**

Graph It! 1.0, Math Blaster Mystery,  
Certificates and More!, TimeOut MacroTools  
& MacroTools II, At a Glance. . . . . 30

### **Game Room**

The Duel: Test Drive II, Bad Dudes,  
Tip Sheet, Short Takes . . . . . 42

### **Hints & Techniques**

Type It Up: Font Conversion,  
Apple Sound . . . . . 112

### **Editors' Choice**

Salvaging Sunken Files . . . . . 124





## INCIDER'S VIEW

# FIGHTING TEMPTATION

By DAN MUSE \* EDITOR IN CHIEF

**A**s technology advances,  
doing the right thing is  
more and more difficult.  
In fact, it's difficult to  
always know what's right.

"THIS BROADCAST IS INTENDED SOLELY for the use of our audience; any rebroadcast, retransmission, description, or account of this game without the expressed written consent of major-league baseball is strictly prohibited."

If you grew up watching sports, you've probably heard that warning a thousand times. Until recently, however, it never meant much to me. How could I rebroadcast or retransmit a program?

Then came the videocassette recorder (VCR); it's now easy and tempting to record any broadcast: a sporting event, a movie from a pay-TV channel, and so on. If I record a boxing match or a movie and then give it to a friend or relative, I'm breaking the law. I'm pretty sure no one would catch me, but I'd feel too guilty. The technology available lets me break the law without giving it a second thought, but, as Shakespeare says, "Conscience doth make cowards of us all."

We face the same dilemma when it comes to computer software. How do you convince someone not to copy software illegally when that person knows he or she won't be caught? Many users rationalize that software is too expensive, so they have to make illegal copies. This logic has created a "chicken-or-egg" paradox that we've lived with since the early days of personal computers: Is software pirated because it's too expensive? Or is software expensive because people pirate it?

How common is pirated software? The number of books about productivity software is a good indication. While there's certainly a need for books dealing with the advanced features of popular software, there's a flood of beginner-oriented books that seem to replace documentation rather than supplement it. While pirated software may not have created the computer-book publishing business, it has helped it grow. Do you think people buy books about AppleWorks because they're thirsty for more documentation? There's no scientific way to know, but you can bet that for every copy of AppleWorks sold, there's at least one illegal copy made. Companies such as Claris and Beagle Bros tell countless, often humorous, tales of people who have called to

inquire about buying only the documentation, the reasons ranging from "The dog ate the manual" to elaborate stories about floods and other natural disasters.

That's why software publishers, especially educational-software publishers, have been reluctant to sell unprotected programs. On August 1, however, Scholastic Software announced that all its future releases will have no copy-protection code. It will also re-release its major current titles without protection code.

You're probably thinking, "Good. It's about time software publishers woke up. They should have done that years ago." Just make sure you're ready to live up to your end of the bargain. Are you ready to prove to software companies that they can trust you? By removing copy protection, Scholastic isn't saying, "Go ahead. Make copies of our software." It's letting you make one "legal" copy of the disk (or set of disks) for use at any one time. In addition to prohibiting you from making multiple copies, it forbids you from "multiloading" RAM-resident programs for simultaneous use. How will Scholastic know whether you've made more than one copy, or loaded it onto every RAM disk in the school? It won't. It's trusting you to do the right thing—the legal thing.

As technology advances, doing the right thing is more and more difficult. In fact, it's difficult to always know what's right. On-line databases and CD-ROM (compact-disc read-only memory) put megabytes of information at the fingertips of students. I'd never retype 2000 words out of an encyclopedia, but when it's a matter of just printing them, the temptation's there. People aren't any less ethical than they were 10 or 15 years ago, but temptation disguised as technology wasn't as great then. People weren't tempted to speed before the automobile was invented.

October is Computer Learning Month. What better time for us to set an example for young people? Making illegal copies of software (or movies, tapes, and so on) is nothing short of theft. That the technology exists is irrelevant. □



# The Class of 2000 Their future starts here!



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**

**Scholastic Software—Learning Tools for the Next Generation**





## PROGRAMMED CHAOS?

**Y**OUR AUGUST STATUS REPORT ("Something Strange," p. 20) was both interesting and timely. However, Paul Statt dealt little with the order of chaos. I have a copyrighted program that shows graphically the order within a chaotic system. I'd be happy to send a copy of the program to anyone who mails in a check for \$10.

**Worth Lovett  
MaryCo  
115 Marie Drive  
Clarksville, TN 37042**

*Paul Statt thanks you for sending him the program and says it exploits some of the ideas about "random" graphics generation covered in Nova's television special on chaos. According to Paul, "It's a neat program I wish I had written myself—in fact, I tried to create one like it, but it wouldn't fit into Status Report."*

—eds.

## A NATION AT RISK?

**I**'M PROFUSELY DISAPPOINTED TO discover the removal of The graphics gallery from the *inCider* selection of topics. My computer graphics teacher enlightened me upon this perplexing and disturbing situation after her lugubrious trek to the Applefest. I would enjoy to see the replacement of the intriguing graphics gallery in the *inCider* magazine.

**I**N RESPONSE TO THE RECENT merger between the *Incider* and *A+* I dreaded to find that the Graphic Gallery Section has been omitted. In correspondence to this finding I am writing you to plead for a re-evaluation of your decision. In conclusion

I hope to see this section returned for the benefit of the amateur computer artists everywhere.

*The two letters above represent about 30 sent to us from Sachem High School North, Lake Ronkonkoma, New York. Judging from the correspondence, there's a greater need for a "Grammar Gallery" than there is for a "Graphics Gallery."*

*Discontinuing Graphics Gallery wasn't an easy decision to make. We felt that while the section was fun to look at, it didn't educate or inform readers about computer graphics. Those two pages were simply a forum to show the efforts of a handful of computer artists. But we do realize that when it comes to graphics, seeing is as important as reading, so you can expect our Speaking of Graphics column to feature more artwork.*

*To the computer-graphics class at Sachem High: We appreciate the effort, and several of your points are well taken, but—to use the words of your classmate—we're profusely disappointed by your lugubrious letters.*

—eds.

## MAC ATTACK

**Y**OUR JUNE EDITORIAL (*Incider's* View, "Oh Mama, Can This Really Be the End?" p. 8) expressed many of my concerns about Apple ignoring the II line. As a member of the Apple Programmers and Developers Association (APDA), I've felt alone in the computing world, because of the way the IIe, IIc Plus, and especially the IIGS have been treated. It's hard to be optimistic when Apple has introduced five new Macintoshes since the GS' arrival.

I also work in an authorized Apple dealership and am one of only two Apple II support people—the rest of the employees are Macintosh people. The computing community seems to think II computers aren't powerful enough or good enough. I beg to differ; I've

used them since 1979 and have been very happy with the series.

There are about ten million Apple users out there. We're a powerful force, and there are some of us who won't buy a Macintosh if Apple discontinues the II. The Mac is a nice computer, but it isn't for me. The two worlds of Apple computers—the II and the Mac—don't need to be merged and don't need to compete. Apple needs to recognize that the II made the Mac a reality and it's still a viable computer choice.

**John K. Gibson  
536 Creekwood Court  
Westmont, IL 60559**

## HAVE IIc, WILL TRAVEL

**I**'VE INCORPORATED COMPUTER education into my home-teaching program (grades K-12) for the past two years. My students share one feature—they're all confined to their homes or to hospitals. These youngsters are affected with such maladies as broken legs, head trauma, leukemia, brain tumors, and emotional handicaps. Nestled in my "high-tech knapsack" is an Apple IIc computer system, which I've integrated into all my "classrooms," wherever they may be—living rooms, kitchens, dens, even hospital rooms.

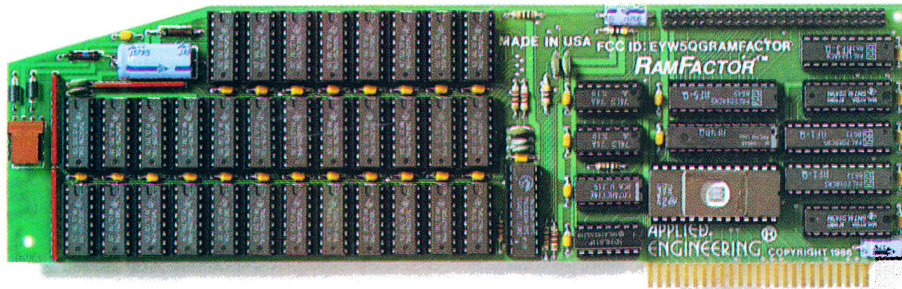
I use the computer for a variety of purposes according to subject, grade level, ability, and each student's previous computer use. Younger children become familiar with the hardware and keyboarding, while the software often initiates a topic, motivates a student to learn a skill, or helps explain a concept or a rule. Thanks to the Apple, I can present more than one objective in a lesson.

One learning-disabled eighth-grader, for instance, related that he finally understood fractions after using a series of software ►



# RamFactor™

## The Ultimate Slot 1-7 Memory Card



RamFactor is automatically recognized as additional workspace memory by AppleWorks 1.3, 2.0 and 2.1. In addition, RamFactor's memory can be used for creating the ultimate in program speed—a lightning-fast RAMdisk for the Apple IIGs, IIe, II+, Franklin and Laser 128. A RAMdisk does not depend on the slow moving parts of a conventional floppy drive. RAMdisks eliminate wear and tear on your disk drive plus your programs run up to 20 times faster! When a program is in RAM, your computer won't have to search for it in the mechanical disk drive during program operation. With RamFactor, you can have up to 9 separate simultaneous RAMdisks—even in different operating systems! Now you can instantly switch from one program to another or even switch from AppleWorks to DOS 3.3 to CP/AM to Apple Pascal 1.3 to ProDOS.

### Apple Memory Expansion Card Compatible

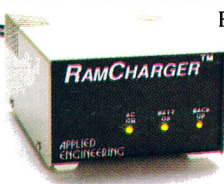
RamFactor is 100% Apple Memory Expansion Card compatible. This means that software designed for Apple's card is automatically compatible with RamFactor. Thousands of software programs—including AppleWorks, Pinpoint, MacroWorks, MultiScribe, and Managing Your Money—can take advantage of the speed and performance RamFactor provides. But with Apple's card, you can have only one RAMdrive partition instead of the 9 simultaneous RAMdrives that RamFactor offers. And that's only part of the story...

### 2.0 AppleWorks Power

Other slot 1-7 cards can give AppleWorks a larger desktop, but that's the end of their story. RamFactor provides many more powerful functions. It's the only slot 1-7 card that increases AppleWorks 2.0 internal limits by increasing the maximum number of records in the database to 22,600, increasing the maximum number of lines permitted in the word processor to 22,600, and expanding the clipboard size to 2,250 lines maximum. RamFactor is the only standard slot card that will automatically load all of AppleWorks into RAM, dramatically increasing speed and

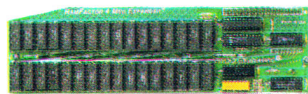
eliminating the time required to access the program disk. It will even display the time and date on the AppleWorks screen with a ProDOS clock. RamFactor will automatically segment large files so they can be saved on multiple 5¼" and 3½" floppies or a hard disk. All this performance is available for the Apple IIe, Laser 128, Franklin or 64K Apple II Plus when used with an 80 column card. No other standard slot card comes close to enhancing AppleWorks so much.

### The "Electronic Hard Disk"



RamCharger is an optional battery back-up device, (about the size of a disk drive), that can plug into a connector on RamFactor. With RamCharger added to RamFactor, your program will appear almost instantaneously when you turn on your computer. RamCharger contains LED's that let you know RamFactor's reserve power status. Since RamCharger has its own built-in power supply, it can retain RamFactor's memory indefinitely. Plus, RamCharger's battery will continue backing up RamFactor's memory for up to 10 hours during power failures. An optional "Y" cable is also available that allows one RamCharger to power two fully expanded RamFactors.

### If 1 MEG Isn't Enough



A 4 MEG RamFactor Expander can be plugged into the expansion port on RamFactor for up to 5 MEG's total. RamFactor Expander uses standard 1 MEG chips and can be expanded in 1 MEG increments. With the addition of RamCharger, both RamFactor and the expander will provide up to 5 MEG's of lightning-fast battery backed storage.

### Features

- Compatible with Apple IIGs, IIe, II+, Franklin and Laser 128
- 256K to 1 MEG on main board with 256K

memory chips; expansion port supports up to 5 MEG with Expander option

- 100% Apple Memory Expansion Card compatible
- RamCharger battery back-up option available for permanent storage
- Reduces power strain to internal power supply with RamCharger option
- Fully socketed and user upgradeable
- Expands internal limits of AppleWorks 2.0
- Automatically recognized by ProDOS, DOS 3.3, Apple Pascal 1.3 and CP/AM
- Built-in RAMDrive software (true RAMdisk not disk caching)
- Graphic memory test included
- Allows Apple II+ to run AppleWorks 2.0 without buying additional software
- Automatically recognized by AppleWorks 1.3 and 2.0
- Fits in any I/O slot except slot 3
- 5 year warranty — parts and labor
- Proudly made in the U.S.A.

<b>RamFactor with 256K</b>	<b>\$259</b>
<b>RamFactor with 512K</b>	<b>\$329</b>
<b>RamFactor with 1 MEG</b>	<b>\$469</b>
<b>RamFactor Expander with 1-4 MEG</b>	<b>CALL</b>
<b>RamCharger backup option</b>	<b>\$179</b>
<b>"Y" cable</b>	<b>\$24</b>

Order RamFactor today... with 15 day money back guarantee and our five year warranty. See your dealer or call (214) 241-6060, 9 a.m. to 11 p.m., 7 days, or send check or money order to Applied Engineering MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10.00 if outside U.S.A.

**AE APPLIED ENGINEERING®**  
*The Apple enhancement experts.*

A Division of AE Research Corporation.

**(214) 241-6060**

P.O. Box 5100, Carrollton, TX 75011  
*Prices subject to change without notice.*



# Why Sensible Grammar™ is first in its class.

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

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

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

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

So get Sensible Grammar. And write like a pro.

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

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

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

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



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

Circle 240 on Reader Service Card.

## LETTERS TO THE EDITOR

packages. A first-grade leukemia patient increased his IQ four points after using a IIc in his home-teaching program twice a week for several months. Most importantly, the computer seemed to precipitate a turning point for several emotionally handicapped boys. Their interaction with a nonthreatening, impersonal machine increased their interest and attendance at learning sessions significantly.

**Linda R. Cooper**  
4805 Royahn Avenue  
Baltimore, MD 21236

## COMPLETE ALLIANCE

**Y**OUR APRIL ISSUE LISTED SEVERAL of the National Special Education Alliance centers, a program sponsored by Apple Computer ("Partners in Special Achievement," p. 56). Unfortunately, there were a few inaccuracies. Two California centers you omitted are Special Awareness Computer Center (Rehabilitation Center, 22975 North Sycamore Drive, Simi Valley, CA 93065, 805-582-1881, AppleLink: SAC-CLINK, contact: Suzanne Feit) and Team of Advocates for Special Kids (18685 Santa Ynez, Fountain Valley, CA 92708, 714-962-6332, AppleLink: CATASK, contact: Joan Stoddard). You also excluded two centers in Kentucky: Blue Grass Technology Center for People with Disabilities (898 Georgetown Street, Lexington, KY 40505-1392, 606-233-1483, AppleLink: BTRCFPD, contact: Jean Isaacs) and SpecialLink (36 West 5th Street, Covington, KY 41011, 606-491-2464, AppleLink: X1272, contact: Walter and Elaine Hackett).

Also, please delete the centers in Texas, Georgia, and the District of Columbia from your list.

**Pam Patton**  
Special Education Programs  
Apple Computer, Inc.  
20525 Mariani Avenue  
Cupertino, CA 95014

## CHIP OFF THE OLD KIT

**I** UPGRADED MY APPLE IIGS recently from 512K to 1 megabyte. I purchased two RAM kits, each one consisting of eight chips. While installing one of them, I broke off a prong accidentally. To replace that individual chip, do I have to buy another RAM

kit—when I won't be using the remaining seven chips?

**Denyse Altagracia**  
219 East 97th Street #9-G  
New York, NY 10029

Check out Microprocessors Unlimited (24000 South Peoria Avenue, Beggs, OK 74421, 918-267-4961). The company will be happy to sell you just one. See "Fast RAM Chips," Apple Clinic, May 1989, p. 22.

—eds.

## MORE ZIP

**I**'VE JUST READ "ZIP NEWS" IN August's What's New section (p. 16). If that's marketing savvy, I'd just rather have a working chip. It's my guess that I'm not alone in my opinion. My chorus is: Zip-pity-do-DUD! Zip-pity-ay! My oh my, what a wonderful wait! Plenty of dollars have flitted away, Zip-pity-do-DUD! Wasting away!

**E. Steve Zapiain**  
2287 Grouse Way  
Union City, CA 94587

## PERSONALLY TAUGHT

**I** AGREE WITH DAVID THORNBURG that schools must shift their focus from worksheets to literature and from multiple-choice questions to essays ("Taking Chances," Learning Curve, August 1989, p. 92). His conclusion, "Fires are kindled with ideas, not computers," is equally moving. I feel, however, that his perception of the "proper" use of technology is skewed. Dr. Thornburg's implication that you can use technology to accomplish his philosophical goals seems ironic at best.

Education can have two results: short-term or long-term retention. You can teach students, with or without technology, how to memorize information in a minimum of study time.

This skill will increase confidence and expand the student's pool of knowledge. Once youngsters can retain information for the short term, they can apply themselves intelligently to an interactive curriculum that fosters long-term retention and creative understanding—a strictly human process. Only personal contact between students and their instructors—not



between man and machine—can nurture the creative and interactive learning Dr. Thornburg encourages.

Dr. Thornburg criticizes educators who use software that teaches facts without fostering higher-order thinking. I disagree with his premise: students must first learn basic facts before they can have a coherent understanding of classroom lectures and discussions.

Even though I'm the CEO of an educational software company, I discourage using computers in schools more often I encourage it. Software companies are making money whether they sell good products or bad. Until teachers demand software programs that function as tools to enhance education through simplicity, not extravagance, many companies will continue to make products that, although visually appealing, offer no substantive educational value.

I urgently recommend parents, teachers, and students to use only educational software that clearly achieves a goal that more traditional methods of instruction can't accomplish.

**Jeffrey Gold**

**Cyberlearn, Inc.**

**20863 Stevens Creek Blvd.**

**Suite 330**

**Cupertino, CA 95014**

## MIGRAINE MATERIAL?

HAVE ONE PROBLEM WITH *inCider*—after reading the magazine for a short time, I get a headache. I cancelled my subscription because of this problem, but missed the up-to-date information and expert advice so much that I started it back up again.

This weekend, after enduring my normal headache, I decided to see whether I could determine why *inCider*, out of all the magazines and newsletters I read, is the only one to pose this problem. I discovered that the magazine's print is generally smaller in height and there are considerably more characters per inch on average than in other publications.

**Terry W. Robertson**

**4901 Carriage Drive Circle**

**Charlotte, NC 28205**

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

# QUICK CHANGE ARTIST.

**You want to put works of art into your Apple®. Without lots of work. So you go to your ImageWriter®. Pop out the ribbon cartridge. Snap in ThunderScan®. Insert your artwork. And quicker than you can say Van Gogh, you're already going.**

Turn your ImageWriter into a powerful image scanner. ThunderScan lets you put crisp images into most paint, drawing and desktop publishing programs. Change contrast and brightness with true gray scale. Colorize on screen and paper. Print out in three different styles.

Priced at just \$219, ThunderScan proves you can become an artist, with just a little change.

When your image really matters.



Thunderware

**ThunderScan®**  
for Apple® II

**21 Orinda Way, Orinda, CA 94563**

**415/254-6581 FAX: 415/254-3047**

ThunderScan is compatible with all IIGs, IIE, and IIC models and all ImageWriter models except the I.Q. Images can be saved in high, double high and super res formats. The following are trademarks of the companies indicated: Apple and ImageWriter: Apple Computer, Inc.; ThunderScan, Thunderware and its logo: Thunderware, Inc. ©1989 Thunderware, Inc.





between man and machine—can nurture the creative and interactive learning Dr. Thornburg encourages.

Dr. Thornburg criticizes educators who use software that teaches facts without fostering higher-order thinking. I disagree with his premise: students must first learn basic facts before they can have a coherent understanding of classroom lectures and discussions.

Even though I'm the CEO of an educational software company, I discourage using computers in schools more often I encourage it. Software companies are making money whether they sell good products or bad. Until teachers demand software programs that function as tools to enhance education through simplicity, not extravagance, many companies will continue to make products that, although visually appealing, offer no substantive educational value.

I urgently recommend parents, teachers, and students to use only educational software that clearly achieves a goal that more traditional methods of instruction can't accomplish.

**Jeffrey Gold**

**Cyberlearn, Inc.**

**20863 Stevens Creek Blvd.**

**Suite 330**

**Cupertino, CA 95014**

## MIGRAINE MATERIAL?

HAVE ONE PROBLEM WITH *inCider*—after reading the magazine for a short time, I get a headache. I cancelled my subscription because of this problem, but missed the up-to-date information and expert advice so much that I started it back up again.

This weekend, after enduring my normal headache, I decided to see whether I could determine why *inCider*, out of all the magazines and newsletters I read, is the only one to pose this problem. I discovered that the magazine's print is generally smaller in height and there are considerably more characters per inch on average than in other publications.

**Terry W. Robertson**

**4901 Carriage Drive Circle**

**Charlotte, NC 28205**

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

# QUICK CHANGE ARTIST.

---

**You want to put works of art into your Apple®. Without lots of work. So you go to your ImageWriter®. Pop out the ribbon cartridge. Snap in ThunderScan®. Insert your artwork. And quicker than you can say Van Gogh, you're already going.**

---

Turn your ImageWriter into a powerful image scanner. ThunderScan lets you put crisp images into most paint, drawing and desktop publishing programs. Change contrast and brightness with true gray scale. Colorize on screen and paper. Print out in three different styles.

Priced at just \$219, ThunderScan proves you can become an artist, with just a little change.

® When your image really matters.



Thunderware

**ThunderScan®**  
for Apple® II

**21 Orinda Way, Orinda, CA 94563**

**415/254-6581 FAX: 415/254-3047**

ThunderScan is compatible with all IIGs, IIEs, and IIC models and all ImageWriter models except the I.Q. Images can be saved in high, double high and super res formats. The following are trademarks of the companies indicated: Apple and ImageWriter: Apple Computer, Inc.; ThunderScan, Thunderware and its logo: Thunderware, Inc. ©1989 Thunderware, Inc.







# SCAREY

## You'll howl

### INTRODUCING:

## BARNEY BUCKS

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

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

Details available with every order.

### APPLIED ENGINEERING

(Additional AE items in stock)

"0" K Boards now available  
Call

Timemaster HO  
\$67

Z-RAM Ultra 1, 256K  
\$150


Z-RAM Ultra 2, 256K   
\$198


Z-RAM Ultra 3, 256K  
\$264

GS-RAM Ultra, 256K  
\$178

GS-RAM Ultra, 1 Meg  
\$294

GS-RAM PLUS, 1 Meg  
\$259 (limited quantity)

RamWorks Basic, 256K   
\$137

RamWorks III, 256K   
\$150

RamWorks Expander  
256K \$122  
512K \$168  
1 Meg \$214  
2 Meg \$354

### APPLIED ENGINEERING

Color Link  
\$94

Ram Factor, 256K  
\$183

Ramcharger  
\$129

16K Ram Card  
\$74

Viewmaster 80  
\$119


Transwarp (II+, //e Accelerator)  
\$124

Phasor (II+, //e Stereo Card)   
\$124

DataLink 2400 (Internal Modem)  
\$174

GS RamKeeper  
\$139

Slot Mover   
\$31

Ram Express, 256K (//c+)   
\$201


Ram Express Clock Option  
\$49

Sonic Blaster (GS Stereo Card)  
\$94

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

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

Transwarp GS (GS Accelerator)  
\$289

PC Transporter (640/768K)   
\$359

PC Transporter GS installation kit  
\$37

Ext. 80 Col Card   
\$54

**WE ACCEPT  
SCHOOL  
PURCHASE  
ORDERS**

### APPLIED ENGINEERING

Vulcan 20 Meg Int HD  
\$479 (specify computer)

Vulcan 40 Meg Int HD  
\$619 (specify computer)

Vulcan 100 Meg Int HD  
\$1299 (specify computer)

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

Audio Animator  
\$174

Easylink Terminal Software  
\$74

Conserver  
\$87

Fastmath  
\$129

Serial Pro  
\$101

Power Supply (//+, //e)  
\$61

Meiji 5.25 1/2 Height TransDrive  
Single \$80  
Dual \$209  
Add-on \$99

Watch for my  
monthly technical  
tips and  
super hot deals!

This month, order  
any Vulcan hard drive  
and I'll send you a  
FREE demo copy of  
EASY DRIVE.

*Matt*

### BEAGLE BROTHERS



TO Quickspell  
\$39

TO Superfonts  
\$39

TO Graph  
\$49

TO Desktools  
\$29

TO Ultra Macros  
\$34

TO Sidespread  
\$29

TO Filemaster  
\$29

TO Thesaurus  
\$29

TO Power Pack  
\$29

TO Desktools II  
\$29

TO Spreadtools  
\$34

TO Macrotools I or II  
\$16/ea

TO Report Writer  
\$44

GS Font Editor  
\$25

Program Writer  
\$29



### ORDERS ONLY:

1-800-438-2883

FAX: 1-619-274-2440

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

Authorized Applied Engineering Dealer

**Roger  
Coats**

P.O. BOX 171466  
SAN DIEGO, CA 92117



TAKE A BITE OUT OF THIS ONE

ProSel  
by Glen Bredon  
AWESOME PROGRAM SELECTOR  
ONLY \$34

Circle 90 on Reader Service Card.

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 • NO C.O.D.s



# DEALS

## over these



### SOFTWARE

(Some, no software refunds)

- Appleworks GS \$197
- DB Master Professional \$189
- RAMLUP 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
- ProTERM v2.1  \$79
- Publish It 2!  \$79
- Graphics Exchange \$29
- Soft Switch \$34
- HyperStudio \$79
- Quicken \$32
- Copy II Plus  \$24
- Musicwriter LE/SE/Pro (//e, GS) \$79/\$199/\$399
- Design your own Home Series Architecture Interiors Landscape \$47/ea (//+, e, c) \$59/ea (GS)

**FOR A COMPLETE PRICE LIST OF OUR PRODUCTS, FILL OUT THE READER SERVICE CARD IN THIS MAGAZINE**

### DISKETTES

- SONY 3.5 Diskettes Pack of 10 \$15

### LASER



- Laser 128 Computer \$389
- Laser 128 EX Computer \$439
- Universal Disk Controller \$44
- Laser 3.5 Drive \$179
- Laser RGB Monitor \$349
- Laser Composite Monitor (specify green or amber) \$89
- Laser 190A Printer \$189
- Laser 190A Serial Option \$35
- Laser Mouse \$81
- Laser Expansion Box \$59

### CHIPS

**All Memory Chips Carry a 5-Year Warranty!**

- CHIPS: (set of 8) 256K, 120ns \$49
- (set of 8) 1 Meg 100 or 120ns \$120



**IF YOU DON'T SEE IT, CALL US!**

### HARDWARE

- Supra 2400 Baud External Modem \$109
- Numeric Keypad (//e) \$49
- Numeric Keypad (//c)  \$99
- AMR 30 Meg w/SCSI (//e, GS) \$659
- AMR 43 Meg w/SCSI (//e, GS) \$769
- AMR 60 Meg w/SCSI (//e, GS) \$799
- AMR 3.5 Drive \$189
- AMR 45 Meg Removable Media w/SCSI (//e, GS) \$1049
- Kensington System Saver GS \$69
- Meiji 5.25 1/2 Height Drive (//+, //e) \$80
- Meiji 5.25 1/2 Height Drive (//c, GS) \$95
- Meiji 5.25 1/2 Height Drive (//c, GS) Daisy Chainable \$119

### OUR CUSTOMERS SPEAK...

**"I called you first because of the knowledgeable and friendly way you conduct business."**

**-- Henry M. Vina Campbell, CA**

### HARDWARE

- No Slot Clock Pro (Apricorn) \$49
- Parallel Interface Adapter (Apricorn) (//c)  \$49
- Thunderscan (//e, //c, GS Scanner) \$157
- AB Switchbox (Ser/Par) \$29
- ABCD Switchbox (Ser/Par) \$39
- AB Switchbox (Mini 8)  \$38
- ABCD Switchbox (Mini 8)  \$48
- //e Fan and Surge Protector \$34
- GS Sound System  2 speakers & 15 watt amp \$119
- Prairie Pwr System, Battery Pack (8 HR, UPS) & Case \$119
- //e Enhancement Kit \$68
- Kensington Turbo Mouse ADB \$119
- ImageBuffer, 64K (IWI Internal) \$63
- Cables (all types, 10 ft) \$15
- CH Mach II Joystick \$35
- CH FlightStick \$47
- Apple ImageWriter II \$459
- FingerPrint GSi vII  \$79

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

**Supra 2400  
Baud Modem  
by Supra Corporation  
1 yr. warranty**

**list \$179  
NOW \$109**

### BARNEY'S DOG DAY SPECIALS



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

Roger  
Coats

P.O. BOX 171466  
SAN DIEGO, CA 92117



### PRICE QUOTES & TECHNICAL SUPPORT

**1-619-274-1253**

**8am - 5pm PST**

**Monday-Friday**

**Committed to value since 1985**





# WHAT'S NEW

By Paul Statt, Senior Editor

## NEW GS: MORE FOR YOUR MONEY

**T**hat new-and-improved Apple IIGS you've been hearing rumors about is finally a reality. On August 15th Apple officially released an updated version—same name, same case, but with expanded memory and some extra features that will make the machine easier for disabled users to operate.

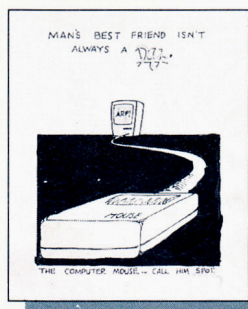
This latest GS comes equipped with 1.125 megabytes of RAM, plus some of the tools from System Software (GS/OS) Version 5.0 built into ROM. Design enhancements include the Macintosh feature Sticky Keys, a macro-like capability that activates several keys with one stroke. Scaling has been adjusted for a more precise mouse-to-cursor relationship. More mouse commands now have keyboard equivalents, as well, a feature that will help users who are unable to manipulate that peripheral.

Some slot allocations have been changed in the new computer, making for more flexible add-on arrangements. In the original GS certain devices worked only in particular slots; these requirements are no longer hard-and-fast.

No upgrade kit will be offered for the new model; most current GS owners have already added extra memory, Apple says, and System Disk 5.0 gives you 90 percent of the enhancements. Apple has not raised the machine's price (\$2506 suggested retail for a setup that includes CPU, RGB monitor, 3½-inch drive, and 5¼-inch drive)—good news indeed. —Lafe Low

## ARTISTIC FLAIR

*Below and right are some of the winning Apple II and Commodore Amiga entries in last year's Computer Learning Month Art Contest. To find out how you can enter the next contest, write The Computer Learning Foundation at 3098 Ramona Street, Palo Alto, CA 94306.*



1



2



3



## HARDWARE

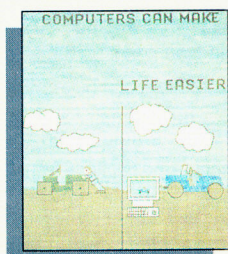
**Cirtech** (Scotland), maker of the PlusRAM memory-expansion card for the Apple IIGS and the StatDisk solid-state electronic disk drive, will build the **Insider**, a 20- or 40-megabyte **hard-disk drive** that fits any Apple II.

## INSIDE STORY

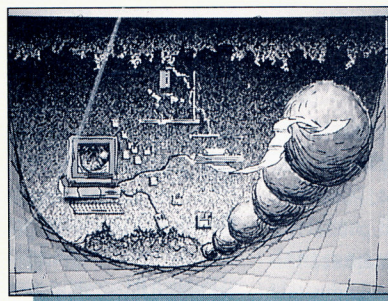
An internal 40-megabyte hard-disk drive may arrive soon from Scotland. Then again, it may not.

The Insider, Cirtech claims, "uses unique 2½-inch hard-disk mechanisms, with an integrated SCSI controller and interface. The result is a totally self-contained plug-in card that fits directly into any Apple II slot. No cables, no extra power supply, no modifications to the computer, no tools required, no special installation. . . . It consumes less power than the average printer-interface card—a miserly 1.7 watts."





4



5

1. **T.R. Boyce, age 17, LBHS, Altamonte Springs, FL.**
2. **Michael Krause, age 9, Thos. Jefferson School, Euclid, OH.**
3. **Paula Brooks, age 17, DuPont Manual High, Louisville, KY.**
4. **Michael Hopkins, age 11, Penn Wood, West Chester, PA.**
5. **Jeff Canary, age 17, DuPont Manual High, Louisville, KY.**
6. **Gregory King, age 17, DuPont Manual High, Louisville, KY.**



6

## STICKYBEAR'S BACK



### SOFTWARE

Bedford Stickybear's latest explorations take him into shapes and opposites. Both **Talking Stickybear Opposites** and **Talking Stickybear Shapes** use spoken words and charming pictures to intrigue

3- to 6-year old children.

Kids playing *Opposites*, for instance, will see Bedford pilot his plane over and under a bridge, ride his unicycle, frown when he's sad, and smile when he's happy.

*Shapes* teaches children to identify circles, squares, rectangles, triangles, and diamonds—important facts to know in preparation for first grade. Bedford's bearish voice and roly-poly figure make kids feel right at home with geometry.

*Talking Stickybear Opposites* and *Shapes* require 512K and cost \$49.95 each. (Lab packs of five disks are priced at \$85 per set.) They require the Echo card for speech synthesis, and are available from Optimum Resource/Weekly Reader, 10 Station Place, Norfolk, CT 06058, (203) 542-5553. Circle number 350 on the Reader Service card for more information. ►

That sounds like Scottish thrift, but in July Tom Vanderpol at A2-Central, Cirtech's American distributor, remained cautious. He stated that although the Insider looks as if it would be really neat, the people at Cirtech haven't been able to get the pricing where they want it.

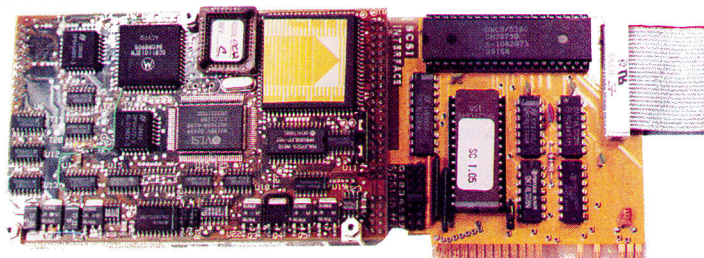
Vanderpol praised the Insider's low power draw, but said that A2-Central was not yet certain it would sell in the States.

Cirtech claims the Insider is compatible with any Apple II operating system—even more

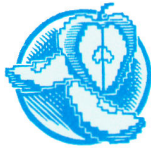
than one at a time—and you can use it to anchor a local-area network with optional software.

Curious North Americans should contact A2-Central, P.O. Box 11250, Overland Park, KS 66207, (913) 469-6502; others should write or call Cirtech, Currie Road Industrial Estate, Gala-shiels, Selkirkshire, Scotland TD1 2BP, (44) 896 57790, for details.

**Scottish thrift? Cirtech's internal hard-disk drive requires no cables, no extra power supply, no tools, no modifications, and only 1.7 watts—but pricing problems may hold up distribution in the States.**







## APPLE BITS

■ Does **Claris** (Santa Clara, CA) have something personal against AppleFest?

■ Apple's next software product should be **Apple II HyperCard**, which we think will look more like Tutor-Tech (TechWare) than HyperStudio (Roger Wagner Publishing).

■ We hear that Don McIntyre, a former exec at Zip Technology (Los Angeles, CA) has taken over the mail-order distribution of the **Zip Chip** accelerator.

■ **Nature Boy Software** (South Lancaster, PA) hopes to follow up the monumental success of **Animal Tracker with Bird Watcher**.

■ Jeff Gold, boy-wonder president of **CyberLearn**, (Cupertino, CA) has been giving away tons of software to teachers.

■ **PyGraphics** (Grapevine, TX) is talking with top chip maker Frito-Lay about creating a game featuring the famous Chester Cheeto (TM) character.

■ The **Jostens Learning Corporation** (San Diego, CA, and Phoenix, AZ) is gobbling up the curriculum-software market, acquiring Education Systems

Corporation, Hartley Courseware, and Prescription Learning Corporation.

Jostens offers "integrated learning systems"—software and service—to 25 percent of the nation's schools.

■ Look for an AppleWorks Programmers Association to form as soon as Beagle Bros makes public the secrets of writing **TimeOut** applications.

■ Alert: *inCider* readers will note that our own Cynthia Field's disk of **Publish It!** projects is available from the Public Domain Exchange (Santa Clara, CA) for only \$5 (plus

a \$20 membership fee, and a \$10 shareware donation to the author).

■ Is **Chinook Technology** (Longmont, CO), makers of hard-disk drives, looking to pick up one of its competitors?

■ Unconfirmed rumors out of Maryland are that General Electric would like to be rid of the **GE** electronic network.

■ What's holding up the new accounting package from **Beagle Bros** (San Diego, CA)?

NOW! NEW Release for the APPLE II (ProDOS) Computer:

## WIN BIG MONEY!

The Complete Lottery TRACKER and WHEELER™



Now APPLE II Computer owners can enjoy the same popular software program for Pick-6 Lotto Games that has made BIG MONEY WINNERS of people from all over the United States! Just look at some of the features included in the NEW VERSION 3.0 DELUXE UPGRADE of The COMPLETE Lottery TRACKER and WHEELER:

- Record and track up to 500 past winning numbers and dates
- Produce expert trend charts for HOT and DUE numbers
- Track as many State and International games as you like
- Produce statistics for all numbers played
- Check your bets for winning combinations
- Print Charts, stats, recorded numbers, and wheeling systems!

Use Our Years of Experience with **YOUR Computer Advantage!**

Choose From The Worlds Most Popular Wheeling Systems!

SEARCHING HIGH and LOW MENU: • NEW! SKIP and HIT CHART • NEW! Number SEQUENCE Chart • NEW! Number OCCURRENCE Chart • NEW! ... PLACE YOUR BETS MENU: • NEW! "ROLL YOUR OWN" Tickets Feature • NEW! Data Base TICKET SEARCH ... WINNING NUMBERS BANK: • NEW! Last Winning Entry and Date Display!

When We Say Complete ... WE MEAN COMPLETE!

**ORDER NOW! Only \$39.95** plus \$2.00 S&H

ENTERTAINMENT-ON-LINE, Inc.  
P.O. Box 553, Dept. AM  
Westboro, MA 01581

MC/Visa Orders Only  
Call TOLL FREE 1-800-824-7888  
In Canada 1-800-544-2600

Order Direct or see Your Local Software Dealer.

© 1989 Entertainment-On-Line, Inc.



## What's on the tube tonight?

Reruns anyone? Up for another evening of stale sitcoms?

How about a bad B-movie? If this isn't your idea of family fun, it's time to check out a new entertainment listing—MECC Software for the Home. This catalog is filled with software for everyone, from preschoolers ready to explore the intriguing world of the alphabet to adults wanting to explore the world of nations around them. MECC Software for the Home could put your notion of home entertainment in a whole new light.

To order your MECC Software for the Home catalog or to get more information about where to buy MECC software:

**Call 800/228-3504 or 612/481-3500.**

In Minnesota call 800/782-0032.

Or Write: MECC  
3490 Lexington Avenue North  
St. Paul, Minnesota 55126.





# HISTORY MYSTERY



## SOFTWARE

**Where in Time Is Carmen Sandiego?** is the latest adventure of Broderbund's infamous globe-trotting thief.

The first three Carmen mysteries, *Where in the World*, *Where in the USA*, and *Where in Europe Is Carmen Sandiego?*, delighted geography teachers everywhere, as Carmen thrilled students with exciting travels that forced kids to study maps and atlases.

Where in Time should make

history teachers happy. The gang have gotten their hands on a time machine that lets Carmen and her cohorts practice their underhanded craft anytime from 400 to 1950 A.D.—lifting Queen Isabella's jewels in 1492 before she has a chance to bankroll Chris Columbus, or snatching England's Magna Carta in 1215 before King John gets to see it, let alone sign it.

Luckily for history, the Acme Detective Agency—that's you when you play Carmen—has an identical time machine, a copy

of the 1300-page *New American Library Desk Encyclopedia*, and an on-line graphics database of historical information to help crack each case.

"History is a logical extension for the Carmen Sandiego series," according to Gary Carlston, Broderbund's president and co-founder. "Even though the emphasis has been on geography, the earlier games have all included some historical information."



Where in Time Is Carmen Sandiego? costs \$44.95; a school edition with teacher's guide and backup disk (the program is copy-protected) is \$54.95, and a lab pack with five sets of disks is \$109.95, from Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101, (415) 492-3200.

## If you love Print Shop,™ you'll love Big Red

### PLUS



Do you love Print Shop? We do! That's why we created **PLUS**, the Print Shop Lovers' Utility Set. **PLUS** is a set of utility programs designed for the Apple IIe/IIc<sup>3</sup> version of Print Shop. **PLUS** reads the directory of any disk containing Print Shop graphics and prints a catalog sheet showing every graphic with its name. You can print catalog sheets of borders and fonts, too.

**PLUS** also features a Label Maker, Bookmark Maker, and five other utilities. To order **PLUS**, send \$39.95 to Big Red Computer Club. Ask for product number **PS01**. (64K required.)

Print Shop is a trademark of Broderbund Software. Apple IIe, IIc, and IIGS are trademarks of Apple Computer, Inc. AppleWorks is a trademark licensed to CLARIS Corp.

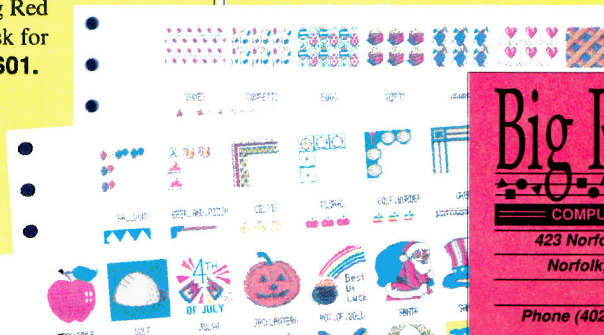
### PLUS-GS

**PLUS-GS** is a set of utility programs designed especially for Print Shop IIGS. In addition to printing catalog sheets of multi-color graphics, borders, fonts, pixels, and patterns, **PLUS-GS** converts GS fonts to Print Shop fonts. You can also create your own multi-color borders and patterns, capture Print Shop graphics from SHR pictures, and convert IIe graphics and borders. Order product number **PS51** for **PLUS-GS**. Price is \$39.95. (512K required.)

### Labels, Labels, Labels

**LABELS, LABELS, LABELS** turns Print Shop graphics, borders, and fonts into unique, colorful labels. Create your own custom labels for videotapes, notebooks, disks, envelopes, and anything else you can imagine. Design your own postcards, price tags, badges, and name tags, too. Take advantage of the built-in database or merge labels with an AppleWorks® database file.

**LABELS, LABELS, LABELS** prints in both b&w and color and supports most popular dot-matrix printers. **LABELS, LABELS, LABELS** is \$39.95. Ask for product number **PS03**. (64K required, 128K for color printing.)



**Big Red**

COMPUTER CLUB  
423 Norfolk Avenue  
Norfolk, Nebraska  
68701  
Phone (402) 379-4680





# Your Guides to Affordable Apple II and IIgs Software

## All That GS Jazz!

Over 1,000 programs are described in this directory, along with "how to" instructions and 4 helpful indexes.

\$4.95 or free with Membership Special

## The Best of Apple II Public Domain Software

Thousands of programs are described in this directory covering 23 categories. Complete with 4 handy indexes.

\$9.95 or free with Membership Special



## APPLE IIgs 3 1/2" DISKS

### Best Selling Graphics

- ☐ **GS63** Cheap Paint—full-featured color painting program (768K REQ.) (SHAREWARE) . . . \$9
- ☐ **GS61,62** 200+ holiday color & b/w graphics & borders for Print Shop™ (2 DISK SET) . . . \$18

### Desk Accessories/Fonts

- ☐ **GS2,GS3,GS4** DAs: Picasaver, Notepad, Calendar, melting screen! (3 DISK SET) . . . \$27
- ☐ **NEW GS57** Calligraphy, Banner, Music, Hebrew, plus 26 more fonts \* . . . \$9
- ☐ **NEW GS70** Add creative touch to art & documents w/3-D, Old West, LED display & more \* \$9
- ☐ **GS85** Control Panel NDA: Get to Control Panel from Apple menu, + 20 other DAs \* \$9

### Education

- ☐ **NEW GS115** Colorful, animated quizzes: tooth decay, neon lights, tension and compression, dangers of cocaine . . . \$9

### Mean 18™ Games

- ☐ **GS36,GS37** Play the treacherous fairways of 12 COURSES (REQ. MEAN 18™) (2 DISK SET) . . . \$18
- ☐ **GS102,GS103** Play 12 Oregon golf courses (REQUIRES MEAN 18™) (2 DISK SET) . . . \$18

### Games

- ☐ **GS27** Bounce-It!: IIGs adaptation of the Little BrickOut game (SHAREWARE) . . . \$9
- ☐ **GS58** F1 Race: Formula one racing game (SHAREWARE) . . . \$9
- ☐ **GS86** Wheel: Vanna's game is now on the IIGs! . . . \$9
- ☐ **NEW GS104** Lotto.GS lottery number generator, Poker and Monte Carlo . . . \$9
- ☐ **NEW GS106** Play Quadomino arcade game & Colossal Caves adventure game . . . \$9

### Graphics/Graphic Utilities

- ☐ **GS5** Graphic utilities: convert pictures from any computer to IIGs format . . . \$9
- ☐ **GS7,GS8,GS9** Many pictures: Ghostbusters, Opt. Kirk, Blue Angels, etc. \* (3 DISKS) . . . \$27
- ☐ **GS88** Viewer: View super hi res graphics quickly and easily. Convert Print Shop™ graphics from the Apple II to the IIGs version, *Incider Editor's Choice* . . . \$9

### Music

- ☐ **GS64** Rock n Roll Gold: Self-running demo plays 14 songs, *Incider Editor's Choice* . . . \$9

### Utilities

- ☐ **GS1** Diversi-Cache/Copy/Key/Hack 1.6 (SHAREWARE) (REQ. 512K) . . . \$9
- ☐ **GS87** Iconed: Design, edit, and color your own icons (SHAREWARE) . . . \$9
- ☐ **NEW GS107** MicroEMACS—extremely powerful text editor for advanced users . . . \$9

\*Needs application, i.e. PaintWorks Gold, Deluxe Paint, or GS63 Cheap Paint to use.

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

## APPLE II 5 1/4" DISKS

### Business

- ☐ **404** Personal and home accounting . . . \$5
- ☐ **NEW 866** Friendly Check—easy chkbk organizer \$5
- ☐ **NEW 869** Mail.List, catalog books, print labels . . . \$5

### CAD/Communications

- ☐ **310,311,312** CAD & graphing pkg. (NEED YOUR OWN PRINTING PACKAGE) (3 DISK SET) . . . \$15
- ☐ **854** ZLINK Term. emul. for IIG, IIGs with 80-column card & Super Serial Card (SHAREWARE) \$5

### Education/Tutorials

- ☐ **000** Learn BASIC programming, assembler . . . \$5
- ☐ **062** Games that make spelling an adventure . . . \$5
- ☐ **085** Elementary math drills: +, -, x, ÷, 23 levels . . . \$5
- ☐ **194** Genealogy program: Trace your Family Tree . . . \$5
- ☐ **518** History, vocabulary, math, astronomy (SHAREWARE) \$5
- ☐ **NEW 863** Aircraft almanac w/full-color hi res graphics \$5
- ☐ **NEW 872** Play Name the States; learn periodic table \$5

### Games

- ☐ **750,751** Fireground—fight fires and save lives (JOYSTICK REQ.) (2 DISK SET) . . . \$10
- ☐ **NEW 813** Pinball games: Flip-It, Super Blast plus 2 more . . . \$5
- ☐ **814** Monopoly: Apple II version of the popular board game . . . \$5
- ☐ **841** Tomb of Doom: Battle spiders, bats and rats while trapped in dark caverns! . . . \$5
- ☐ **NEW 871** Play North American Stock Exchange plus relax with mini golf . . . \$5
- ☐ **NEW 874** Make your own Search-A-Words, prints puzzle and answers . . . \$5
- ☐ **NEW 877,878** King Tut's Revenge: fight dangers—find the Pharaoh's crypt. (REQ. PADDOES (2 DISK SET)) . . . \$10

### Passion

- ☐ **190,191** X-Rated graphics and games for adults only (2 DISK SET) . . . \$10

### Print Shop™ Graphics

- ☐ **461,462,472** 200 graphics/fonts to use w/Print Shop™, *Editor's Choice*, (3 DISKS) \$15

Add \$4 US & Canada (\$14 foreign) shipping/handling for orders. CA orders add sales tax.

If ordering a 6 disk Special, please check 1 box: ☐ Apple II Membership ☐ Apple IIGs Membership

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

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

Name \_\_\_\_\_ 2074-C Walsh Ave., #774

Address \_\_\_\_\_ Santa Clara, CA 95050

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ DEALER INQUIRIES INVITED

**TO ORDER: 800-331-8125 In CA 408-496-0624**

## SPECIAL!

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

- Includes:**
1. Choice of Apple II or IIGs directory.
  2. Quarterly magazine
  3. Special discounts!

**WHAT'S NEW**

# INFOCOM'S ON A ROLL



## GAMES

Infocom has certainly been keeping busy—the company's coming out with a trio of titles that are certain to keep true Infocomaniacs happy.

Did you ever wonder what happened to the royal Flathead family of Zork fame, or what became of the Great Underground Empire? You'll probably find the answers in **Zork Zero**, a "prequel" to the popular Zork trilogy. The newest Zork, although it "occurs" before the other three, features more than 200 bizarre locations and as many peculiar puzzles as all the previous Zorks combined. True Zorkheads won't want to miss this one.

For an experience a bit closer to reality, you can travel to 16th-century Japan as the lead character in **Shogun**, an electronic version of James Clavell's epic novel. As the British sea captain John Blackthorne, you'll have to make decisions that affect your own fortunes and that of Mariko, the court translator with whom you become involved, and Toranaga, one of the regents enmeshed in a vicious power struggle to become the Shogun.

The illustrated fantasy role-playing game **Journey** rounds out the company's new threesome. Journey starts you off in a village that has endured five years of suffering; you join a party setting out to find the great wizard Astrix for a much-needed dose of wisdom. Menu commands control your party, casting spells throughout combat and other explorations.

All three games sell for \$49.95 each, and should be on software shelves this fall. Since the early days of Zork, Infocom has left its previous home in Cambridge, Massachusetts, and is now based in Menlo Park, California. For more information, circle number 351 on the Reader Service card or contact Mediagenic, Infocom's distributor, at 3885 Bohannon Drive, Menlo Park, CA 94025, (415) 329-0800.

—Lafe Low



## UPDATES

■ **Applied Ingenuity** (Baldwin Park, CA) has reworked its popular **InnerDrive** internal GS hard disk. For \$49.95 InnerDrive owners get a new controller



## UPDATES

ware now costs \$499. Prices of IBM-type disk drives and cables are unchanged.

■ **Scholastic Software** (New York, NY) has released network versions of more than 50 popular educational programs, such as Bank Street Writer, Super Story Tree, Math Shop, Algebra Shop, Success with Writing, Super Print, and many, many more. Scholastic supports **AppleShare**, **Corvus**, **Velan**, and **Digicard** networks.



# DO THE Write THING

## RESOURCES



A group of inner-city kids aged 7-12 learn to type articles, draw illustrations, and lay out a newsletter's pages on a computer in a new 15-minute video film, **Teaching Kids Desktop Publishing**.

"The purpose of the film isn't just to demonstrate basic techniques most desktop-publishing programs use," notes Dina Cukier-Schlesinger, the New York City computer teacher who wrote and produced the video. "It also shows how quickly—almost intuitively—kids learn to express themselves on computer."

The spontaneity and intensity of these kids, many of whom had never used a computer before,

really show. Watching this film, you feel you're seeing people learn.

*Teaching Kids Desktop Publishing* is an excellent motivational tool for teachers thinking about getting started in DTP, but many students are also moved by it. One 10-year-old commented, "I want to write my own story on the computer." The movie features Springboard's Newsroom software, but its lessons are applicable to all other popular publishing programs.

*Teaching Kids Desktop Publishing* is available only by mail on VHS for \$29.95, and in 1/4-inch videotape for \$44.95, from Schlesinger Associates, 210 Fifth Avenue, Suite 106, New York, NY 10010, (212) 689-6418.

"The Apple II continues to be an important part of our business."

"Just because the world now has automatic transmissions, that doesn't mean that we no longer have stick shifts."

—Jean-Louis Cassee,  
President, Apple Products



## QUOTES

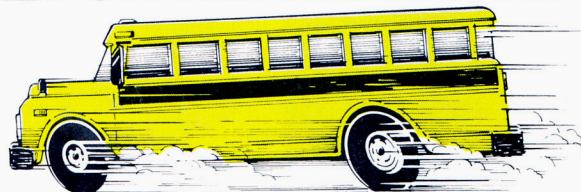
"The Apple II will continue to be a viable choice for many customers into the 1990s."

"Apple's philosophy is to change the world by providing tools that enable individuals to be more creative and efficient—as well as do things never done before. The Apple II has been a powerful start in that direction."

"Apple's customers are finding that both the Apple II and the Macintosh provide excellent value, and that in environments calling for multiple computers, both products work well together for complementary tasks. This co-existence is fostered by the AppleTalk network and many peripherals such as printers, file servers, and disk drives."

—from an "Apple II positioning paper" given to the press by Apple, May 1989

## GET ON THE FAS-TRACK!



Call us for your FREE 1989 Best Sellers Catalog—64 pages of software, hardware and accessories.

**DISCOUNTS UP TO 45% EVERYDAY!**

### Productivity Software

AppleWorks 3.0	\$174.95
AppleWorks GS	\$199.95
Copy II Plus	\$24.95
HyperStudio	\$78.95



**Beagle Bros**  
MICRO SOFTWARE

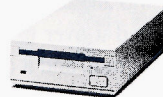
TimeOut  
Series

QuickSpell, Superfonts, Telecomm	\$37.95
GS Font Editor or Program Writer	\$28.45
Thesaurus or Powerpack	ea \$28.45
Desktools I or II	ea \$28.45
Sidespread or File Master	ea \$28.45
Spreadtools or Ultramacros	ea \$34.45
Macrotools I or II	ea \$14.95
Graph or ReportWriter	ea \$47.95

### Desktop Publishing & Graphics

Publish It! 2	\$74.95
4 in one Graphics Pack	\$79.95
PaintWorks Gold (IIGs)	\$63.95
Children's Writing and Pub Center	\$36.95
Print Shop	\$28.95
Print Shop IIGs	\$36.95
VCR Companion	\$29.95
Print Shop Lovers Utility Set	\$25.95
Labels, Labels, Labels	\$25.95

### AMR AS800 3.5" Drive



**\$184.95**  
IIGs & IIC+  
Daisy-Chainable

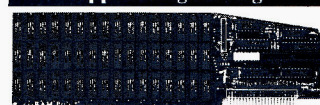
### Other Hardware

Apple IIe 80 Column 64K Card	\$34.95
Computer Eyes for IIGs	\$199.95
Thunderscan	\$169.95
FingerPrint GSI Ver 3	\$92.95

### Zip Technologies

	<b>\$169.00</b> 8 Mhz Zip Chip
<b>\$119.00</b> 4 Mhz Zip Chip	<b>\$Call</b> 8 Mhz Zip IIGs

### Applied Engineering



GS Ram Plus w/1 Meg	\$254.95
RamKeeper	\$149.95
Vulcan 20 Meg Hard Drive	\$469.95
Vulcan 40 Meg Hard Drive	\$609.95
TransWarp IIGs	\$289.95
Sonic Blaster	\$99.95
RamWorks III w/256K	\$154.95

256K Drums (set of 8)	\$47
1 Meg Drums (set of 8)	\$119

### Education

Where in Time is C. Sandiego	\$27.95
Where in the World is C. Sandiego	\$25.95
Where in the USA is C. Sandiego	\$28.95
Math Blaster or Word Attack Plus	\$29.95
Oregon Trail	\$25.95
Designasaurus (IIGs)	\$25.95
Designasaurus (IIGs)	\$30.95
Math Rabbit or Reader Rabbit	ea \$26.95
Talking Reader Rabbit (IIGs)	\$35.95
Writer Rabbit	\$29.95

### Entertainment

Test Drive II—The Dual (IIGs)	\$26.95
Jack Nicklaus Golf (IIGs)	\$26.95
Sword of Sodan (IIGs)	\$29.95
Battle Chess (IIGs)	\$29.95
Kings Quest IV (IIGs or IIGs)	ea \$29.95
Ultima Trilogy	\$36.95
Ultima V	\$36.95
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
Scrabble	\$26.95
Chessmaster 2100 (IIGs)	ea \$32.95
Arkanoïd I or II (IIGs or IIGs)	ea \$21.50
Hardball II (IIGs)	ea \$31.95

### Accessories

ImageWriter Black Ribbon	\$2.50
ImageWriter 4-Color Ribbon	\$5.50
10 DS/DD 3.5" Bulk Diskettes	\$11.95
25 DS/DD 5.25" Bulk Diskettes	\$9.95
5.25" Disk Case (Holds 60)	\$6.95
3.5" Disk Case (Holds 40)	\$6.95
System Saver IIGs	\$69.95



**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)

VISA

MasterCard

U.S., F.P.O., and A.P.O., add 3% (minimum \$4.00) for each shipment. No C.O.D. In Ohio, add 5.5% Sales Tax. MasterCard, VISA, and American Express—No extra charge. We accept purchase orders from schools, universities and other qualified organizations.

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





## STATTUS REPORT

# A PPLES AND ORANGES

By PAUL STATT + SENIOR EDITOR

**G**ive me Bob Lissner  
or a small litter of  
Beagles. Lotus can  
keep its “professional”  
software team.

APPLEWORKS 3.0 ARRIVED AT OUR OFFICES the same week that Lotus 1-2-3 Release 3 finally made it to stores. I'm no fool—I won't compare the two programs. I've been comfortable with AppleWorks for years, and 3.0 fits me perfectly.

On the other hand, I haven't tried to understand 1-2-3 (an integrated spreadsheet, database manager, and graphics program) for years. I hear that Release 3 prints sideways, has its own programming language, and analyzes three-dimensional spreadsheets. 1-2-3 would obviously win the competition. But you can tell something about an apple even by holding it next to an orange.

Programmer Jonathan Sachs wrote Lotus 1-2-3, by himself, in 1983, for the (standard) 256K IBM PC. “I don't have anything against the team approach, it's just not the way I work best,” he said in an interview published in *Programmers at Work* (Microsoft Press, 1986). When he met Mitch Kapor, the man who founded Lotus Development, “the spreadsheet was already done, and within a month I had converted it over to C. . . 1-2-3 began with a working program, and it continued to be a working program throughout its development.” Sachs says that's why it was such a success. He knew at every moment during its development what features 1-2-3 had, what he wanted it to have, and what it could do. One man understood the whole project.

Release 3 was released a year late. It's squeezed onto 14 floppy disks that a team of 40 programmers took years to write. I don't know their names. Release 3, according to Lotus, was “redesigned” in C. Whatever else that means, it will be portable. Lotus wants to be sure that Release 3 will work with OS/2, MS-DOS, whatever IBM does next, and probably even the Macintosh someday. Nobody's quite certain what the standard business computer system is. Release 3 requires an 80286 or 80386 microprocessor, a hard-disk drive, and a megabyte of RAM.

Bob Lissner wrote AppleWorks in 1983, alone. After a brief flirtation with the Apple III, AppleWorks settled down with the (standard) 128K Apple II with a single 5¼-inch disk drive. It came on a

single disk; AppleWorks 3.0 requires two double-sided disks. AppleWorks 3.0 works on any Apple II—even that 1985-standard 128K Apple II with a single disk drive. It's written in assembly language.

Three programmers wrote AppleWorks 3.0; their names are Alan Bird, Randy Brandt, and Bob Rensstrom. They're all employed by Beagle Bros of San Diego. Beagle Bros didn't get the AppleWorks 3.0 contract because Claris' affirmative-action lawyers suggested hiring small dogs. Beagle Bros had already written most of AppleWorks 3.0 as TimeOut AppleWorks accessories. As Jonathan Sachs might say, AppleWorks 3.0 was a working program from the start.

Pundits in the IBM PC and Macintosh industries—often and incorrectly called the microcomputer industry—complain that “hardware is advancing faster than software.” IBM, Compaq, Apple, and the rest are building better machines faster than Microsoft and Lotus can write better software for them.

It's too bad that software-industry pundits won't look closely at AppleWorks 3.0: They'd see software pacing its hardware. AppleWorks 3.0 proves how good software can be if it runs on—what can I call it but old?—hardware. Lotus 1-2-3 shows what happens when software developers struggle to remain “state of the art.”

A single programmer does the job best, a small team well, and a large team badly. Frederic Brooks wrote an essay called *The Mythical Man-Month* (Addison-Wesley, 1974), proving that if one programmer can write 10,000 lines of code a month, it doesn't follow that 30 programmers can do it in a day. Give me Lissner or a small litter of Beagles. Lotus can keep its professional software team.

By the way, buy AppleWorks 3.0. Don't complain to me that you have to pay \$79 to upgrade—if you had bought Lotus 1-2-3 in 1983, you'd have to buy a whole new computer to run Release 3. AppleWorks 3.0 proves there's a future for the Apple II and, more importantly, a chance in the future for a single person (or a small group) to create something of lasting value. □





## Man's Best Friend

Yes, InnerDrive has surpassed the dog as "man's best Friend". While InnerDrive may not bring you your newspaper or your slippers, it offers some "dog-gone" good features that make your life a lot easier... like bringing you AppleWorksGS at lightning speed. InnerDrive is the best value of any Apple II hard drive, and no bones about it!

As we've said before, there are two kinds of Apple II users - those who know they need a hard drive and those who don't know they need a hard drive, yet. What we mean by that is, a hard drive is one of those misunderstood peripherals that can greatly increase the productivity and simplicity of your computer, if only you were to realize its potential.

A hard drive is as easy to use as a disk drive. You load, save, and copy the same way. But the hard drive is so much faster than a standard drive that your time spent waiting for loading and saving is significantly reduced. And since there is so much

storage available, all of your programs are at your finger tips. And that means no more tedious disk swaps or searching through stacks of disks.

The InnerDrive's advantages are superior performance, and high reliability, at an affordable price. InnerDrive is the first internal hard drive for the IIs, the first hard drive to transfer data in 16 bits, and the first hard drive for under \$500.

InnerDrive also comes with 3 megabytes of free software and GS/OS 5.0. A Iie version is also available.

**(SCSI Now Available)**

**InnerDrive: 20 Megabytes \$499, 40 Megabytes \$699**

**OverDrive: 20 Megabytes \$399, 40 Megabytes \$599**

**AI Applied Ingenuity**

**CALL NOW: 800-346-0811 or in CA: 818-960-1485**

14922M Ramona Blvd. Baldwin Park CA 91706

Or see your dealer





# DEATH AND THE IIGS

Don't panic when your GS' battery dies; it's going to wear out, and it'll happen sooner than you think. Just open up your machine and clip on a fresh one.

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

## GS SENILITY

**M**Y GS' CONTROL-PANEL settings have all reverted back to their default (factory-set) states—for instance, the screen colors switch back to white on medium blue. I can still change the Control Panel, and it stays that way only as long as I keep the computer on. Turn the GS off and wham—it's Control-Open apple-Escape time again. Everything else seems to work okay. What's happening? Is this a prelude to disaster?

**Steve Muskiewicz  
Hudson, NH**

Sounds like your GS is getting senile, Steve. And it's not all that old. Fortunately, all it needs is a new battery.

We talked about dead GS batteries in *Apple Clinic* last March (p. 22), but the case bears reviewing: Your GS battery is going to wear out and it'll happen sooner than you might expect (after about two years of normal use). Just keep these symptoms in the back of your mind so that you can avoid panic: Overnight, your screen's border, background, and text colors change; your cards (except slot 7) don't work anymore; a fast mouse becomes lethargic; the calendar thinks it's January 1, 1912; and so on.

When the inevitable happens, just open up your GS and clip on the fresh battery you purchased for the occasion from Night Owl Productions (5734

Lamar, Mission, KS 66202, \$9.95 including installation instructions).

Or, for those of you lacking rudimentary technical skills or the nerve to find out that you lack them, pack up your GS (save your back and leave the drives, keyboard, monitor, and so on home) and take it to your local dealer, who'll install a new battery for you.

## GS TEXT COLORS

**J**UST A QUICK QUESTION: HOW can I use the programming language Applesoft BASIC to change the color of my GS' text and background?

**Matthew Huck  
Pocatello, ID**

Forget Applesoft! Grab a can of spray paint and go wild, Matt.

Or simply POKE the colors for text and background into a single memory location: POKE 49186, TC\*16 + BC, where TC is the text color and BC is the background color. To examine the current colors, use the statements TC = INT(PEEK(49186)/16) and BC = PEEK(49186) - TC.

As you probably already know, the GS can display colored text characters on top of a colored background, each in 16 different hues. Colors are numbered zero (0) through 15; these values should be used for TC and BC above. Text and background for the entire screen, not just a single character, are changed simultaneously.

## RAM CRASH

**M**Y GS IS GETTING WEIRD. Every so often, more so in recent weeks, it just crashes into the monitor when I use GS-specific software such as AppleWorks GS or Paintworks Gold. But it never dies when I use regular Apple II software like 8-bit AppleWorks. Is GS software normally so buggy, or is there something wrong with my computer?

**Molly Pistatt  
Newborne, PA**

There's no hiding the fact that much of the software available for the GS has problems—a bit “buggy,” as you termed it, when compared with that for earlier Apple IIs. But the GS is relatively new, and the awesome software you see is made possible by the machine's much more sophisticated hardware and ROM-based support firmware. It takes time and experience to produce such complicated software; let's give the development community a chance to learn and perfect its work for the GS. In the meantime, have patience, send in those warranty cards to the manufacturers, and keep the pressure on them to provide timely upgrades at reasonable prices.

I don't think buggy GS software is your problem, though, Molly. Overheated, corroded, or loose components could be the source (see “Fatal Error 0911” in this column), but I suspect that at least one faulty RAM (random-access memory) chip on your GS memory-expansion card is crashing your GS software.

Most software programmed for earlier Apple IIs uses only the first one or two banks (64K or 128K) of RAM on your GS' main component board (motherboard). The GS uses the other 128K on the motherboard for system-related activities. GS-specific software uses most if not all of that 256K to 6 megabytes of available memory. Because the errors occur only with GS software, the errant memory chips are probably on your RAM-expansion card. ►

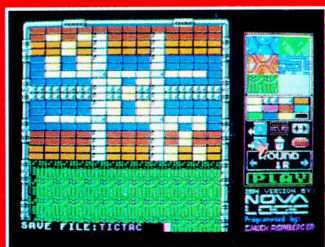


# RAGE!

## DOH RAGES ON IN ARKANOID III!



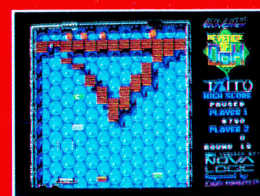
Arkanoid was never like this! Arkanoid II is here with more menace and explosive action than ever. Loaded with powerful weapons, 67 outrageous force barriers, and intense graphics and animation, it takes lightning-fast reflexes and superior strategy to survive! But survival is just the beginning.



*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.



*Smash 67 action-packed levels. IBM EGA/VGA screen.*



*Power up with super-charged energy capsules. Apple IIGS screen.*



*Blast through the force of DOH. Tandy 1000 screen.*



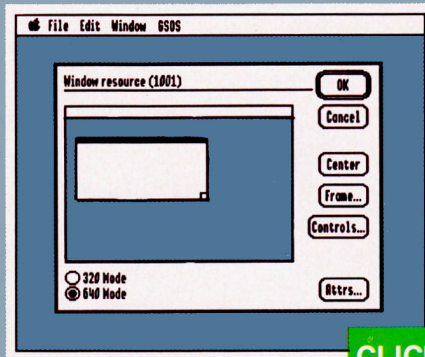
If you cannot find this product at your local retailer, Visa/MasterCard holders can order direct anywhere in the United States by calling toll free 1-800-663-8067.

Taito®, Arkanoid®, Revenge of DOH®, and Arkanoid Construction Set™ are trademarks of Taito America Corporation.  
 ©1989 Taito America Corporation. All rights reserved. IBM, Tandy, and Apple IIGS are registered trademarks respectively of International Business Machines, Inc., Tandy Corporation, and Apple Computer, Inc.  
 Circle 110 on Reader Service Card.



# TML Pascal II

How would you create the next great Apple IIgs application? If you're using TML Pascal II it's simple. You just Point and Click!



CLICK

graphically designed on screen with a click of the mouse. Instantly, your program's user interface takes on all of the features you have come to expect from your favorite IIGS products.

Using the Resource Editor, what would take hours now requires only minutes. And that means more time to dedicate to your application specific code.

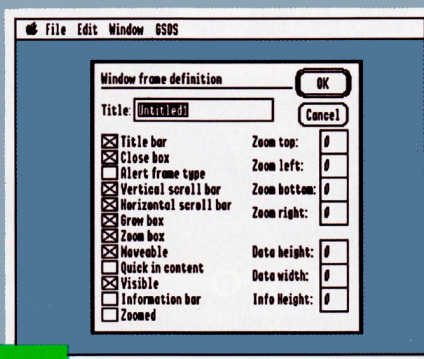
Of course your programming efforts are not limited to only Textbook and Desktop applications. TML Pascal II also allows you to create both New Desk Accessories (NDAs) and Classic Desk Accessories (CDAs) with style. All within the same tightly integrated environment.

So, you see, whether you're a beginning or advanced programmer, TML Pascal II makes programming the Apple IIgs incredibly fast and easy. Remember, you simply Point and Click! Retail price \$125.

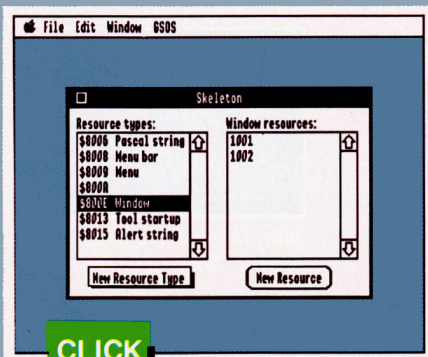
TML Pascal II takes you from product conception to finished product faster and easier than ever before.

A tightly integrated editor, compiler, linker, and debugging environment makes full use of the new features and capabilities of Apple's new GS/OS System Software v5.0 at lightning speeds.

And, with TML Pascal II's new Resource Editor, your program's Desktop features (ie. menus, windows, dialogs, etc.) are



CLICK



CLICK

## Not Simple Enough?

We'll send you a demonstration package including the TML Pascal II Demo Disk and fact sheet with technical information for \$4.95.

To Order, CALL (904) 636-8592.

**TML**  
SYSTEMS

The Only Name You Need To Know When Programming The Apple IIgs.

TML Systems, Inc., 8837-B Goodbys Executive Drive, Jacksonville, Florida 32217

**APPLE**  
CLINIC

Find a competent dealer; locating the faulty RAM chip yourself is almost guaranteed to be frustrating. And heaven help you if several are bad and you attempt to discover them hit or miss. If you're fairly experienced with your hardware, though, a good RAM-card testing program is essential. GTEST is distributed with Applied Engineering's RAM cards; On Three has a RAM tester for the Apple memory card (8920 Yolanda Avenue, Northridge, CA 91324, 818-701-1355). Both display a picture of your RAM card and mark the unused or bad RAM chips graphically so that you can find them easily and replace them. Serious GS owners should learn to use these RAM testers in anticipation of possible problems. You could save yourself a lot of time and money.

## FATAL ERROR 0911

HAVEN'T A CLUE WHAT'S HAPPENING happening or why, but every so often, usually at the least opportune moment, my GS commits suicide with a fatal system error 0911. This didn't start happening until I installed a Fingerprint GSi and a TransWarp card along with my hard-disk-drive controller and internal modem. I use an MDIdeas Conserver to keep things cool, so I don't think it's overheating. What's a 0911 error and what's causing the problem?

Larry Hinz  
Burlingame, CA

That cryptic error code means that your Apple Desktop Bus (ADB) toolset (09), which controls peripherals such as the keyboard and mouse, has encountered a system timing error (11).

Several conditions can make your GS strike a discordant note and die, sometimes in 0911, sometimes into the system monitor. The metal connector pins in your mouse and keyboard cables or on the integrated-circuit chips (those bug-like devices plugged into the motherboard or your interface cards) are subject to corrosion and, hence, may weaken or lose contact with their sockets.

Electronic devices, including some in your GS, emit ozone and other corrosive gases. And corrosion is particularly prevalent in cities, where air-borne ozone and acid levels tend to be elevated. Contacts also can degrade as the connectors or chips work themselves up out of their sockets as they're heated repeatedly, then cooled in the course of normal use.

In these cases, reseal the errant cable connections or chips: Press down on each one firmly but gently with your thumb. (Make sure the power's off!) That



will usually solve the problem, albeit temporarily. Installing a fan will reduce the heat, hence the expansion and contraction that unseat the chips, while removing corrosive gases that can accumulate in a stagnant environment.

The conditions you describe, however, Larry, suggest that the direct effect of heat on your GS' components, exacerbated by the inclusion of a TransWarp card, is the culprit in your 0911 errors. Other readers also have complained of fatal problems with similar equipment.

Apparently, GS timing becomes even more critical in its TransWarp-accelerated state. Heat will force the electronic devices nearer their operating limits — timing included. Although your MDIdeas fan is fine for light duty, you need the industrial-strength air flow of an internal fan to keep components cool. Several companies, including Apple, make internal fans that plug into a power socket right in the GS, eliminating extra line cords and the threat of electrocution. I recommend the Cool-It fan from Cirtech (\$49; order from A2-Central, P.O. Box 11250, Overland Park, KS 66207, 913-469-6502).

## QUICKIES

**Update for July 1989 Apple Clinic double-high-resolution (DHR) graphics program:** Clear the entire DHR to black in lines 150 and 170 with the simple statement **CALL 62450**.

—Robert Strong  
Charlottesville, VA

**Hi-res picture inverter:** Type in from monitor and **BSAVE HIRES.INVERT, AS300,LS35**. Load a hi-res picture to page 1 (\$2000) and **BRUN inverter** from disk or execute it using **\$300G** from monitor or **CALL 768** from **BASIC**:  
**300:A0 20 8C 0E 03 8C 11 03**  
**308:A2 00 A9 FF 5D 00 32 9D**  
**310:00 32 E8 D0 F5 EE 0E 03**  
**318:EE 11 03 AE 0E 03 E0 40**  
**320:D0 E6 60**

—John Chiang  
Calgary, Alberta, Canada

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

**NEW!**

**LOW FACTORY DIRECT PRICES!**

**UNIV & SCHOOL P.O.'S WELCOME!**

DEALER INQUIRIES INVITED

### GS RAM UPGRADES

**AI 4 MEG GS RAM BOARD.** DMA compatible. Expands IIgs to 4.25 Meg. w/1MEG .. \$265  
**AE GS-RAM Plus 6 MEG RAM board.** DMA comp. Expands GS to 6.25 Meg. w/1MEG .. \$295  
Above w/2 to 6 Megabytes ..... Call  
**256K RAM Set (8pc) 120ns 5 Yr Wty .....** \$65  
**1 MEG RAM Set (8pc) 100ns 5 Yr Wty ....** \$149  
**TRANSWARP GS** by Applied Engineering. \$319

### SOUNDSYSTEM 2 For IIgs

**New 2-Way Stereo Amplified Speaker Pair!** These thunder pods put the S in your GS operations, at one third the cost of Bose. (Reg. \$129) **Special Offer thru 10/31/89 ...** \$95

### AE RAM BOARDS

**RAMWORKS III w/256K .....** \$169  
**RAMFACTOR w/256K .....** \$225  
Above w/512K or 1 Megabyte..... Call

### IIe/IIc MEGABYTE RAM

**Super Expander E** for U.S. & European IIe. Licensed by Applied Engineering. A 100% replacement for Extended 80 Card. Expands Appleworks desktop to 998K and allows instant switching between modules. w/OK .. \$59  
Above w/256K ..... \$119  
Above w/512K or 1 Megabyte..... Call  
**Super Expander C** Expands IIc to 1152K, Appleworks desktop to 10652K, & allows instant module switching. w/OK ..... \$69  
Above w/256K ..... \$129  
Above w/512K or 1 Megabyte..... Call

### QUIET COOLING FANS

**SuperFan II** for II+/IIe. Kensington Style w/surge protect & twin rear AC outlets.... \$27  
**Super Cooler GS** for your IIgs. No audio line interference. Internal Mount ..... \$24

### PRO-KEYPAD for IIe/IIc

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

### APPLE II Plus OWNERS

Run Appleworks on your II+ or Franklin Ace! Plusworks 2 will configure your A.W. startup & program diskette to run on your computer. Not a preboot, a one time configure package. (Requires 80 Col, 64K, & Shift Key Mod) ..... \$35  
**16K RAM BD.** Expands II+ from 48K to 64K .. \$34  
**128K RAM BD.** Legend/Titan Compatible .. \$64  
**DOS/ProDOS Emulator** for above 128K BD. \$24  
**80 Column II+ Board** Videx compatible ... \$48  
**Shift Key Modification .....** \$7  
**Lower Case Adapter.** Rev. 7 & up ..... \$12

### NO SLOT CLOCK IIe/IIc

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

### FALL SPECIALS

**PBC EXTENDED 80 COLUMN CARD** for Apple IIe. Expands IIe to 128K (Appleworks desktop to 56K). Super sharp 80 column display, soft switch select 40/80 columns, & Double Hi-res graphics, all built-in! ..... \$35  
**Super Serial Board** 100% replacement for Apple Super Serial Card, this versatile RS232 board can be used for all models and serial printers. **For II+/IIe/IIgs .....** \$48  
**SSB to Imagewriter I cable 10' .....** \$11  
**SSB to Imagewriter II cable 10' .....** \$11  
**SSB to Modem (Standard RS232) 10' .....** \$11

### MORE SUPER SPECIALS!

**Graphic Parallel Board** w/6ft cable. Text & graphic screen prints. Versatile graphics including inverse/normal, enhanced, 90 degree rotate & double size print. II+/e/gs. \$44  
**Parallel Printer Board** w/cable. Text print only. Used where graphics is not required. \$35  
**Z80 CP/M Board** Opens the CP/M world for II+/e/gs. Microsoft & Turbo Pascal Comp.. \$34  
**Joystick III** Similar to the Hayes Mach III, with large fire button on stick ..... \$24  
**5 AMP Power Supply.** Drop in replacement for II+/IIe supply. Double the amp power! .. \$49  
**TV Modulator** Connects your Apple II+/IIe to any color or black/white TV ..... \$15  
**Serial/Parallel Converter.** Connects your IIc to any parallel printer ..... \$49

### DISK DRIVES!

**Disk Drive H/H** for Apple II+/IIe ..... \$119  
**Disk Drive H/H** for Apple IIc/IIgs ..... \$119  
**Disk Drive H/H Daisy Chainable** for IIgs .. \$149  
**Disk Controller Board** II+/IIe/IIgs ..... \$34  
**DISK DRIVE 3.5"** Full GS compatible ..... Call

### VULCAN HARD DRIVE by A.E.

**20 MEG VULCAN** Specify IIe or IIgs ..... \$529  
**40 MEG VULCAN** Specify IIe or IIgs ..... \$695  
**100 MEG VULCAN** Specify IIe or IIgs ..... Call

### GAMEPORT SWITCHBOX

Switch between mouse & joystick or any two gameport peripherals. Free master cable .. \$29

### APPLETALK CONNECTION!

Localtalk Relacement kit w/balanced RS422 transformer & 25 foot cable ..... \$29

### AUTO SWITCHBOX

**4/1 RS-232 Automatic Switbox .....** \$119  
Call for Super Cable Specials!

### APPLEWORKS CLOSEOUTS!

**COMPLETE PACKAGE:** Startup/program diskette, tutorial diskette, sample templates, & A.W. manual. Not upgradable by Claris.  
**Appleworks Version 1.2 Package .....** \$59  
**Appleworks Version 1.3 Package .....** \$79

**5 YEAR WTY PC BOARDS/2 YEAR WTY ALL OTHERS**  
**CALL or WRITE FOR OUR FREE COLOR CATALOG**  
**ADD \$3 SHIP/C.O.D. OKAY/VISA/MC NO EXTRA FEE**



**PRICE BUSTERS (619) 589-0081**

4233 Spring St., Ste. 402, La Mesa, CA 92041

Monday-Friday 10 a.m-6 p.m. P.S.T.



# Look Here First!

Q U A L I T Y C O M P U T E R S

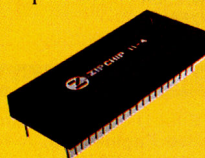


## DB MASTER

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. **\$189.00**

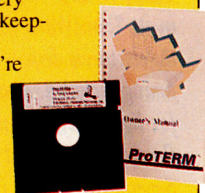
## ZIP CHIP

Move your computer into the 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.**



## PROTERM

We've tried them all and none compare. Proterm 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 download, 2 modem transfer protocol, and more. **\$79.00**



We'll Match Any Price

## YOUR SOURCE FOR

## HARD-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

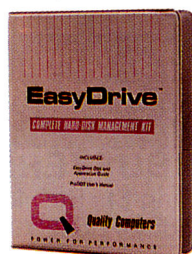
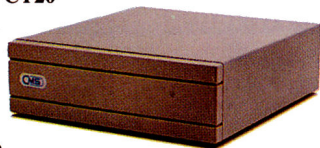
year warranty. Chinook has proven to be one of the most reliable units available. Works with Apple IIe, IIc, IIGs, and Mac compatible computers. EasyDrive recommended but not included. **CT20**

**\$599.00, CT40-\$795, CT20C \* \$629.00**

**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! 1 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. - \$799.00, 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.**



**APPLE SCSI-\$104.00**

## THE CANADIAN EXCHANGE



### DANDAM SOFTWARE

Canadian residents: Dandam is for you! All of these products, with the same great service, are available to you from Dandam Software. Avoid import-export delays and worries. Dandam ships from their Canadian warehouse. Get your price list toll free today.

**8408 Wyandotte E. • Windsor, Ont. N85-1T6**

**1-800-265-9576**



## TAKE TIME OUT!

with Beagle Bros.

Make your Apple II do the things you always knew it was supposed to do.



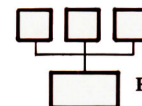
**Graph \$45.00**



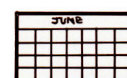
**SideSpread \$29.95**



**TeleComm \$39.95**



**ReportWriter \$45.00**



**Desk Tools \$29.95**

The Time Out series adds features to your Apple Works so smoothly that you'll think you're discovering new Apple Works commands.

G R E A T S E R V I C E

L O W P R I C E S



## 1-800-443-6697

### QC Clipboard

#### TimeOut Series: Thesaurus, Desktools

I&II, Sidespread, PowerPack, Spread	
Tools I&II	29.00
Graph	45.00
Quickspell, Superfonts	45.00
Ultramacros	37.00
Macro Tools I & II	19.00
Diversitune	55.00
Diversicopy	30.00
Managing Your Money	99.00
Quicken	34.00
Printshop	29.00
Printshop GS	36.00
Copy II +	25.00
WordPerfect GS	99.00
Sensible Grammar	55.95
Publish It 2.0	84.00
AppleWorks 3.0	199.00
AppleWorks GS	219.00
Computer Eyes IIc	99.00
Computer Eyes IIe	99.00
Computer Eyes IIgs	204.00
Word Bench	94.95
Orca M	46.00
Orca Pascal	74.00
Orca Pascal Debugger	80.00
Orca Desktop	39.00
TML Basic	89.00

#### SPECIALS OF THE MONTH

Hyper Studio	79
Rocket Chip 10Mhz	199
AMR 3.5 Drive	189
Fully Apple compatible	
Apple SCSI Rev C	104.00

#### MISCELLANEOUS:

Pack of 10 5.25 Diskettes	6.95
Pack of 10 3.5 Diskettes	9.95
5.25 Disk Storage Case (50)	12.00
3.5 Disk Storage Case (30)	12.00

#### CABLES:

All makes - most	14.95
------------------	-------

#### HARDWARE:

Kensington System Saver IIc	59.00
Kensington System Saver IIgs	69.00
Turbo Mouse ADB	124.00
Thunderscan	175.00
Laser 128 EX	449.00
Laser Mouse	79.00
AI Ext. 80 Column	59.00
AI TimeCard	69.00
SMT No Slot Clock	44.00
Print Tech II	49.00
Finger Print GSI	Call
Image Buffer 64K	79.00
Mach II, III, IV	Call
Flight Stick	Call

#### MONITORS:

Magnavox RGB Col 14"	289.00
(Works with IIgs)	
Amber, Green	99.00

#### MEMORY UPGRADES

256K 150ns	47.00
256K 120ns	47.00
1024K 120ns	119.00
1024K 100ns	119.00

OTHER PRODUCTS AVAILABLE  
CALL!

**PROSEL 8 \$39.00**  
**PROSEL 16 \$59.00**

## QUALITY'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 AppleWorks, Timeout Series Dictionaries, Proterm and all of your favorites onto your ramcard at once.

RAMUP makes using a ramdisk a snap. Menu-driven 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 despair! RepairWorks can soften the blow of cruel fate when it involves your AppleWorks 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 5 1/4 disks. **\$39.95**.



**Repair  
Damaged  
Appleworks  
Files**

## AE APPLIED ENGINEERING

#### RAMWORKS III

256K	149
512K	199
1 meg	299

#### ULTRA II

256K	179
512K	229
1 meg	329

#### RAMFACTOR

256K	179
512K	229
1 meg	329

#### GS RAM

256K	139
512K	189
1 meg	289
1.5 meg	389

#### GS RAM +

1 meg	249
2 meg	369
3 meg	489

#### RAMWORKS EXP.

1 meg	279
2 meg	379

#### RAMFACTOR EXP.

1 meg	279
2 meg	399
3 meg	429

RAMCHARGER	133
RAMKEEPER	139
SLOT MOVER	34
DATALINK 2400	179
PCTRANSPORTER	369
Ile KIT	29
IIgs KIT	39
TRANSDRIVE (Single)	199
TRANSDRIVE (Duo)	299
SERIAL PRO	109
SONIC BLASTER	38
TRANSWARP (Ile)	119
TRANSWARP (gs)	289
PARALLEL PRO	79
AE 5 1/4	119
POWER SUPPLY	59
READY LINK	69
TIMEMASTER H.O.	69
EXTENDED 80 COL.	99
Z80	119
PHASOR	139
VIEWMASTER	124
COLORLINK	99
CONSERVER	88
VULCAN 20	474
VULCAN 40	605

**WE'LL MATCH  
ANY PRICE!**

**AE CERTIFIED DEALERS**

**Call us! We'll work with you**

#### POLICY:

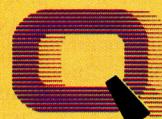
Visa and MasterCard - no added surcharge.  
C.O.D. certified - add \$2.95  
If order is split, we pick up freight charges on balance of items.  
Shipping UPS, Airborne, Federal Express and U.S. Mail.  
Saturday deliveries available.

**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% restocking 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

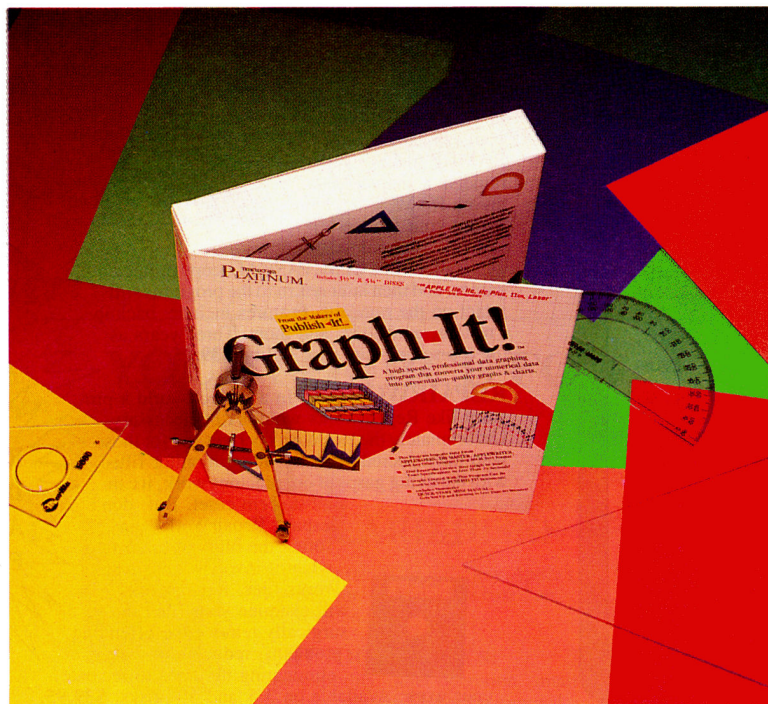
# 1-800-443-6697



# REVIEWS

## INCIDER'S RATINGS

Excellent—remarkable ♦ ♦ ♦ ♦ ♦ Very good—impressive ♦ ♦ ♦ ♦  
Good—average ♦ ♦ ♦ ♦ Fair—flawed ♦ ♦ ♦ Poor—unacceptable ♦



## GRAPH IT! 1.0

**TIMEWORKS, INC.,**  
444 Lake Cook Road, Deerfield,  
IL 60015, (312) 948-9202

Graphing utility;  
128K Apple IIc, IIc Plus, IIgs, enhanced IIe;  
\$49.95

Rating: ♦ ♦ ♦

**M**emo to all business users: Do you understand all the numbers in your spreadsheet? Do you need to look at where your company has been and where it's going—but you're buried in print-outs and can't see the forest for the trees? Timeworks has a solution. Graph It! transforms all those figures into charts and graphs that can help you understand what your numbers mean.

You can enter data into Graph It!'s spread-

sheet-like grid or import numbers from other programs (such as AppleWorks or DB Master) as ASCII text files. Graph It! can handle up to 400 data points in any combination of columns and rows.

When creating a Graph It! chart, you must first indicate how many rows and columns you expect to have. Because you can't change a file's size once you've created it, you'll have to do some planning to make sure your initial settings are sufficient.

The 128-page indexed manual can get you started quickly, and working with the sample data files will help you get your feet wet. Graph It! comes on both 3½- and 5¼-inch noncopy-protected disks.

Initial configuration is easy: Select your printer and interface card by scrolling through a list and highlighting your equipment. The program supports more than 60 printers and nearly that many interface cards.

Graph It! is designed to work with a mouse. (It doesn't support a joystick.) If you're mouseless, you'll spend a lot of time using the arrow keys to move around the keyboard, even though many functions have shortcuts. For example, Open apple-G graphs your data, Open apple-P prints, and so on. The Graph It! package isn't kidding when it says a mouse is "highly recommended."

### CHARTING VARIETY

Graph It! produces all the different types of charts you'd expect from such a package, including line, column, and bar charts, as well as area graphs, scatter charts, and stacked-column graphs. The most interesting Graph It! design is a 3-D chart, which gives depth and perspective to your figures. The combination line and column chart, however, connects only the tops of columns. I'd prefer that Graph It! plot one data set as a column and another as a line in the same image.

Graph It!'s strength lies not only in the variety of charts it offers, but also in the control you have over the pictures you create—even down to printing your images in two different sizes and print densities. You can rotate the images, too, which may help you interpret your figures.

The program offers a choice of patterns if you'd like borders around your graphs. You can also include a background, and adjust the spacing between columns and the depth of each individual column. In addition, Graph





# 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, II+ and II, combines a wide range of upgradeable sizes with the speed and power lacking in other systems. The result? A quantum leap forward into the Apple II future. Finally, a reliable and affordable way to store massive files while speeding up booting time and saving wear on disk drives.

Bar none, Vulcan is the fastest hard drive on the Apple II market. With System 5.0 you can load AppleWorks GS in less than 14 seconds. Boot GO/OS into the finder in 18 seconds. Verify disks at the astounding rate of more than 180 blocks per second.

## Easy to use.

Our built-in firmware automatically installs itself as a Desk Accessory for write protection and partitioning. The software we provide lets you easily back up and reformat. Vulcan easily installs under your computer's hood, replacing the Apple power supply with 70 watts of power.

## Upgradeable flexibility.

Choose a Vulcan from 20, 40, 100 - all the way to a staggering 200 MEGs. Vulcan is upgradeable, so it can grow as your needs grow. Use virtually any operating system: GS/OS, ProDOS 8, DOS 3.3, CPM or Pascal 1.3. Vulcan supports them all with sixteen partitions (up to four can be accessed simultaneously). Partitioning and backup utilities are included. Choose slot 1, 2, 4, 5, 6 or 7. Even pseudo-slot to slot 7 from elsewhere. Vulcan works on 110/220 VAC, even European 115/230 VAC at 50-60 Hz.

## Sheer, raw power.

Vulcan's power supply was custom-designed by Applied Engineering to provide the power lacking in other systems. It checks in at 70 watts, nearly twice the capacity of competing systems . . . enough punch to safely handle a motherboard full of expansion cards. Power components are heatsinked to the aluminum case. To harness all that power, Vulcan contains an ultra-quiet cooling fan. For speed, Vulcan incorporates an ultra-fast 16-bit data bus controller, not an 8-bit like others.

Vulcan gives your Apple II an upgradeable combination of useable speed, safe power (it's FCC certified) and practically unlimited size. It's a quantum advance that'll keep you Apple IIing for years to come.

## 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 100 MEG . . . . . \$1795**  
**Vulcan 120-200 MEG. . . . . CALL**

**AE APPLIED ENGINEERING®**  
*The Apple enhancement experts.*

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice.



# Programs & Peripherals

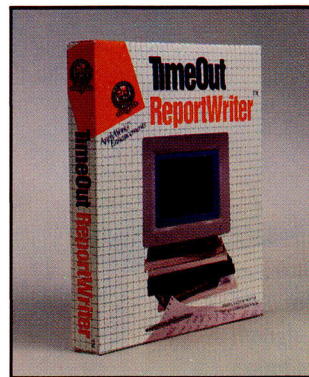
**CALL US AT**  
**1-800-832-3201**

## ACCELERATORS/RAMCARDS/Z-80/80 COLUMN

<b>Apple Computer</b>			
Apple IIe Enhancement Kit	65.	Z-RAM Ultra 3 (1MG)	445.
Apple IIe Extended 80 Col. Card	89.	GS-RAM (256K)	139.
<b>Applied Engineering</b>		GS-RAM (512K)	195.
RamWorks III (256K)	165.	GS-RAM (1MG)	299.
RamWorks III (512K)	219.	GS-RAM (1.5MG)	409.
RamWorks III (1MG)	325.	GS-Ram Plus (1MB)	325.
Ram Express (256K)	209.	GS-RAM Plus (2MG)	519.
Ram Express (512K)	265.	GS-RAM Plus (3MG)	715.
Ram Express (1MG)	375.	GS-Ram Ultra (256K)	179.
Ramkeeper	145.	GS-RAM Ultra (512K)	225.
PC Transporter (768K)	379.	GS-RAM Ultra (1MG)	319.
PC Transporter Installation Kit (IIe)	33.	GS-RAM Ultra (2MG)	505.
PC Transporter Installation Kit (IIgs)	42.	RamWorks Basic (256K)	149.
RamFactor (256K)	199.	RamWorks Basic (512K)	199.
RamFactor (512K)	255.	Phasor (II+, IIe, or IIgs)	125.
RamFactor (1MG)	365.	TransWarp Accelerator	125.
Z-RAM Ultra 1 (256K)	165.	TransWarp Accelerator (IIgs)	<b>Special</b> 294.
Z-RAM Ultra 1 (512K)	219.	ViewMaster 80 (II+)	125.
Z-RAM Ultra 2 (256K)	219.	Z-80 Plus (II+, IIe, IIgs)	119.
Z-RAM Ultra 2 (512K)	269.	<b>Bits &amp; Pieces</b> Rocket Chip	139.
Z-RAM Ultra 2 (1MG)	379.	<b>Orange Micro</b> RamPak 4GS	
Z-RAM Ultra 3 (256K)	279.	(512K Exp. to 4MB w/Utilities)	139.
Z-RAM Ultra 3 (512K)	335.	<b>Zip Technology</b> Zip Chip 4 MHz	<b>Special</b> 129.
		Zip Chip 8 MHz	<b>Special</b> 159.

## DISK DRIVES & HARD DISK SUBSYSTEMS

<b>American Micro Research (Micro Sci)</b>		<b>Chinook</b> CT-20 Hard Drive (AP & IIgs)	499.
AMR D20/APS 20MB HD w/SCSI (IIe & IIgs)	599.	CT-20c Hard Drive IIc	605.
AMR D60/APS 60MB HD		CT-40+ Hard Drive (AP & IIgs)	669.
w/SCSI (IIe & IIgs)	829.	CT-80 Hard Drive (AP & IIgs)	1075.
A5 D Half Height 5 1/4" Drive		<b>CMS</b> "SD Series - Stack" Platinum IIe, IIgs	
(IIgs Daisychain)	155.	20 MB w/SCSI II card	645.
A.5 Half Height (II+ & IIe)	129.	43 MB w/SCSI II card	845.
A.5C Half Height (IIc)	129.	60 MB w/SCSI II card	950.
Micro Sci C2 Controller	52.	<b>First Class</b> T6 60MB Tape	749.
<b>Applied Engineering</b> Transdrive 360K	199.	D2 20MB HD (IIe & IIgs)	<b>Special</b> 499.
Transdrive Dual 360K	295.	D4/T 40MB HD (IIe & IIgs)	835.
Transdrive Half Height 360K	109.	D7/T 70 MB HD (IIe & IIgs)	1015.
Vulcan 20 (AP or IIgs)	495.	<b>Laser Computer, Inc.</b>	
Vulcan 40 (AP or IIgs)	649.	Universal Disk Controller	45.
Vulcan 100 (AP or IIgs)	1369.	Laser DiskDrive (IIgs)	105.
<b>Applied Ingenuity</b>		Laser 800KB Drive	185.
Inner Drive 20 (AP or IIgs)	469.	Universal Disk Controller/800KB	
Inner Drive 40 (AP or IIgs)	619.	Drive Bundle	219.



## TimeOut ReportWriter by Beagle Brothers

**TimeOut ReportWriter** is a relational report generator that turns AppleWorks into a powerful business tool! Generate invoices, billing statements, order forms and more, right inside AppleWorks. Information from up to 11 different database, spreadsheet, and word processor files can be used by a single report - no more limitations because AppleWorks is too small! And your reports will print out exactly how they look on the screen. .... **\$52.**



## Laser 128EX by Laser Computer

The **Laser 128EX** is the newest Laser Computer. Features include 192K of ram, 128K of user ram, 64K of video ram. Built-in Triple Speed Processor 1 mhz, 2.3 mhz and 3.6 mhz. Able to add up to 1 meg of ram on the internal motherboard. Built-in 5 1/4 disk drive, parallel port and serial port. Other options included are expansion slot, joystick/mouse port and 40/80 column card. .... **\$449.**

## PRINTER INTERFACE CARDS

<b>Apple</b> SCSI Card	115.	<b>Orange Micro</b> Grappler C/Mac/GS	<b>Special</b> 79.
Apple Super Serial Card	119.	ProGrappler (Apple IIe or IIgs)	84.
<b>Applied Engineering</b> Buffer Pro 32K	89.	Serial Grappler Plus	62.
BufferPro 128K	125.	<b>SMT</b> No Slot Clock	42.
Serial Pro (II+, IIe, IIgs)	115.	Print Tech II (Parallel Interface)	37.
Parallel Pro (II+, IIe, IIgs)	79.	<b>Thirdware</b> Finger Print GSI Ver 2 (Incl. Desktop Accessories-IIgs)	79.
<b>Applied Ingenuity</b> GS Juice Plus 1 MB	235.	Finger Print Plus (Specify Cables: Parallel, Serial or ImageWriter II-II+ & IIe)	89.
GS Juice Plus 2 MB	415.		
GS Juice Plus 4 MB	745.		

## COMMUNICATION SOFTWARE

<b>Activision</b>		<b>Checkmate Technology</b> ProTERM (IIgs, IIe, IIc)	95.
Teleworks Plus (IIgs)	66.	<b>Compuserve</b> Compuserve Starter Kit	24.
<b>Applied Engineering</b> EasyLink	85.	<b>United Software Industries</b>	
<b>Beagle Bros.</b> TimeOut TeleComm	45.	ASCII: Express Pro: Prodos	72.
Point-to-Point	65.	ASCII: Express Mousetaik 1.5	69.

## UTILITIES & LANGUAGES

<b>Absoft</b> AC/BASIC (16-bit BASIC Compiler for IIgs)	84.	<b>The Byte Works</b>	
<b>Big Red Computer</b>		ORCA/M Assembler (IIgs)	39.
PS Lovers' Utility Set (AP or IIgs)	29.	ORCA/Pascal Desktop Debugger (IIgs)	80.
<b>Micol Systems</b>		ORCA/C Desktop Debugger (IIgs)	80.
Micol Advanced Basic (IIgs) V3.0	99.	ORCA DeskTop (IIgs)	34.
<b>Roger Wagner</b> SoftSwitch (IIgs)	39.	<b>TML Systems</b> TML Basic (IIgs)	84.
Merlin 8/16 (IIe, IIc, IIgs)	29.	TML Pascal II (IIgs)	84.
<b>So What Software</b> Disc Commander (IIgs)	79.	TML Source Code Library II (IIgs)	35.
Hyper Launch (IIgs)	35.	TML Speech Toolkit (IIgs)	49.
		<b>Zedcor</b> ZBASIC 4.0 Interactive Compiler	39.

## GRAPHICS PACKAGES

<b>Abracadabra</b>		Print Shop (IIgs) or Fantavision (IIgs)	39.
Design Your Own Train	35.	Print Shop Companion	25.
Design Your Own Home: Architecture (IIgs) or Interiors (IIgs)	65.	Print Shop Graphics Library I, II, III or Holiday Ed.	16.
Design Your Own Home: Landscape (IIgs)	65.	Print Shop Graphics Lib. Sampler Ed. (IIgs)	24.
Design Your Own Home: Architecture, Interiors or Landscape	49.	Print Shop Graphics Lib. Party Ed. (IIgs)	24.
Architecture Library 1, 2, 3 or 4 (AP or IIgs)	21.	<b>Electronic Arts</b> DeluxePaint II (IIgs)	65.
Interiors Library 1, 2 or Landscape Library 1	21.	DeluxeWrite w/DeluxePaint II (IIgs)	85.
<b>Activision</b>		DeluxeWrite (IIgs)	55.
PaintWorks Gold or Draw Plus	66.	<b>EPYX</b> Art & Film Director (IIgs)	55.
Paint/Write/Draw (Not Protected IIgs)	80.	Printmagic (AP or C+)	34.
<b>Baudville</b> Award Maker Plus (IIe & IIgs)	24.	Create-A-Calendar	21.
816/Paint (Works On All Apples)	46.	<b>Lynx Computer</b>	
<b>Beagle Bros.</b> Beagle Draw	55.	Supergaphix 256 (IIgs)	<b>Special</b> 69.
<b>Berkeley Softworks</b> GEOS (C+)	79.	<b>Roger Wagner</b> Graphic Exchange (IIgs)	35.
GEOPublish	69.	<b>So What Software</b> Iconix (IIgs)	35.
GEOS, GEOCalc or GEOFile	49.	<b>Springboard</b>	
GEOMouse (AP & C+)	39.	Certificate Maker Library #1	19.
<b>Broderbund</b> Dazzle Draw (AP or C+) or Show Off (IIgs)	39.	Springboard Publisher 2.0 (IIe or IIgs)	84.
Print Shop (AP or C+) or Fantavision	29.	Certificate Maker or Newsroom	26.
		Fonts For Springboard Publisher (IIgs)	19.
		Newsroom Clip Art Collection Vol. 1, 2 or 3	14.
		<b>Thunderware</b>	
		Thunderscan Apple (IIgs, IIe, & IIc)	159.

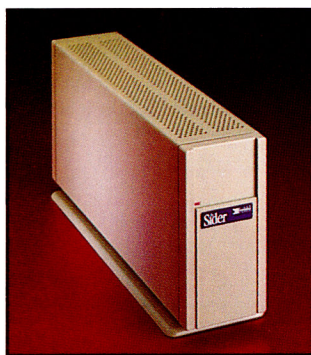


## Zip Chip by Zip Technology

Speed up your Apple II, II+, IIc, IIe, Laser 128 and Franklin Computers. The **Zip Chip** from Zip Technology is an original new state of the art micro-processor that lets you speed through your classroom or office work now up to 4-8 times faster. Your **Zip Chip** order includes a free diagnostic/utility diskette with two memory testers and a Zip configuration program.



# Overnight

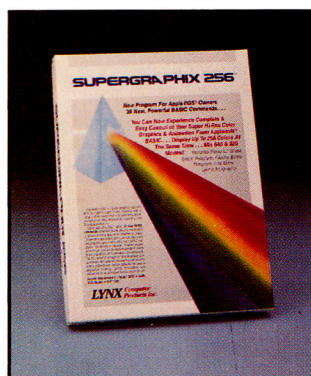


## Sider D2 20M HDD by First Class Peripherals

The **Sider D2 20 Megabyte Hard Disk Drive** is a reliable, affordable mass storage solution for Apple IIe and IIgs owners. Shipped with all cards, cables and accessories required to operate, this drive supports four operating systems (ProDOS, Dos 3.3, CP/M and Apple Pascal). Includes diagnostics package, 1 year warranty (parts and labor) and tech support. .... **\$499.**

## ACCESSORIES

<b>Advanced Gravis</b> MouseStick ADB (IIgs)	69.	AntiGlare Filter IIgs	39.
<b>Apple Computer</b> Apple Mouse IIe	125.	System Saver (Platinum or Beige)	69.
<b>Apple Mouse</b> IIc	85.	System Saver (IIgs)	75.
<b>Applied Engineering</b> TimeMaster II H.O.	79.	New Turbo Mouse (Reg. or ADB)	119.
Conserver (IIgs)	99.	<b>Kraft</b> Universal 3 Button Joystick (IIe or IIc)	34.
Sonic Blaster (IIgs)	109.	<b>Koala Technologies</b>	
IBM Style Keyboard	115.	Koala Pad Plus w/Graphics Exhibitor	84.
Audio Animator (IIgs)	185.	Kurta IS ADB Tablet w/stylus (IIgs)	299.
<b>Big Red Computer</b> Labels, Labels, Labels	29.	<b>Lynx Computer</b> Turbo Trackball (IIe or IIgs)	65.
<b>CH Products</b> Hayes Flight Stick	52.	<b>MDIdeas</b> Digitizer Professional (IIgs)	129.
Hayes Mach III Joystick	36.	SuperSonic (Stereo Card for IIgs)	49.
Hayes Mach IV Plus Quad or ADB	65.	SuperSonic Digitizer (IIgs)	49.
Mirage Quad or ADB		<b>Mouse Systems</b> A+ Mouse (IIc)	65.
(Turns joystick into mouse)	39.	A+ ADB Mouse (IIgs)	85.
<b>Cutting Edge</b>		<b>MousTrak</b> MousePad 7"x9" Size	8.
EADB-105 Extended Keyboard		MousePad 9"x11" Size	9.
w/Macromate (IIgs)	149.	MousePad L/F (Low Friction)	9.
<b>Digital Vision</b> Computer Eyes IIE	109.	<b>Passport Designs</b>	
Computer Eyes GS	209.	MDI Interface w/Drum Sync (AP & IIgs)	89.
<b>Ergotron</b> Mouse Cleaner 360° (IIgs)	15.	MDI Interface w/Tape & Drum	
<b>Epyx</b> Epyx 500XJ Joystick	27.	Sync (AP & IIgs)	135.
<b>Kalmar</b>		<b>Ribbons</b>	
Teakwood Rolltop Disk Case (Holds 50)	18.	Available colors: black, blue, brown, green,	
<b>Kensington</b> Mouse Pocket (Reg. or ADB)	8.	orange, purple, red, yellow, silver or gold	
Mouseway (Mousepad)	8.	ImageWriter Ribbon-Color	4.
Apple IIe, IIc or IIgs Dust Cover		ImageWriter Ribbon-Black six pack	20.
or ImageWriter II or II Cover	9.	ImageWriter II - 4 Color Ribbon	9.
Apple Security System	34.	ImageWriter Rainbow Pk. (6 Colors)	20.
Printer Muffler 80	43.	<b>Street Electronics</b> Echo IIB (AP & IIgs)	109.
Printer Muffler 132	58.	Echo IIC (IIc & IIc+)	129.



## Supergraphix 256 & Music by LYNX Computer

**Supergraphix 256** is a powerful, unique, Super Hi-Res graphics, music and animation program for Apple IIgs users. With 36 new graphics and 6 music commands added to Applesoft BASIC, you can access all 4096 colors, 320 and 640 modes, display 256 colors, Draw and Animate shapes, play and digitize sound. Access time, Mouse and print on SHR... Perfect for beginners, professionals, teachers and students. .... **\$69.**

## MODEMS

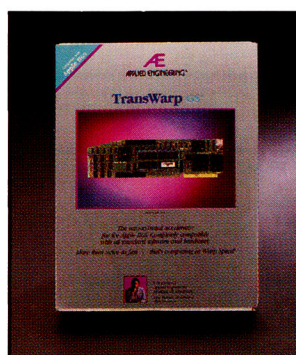
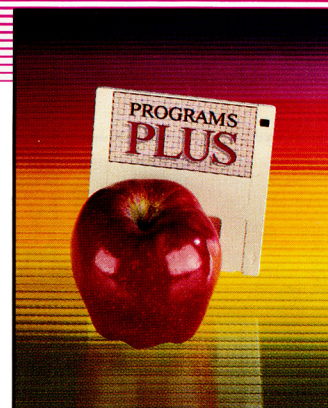
<b>Anchor Automation</b> 1200E	119.	Practical Modem 2400 SA	179.
2400E	159.	<b>Prometheus</b> Pro Modem 2400 (External)	255.
<b>Applied Engineering</b>		Pro Modem 2400G (Non Expandable)	179.
DataLink Modem 1200B		Pro Modem 2400A (Single Card)	139.
(Int II+, IIe or IIgs)	135.	Pro Modem 1200A (Single Card)	119.
DataLink Modem 2400B		<b>Supra Corporation</b>	
(Int II+, IIe or IIgs)	183.	Supra Modem 2400 (Hayes Compatible)	149.
<b>Hayes</b> Hayes 1200 Baud Smartmodem	295.	<b>U.S. Robotics</b> U.S. Robotics Courier 1200	199.
Hayes 2400 Baud Smartmodem	449.	U.S. Robotics Courier 2400	335.
<b>Practical Peripherals</b>		U.S. Robotics Courier 2400E	379.
Practical Modem 1200 SA Mini	77.	U.S. Robotics Courier HST 9600	689.

Specials good through  
October 31, 1989

Now Toll-Free  
In Canada  
**1-800-344-7753**

Monday thru Friday  
9 a.m. - 9 p.m.  
(Eastern Time)

Saturday  
9 a.m. - 6 p.m.  
(Eastern Time)



## TransWarp GS by Applied Engineering

The easy to install accelerator for the Apple IIgs. Completely compatible with all standard software and hardware. More than twice as fast — that's computing at warp speed. **TransWarp GS** has been extensively tested. Speed adjustable from Classic Desk Accessories control panel. Choose between normal, fast and transwarp speed. Designed for slot 3 or 4 without overriding slot function. Made in the USA.

## BLANK MEDIA

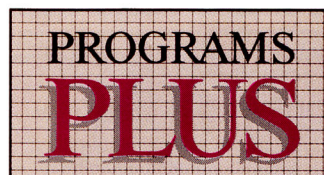
<b>3 1/2" Blank Diskettes</b>			
BASF 3 1/2" DS/DD (box of 10)	15.	Maxell 3.5" DS/DD (box of 10)	17.
Bulk (Sony) 3 1/2" DS/DD (box of 10)	16.	Verbatim DS/DD (box of 10)	17.
Centech 3 1/2" DS/DD Color Disks (box of 10)	19.	3M 3.5" DS/DD (box of 10)	20.
Sony 3.5" DS/DD (box of 10)	16.	C. Itoh 3.5" DS/DD Color Disks (box of 10)	25.

## PRINTERS

<b>Brother</b> M-1109AP (ImageWriter Comp.)	249.	KXP-11911/M2 (240 cps) NLQ Mode	269.
<b>Laser Computer, Inc.</b>		KXP-10921 (240 cps) NLQ Mode	349.
Laser 190A w/Serial Interface	239.	<b>Seikosha</b>	
<b>Panasonic</b>		Seikosha SP 1000	
KXP-11801/M2 (192 cps) NLQ Mode	199.	(ImageWriter Compatible)	235.

## HyperStudio by Roger Wagner

**HyperStudio** brings the newest computer revolution to IIgs owners! **HyperStudio** combines Super Hi-Res graphics (from popular paint programs or built-in paint tools), text from AppleWorks, or built-in editor, and digitized sound files from your own hardware or the included hardware, all in one integrated environment. Includes sound digitizing software, digitizer card, microphone and speaker. Create applications from interactive lessons to adventure stories, and more! .... **\$95.**



FAX: 203/381-9043  
Inquiries: 203/378-3662  
Canada: 1/800/344-7753  
75 RESEARCH DRIVE  
STRATFORD, CT 06497  
**1/800/832-3201**



## AT A GLANCE

**Instant Synthesizer** (September 1989, p. 28, by Sharon Webb), Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (415) 571-7171; 768K Apple IIGS; \$79.95

Rating: ♦ ♦ ♦ ♦

Instant Synthesizer will tweak your Ensoniq chip as it's never been tweaked before. If your computer's hooked up to a set of amplified stereo speakers, you'll be amazed at the sound quality.

The main screen consists of two parts divided by a piano-keyboard panel. At the top is the Song Machine where you load and play songs, fills, and instruments with a click of the mouse. You can also control the tempo or trigger assorted fills to flesh out a song. By clicking on the transposition arrows at either side of the keyboard display, you can adjust the pitch up or down an octave at a time. Clicking on a note sounds whatever voice you have highlighted above.

Taken for what it is—an adjunct to EA's Instant Music—Instant Synthesizer is an excellent program that can instruct, entertain, and show off your GS. But if you were hoping to hear your GS join in with your bank of MIDI synthesizers to play your sequenced compositions, you'll have to look elsewhere.

**The Perfect Career** (September 1989, p. 41, by Carol Holzberg), Mindscape, 3444 Dundee Road, Northbrook, IL 60062, (800) 221-9884, (800) 942-7315 (IL); 128K Apple IIe, IIc, IIGS; \$39.95

Rating: ♦ ♦ ♦ ♦

The Perfect Career offers personalized assistance in your search for a new occupation—asking questions, analyzing answers, and providing vocational guidance. The program functions as a desktop counselor, helping determine career options best suited to your individual interests and talents. It can advise students with little or no work experience, or guide skilled adults as they explore career changes or re-enter the job market.

Continued

It! lets you position the main title on the top or bottom, and enter labels on both X- and Y-axes.

While the program scales your graphs automatically, Graph It! also provides a "normalized" scale. This feature plots the smallest figure as a zero, then subtracts the original amount from all other values. In essence, this gives your lowest figure a zero value, then relates all other numbers to that point. A normalized scale is especially useful when all your figures are so close in value they'd plot at about the same point on a standard scale.

On-line help is always available in Graph It!. The manual also offers good advice on choosing a type of chart to use for some specific type of information, as well as a useful glossary of terms.

### ALL'S NOT PERFECT

Entering data into the Graph It! worksheet can be a bit awkward, especially if you're accustomed to working with a regular spreadsheet. Rather than moving your cursor to a cell and simply entering your data, you must first click on the cell, type in your number, then press Return to let Graph It! know you're done. Only then can you move to the next cell. Also, the program can't print the data you create in its worksheets.

The biggest problem I have with Graph It!, though, is that it uses exponential notation to display your figures. The manual says it's an "arithmetic shorthand used to handle very big and very small numbers with as few digits as possible." Exponential notation moves the decimal point, so you're working with a smaller whole number. It then indicates how far you'd have to shift the decimal point with a number following a small *e*. Whole numbers do display with fewer digits—12,000 shows as 12.e3, and 30,400 shows as 30.4e3, for instance. But the number 1001 displays as 1.001e.3, and 8888 shows as 8.888e3—hardly a space-saving technique. I'm sorry, Graph It!, but I can't share your enthusiasm for this distracting and unnecessary way of displaying information.

Pie charts appear as egg charts, but the manual advises that Graph It! "does this intentionally so that a correct circle will be created when printed." I'm not convinced that's accurate, because other programs can display a round pie chart. Also, I tried a number of variations in my printouts, including rotated and double-height images, and the pie

charts I created with Graph It! still came out a little egg-shaped.

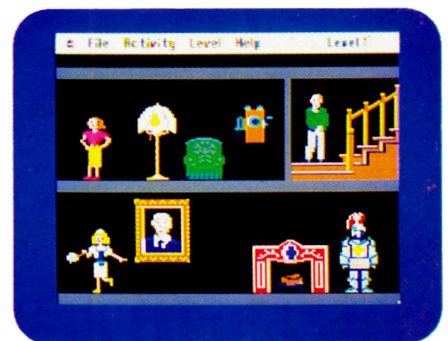
### GOOD VALUE?

Graph It! is indeed a workable, easy-to-use system that can create a great variety of charts from your business numbers. The program is easy to learn, and the manual is interesting and well written. Graph It! draws pictures quickly on your screen, and its ability to import information from AppleWorks and other packages is a major plus. The program's 3-D charts are more than unusual—they provide a particularly graphic way to look at information.

Like any other software package, Graph It! has its own way of doing things. I'd like to see it eliminate exponential notation and convert to numbers you can readily understand. Data entry could be speeded up, too; the process is cumbersome without a mouse. On the whole, however, Graph It! is a good value—it offers a flexible way to examine your data and understand just what all those figures mean.

**Gregory Glau**  
Prescott, AZ

## MATH BLASTER MYSTERY



**DAVIDSON & ASSOCIATES, INC.**  
3135 Kashiwa Street, Torrance, CA 90505,  
(800) 556-6141, (213) 534-2250

Advanced-math game;  
128K Apple IIe, IIc, IIGS; \$49.95

Rating: ♦ ♦ ♦ ♦

It's no mystery why Davidson is so successful. The company's titles have always proved entertaining and educationally sound. Now its latest release, Math Blaster Mystery (Editors' Choice, September 1989, p. 124), is tackling problem-solving and math skills with logic games and word problems.



# "COPY II PLUS<sup>®</sup>

WIPE, REFORMATTED AND DELETED ITS COMPETITION<sup>™</sup>

-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 IIgs (or Apple II computer with Central Point Universal Disk Controller) and a 3.5-inch IIgs, Chinon or Laser drive.

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



\$39.95

*Central Point  
Software*  
INCORPORATED

15220 N.W. Greenbrier Pkwy. #200  
Beaverton, Oregon 97006  
(503) 690-8090



## AT A GLANCE

Continued

Working through *The Perfect Career* is merely the first step in making employment decisions, though. The software is set up to help you identify careers of interest, offer employment suggestions, and develop a plan for reaching your career goal.

Used in conjunction with the supplemental guidance exercises in the manual, you'll be able to conduct an informed career search.

The *Perfect Career* won't offer you blind advice. It produces a list of promising career goals by analyzing the interest and ability ratings you obtain through the program's inventory modules.

**Flodd, the Bad Guy** (September 1989, p. 38, by Jeanne Dietsch), Tom Snyder Productions, 90 Sherman St., Cambridge, MA 02140, (800) 342-0236; 128K Apple IIe, IIc, IIGs; \$34.95  
Rating: ♦ ♦ ♦

The concept behind TSP's Reading Magic Library is simple—you and your child read a story together. The primary differences between this computerized story and a book are that the pictures are animated, your child is addressed by name, and you and your child can select a variety of ways to reach the story's climax.

When the story begins, all's well in the kingdom of Alex and his dog, Ollie. Then Flodd, the Bad Guy, comes to town and empties the water tower. The king and Ollie use magic wishes and their own ingenuity to refill the tower and circumvent Flodd's other nasty tricks.

The plot, characterization, pacing, prose, and artwork are similar to those of the average children's book. *Flodd, the Bad Guy* is an excellent story for preschoolers.

Like any good book, sharing it with your child will help prepare him or her to read. Parents who don't mind paying more for this storybook will probably find their children delighted.

Continued on p. 102

Four activities, couched in a mystery motif, cover positive and negative numbers, fractions, decimals, percentage, interest, and pre-algebraic concepts. You can choose from four levels of difficulty in each of the four activities. *Math Blaster Mystery* is aimed at a somewhat higher age group than previous Davidson titles; it's suitable for grades 5–12, depending on the individual's mathematical ability.

### ONE STEP AT A TIME

The program's first activity is *Follow the Steps*. Here *Math Blaster* stresses inductive reasoning through a series of 100 word problems. Each entry follows a four-step strategy toward problem solving: determining the problem you're asked to find; the information you need to solve that problem; the correct mathematical expression; and the actual solution.

Using a multiple-choice format, each word problem takes a youngster through the step-by-step process. More advanced students, however, can skip any of the first three steps.

*Follow the Steps* illustrates one of the strengths of Davidson's software and why its products are so highly regarded. This activity not only drills students in math functions, but also teaches them to form a plan of attack—a methodology they can apply to similar problems. You can also create *Math Blaster Mystery* data disks with the Editor utility.

*Math Blaster Mystery*'s second activity, *Weigh the Evidence*, challenges students to move a set of weights from one scale to another to achieve a target sum.

*Weigh the Evidence* emphasizes spatial relationships as well as advance planning. It starts out with four weights on one scale and a target sum shown at the top of the screen. Three of the four numbered weights will equal the desired total. Students must stack those in ascending order on one of the two remaining scales.

*Decipher the Code*, *Math Blaster*'s third activity, resembles the word game *Hangman*. Because of this similarity, encouraging students to think of *Hangman* will help them grasp both the mechanics and nuances of *Decipher the Code*.

A row of boxes appears at the bottom of the screen, some of them containing mathematical operators (+, −, \*, /, =). Students place numbers in the remaining boxes to create an equation. A second row will then appear above the first. Unused numbers turn black, correct

numbers in the proper spot remain the same, and correct numbers in the wrong location remain white.

The student continues to fill in boxes with numbers, basing his or her choices on the clues given in the previous row. When the correct equation is completed, the game round is over.

*Decipher the Code* introduces deductive reasoning and teaches students how to form a hypothesis and test it. Difficulty levels increase the game's complexity by providing more operatives and offering fewer clues.

The final segment of *Math Blaster Mystery* is *Search for Clues*. From a pure-enjoyment point of view, this activity is tops, thanks largely to graphics featured in the game play.

*Search for Clues* is a guess-the-number game. The screen displays a series of Victorian rooms, filled with people and furniture. With the mouse or keyboard, students select an object or person, which becomes animated and displays a clue.

The clue will be something like *N is divisible by 5 or N is larger than 39*. After the program provides each clue, it asks the player to guess the number. Obviously, the sooner you guess the number correctly, the more points you'll score. *Search for Clues* reinforces logical thinking and calls on knowledge of math facts and terminology while also subtly stressing inference and "educated guessing."

The last three activities in *Math Blaster Mystery* don't include an editor for designing your own problems. Through the use of randomizing, the program consistently generates an infinite number of problems, however.

### HAVE A CLUE

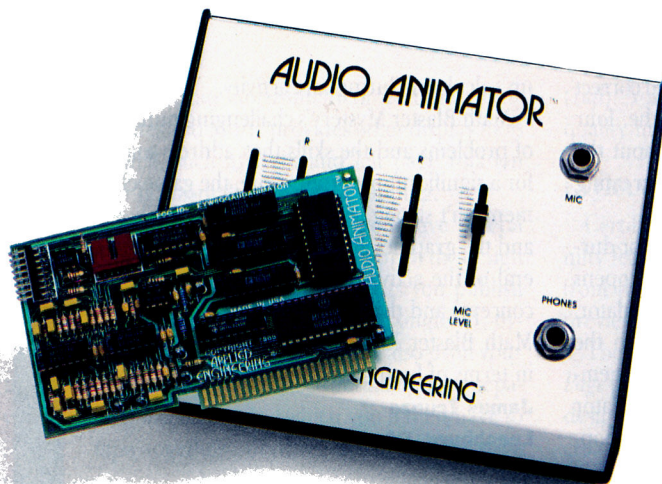
*Math Blaster Mystery* includes all the bells and whistles you'd expect in an educational "game." An animated detective appears at the end of each correctly solved problem to provide positive reinforcement.

The program also tracks the number of problems attempted and solved at each difficulty level and "promotes" students from *Computation Cadet* to *Chief Problem Solver* (with intermediate levels on the way); a scoreboard appears at the end of each activity, displaying scores and progress.

Other features that enhance *Math Blaster Mystery* are its ability to print problems and certificates and a built-in calculator to help with computation.

*Math Blaster Mystery* lets you print all word problems in *Follow the Steps* in any of three ►





# Break the IIGs sound barrier

Audio Animator™. All of the Sonic Blaster's features plus MIDI and external mixer

Our new Audio Animator transforms your IIGS from a beep box to a boom box! We've combined a true MIDI interface with a stereo digitizer, a stereo playback machine, an external mixer, and enough powerful, feature-laden software to unleash the sound potential your IIGS was born with. Take full control over MIDI compatible instruments, or record and play back digitized sounds with unsurpassed accuracy and quality.

## Digitizing

Record sounds from your own stereo, CD player, television, or VCR, even a microphone. Audio Animator's built in oscilloscope lets you control recording levels visually and analyze inputted data. The zoom function permits you to "see" what your recording looks like in a graphical format. You determine the optimal balance between desired fidelity and available memory.

Audio Animator even has an on-board Analog to Digital converter to sample at an extremely fast rate (37,000 times a second), and with sound quality near that of a compact disk. With it, you'll obtain far higher levels of fidelity than with the GS's Ensoniq chip alone.

## Play back on your own speakers

The Audio Animator includes *input/output and thru* for MIDI (Musical Instrument Digital Interface) devices. Play and record melodies on a MIDI instrument, edit them and play them back through any MIDI compatible instrument. If fact, Audio Animator lets you daisy-chain up to sixteen MIDI devices.

Audio Animator comes complete with an

external mixer to allow easy access to volume and record levels and microphone controls. Connect a drum machine, keyboard, stereo, CD player, even another computer... all without disturbing the GS.

## Software, Too.

The powerful, mouse driven software we include presents you with easy to use pull-

- Editing functions such as fade-in, fade-out, backwards, echo, silence, and amplify
- Compatible with standard MIDI file formats including AIFF (Apple Information File Format)
- Sequencer supports 2:1 and 2.67:1 file compression
- MIDI quantization to 1/32 resolution and transposition



Compare Audio Animator with any other MIDI device or sound digitizer on the market. For completeness of the package, ease of use, quality, and an unmatched list of features... you'll choose Audio Animator.

Audio Animator ..... **\$239**

down menus and SUPER HI-RES graphics that make the Audio Animator almost as much fun to see as it is to hear.

The MIDI portion of the software is an 8-track, 16 channel MIDI sequencer with separate channel record and playback filters and a number of editing functions like cut, copy, paste, punch in, punch out, and many more.

## Features:

- Passport compatible MIDI interface
- Stereo input and output adjustable from external mixer
- Mixer has DIN connectors for MIDI in, MIDI out, and MIDI thru
- Compatible with all software utilizing the Ensoniq output
- On-screen oscilloscope to monitor inputs and VU meter

## 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 a check or money order to Applied Engineering. MasterCard, VISA, and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**

*The Apple enhancement experts.*

A Division of AE Research Corporation

**(214) 241-6060**

P.O. Box 5100, Carrollton, TX 75011

Memory requirement - 512K (1 MEG recommended)  
Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders



# REVIEWS

ways: in their entirety with all steps and correct answers provided; alone without the four steps; or with the four steps but without the correct answers indicated (to allow for creating a printed test).

Students can use the pop-up calculator during any of the four activities. Doing so opens a window with the multifunction calculator. Kids can't transfer their calculations to the main program, however, so they must remember their answers after closing the calculator window. If you like, you can disable the pop-

up calculator during any activity.

Math Blaster Mystery's challenging number of problems and the skills they address make for a significant program. True, the game element isn't strong, except in Search for Clues, and the graphics animation is minimal in several of the activities. Still, the wide range of concepts and the varied difficulty levels make Math Blaster Mystery well worth the money in terms of both content and longevity.

**James Trunzo**  
**Leechburg, PA**

## The Sensational Lasers Apple IIe/IIC Compatible

ONLY **\$395** Includes 10 free software packages!

**New!** Now Includes  
**COPY II PLUS®**



The Laser 128® features full Apple® II compatibility with an internal disk drive, serial, parallel, modem, and mouse ports. When you're ready to expand your system, there's an external drive port and expansion slot. The Laser 128 even includes 10 free software packages! Take advantage of this exceptional value today..... **\$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 IIe or IIC!..... **\$459**

### DISK DRIVES

5 1/4" Laser External Disk Drive.....	\$109
5 1/4" Apple IIe Compatible Disk Drive.....	\$109
5 1/4" Apple IIC Compatible Disk Drive.....	\$109
3 1/2" Apple Compatible Disk Drive.....	\$179

### ACCESSORIES

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

**U.S.A. MICRO**

**YOUR DIRECT SOURCE FOR APPLE AND IBM COMPATIBLE COMPUTERS**

2888 Bluff Street, Suite 257 • Boulder, CO. 80301  
 Add 3% Shipping • Colorado Residents Add 3% Tax

**Your satisfaction is our guarantee!**

**Phone Orders: 1-800-654-5426**

8 - 5 Mountain Time • No Surcharge on Visa or MasterCard Orders!  
 Customer Service: 1-800-537-8596 • In Colorado: (303) 938-9089

Laser 128 is a registered trademark of Video Technology Computers, Inc. Copy II Plus is a registered trademark of Central Point Software. Apple, Apple IIe, Apple IIC, and ImageWriter are registered trademarks of Apple Computer, Inc.

## CERTIFICATES AND MORE!



**MINDSCAPE, INC.,**  
**3444 Dundee Road, Northbrook, IL 60062,**  
**(312) 480-1948**

Custom-design and printing program;  
 Apple IIe, IIC, IIGS, printer required; \$49.95

**Rating: ♦ ♦ ♦ ♦**

Just when you thought the Apple II market had an elegant assortment of low-end desktop publishers, along comes another one that will knock your socks off. Certificates and More! from Mindscape is an easy-to-use, menu-driven program that lets you produce one-page awards, worksheets, diplomas, you name it. On-screen prompts and command-key instructions take you through the design process with minimal effort. Within moments after startup, you'll be producing high-quality printouts and useful teaching aids.

### MORE AND MORE

Certificates and More! operates equally well with keyboard commands or a mouse, and you can print your results in color on an ImageWriter II with a color ribbon. If you're familiar with Learning Lab's Creative Writing series (Monsters & Make Believe, Dinosaur Days, and so on), you'll recognize Certificates' user-friendly interface. Both were developed by the people at Pelican Software.

The program features all the goodies you'd expect to find in an entry-level design and printing program, plus many more. It offers 20 different border styles suitable for framing



awards, notices, greeting cards, invitations, placemats, bulletins, and stationery. You'll also find 200 pieces of clip art organized into 19 categories befitting a variety of home, school, and fund-raising activities. Themes include People, Holidays, Seasons, Banners, Animals, Medals/Badges, and History/Science.

There are 15 fonts ranging in size from 10 to 24 points. You can also print text in standard, outline, or bold style. If you need to set off any printed item with a headline, you'll appreciate the 24-point fonts especially. The well-written user's manual displays each border style, clip-art graphic, and font for easy reference.

The package comes with two double-sided 5¼-inch floppies. One disk boots the program, while the other contains the templates, clip art, borders, and fonts. A 3½-inch single-disk version is also available (eliminates disk swapping). Copy protection on the 5¼-inch program disk prevents you from transferring the software to a hard disk or a blank 3½-inch disk, however.

#### FLEXIBLE DESIGN

Certificates and More! offers greater flexibility than Springboard's Certificate Maker or Baudville's Award Maker Plus when it comes to positioning text and graphics on screen. You can place design elements exactly where you want them, because the program doesn't restrict you to preset locations.

For instance, to determine how far the cursor will move when you press the arrow keys in text mode, press the open-apple key along with a number from 1 to 9. The smaller the number, the less the cursor will move each time you press an arrow key. You get even more flexibility when you use the mouse instead of the keyboard.

You begin your creation by selecting one of three options from the main menu: Make a new certificate or load either a certificate template or a previously saved certificate file. The ten templates include one that will print a sheet of wide-lined primary paper for penmanship practice, a blank bingo card, and a board game. There's also a checklist, a five-column chart, and a calendar. You can modify any template or previously saved certificate file with the same tools provided for creating a certificate. Refer to the manual for thumbnail sketches of the certificate templates.

If you want to make a new certificate from scratch, you must decide whether you'll print

the certificate horizontally or vertically. Certificates and More! provides other display tools as well, such as right and left page rotation and horizontal and vertical flipping.

When it's time to print, you have several other options. Choose *Small* to print the design on a half page. This feature lets you publish two complete certificates on a single 8½-by-11-inch sheet of paper. You can also print your design on a single sheet (*Medium*), four separate sheets (*Large*)—which you'll then have to tape together—or three-quarters of a page

(*Tall*). You can also print in draft or high-quality mode.

#### EXTRA GOODIES

Certificates and More! offers several other nifty features as well. For instance, select *View* from the Tools menu whenever you want to preview the design on screen.

The program offers two options here: *Show Page* presents a reduced display with the entire design on screen; *Scroll Page* lets you view your creation in full scale, using the arrow keys to

Continued on p. 100

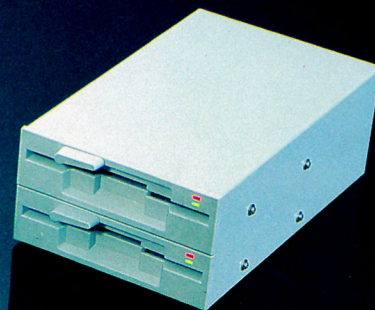
## LOWEST PRICE DIRECT FROM MANUFACTURER



#### 5¼" APPLE® II DISK DRIVE

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

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



#### 5¼" DRIVE FOR PC TRANSPORTER®

You can use our drive with PC Transporter to run MS-DOS programs on your Apple II like they do on IBM compatibles.

Single-drive system \$169

Dual-drive system \$259

Half-height drive \$115

(Add to single-drive to make dual-drive system.)

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

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

#### ALSO AVAILABLE:

EXTERNAL 3.5" 800 K Drive for Apple IIgs

# MEIJI®

## 6-MONTHS WARRANTY

SEND MONEY ORDER OR CHECK TO:  
KINSON PRODUCTS CORP.

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



No COD Order  
Accept School's P. O.

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

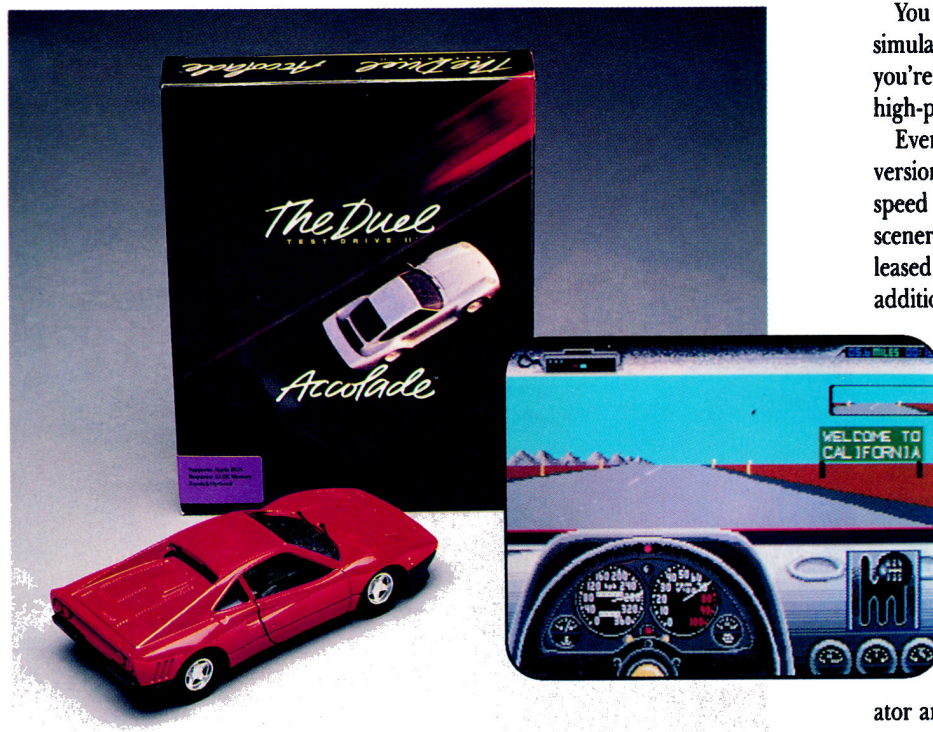
Shipping: UPS ground: \$6.00 per drive  
except \$10.00 per drive for dual-drive.  
Fed-Express (next day air): \$9.00 per drive  
except \$18.00 per drive for dual-drive.  
NY Resident: Please add 8% sales tax.

Circle 131 on Reader Service Card.

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



# GAME ROOM



## THE DUEL: TEST DRIVE II

ACCOLADE,  
550 South Winchester Boulevard, Suite 200,  
San Jose, CA 95128, (408) 296-8400

Driving simulation;  
512K Apple IIGS, joystick recommended; \$44.95

Rating: ♦ ♦ ♦ ♦

**T**hey call it "The Duel" because unlike the first Test Drive, this game doesn't leave you all alone. I'm not talking about the highway traffic you'll zoom past at 140 miles per hour, or even the cops who'll try their best to catch you. I'm talking about the car you're trying to beat across the finish line (or to the gas station, as the case may be).

You race against another car driven by a human or computer-controlled opponent.

(You can also take the easy way out and race against the clock—but you'll miss the competition.)

Pick the Ferrari F-40 and race against the Porsche 959—or vice versa. You can even race against the same car driven by someone else—a true test of your driving prowess. Either way you'll have to pound on the gas pedal, keep your hands tight on the wheel, and glue your eyes to the road.

You could almost consider The Duel a flight simulation. That's how fast things move when you're at the controls of one of these ultra-high-performance sports cars.

Everything's been improved since the first version—the graphics, sound effects, music, speed of play, responsiveness, and variety of scenery. (Accolade has also simultaneously released The Supercars, which gives you five additional rocket sleds from which to choose, and California Challenge, which takes you on a seven-leg journey down the California coast.)

The driving experience in The Duel is amazing. As you scream down the highway, trees and road signs whip by your window in a blur; cars you pass disappear in your rear-view mirror in a heartbeat; and—most satisfying of all—when the police start chasing you, you can just stomp on the accelerator and wave goodbye in a flash.

You'll find yourself leaning in your chair as you fly through high-speed corners. You'll blaze down desert highways, twisting mountain roads, and through cavernous tunnels.

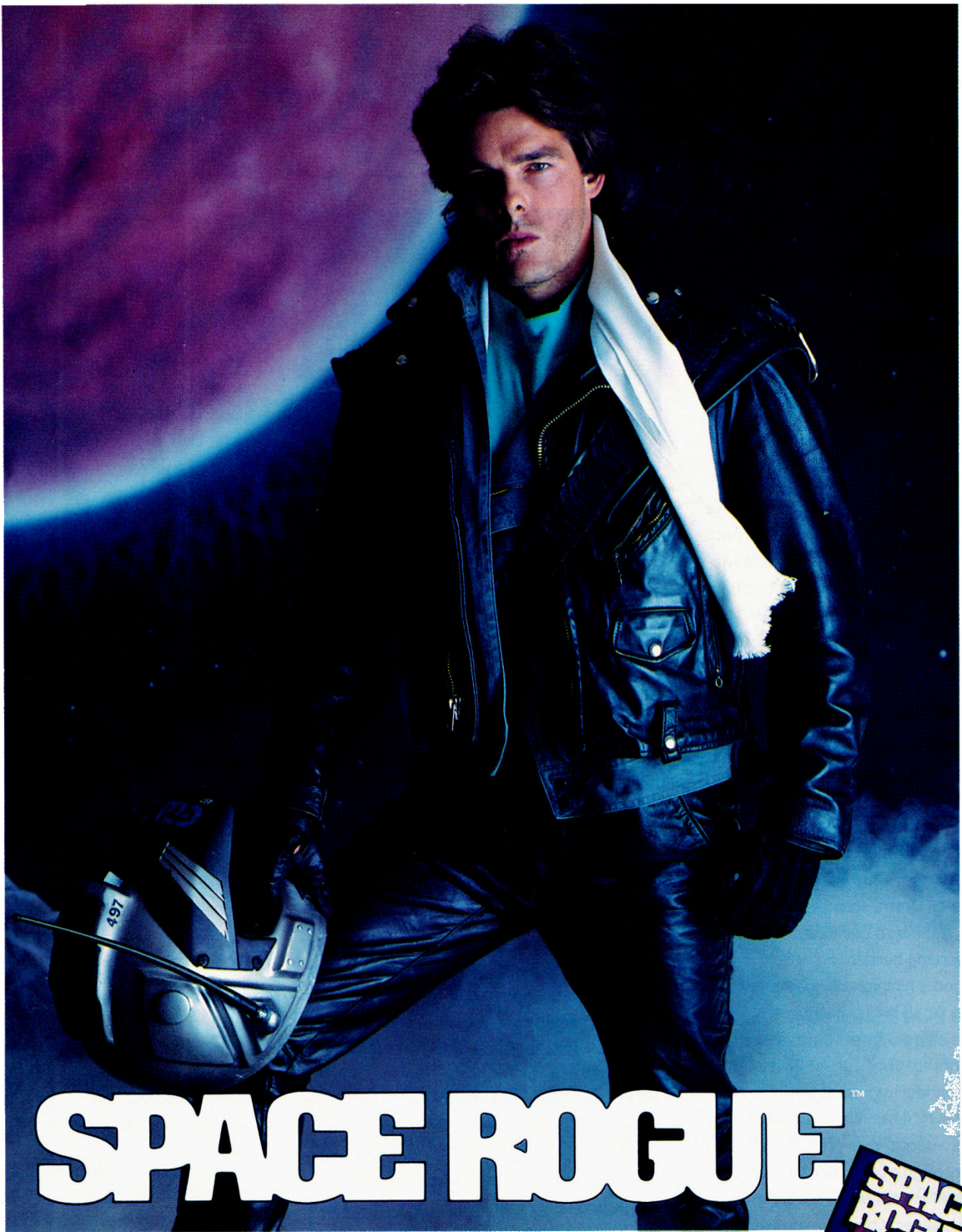
When you finally come to a stop at the gas stations along the way, you'll get a score sheet showing how you did in the last leg and how you've done overall.

I'll admit it—I went into the side of the mountain and over the cliff more times than I care to remember. It's a good thing I really don't have a \$200,000 car to play with. I'd be extremely hazardous to my own health (not to mention the health of anyone within a 50-mile radius).

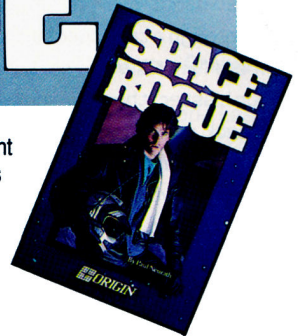
Until I write a few best-sellers, I'll content myself by taking one of the cars in The Duel out for spin. That's enough of a hair-raising experience for now.

**Life Low**  
**inCider staff**





Rocket into the striking realism and spectacular visuals of **SPACE ROGUE**, the phenomenal 3D space flight simulation. You'll discover authentic flight dynamics, precision navigational aids and sophisticated weapons technology as you maneuver through turbulent ion storms and confront alien foes. You'll visit space stations and mining outposts — swapping tales with pirates, drinks with friends and goods with merchants. It's the seamless integration of space flight and role playing that makes **SPACE ROGUE** the first ORIGIN Cinematic Experience™.



IBM/COMPATIBLE VERSION



IBM/COMPATIBLE VERSION



APPLE VERSION

**ORIGIN™**  
We create worlds.™

Available for: IBM/Tandy/compatibles, C-64/128, Apple II series, coming soon for; Amiga and Macintosh; actual screens may vary.

Can't find **SPACE ROGUE** at your local retailer? Call 1-800-999-4939 (8am to 5pm EST) for Visa/MC orders; or mail check or money order (U.S.\$) to ORIGIN. All versions \$49.95; shipping is FREE via UPS. Allow 1-2 weeks for delivery. ORIGIN, P.O. Box 161750, Austin, Texas 78716.



## TIP SHEET

This month we introduce the "Tip Sheet" section of *inCider's* new and improved Game Room entertainment review section. If you're trapped, mystified, or stuck, look here for help. On the other hand, if you've found a trap door, shortcut, or any other helpful hint for getting through a game, let us know and we'll print it here in Tip Sheet.

James Hockenberry of Carlisle, Pennsylvania, has a hint for getting through level 12 of the arcade action game **Warlock**, from 360 Pacific. He just blazed right ahead, shooting at the wizard repeatedly and jumping over the fireballs he shoots off. When you can't go any further forward, wait until he pokes his head out again and let him have it. It takes precise timing, but according to James, you should be able to hit him.

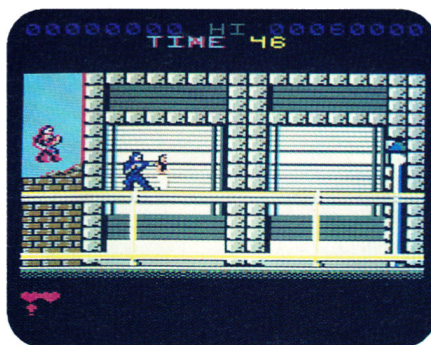
Chris Spencer of Fort Worth, Texas, has a trick for getting by the dragon in the first level of Activision's **Last Ninja**: Go to the far left-hand corner of the screen, throw a smoke bomb, then hurry past the dragon. That ought to help out all of you who, like me, were stuck on that first level, unable to get past the dragon without getting barbecued.

We've got a hint for the game **Aliens**, also from Activision, if you're playing Ripley. You know the sequence when she's running through that twisted maze of corridors in an attempt to find Newt? When you run through the hive of alien eggs, scoot over to the left and you'll go through a trap door into the corridor where Newt's being held. Be ready with your blaster, though—you won't be able to back up if there are any hungry aliens waiting on the other side. Once you've found Newt and are trying to bring her back, only to be thwarted by the queen alien, try moving over to the left, shooting a few rounds, and dashing by when the queen alien moves.

Remember, if you have a tip or hint you'd like to share with all the other game players out there, send it along to Tip Sheet, c/o *inCider*, 80 Elm Street, Peterborough, NH 03458. Thanks!□

—Lafe Low

## BAD DUDES



**DATA EAST,**  
1850 Little Orchard Street, San Jose,  
CA 95125, (408) 286-7080

Fantasy role-playing adventure;  
128K Apple IIe, IIc, IIgs; joystick  
required; \$34.95

Rating: ♦ ♦

**A**re you "bad" enough to save the President? Do you have what it takes to beat countless numbers of ninja henchmen, vicious dogs, and samurai warriors? Data East thinks *Bad Dudes* is the challenge you've been looking for.

You've been called on to rescue the President, who has been kidnapped by the Dragon Ninja and will soon be flown out of the country. To save him, you'll have to fight your way through hordes of villains with your bare hands and whatever weapons you find along the way. There are seven levels to work through—the city, the big rig, the sewer, the forest, the freight train, the cave, and finally the factory. At the end of each level, you'll have to fight a super warrior.

Graphics screens are rather weak here; characters are small and their features hard to distinguish. The weapons you'll pick up all look similar, so it's hard to tell what you've taken. The backgrounds are well drawn, but the characters are more important. Use a color screen—monochrome will just make things worse.

Animation is lacking; characters slide along rather than walk or run. When you jump, you hang in the air for a few seconds—just enough time for your opponents to surround you when you land. When you finally get to hit someone, you can often strike an opponent who should be out of reach, but miss someone nearby. You'll die early and often in this game.□

**Tim Moore**  
**Metairie, LA**

## SHORT TAKES

**Crystal Quest** (September 1989, p. 98, by Lafe Low), Casady & Greene, P.O. Box 223779, Carmel, CA 93922, (408) 624-8716; 512K Apple IIgs; \$49.95

Rating: ♦ ♦ ♦ ♦

It's an intensely addicting arcade game—that may be a frequently abused cliché, but it describes *Crystal Quest* perfectly. Crisp graphics and sounds you won't hear anywhere else keep you coming back. We bet you can't play just one game.

**Deja Vu II: Lost in Las Vegas** (September 1989, p. 98, by Lafe Low), Mindscape, 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667; 768K Apple IIgs, ROM version 01 or higher, system disk version 3.2 or higher; \$49.95

Rating: ♦ ♦ ♦

The sequel to *Déjà Vu* starts you off equally clueless, only this time you're in Las Vegas and you owe the mob 100 grand. Good luck finding your way around—you'll need it. At least you'll enjoy the scenery, though, even if you can't get the mob off your back.

**Impossible Mission II** (September 1989, p. 100, by Joe Abernathy), Epyx, P.O. Box 8020, 600 Galveston Drive, Redwood City, CA 94063, (415) 366-0606; 512K Apple IIgs; \$19.95

Rating: ♦ ♦ ♦ ♦

*Impossible Mission II* includes a great combination of arcade-style action and strategy with clean stereo sound and fluid animation. This is a nice change from straight shoot-'em-ups—you have to use your wits and your reflexes.

## CORRECTION

In our September column (pp. 98–100) each game we played somehow lost a star along the way. Correct ratings are four stars for *Crystal Quest*, three for *Déjà Vu II*, and four for *Impossible Mission II*.



INCLUDES A MONEY BACK GUARANTEE

★★★★★—Five Stars  
Highest Rating.  
InCider  
"The Star Performer"  
Nibble

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

# Publish-It! 2™

**PUBLISH IT! 2—A full-featured, fully integrated desktop publisher with word processing, page layout, typesetting, graphics—and then some!**

For all its state-of-the-art ability, *PUBLISH IT! 2* is incredibly easy to learn. *PUBLISH IT! 2* combines the familiar Macintosh User Interface, our Quick-Start Mini-Manual, a full complement of Help Screens, and the practical **WYSIWYG (What-You-See-Is-What-You-Get)** display—all designed to get you up and running in less than one hour!

## New Features:

- **Extended Memory Support:** This built-in intelligent Memory Manager™ produces larger documents, limited only by the available memory in your computer—with faster program operation.
- **Compatible with Print Shop:** Imports graphics directly from Print Shop's GRAPHIC LIBRARY disks.
- **PostScript Laser Support:** PUBLISH IT! 2 supports LaserWriter, LaserWriter Plus, and all PostScript printers. Timeworks' LASER ACCESSORY PACK is *not* required!
- **Automatic Border Creation:** Draws ruled borders—in varying thicknesses—around graphics and text.
- **Transparent Text Frames:** Overlaps text on graphics so that graphics appear "underneath" your text.
- **Graphics Resizing** to any size you want.
- **Horizontal and Vertical Alignment** of groups of objects, at the press of a key.
- **Quick Selection of Multiple Objects:** Just point and click to select any group of objects.

## Additional Features:

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

- **Built-in Fonts:** Choose from over 1280 possible type-style combinations! Opt for bold, white, italic, underlined, outlined, shadow, & superscript or subscript characters. Type sizes range from 9 to 72 point.
- **Premium Quality Printouts:** *PUBLISH IT! 2* uses a special high density (72 x 120) printout format that gives you superior quality printouts on your dot matrix printer.
- **Built-in Word Processor:** All the features necessary for everyday word processing, plus most of the sophisticated ones found in more expensive programs.
- **Text Importing:** Load documents from APPLEWORKS, BANK STREET WRITER\* or any other program with an ASCII format directly into *PUBLISH IT! 2*.

- **Built-in Graphic Toolbox:** Draw lines, boxes, circles, rules and more. Plus, choose from a wide variety of built-in line and fill patterns, or create your own.
- **Graphics Importing:** Directly import graphics and illustrations from any standard Apple double-high-resolution drawing and graphics programs—including PRINTSHOP and DAZZLE DRAW.\* Then crop and size them to fit.
- **Kerning and Leading**
- **Automatic Text Flow and Word Wrap:** Flows text from column to column on the same page, or carries it over to subsequent pages.
- **Multiple Size Page Views:** View, edit and layout pages at actual, double or half-size.
- **200 Professionally Drawn Graphics**

For Apple IIe, IIc Plus, IIGS, and Laser Computers. Includes 5¼" and 3½" disks; and supports hard drive.

Suggested Retail Price . . . . . \$129.95

Ask your dealer for a demonstration today—or order direct from Timeworks:

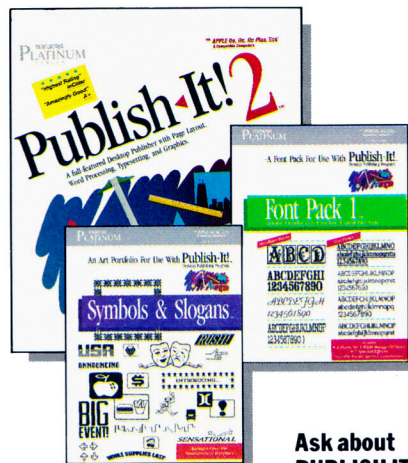
1-312-948-9202 • FAX: 1-312-948-7626

**TIMWORKS  
PLATINUM  
SERIES**

444 Lake Cook Rd., Deerfield, IL 60015-4919  
312-948-9200

DOCUMENTS DO NOT PRINT OUT IN COLOR

\*Registered trademarks of their respective companies.  
© 1988 Timeworks, Inc. All Rights Reserved.



Ask about  
**PUBLISH IT!**  
Accessory Packages!





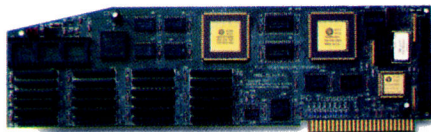
# Now Apple speaks IBM. Three times faster than IBM.

**PC Transporter™,  
the Apple II expansion  
board that lets you run  
MS-DOS programs,  
now at a lower price.**

Now your Apple II can run over 10,000 programs you could never use before. Like Lotus 123, dBASE III PLUS, Symphony, Microsoft Works, even Flight Simulator.

With PC Transporter, MS-DOS programs run on your Apple II like they do on IBM PCs or compatibles. With one important difference. PC Transporter runs most of those programs *three times faster* than an IBM PC/XT.

Plus, to speed through number-crunching tasks, you can use our optional 8087-2 math co-processor chip. It plugs into a socket on the PC Transporter.



**Much less expensive than an IBM clone.**

PC Transporter costs less than even a stripped-down IBM clone. And when you add the host of expensive IBM-compatible peripherals you'd need to get the clone up and running, you're left with an expensive, cluttered desktop.

You don't have to buy new hardware to use PC Transporter.

**Works with the hardware you already own.**

With PC Transporter, MS-DOS programs actually see your Apple hardware as IBM hardware, so you can use the same hardware and peripherals you have now.

With IBM software, your Apple hardware works just like IBM hard-

ware. Disk drives, monitors, printers, printer cards, clock cards, serial cards and even hard disks look like IBM type hardware whenever the PC Transporter is activated.

You can use your IIe or IIGs keyboard with IBM software. Or use our optional IBM-style keyboard (required for the II+).

You can use your Apple mouse. Or an IBM compatible serial mouse.

**Plenty of power.**

PC Transporter gives you 640K of user RAM and 128K of system RAM in the IBM mode.

PC Transporter works like an Apple expansion card, adding 752K of extra RAM in the Apple mode. The 752K is useable as a RAMdisk or as memory expansion to any program that follows the Apple Memory Expansion Card protocol (most do). The Apple memory expansion alone is a \$500 value.





PC Transporter taps into the world's largest software library. Now your Apple can run most of the software you use at work. And it opens a new world of communications programs, games and bulletin boards.

### Easy to install.

You can install PC Transporter in about 15 minutes, even if you've never added an expansion board. You don't need special tools. Simply plug it into an Apple expansion slot (1 through 7, except 3), connect a few cables, and go!

### A universal disk drive controller.

PC Transporter will run 3.5" IBM disks from your Apple (or compatible) 3.5" drive. And even if you want to run 5.25" IBM disks you can get our versatile 5.25" drive system and still run Apple 5.25" disks from an Apple 5.25" drive. In other words, when running 3.5" disks, your Apple 3.5" drive will run *both* Apple and IBM disks.

No matter what your drives, you can shift instantly between Apple ProDOS and IBM MS-DOS.

PC Transporter supports up to 5 drives in a number of combinations.

For example, you can connect a 5.25 Applied Engineering 360K dual drive system directly to the card. Then

PC Transporter controls Apple and IBM compatible disk drives. It supports 3.5" and 5.25" MS-DOS and ProDOS formatted diskettes.



plug two daisy-chained Apple 3.5 Drives (not the old Apple UniDisk 3.5) to the dual-drive system. For a fifth drive, you can even use a ProDOS file on a hard disk as an IBM hard disk!

### Versatile data storage.

You can store IBM programs and data on any ProDOS storage device including the Apple 3.5 Drive, Apple UniDisk 3.5, Apple 5.25 drive, SCSI or ProDOS compatible hard drives.

You can even use our 360K PC compatible drive for ProDOS storage and a 143K Apple 5.25 drive for MS-DOS storage.

### Make your Apple speak IBM.

#### PC Transporter w/768K \$499

Note: 768K RAM in Apple mode translates to 640K RAM in the IBM mode because PC Transporter uses 128K for system memory.

#### IIgs Installation Kit \$49

#### IIe/II+ Installation Kit \$39

Optional 5.25 IBM Format

360K Drive Systems

#### Single-Drive System \$259

#### Dual-Drive System \$389

### What the experts say:

*"Gives Apple II users the best of both worlds...an impressive engineering feat."*

—A+

*"It's ingenious...a remarkable success!"*

—InCider

*"When you buy a PC Transporter, you're not just giving your Apple the ability to act as a PC clone, you're upgrading your computer in a big way for all your Apple II computing."*

—Nibble

*"An excellent solution for at least half a million people who enjoy Apple II computing at home and endure MS-DOS at work."*

—MicroTimes

*"Extremely versatile...one of the most ingenious and exciting products we've seen."*

—Classroom Computer Learning

*"PC Transporter has created quite a stir. It's accuracy guarantees a whole host of uses...a masterpiece of engineering."*

—Apple Soft

\*When purchased from Applied Engineering or thru a participating dealer.

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

Apple II+ must be FCC certified.



PC Transporter produces better IBM graphics than IBM. Analog is sharper than digital. So with a IIgs analog RGB monitor, PC Transporter's CGA graphics and text are superior to IBM's digital display—even while running your IBM Software!

### Created by Apple's original designers.

The brains behind PC Transporter were also behind your Apple II.

The PC Transporter design team includes the former project managers for the creation of the Apple IIe and IIc. The co-designer of the Apple II disk controller. And the author of the ProDOS operating system.

So you know the PC Transporter and your Apple were made for each other.

### Support and service from the leader in Apple add-ons.

Applied Engineering sells more Apple peripheral boards than anyone else—including Apple Computer. So you know we'll be around after the sale.

PC Transporter comes with a 15-day money back guarantee.\* If you're not fully satisfied after using it, return it for a full refund. PC Transporter also comes with a 1 year warranty.

### Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**  
The Apple enhancement experts.

P.O. Box 5100, Carrollton, TX 75011

214-241-6060

A Division of AE Research Corporation.



# WHERE THE

By CYNTHIA E. FIELD, Ph.D.



**B**AEDEKER'S GOT NOTHING ON YOUR Apple II. Whether you're livening up geography lessons or dreaming of your next vacation, at least *two dozen* software programs offer you the opportunity not only to "visit" near or distant lands, but to appreciate their respective cultures, as well. A variety of formats, storylines, and settings will have you chasing crooks across Africa one day and talking to Bogie the next; then it's on to a diplomatic crisis in Asia or a comparison of populations and resources among allies and adversaries in Europe. Tobago, Tunisia, Tampico, Tashkent—countries you've read about, cities you've wondered about, places you've never even heard of before—all come alive on your screen.

The undisputed "grandmommy" of geographic simulation programs is probably Broderbund's **Where in the World Is Carmen Sandiego?**, a playful adventure game that will keep you happily sleuthing for hours on end. (See the accompanying product-comparison **Table** to determine each program's hardware requirements.)

Carmen and her V.I.L.E. (Villains' International League of Evil) gang display a penchant for lifting national "treasures"—such as the Abominable Snowman from Kathmandu. Log in at the Acme Detective Agency, accept your assignment, and catch the thief within the time limit listed. A string of successful captures guarantees you a promotion up the ranks.

The program's factual information helps you learn more about each city you visit in pursuit of the perpetrator. While there, solicit clues from the likes of hoteliers, waiters, sports-club managers, and airport personnel. Tips are purposely cryptic: A library archivist, for example, may offer, "He checked out all books about Sikh temples." To pinpoint the thief's destination, dig deep into the *World Almanac and Book of Facts*, a handy everyday reference work that accompanies the program.

Other information you glean, such as a crook's penchant for mountain climbing, gives you insight into his or her personality. The program manual incorporates a printed dossier on card-carrying V.I.L.E. members like Merey LaRoc, the free-lance aerobic dancer. When you think you've correctly deduced the thief's identity, work the Interpol Crime Computer to obtain a search warrant. Be quick—if an investigation takes too long, slick guys like Fast

○ Eddie B can slip right through your fingers before you know it.

The special GS version of *Where in the World* plays the same way, but the program's graphics and sound effects are superior, as you might expect. Use the mouse to click on icons and to pull down menus—such as *Dossiers*, which accesses each suspect's mug shot and rap sheet.

**Where in the USA Is Carmen Sandiego?** and **Where in Europe Is Carmen Sandiego?** are less global in scope. The domestic game features more than 1500 clues and 16 suspects, including "lobsterman and safe cracker" Titus Canby. The program comes with a copy of *Fodor's USA* travel guide. The European game covers 34 nations, introduces a whole new slew of suspects (including Chips Motherboard, who "tapped his grandmother's hearing aid when he was six"), and packs the *Rand McNally Concise Atlas of Europe*.

---

Go first class on a shoestring—around the globe with geography software. For armchair travelers and accidental tourists, students and amateur explorers, your peripatetic Apple II's your passport to new frontiers.

---

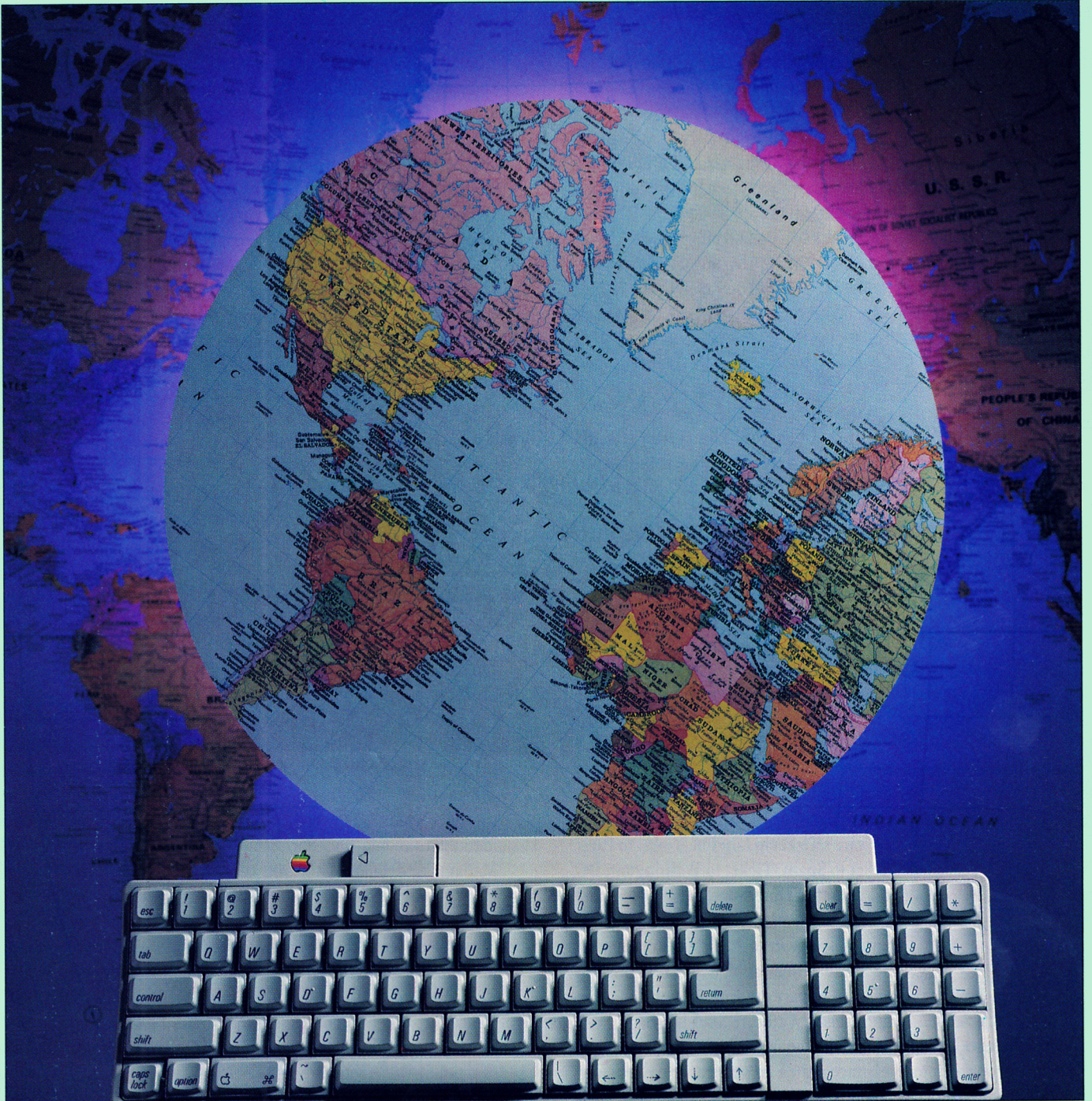
Sleuths in hot pursuit of a more historical perspective should spy Broderbund's newest release, **Where in Time Is Carmen Sandiego?**, said to "bring history to life" via its focus on events that occurred during the period from 400 A.D. to the 1950s. According to a Broderbund informant, who says the program should be ready by the time you read this, Carmen's gang will be stealing, among other treasures, the Magna Carta and Queen Isabella's jewels. (See "History Mystery" in this month's What's New, p. 21.)

If low-budget travel is your aim, The Spy's Adventures series from Polarware is your ticket to entertainment. Each randomly generated game in **The Spy's Adventures in Europe**, **The Spy's Adventures in North America**, and **The Spy's Adventures in South America** pits you against Dr. Xavier Tortion, internationally infamous jewel smuggler. Finding Dr. X isn't easy: Both time and money—appropriately converted to native currency in each land—are limited.

As Agent H2O, you select the country (among the 29 featured in the European program, for instance) where you'll begin your search. The Spy's Adventures boast full-screen graphics scenes. When you

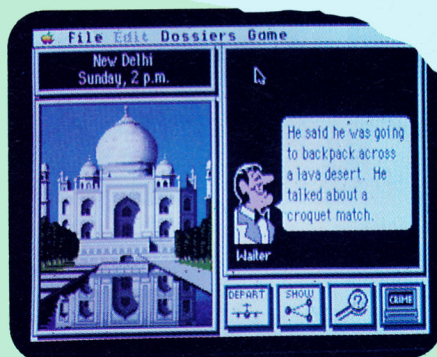


# HECK AM I?





Super-hi-res graphics makes Where in the World Is Carmen Sandiego? (GS version) a delightful romp for sleuths of all ages.



Track Carmen across the States in Where in the USA.

arrive in Paris, for example, the script below the Parisian cityscape reads, "Paris is the busy and famous capital of France. You can see the Eiffel Tower, built in 1889 for Paris' World's Fair."

Investigative efforts may sometimes prove fruitless. That's not to say humorless, however. If you're tempted to sample wine during your travels, for instance, don't be surprised when the vintner warns, "Better not—you have to stay alert in the spy business."

When least expected, informants pop up and offer you the chance to barter jewels you've purchased along the way for letter clues befitting TV's *Wheel of Fortune*. If a completed clue reads "BLUE MOSQUE," for instance, you'll know that Dr. X is in Turkey—or at least you will with practice.

**"Jet-setting Apple II enthusiasts really do have the world at their fingertips! Geography software sparks a lifelong interest in foreign lands, distant peoples, and different ways of life around the world."**

The Spy's Adventures add yet another twist: You can play alone or with fellow spies—either cooperatively in a network or competitively as spy against spy.



un and games aside, if you prefer more realistic simulations, be sure to pack Blue Lion Software's *Ticket to London*, *Ticket to Paris*, *Ticket to Spain*, *Ticket to Washington, DC*, and *Ticket to Hollywood* in your electronic carry-on bag. Maps, screen displays, and storylines vary in each Ticket program, but the underlying *raison-d'être* remains the same: to impart an appreciation for geography, history, culture, and language.

In *Ticket to London* your objective is to obtain the plane ticket you need to return to the United States. As you traverse the byways of London, bobbies and taxi drivers are sure to quiz you on English

history, food, politics, and colloquialisms. Select appropriate responses from the multiple-choice "mouth bubbles" in screen dialogs. Answer adequately and receive a hint about where to find, of all things, a bowler hat!

When you track down the hat, it provides you with a factual clue pertaining to a famous English person. Piece together the clues, return to Victoria Station, and type the mystery person's name. You'll soon be winging your way home to the States!

Ticket programs track your status in time, physical well-being, and money. In London, it seems to rain a lot in May; you don't have any time to waste recuperating in your hotel room!

Watch your pounds (in both senses of the word): Eating at Simpson's *really* costs, but meals at the Dickens Inn are more reasonably priced. As the days pass, there'll be books to buy and theatre tickets to purchase, so conserve funds by choosing your mode of transportation wisely.

Ticket to Paris and Ticket to Spain add even more international flair to simulated journeys—you can play in French and Spanish, respectively. Before they give you the clues you need to find your errant cousin (Paris) or your family's heirloom (Spain), hoteliers, travel agents, and natives will ask you to converse in *their* language or to translate

phrases. In Ticket to Paris use the on-line dictionary; in Ticket to Spain, refer to the phrase book included in the box.

Ticket to Washington brings your exploits a little closer to home. Study the program's seven maps and visit some four dozen places in the capital to gather clues about the identity of a famous American.

Meanwhile...on the West Coast Ticket to Hollywood has you traveling around Tinsel Town in search of the clues you need to identify a mystery film star. Answer questions posed by the Movie Madame and follow leads you discover in the tabloids. Ticket to Hollywood sports six maps with about three dozen locations and more than 2000 facts pertaining to 80 years of film history.

Another Blue Lion program, *RSVP*, serves as a unique store of information about world customs, etiquette, and propriety. Use RSVP for drill-and-practice in decorum, or play a simulation.

Select a career in politics, the arts, publishing, or another field. Work your way to the top by choosing the most diplomatic course of action in the situations presented. Ironically, some of the negative feedback the program gives seems to be more snide than helpful



You'll practice your French when you buy a Ticket to Paris.



You'll travel to many an ancient Iberian city in your hunt for a family heirloom in Ticket to Spain.

...("Lost track of the fast track?"), but the program is a unique resource for rehearsing more than 700 situations in 17 categories and 18 countries—without really stepping on anyone's toes.



Back on home turf, Compu-Teach's "traveling game," **See the U.S.A.**, provides a wealth of opportunities for children to become familiar with the relative locations of the 50 states and their capitals.

In Practice mode, move the cursor from state to state on the hi-res map while the program displays the state's (or capital's) name. In Play States, try to complete a trip from Alaska, say, to Rhode Island by moving only through contiguous states. In Play Capitals, your trip progresses from city to city. In either case, **See the U.S.A.** charts your course on screen. If you get stuck on names, check *Cram's Quick Reference*

*Map of the United States*, the detailed, wall-sized map that comes with the program.

A standard **See the U.S.A.** game is played against an imaginary clock, but you can elect to set no deadline. Upon reaching a destination, you're entertained with one of 100 full-screen paintings depicting scenes characteristic of the state.

**See the U.S.A.** offers an editing utility for creating quiz-question files. Students select from these files when they choose the Quiz Game option from the main menu. A sample disk includes questions on topics such as Famous Places, State Flowers, and State Mottos.

What if seeing the U.S.A. in super-hi-res is more your style? Take **Orange Cherry's Global Express Atlas: The United States** for a test flight. In this simulation, you're a Global Express jet pilot delivering cargo from New York City to various destinations.

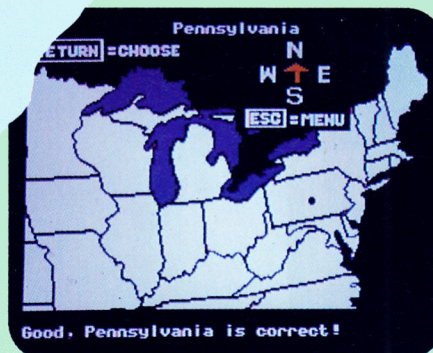
State maps are as stunning in appearance as you might expect from this GS-specific program. Pull down the Information menu to determine a destination state's capital city, to activate the route your jet will take, or to open the Tourist Data information window. Click

PRODUCT	MEMORY	FORMAT	AGES
Atlas Explorer	128K	5¼ or 3½	8-18
GeoWorld	64K	5¼	10-18
Global Express Atlas: The United States	512K GS	3½	10-adult
Global Express Atlas: The World	512K GS	3½	10-adult
National Inspirer	64K	5¼ or 3½	10-18
RSVP	128K	5¼	14-adult
See the U.S.A.	64K 2 drives 128K 1 drive	5¼	8-adult
Spy's Adventures in Europe	64K	5¼	8-adult
Spy's Adventures in North America	64K	5¼	8-adult
Spy's Adventures in South America	64K	5¼	8-adult
Ticket to Hollywood	128K	5¼	14-adult
Ticket to London	128K	5¼	10-adult
Ticket to Paris	128K	5¼	12-adult
Ticket to Spain	128K	5¼	12-adult
Ticket to Washington DC	128K	5¼	10-adult
Where in Europe Is Carmen Sandiego?	128K	5¼ or 3½	9-14
Where in the USA Is Carmen Sandiego?	128K	5¼ or 3½	9-14
Where in the World Is Carmen Sandiego?	128K	5¼ or 3½	9-14
Where in the World Is Carmen Sandiego? GS	512K GS	3½	9-14
World GeoGraph	768K GS	3½	12-adult





Link up with Canada's finest in  
Spy's Adventures in N. America.



See the U.S.A. gives  
young geographers  
practice in identifying states and  
capitals.

on choices in the Options menu to depart or to obtain ground clearance.

In Global Express Atlas: The World it's international shipments—such as paintings to the United Kingdom or earthquake-relief supplies to Turkey—that you're delivering. To "qualify" for ground clearance, activate the Language Translator. Global Express calculates the tariff on your cargo in units of local currency.

No question about it: Global Express Atlas programs are attractive in their appearance and appealing in their sound effects (which include some digitized human speech). But instead of challenging you to navigate routes, plan your time, translate words, or calculate exchange rates, the programs fly on autopilot, resulting in a learning environment that's at once disarmingly handsome and distressingly shallow.

Let's say you're a mouse potato who prefers to pursue geographic studies in a more traditional way. If so, investigate Springboard's **Atlas Explorer** and MECC's **World GeoGraph**.

Atlas Explorer features multiple layers of on-screen maps. Click on Europe on the world map to see an enlarged view of the continent. Click on the United Kingdom for a closeup of the region. Click on Scotland to zoom in on that country.

Programmed in mousetext, the Atlas Explorer screen is black-and-white only and sports three pull-down menus: Apple, Play, and Review. The mouse is recommended, but keyboard alternates suffice.

Atlas Explorer's integrated database contains information compiled from sources such as the *1988 Demographic Yearbook*, published by the United Nations. To access a given country's record, select the Begin Tutorial option in the Play menu. Each country's profile includes its capital city, size, population, currency, and native languages.

Quiz options let you test your memory and track your progress. The Review pull-down lets you go over questions you missed and retake quizzes. A Record Keeping utility lets teachers save student progress reports on data disks.

Arguably the most sophisticated of the programs reviewed here, World GeoGraph is a "gotta-have" for any serious student of geography or for any classroom equipped with an Apple IIGS. (See "Databases in Disguise," Field Trip, September 1989, p. 102, for details.)

From the moment you double-click on the globe icon at the GS/OS Finder screen, you can't help but be impressed with World GeoGraph's superiority, an opinion obviously shared by the Software

Publishers Association, which recently honored the program with its Best Education Program award.

World GeoGraph is an electronic atlas of super-hi-res, full-color maps enhanced by a 55-category interactive database. Use plain-English selection rules contained in dialogs to search and sort information pertaining to the 177 nations included in the program's database.

Zoom in for a closer look at a continent or a region, or select a theme map—climate, population, and so on. Display an individual country's Data Card, or expand your relative knowledge of nations by generating a Data Table. And at the click of the mouse, World GeoGraph can display selected tabular data in bar-graph form.

Among World GeoGraph's most appealing features is its ability to print *everything*—raw data, tables, graphs, and full-color maps—for inclusion in research reports.

## PRODUCT INFORMATION

### Atlas Explorer

Springboard Software  
7808 Creekridge Circle  
Minneapolis, MN 55435  
(800) 445-4780  
(612) 944-3915  
\$49.95

\$100 lab pack (5 disks)

### GeoWorld, \$79.95

\$240 lab pack (10 disks)

### International Inspirer,

price undetermined

at press time

### National Inspirer, \$69.95

\$140 lab pack (5 disks)

Tom Snyder Productions

90 Sherman St.

Cambridge, MA 02140

(800) 342-0236

(617) 876-4433

### Global Express Atlas:

**The United States, \$49**

**Global Express Atlas:**

**The World, \$79**

Orange Cherry Software

Box 390

Pound Ridge, NY 10576

(800) 672-6002

(914) 764-4104

\$125 both

### RSVP

**Ticket to Hollywood**

**Ticket to London**

**Ticket to Paris**

**Ticket to Spain, \$39.95 each**

**Ticket to Washington, DC, \$44.95**

Blue Lion Software

90 Sherman St.

Cambridge, MA 02140

(800) 333-0199

(617) 876-2500

### See the U.S.A.

Compu-Teach Inc.

78 Olive St.

New Haven, CT 06511

(800) 44-TEACH

(203) 777-7738

\$49.95

\$99.95 classroom edition

(5 sets)



Strategic planning helps your team collect resources and commodities in National Inspirer.



**World GeoGraph: super-hi-res atlas and interactive database.**



Although nearly all programs described so far are appropriate for home or school use, Tom Snyder Productions' **National Inspirer** and **GeoWorld** are intended specifically for the one-computer classroom.

National Inspirer is one of those rare programs that defies our proclivity to pigeon-hole things. Does National Inspirer teach geography? Resource economics? Team-work? Or all three, as groups of students

work together planning multistate sweeps across the U.S.?

Each team's goal is to collect assigned resources and commodities like copper or corn, gold or grain. Upping the ante, the program requires that each team's final move take it into a state with a specified population, area, or elevation.

Planning is key: Number of moves and time to execute them are limited. Chart your course strategically with the help of resource materials like the reproducible maps in the manual.

According to Althea Kaemmer, TSP's director of marketing, the company plans to release **International Inspirer**, a world-geography version, by the time you read this.

Now if you don't miss a beat seeing the words *geography* and *igneous* in the same sentence, you're the kind of teacher who should take a close look at GeoWorld. This "World Mineral Exploration" simulation—part of TSP's Living Database series—sends students on hypothetical geological expeditions in search of any of 15 mineral (or fossil fuel) resources, ranging from *aluminum* to *zinc*.

Once again TSP ventures beyond "mere" geography. Evaluating simulated test results, interpreting charts and diagrams, and deciding optimum mine sites are among the skills your students can hope to acquire. Other skills—such as reading maps and keeping track of research budgets—seem to come to them as if by accident with programs like these. The result? Whether you integrate GeoWorld into your geography, earth-science, or social-studies class, your students can't help but be enriched by the experience.

#### The Spy's Adventures in Europe

The Spy's Adventures in North America  
The Spy's Adventures in South America

Polarware Software  
1055 Paramount Parkway  
Suite A  
Batavia, IL 60510  
(800) 323-0884  
(312) 232-1984  
\$17.95 each

#### Where in Europe Is Carmen Sandiego?

Where in Time Is Carmen Sandiego?  
Where in the USA Is Carmen Sandiego?  
Where in the World Is Carmen Sandiego? GS

\$44.95 each.  
\$54.95 each school edition  
(teacher's guide, backup disk)  
\$109.95 each lab pack  
(teacher's guide, 5 disks)

#### Where in the USA Is Carmen Sandiego? GS, \$49.95

\$59.95 school edition  
(teacher's guide, backup disk)  
\$119.95 lab pack  
(teacher's guide, 5 disks)

#### Where in the World Is Carmen Sandiego? Ite/Iic, \$39.95

\$49.95 school edition  
(teacher's guide, backup disk)  
\$99.95 lab pack  
(teacher's guide, 5 disks)  
Broderbund Software  
17 Paul Drive  
San Rafael, CA 94903-2101  
(415) 492-3200

#### World GeoGraph MECC

3490 Lexington Ave. North  
St. Paul, MN 55126-8097  
(612) 481-3500  
\$139



ou've got nearly two dozen "geography" programs to choose from—jet-setting Apple II enthusiasts really do have the world at their fingertips! Abilene to Zanzibar, Abu Dhabi to Zagreb in a week, a day, or an hour: Nothing beats the experience of travel—at home or abroad—but if you can't get there from here just at the moment, boot up a program and dream. Let your kids in on the fun—geography software will almost undoubtedly spark a lifelong interest in foreign lands, distant peoples, and different ways of life around the world. The next time Karl Malden says, "Don't leave home without it," you may even be tempted to think he's referring to your Apple II. Bon voyage! □

CYNTHIA FIELD IS A FREE-LANCE JOURNALIST. SHE'S A CONTRIBUTING EDITOR AND THE AUTHOR OF PRESS ROOM, *inCider's* COLUMN ON DESKTOP PUBLISHING, AND FIELD TRIP, OUR COLUMN ON EDUCATIONAL SOFTWARE. WRITE TO HER AT 60 BORDER DRIVE, WAKEFIELD, RI 02879. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.



# Face the Music

*A symphony of hardware and software products for novices, students, and pros will help you turn your II into a rehearsal room or a recording studio. From baroque and the classics to jazz, pop, and rock, the sound of Apple music is garnering rave reviews.*

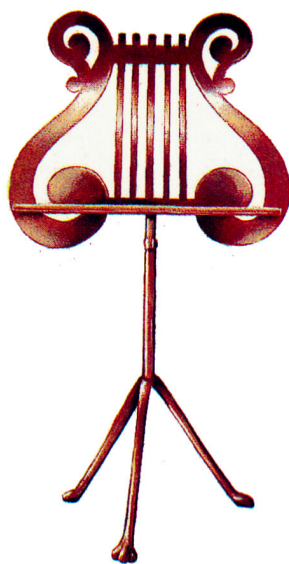
BACK IN 1983 WHEN THE ALF MUSIC card for my Apple II arrived, I opened the package with trembling hands—this ALF synthesizer was going to turn my computer into an honest-to-God musical instrument. But anxious as I was to plug it in and hear it play, I took a few minutes to look at the manual, and on the first page I read this: “The amazing thing about a Dancing Bear is not how well he dances; but that he can dance at all.”

But surely this was no dancing bear. Patched into my stereo system, the ALF filled the house with sound. It didn't matter at all that the card's square-wave synthesis made everything sound like an organ. This was state of the art—a giant step over the Apple II's humble musical beginnings.

In the Apple II's infancy all the so-called “music” there was came bundled with the machine: the Applesoft BASIC command PRINT CHR\$(7), which made the tiny speaker emit a beep. With judicious loops and PEEKs and POKEs you could program siren sounds and bird warbles and, with patience, even a tune or two. But the amazing dancing bear was still clumsy at best.

Time and technology have tamed the beast. Today the Apple IIe and II Plus have learned exciting new tricks, and the GS with its superior sound can bring concert-quality music into your home. Through the magic of MIDI (an electronics standard known as *musical-instrument digital interface*) the Apple II has become a tool that lets professional musicians create original television and film sound tracks, and makes even weekend hobbyists sound terrific.

So what's out there? What kind of hardware and software should you



By Sharon Webb

buy to get started in music? Well, that depends on what you want to do. Do you own a MIDI synthesizer? Are you a music teacher or a composer? Maybe you're a beginner hoping to learn to read music and play a few tunes. Or maybe you'd just like an impressive showcase for your Apple. Whatever your goal, there's a program for you.

Before we take a look at the hardware and software available, first a caveat for Apple IIGS owners: Although the majority of music programs designed for the IIe and II Plus can run on the GS, they won't take advantage of the Ensoniq sound chip, and they won't display super-hi-res pictures. If you want to activate your GS' sound and graphics, you must run GS-specific programs.

Now a warning: Sound files and music programs may be hazardous to your RAM disk's health. It's not the software's fault; it's the way your GS handles sound data. Best bet is to disable your RAM disk before running music software.

## THE WELL-TEMPERED APPLE

Although ALF no longer manufactures its music card, Applied Engineering has stepped into the breach with the **Phasor** board. Designed for the Apple IIe and II Plus, Phasor also runs on Apple compatibles and the GS. It looks and sounds much like the original ALF; in fact, ALF files, once converted to ProDOS, are compatible. But there's one big difference: Phasor comes with an on-board voice synthesizer, a sound-effects generator, and a 4-watt stereo amplifier. There's more: It can emulate the Mockingboard and Echo Plus.

If you connect the card to your stereo receiver, as I did, and if you ►







care about your eardrums, be sure to follow AE's directions and set Phasor's audio output to minimum. This card is loud! The sophisticated program that comes with the board allows music entry in standard notation on the graphics screen. Stereo playback is accompanied by animation that shows dynamics in changing colors.

Want to start your computing day on the Starship Enterprise? Applied Engineering also offers **Sonic Blaster**, an exciting GS sound digitizer that lets you transfer sound effects or music from videotapes, compact discs, or any audio source. Digitized sounds play back through the Apple's Ensoniq chip—and they're terrific. (See Editors' Choice, May 1989, p. 108, and Reviews, June 1989, p. 36.)

You can use the files you create to generate startup sounds, and as instruments in a number of music programs. Add an inexpensive microphone and you can record your own voice, or various clangings and clatterings to create sounds unique to your setup. Once you digitize a sound, you can edit it in a number of ways. Volume and rate of play are adjustable, and you can loop sounds for continuous play, echo them, fade them, or play them backwards. Another nice feature is the card's *Append* option, which lets you patch several files together seamlessly. By first opening a stereo file and then adding a monophonic voice file, Sonic Blaster can render the mono voice in pseudo stereo by routing it into two channels.

Never a company to stand idly by, Applied Engineering is at it again. Watch for its new **Audio Animator** coming soon to your dealer.

**Sound Ace** from Parallax is another great-sounding GS digitizer. (See Reviews, June 1989, p. 36.) How great? When I booted the accompanying program, a disembodied voice said, "Hi there," with so much presence that I nearly jumped out of my skin. Less expensive than AE's entry, Sound Ace comes complete with a small microphone. The card is set up for direct line feed and also lets you record from tapes, compact discs, or synthesizers. A sound file's maximum length is eight seconds, but that's not as limiting as it may seem. Sound files eat up a lot of memory; in most applications, eight seconds is sufficient, because you can loop the files for continuous play. This easy-to-use software can add special effects to your sounds or mix two together for voice-overs; an auxiliary program makes creating startup sounds a snap. In case you want to hear your voice or your food processor as a musical instrument, Sound Ace files are compatible with Mediagenic's GS

program Music Studio (see below).

You might want to try an inexpensive GS public-domain program to accompany your digitization. The Public Domain Exchange offers GS16, **Sounds**, **StartSounds**, & **SysBeeps**, a disk chock full of sounds and utilities for those who like to experiment. If you hate the "boing" your computer makes when you goof, you'll love this disk. Its SysBeep program lets you substitute a sound file for that annoying noise. In addition to a number of interesting digitized sounds on board, GS16 also contains StartPic and StartSound utilities, which let you begin your computing day with custom graphics and sounds.

## MUSIC LESSONS

In general, music software falls into three categories: educational, hobbyist, and professional, but you'll find a certain amount of overlap among them. Apple has always been a champion of education, and music education hasn't been slighted. If music theory is what you're after, MECC, a pioneer in computer



## Glossary

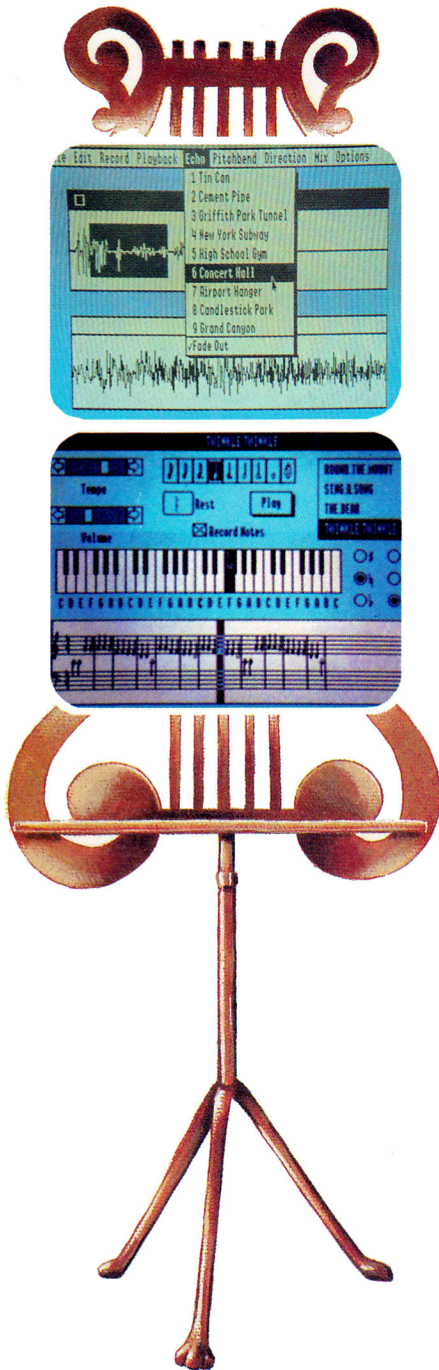
**MIDI**—Musical-instrument digital interface, a protocol developed in 1984 and still evolving. Think of MIDI as a modem for music—it lets your computer communicate with one or more electronic synthesizers.

**MIDI INTERFACE**—MIDI board or box attached to your computer. Two cables plug into the interface: MIDI OUT sends directions to your synthesizer; MIDI IN receives information from your synthesizer.

**PATCH**—Musical voice or sound played by a synthesizer. Also called a *preset* or *program*.

**QUANTIZE**—Adjust the start time and length of musical notes so that the duration of each note of a given value—a quarter note, for example—is precisely the same as that of all other notes of the same value in the piece. Quantization is performed by a *sequencer*.

**SAMPLER**—Electronic instrument using realistic sound originating from an audio source—compact disc, videotape, human voice, or live instrument played into microphone attached to sampler.



**Sound Ace, Parallax.**

**Stickybear Music, Weekly Reader.**



education, offers an excellent course suitable for the older child or adult. Though not new, MECC's **Music Theory** for the Apple IIe and II Plus (compatible with the GS) is as sound today as it ever was. Music Theory offers 18 applications you can configure, from simple to difficult. Master these no-frills programs and you'll know a lot of music.

In a similar vein, Coda's **Music Class** covers Fundamentals, Rhythm, Ear Training, Music Symbols, and Note Reading. Running on the entire Apple II line, the five programs can utilize the ALF music card or compatibles for enhanced sound. Coda's animated "Mr. Metro Gnome" will appeal to younger children, but Music Class is suitable for anyone interested in learning the basics. The programs are intended especially for the classroom. A management system with password functions lets a teacher keep records for up to 125 students.

If you want to introduce your preschoolers to music, Great Wave Software offers a program for the GS that will enchant them. **KidsTime II** features KidsNotes, an intro-

ductory music program with on-screen piano keyboard and notation area where you can enter a monophonic song. When you play the song back through the computer's Ensoniq chip, each note is highlighted on the screen keyboard as well as on the score. KidsTime also includes ABKey, a letter-recognition program offering musical rewards; version 2 adds Dot-to-Dot, a connect-the-dot puzzle.

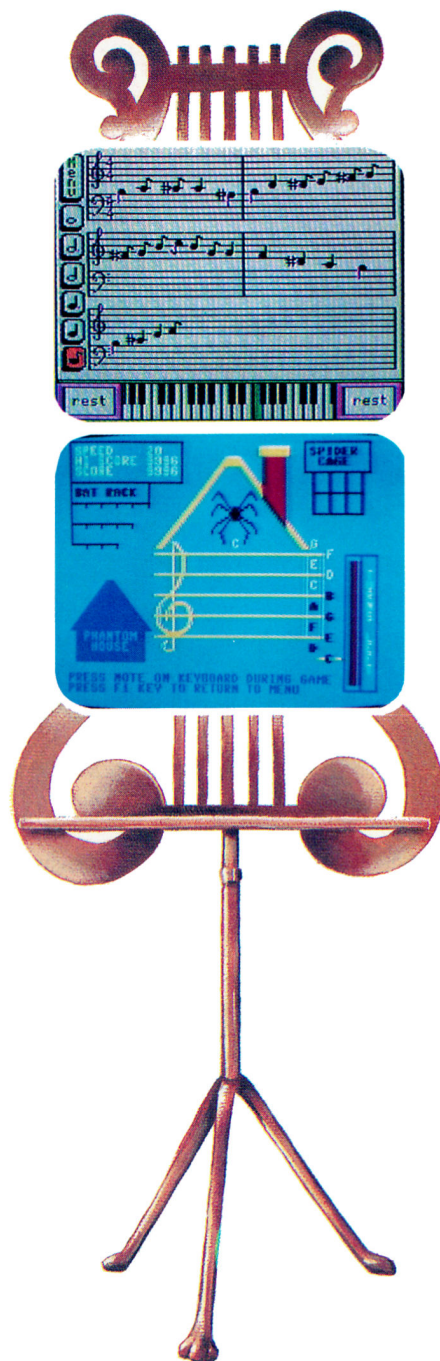
Similar to KidsTime in concept, Weekly Reader's highly commended **Stickybear Music** requires only 48K to run and is easy to use. Meant for children aged 7 and up, the program allows monophonic music entry in standard notation through a graphics interface with on-screen piano keyboard. You can save, edit, print, and play back your songs. A companion program, **Stickybear Music Library 1**, provides 39 additional songs, ranging from classics to folk tunes.

Though not a music program, Pygraphics' **Mr. Py and I**, an electronic coloring book for the GS, includes a section featuring music terms and notation. Unfortunately, some of the musical terms used—*fermata*, for example—are too advanced for the young children. Each coloring "book" can be displayed as a clever animated musical show. Though entertaining, the program would be educationally sounder if the music played back the notes displayed instead of a different tune.

If you have a color monitor, **The Notable Phantom** for 5- to 10-year-olds turns music theory into an arcade game, complete with zapped spiders and ghosts. But that's not all—The Notable Phantom lets young users play and save original songs as well. Running on the Apple IIe, IIC, and II Plus, the program comes with a cardboard overlay that turns your Apple's keyboard into a piano.

For the older child, **Music Shapes** is a GS-specific program that creates short tunes by combining seven-note phrases into a series of "boxes." (See Reviews, June 1989, p. 40.) You can edit them, then play them back through the GS' music chip or an outside MIDI keyboard if an interface is attached. This program's free-form experimental approach to music is unique, but its single-hi-res graphics, unusual interface, and distorted sounds may be disappointing if you're used to standard music programs and interfaces.

Don't feel neglected if you're a guitar player. You won't hear a sound when you run Baudville's **Guitar Wizard**, though. That's not this program's purpose. Guitar Wizard is a nifty computerized scale and chord guide for the Apple IIe, IIC, and II Plus that analyzes ►



**KidsTime II**, Great Wave.

**Notable Phantom**, Britannica.



The GS' Ensoniq chip is a sampler.

**SEQUENCE**—Music file.

**SEQUENCER**—Computer program that creates music files by receiving keypress information from a *synthesizer*—a word processor for music. Files created with a sequencer may be edited, saved, re-played, merged, and so on.

**SYNTHESIZER**—Musical instrument, usually a keyboard, that creates sound electronically. A MIDI-equipped *synthesizer* has round MIDI ports on the back where the two cables coming from a MIDI interface can be attached. Only MIDI-equipped synthesizers can be controlled by computer.

**TRACKS** and **CHANNELS**—System for routing MIDI data. MIDI has 16 channels, each of which can lead to one or more *synthesizers*. A synthesizer set to receive on channel 1 can't receive information sent to channel 9. Just as a highway may have many lanes, a MIDI channel may have multiple tracks. Each track can carry different information, but the destination of all tracks on a given channel is the same. □ —S.W.



fingerings and chord patterns.

The program is fast and the graphics screens are tops. If you want a chord book to suit your personal needs, you can dump screens to a printer. The documentation is quite good and includes a guitar-theory primer.

### ALL THAT JAZZ

If you expect entertainment from your computer, welcome to the realm of hobbyist software. Although these programs include many professional features, they appeal to a broad spectrum of musical types—beginners to old hands—and their price tags are lower than those of professional programs.

One of the first music-entry programs for the GS, **Music Construction Set** has become a classic. This package requires only 256K, the lowest for any GS-specific music program. MCS lets you enter sheet music or create your own compositions by choosing notation from the graphics screen. If you make a mistake, the program's editing functions will take care of it. Playback through the Ensoniq chip can sound up to 15 notes at a time from two different sampled instruments.

To add to your enjoyment of it, you might like to hear what other people have done with MCS. The Public Domain Exchange's inexpensive GS90 disk, **Blowing in the Wind**, features dozens of songs ranging from Beatles tunes to classics, plus Christmas carols, show tunes, rock, and folk music. Just boot MCS, load the songs, and play. Swap instruments if you like or try a little rearranging. GS90 has music enough to suit nearly every taste.

You don't need a music program at all to sample PDE's GS64, **Rock N Roll Gold**, direct from France. Created with Music Studio, GS64 is a great-sounding music video on disk, complete with super-hi-res slide show.

But beware—listening to it whets your appetite for **Music Studio 2.0**, another classic music-entry program. Although Music Studio includes a full complement of synthesized and sampled instruments that play back on the Ensoniq chip, it can also trigger your MIDI-equipped synthesizer. Click with the mouse or play your MIDI keyboard to enter music.

You don't have to know one note from another to enjoy Electronic Arts' **Instant Music**. Boot your GS, shake your booty, and jam with your mouse. You'll play along with three other instruments in key and in the right rhythm—and you'll sound terrific. If you get tired of jamming, the program allows free-form experiments using a musical sketchpad that lets you try out new ideas. Create your own

rhythms, design new drum patterns, try out polyrhythms and progressions, transpose, fiddle with the tempo, change instruments in mid-stream. Doodle your initials and play them back. Then let the kids in on the fun for a wonderful unstructured introduction to music.

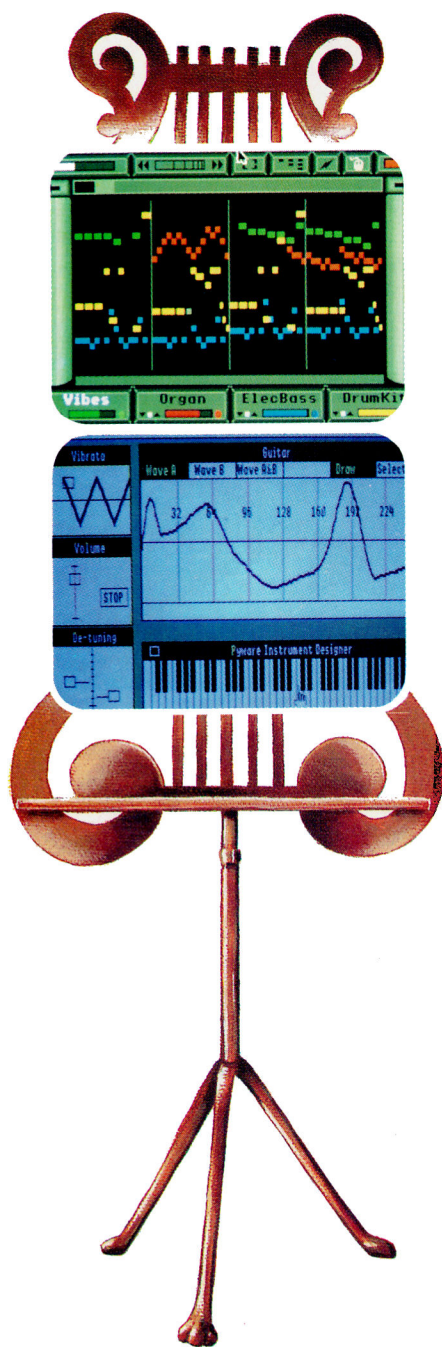
If you own Instant Music you'll want to take a look at its companion program, **Instant Synthesizer**, which turns your GS into an instrument designer. (See Editors' Choice, July 1989, p. 108, and Reviews, September 1989, p. 28.) Play with the sounds provided or port in patches from Instant Music and echo or double them, change the envelope setting, add delays and stereo panning. If you have a MIDI interface, hook up your synth and try out the new sound you've created. Instant Synthesizer supports SMUS and ASIF files so that your Instant Music scores will play and you can edit the sounds as you go.

Bill Basham's **Diversi-Tune** is truly unique. (See Editors' Choice, September 1988, p. 112.) It's an electronic multitrack tape recorder, a player piano, and an old-time movie singalong in one package. If you're a musician, you'll appreciate the MIDI sequencer. But don't expect the program to quantize notes for you. You'll get your music back the way you played it—warts and all—performed on the program's sampled instruments, which include one of the most realistic pianos you'll ever hear. If you have MIDI keyboards, they can join in. You don't need to be a musician—you can listen to the songs and sing along with the bouncing ball and the on-screen lyrics. A click of the mouse changes the display to a player piano or an 88-note keyboard.

"But I'm a singer," you say. "Isn't there a program for me?" You bet there is. Advanced Software's **Sound, Song & Vision** may be just what you're looking for if you have the hardware it requires. SSV for the 48K Apple IIe and II Plus converts voice input to MIDI data, which can trigger your synthesizer. Sing to your synth and it sings back. Using the cassette port on your computer, SSV requires a good-quality unidirectional microphone, a Passport MIDI interface card, headphones or a stereo system, and a MIDI-equipped synthesizer with a one-octave pitch-wheel range. The results are amazing. SSV just misses professional status—it lacks overdub and multitrack sequencing—though if you have a multitrack tape recorder you can make up for it.

### THE MUSIC MAN

Professional software for the Apple includes MIDI sequencers and music-notation



**Instant Music, Electronic Arts.**  
**Instrument Designer, Pygraphics.**



programs. Offering a wealth of tools, Passport's DOS 3.3 **MasterTracks Pro** is still the top-rated sequencer for the enhanced 128K Apple IIe. The program uses expanded memory, delivers real-time and step-time music entry, and features a song mode in which you can use 1500 steps to assemble 256 sequences.

For the GS, Passport's new entries are **MasterTracks Jr.** and **MasterTracks Pro**. With its graphics interface, "Jr." is quite a kid—an advanced music processor that can control a bank of synthesizers, drum machines, and effects boxes, and record your sequences on 64 tracks. (See Reviews, June 1989, p. 110.) Jr. lets you create a conductor track for subtle tempo changes that mimic live performance, and the program supports all MIDI controllers. It's impossible to enumerate all its features here—there are far too many of them.

Converted from the acclaimed Macintosh program, **Master Tracks Pro** for the GS is unequalled. Incorporating all the features of Jr., Pro adds many more, and the result is pure luxury. You don't have to hop back and forth between your synth and your computer. Instead, you can custom-map your synthesizer keyboard to control many aspects of the program. There's full note quantization, of course, but in addition to Jr.'s shifts, slides, and echo effects, Pro lets you "humanize" by inserting small random changes to note start times, duration, and velocity.

Is there anything **MasterTracks Pro** doesn't do? Just one thing: It won't turn your MIDI files into music notation. You need **Pygraphics' Pyware MIDI Translator** for that. This slick utility lets you convert your **MasterTracks Pro** sequences to **Pygraphics' Music Writer** format

(see below) for printing. Conversely, you can port original **Music Writer** compositions into Pro. **MIDI Translator** also converts Macintosh MIDI files for use on the GS.

**Pyware Music Writer 1.3** is an innovative GS-specific program that turns MIDI sequences into sheet music. (See Reviews, June 1989, p. 40.) Enter music from the computer keyboard or play your synthesizer. Print quality is superb—and fast, too. The three versions available range from three staves to 32 for full orchestral scores, with numerous features. There's a four-staff version for the IIe and IIc too, but if you don't have a hard drive, expect a workout. This disk-intensive program comes on four 5¼-inch floppies and requires two disk drives and a mouse.

**Music Writer** isn't just a printer, though—it's a limited sequencer, as well. You can play your **Music Writer** files simultaneously on your GS and your synthesizer. Though the program comes with only 16 sounds on board, you can enter patch heaven with **Pygraphics' companion program, Instrument Designer**. **Designer** can give your Ensoniq chip real synthesizer functions, such as vibrato and detuning to yield a thicker sound. Editing is quick, easy, and full-featured.

## CODA

These professional programs are state of the art. They rival the best that any computer, including the Mac, has to offer. So where do we go from here? What's on the horizon?

Would you believe the brain-to-MIDI connection? It's closer than you think. Hugh Lusted and Benjamin Knapp, researchers at Stanford University, have created **Biomuse**, a remarkable invention that reads a human body's electrical transmission as MIDI code. With **Biomuse**, the almost imperceptible movement of a finger can instantly change pitch on a distant synthesizer, while tension in an arm muscle triggers modulation. Eye movements control stereo imaging; alpha brain waves produce patch changes.

New York's Center for Electronic Music is currently exploring **Biomuse** as a way to open the world of music to the disabled. Someday soon even people with extremely limited movement may find an entire electronic orchestra under their control.

Some dancing bear. □

SHARON WEBB IS A NOVELIST AND FREE-LANCE JOURNALIST. WRITE TO HER AT ROUTE 2, BOX 2600, BLAIRSVILLE, GA 30512.



## PRODUCT INFORMATION

### Audio Animator,

price undetermined at press time

**Phasor**, \$169

**Sonic Blaster**, \$129

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

### Diversi-Tune, \$75

prerecorded song disks,

\$19.95–\$29.95 each

Diversified Software Research  
34880 Bunker Hill  
Farmington Hills, MI  
48331-3236  
(800) 835-2246

### GS16: Sounds, StartSounds,

& SysBeeps

**GS64: Rock N Roll Gold**

**GS90: Music**

Public Domain Exchange  
2074C Walsh Ave.  
Santa Clara, CA 95050  
(408) 496-0624

\$9 each plus \$4 shipping/order

### Guitar Wizard

Baudville  
1001 Medical Park Drive S.E.  
Grand Rapids, MI 49506  
(616) 698-0888  
\$29.95

**Instant Music**, \$19.95

**Instant Synthesizer**, \$79.95

**Music Construction Set**,

\$19.95  
Electronic Arts  
1820 Gateway Drive  
San Mateo, CA 94404  
(415) 571-7171

### KidsTime II 2.0

Great Wave Software  
5353 Scotts Valley Drive  
Scotts Valley, CA 95066  
(408) 438-1990  
\$39.95

**MasterTracks Jr.**, \$149.95

**MasterTracks Pro**, \$299.95

**MasterTracks Pro GS**, \$395

Passport Designs  
625 Miramontes St.  
Half Moon Bay, CA 94019  
(415) 726-0280

**Mr. Py and I**, \$59

**Pyware Instrument Designer**,

\$129

**Pyware MIDI Translator**, \$79

**Pyware Music Writer**, \$295,

\$595

**Pyware Music Writer GS 1.3**,

\$119 (3-staff Limited Edition),

\$295 (6-staff Special Edition),

\$595 (32-staff Professional)

Pygraphics  
P.O. Box 639  
Grapevine, TX 76051  
(817) 481-7536

### Music Class:

**Fundamentals**, \$49

**Rhythm**, \$49

**Ear Training**, \$49

**Music Symbols**, \$39

**Note Reading**, \$39

Coda Music Software  
Wenger Music Learning Division  
1401 East 79th St.  
Minneapolis, MN 55425  
(612) 854-9554

### Music Shapes 1.1

Music Systems for Learning  
311 East 38th St.  
Suite 20C  
New York, NY 10016  
(212) 661-6096  
\$129.95

### Music Studio 2.0

Mediagenic  
3885 Bohannon Drive  
Menlo Park, CA 94025  
(415) 329-0800  
\$99.95

### Music Theory 2.2

MECC  
3490 Lexington Ave. North  
St. Paul, MN 55126  
(612) 481-3500  
\$59

### The Notable Phantom

Britannica Software  
345 Fourth St.  
San Francisco, CA 94107  
(415) 546-1866  
\$9.95

### Sound Ace 2.0

Parallax  
6200 Desimone Lane  
#69A  
Citrus Heights, CA 95621  
(916) 721-8217  
\$79.95  
\$34.95 software only

**Stickybear Music**, \$49.95

**Stickybear Music Library 1**,

\$49.95

**Lab Pack**, \$85

Weekly Reader Software/  
Optimum Resource  
10 Station Place  
Norfolk, CT 06058  
(203) 542-5553

### Sound, Song & Vision

Advanced Software  
18520 Vincennes #31  
Northridge, CA 91324  
(805) 242-1247  
\$95



# Apple Computer Clubs

## A Class Act

Thanks to Apple Computer Clubs, young Apple II enthusiasts are getting together to discover fascinating new ways to use and enjoy their computers. Meet 1989 club members who accepted the ACC's ultimate challenge, the National Merit Competition—a chance to test ideas and win country-wide recognition.

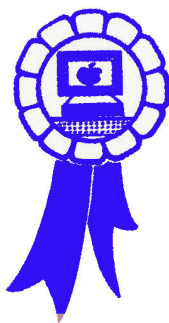
**M**ENTION APPLE COMPUTER'S EDUCATIONAL-grant policy, and you'll receive an enthusiastic response. The company's legendary philanthropic program has played a key role in bringing computer technology to special-student populations. Mention the Apple Computer Clubs (ACC) plan, though, and you'll most likely receive blank stares. Apple's "other" assistance program may be the best-kept secret in Cupertino.

The ACC system provides educators with an organization to help them implement creative computing ideas. Enrolling in the program is painless: no eligibility restrictions, no lengthy application process, no limit on the number of participants—plus published guidelines offer a sure-fire formula for fun. For participants willing to go the distance, ACC also offers the chance to win computer equipment and national honors.

### ANATOMY OF A CLUB

An Apple Computer Club consists of an adviser (usually a teacher) and students who meet because they share an interest in computers. Advisers don't need to be computer experts; they just need to be enthusiastic and imaginative.

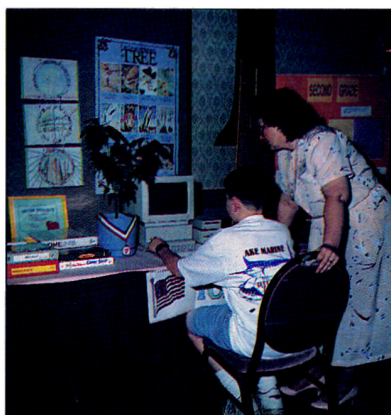
You can set up your computer club in any educational environment. As a classroom-based activity, it fits perfectly into a computer-literacy or programming class. It can also add a new twist to programs for special-student groups or



liven up traditional subject-area courses. As an extracurricular organization, a computer club lets students go beyond the standard academic courseware and experiment with other computer applications.

For an annual membership fee of \$19.95, the ACC program furnishes a variety of informational materials to help you plan and launch a computer club. New members receive an ACC Membership Welcome Kit, which includes the official *ACC Handbook*. This little gem is packed with essential information that'll help you progress from the idea stage to a fully functioning club. For example, you'll find hints for maintaining student interest, acquiring your school administration's support, and raising funds.

In addition to the handbook, the Welcome Kit comes with an *Activity Plan Book*, a *National Merit Competition Winning Ideas Book* (a collection of articles describing successful computer-club projects), and a supply of student-incentive items. During the school year clubs receive subscriptions to two newsletters—one for advisers, written by the ACC staff, and the other for students, written by other student club members.



Second-grade ACC Merit finalists from York, PA, used Apple IIs to study the ecology of trees.

### NATIONAL MERIT COMPETITION

Each year clubs around the country enter the Apple Computer Clubs' National Merit Competition. This event gives members the chance to test the mettle of their computing projects against those of other clubs. It also

By JENNIFER BRAWER



enables educators to achieve national recognition and receive a substantial reward for their creativity and dedication to educational computing.

Competition-entry requirements vary from year to year. In general, ACC looks for unique community-service projects; successful attempts to integrate computers into the curriculum; original student-programming ventures; and examples of how computers enhance school productivity and service delivery.

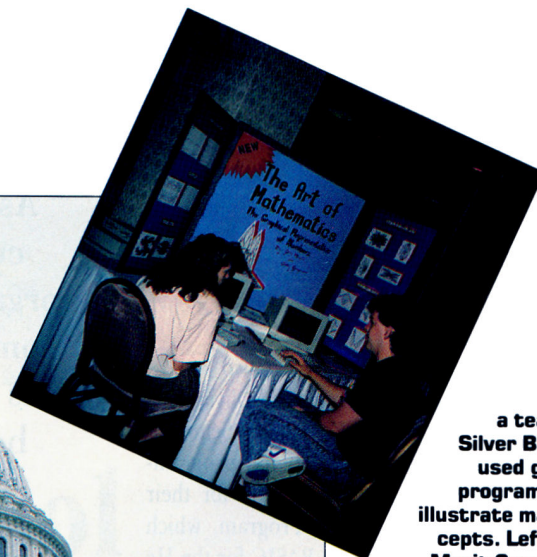
In the past, all clubs entering the competition vied for first-place honors. Now they compete only with other clubs in their particular geographic regions. For example, in 1989, judges selected winners in three areas: East, Central, and West. Because ACC's policy is to award Apple computers as both first- and second-place prizes, two '89 winners in each region received computers. In addition, first-place winners received an invitation to join the ACC staff on a "V.I.P. adventure" to celebrate their accomplishments.

Computers also played a key role in the students' production of a video and companion printed materials on seat-belt safety.

#### A CELEBRATION OF EXCELLENCE

The community of Nixa, Missouri, received a boost from Annice McLean's Nixa Junior High Computer Core club. Students used their machines to assist the local Boys and Girls Club with a fund-raising drive, and, in cooperation with a local business, desktop-published their local PTA newsletter. At holiday time club members delivered computer-decorated goody bags to the residents of an elderly-care facility, and put their computers to work organizing the town's Christmas parade.

The ethnically diverse South Whittier Panther Komputer Klub in Whittier, California, exemplified the way computers can bring people of different backgrounds together. Adviser Irene Hubert and her students committed themselves to sharing cultural diversity through a series of parent parties, each with a different international flavor. Students used computers in every aspect of party planning—creating invitations, flyers, decorations, and computer how-to books. Moreover, they produced these resources in three languages: English, Spanish, and Laotian. Party activities included software demos, computer-based bingo games, and hands-on computer instruction.



**Above,** a team from Silver Bay, MN, used graphics programming to illustrate math concepts. **Left, 1989 Merit Competition finalists tour Washington.**

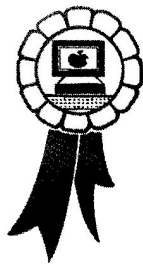
Students in the Microworms computer club at Edinburg Middle School in Edinburg, Virginia, devoted their computing expertise to a special cause. With the assistance of adviser Elsie Howard, the Microworms used their Apple IIs to manage a series of fund-raising activities that helped them buy computer equipment for a police officer who was severely injured in a car accident while on duty.

Computers also played a key role in the students' production of a video and companion printed materials on seat-belt safety.

The community of Nixa, Missouri, received a boost from Annice McLean's Nixa Junior High Computer Core club. Students used their machines to assist the local Boys and Girls Club with a fund-raising drive, and, in cooperation with a local business, desktop-published their local PTA newsletter. At holiday time club members delivered computer-decorated goody bags to the residents of an elderly-care facility, and put their computers to work organizing the town's Christmas parade.

The ethnically diverse South Whittier Panther Komputer Klub in Whittier, California, exemplified the way computers can bring people of different backgrounds together. Adviser Irene Hubert and her students committed themselves to sharing cultural diversity through a series of parent parties, each with a different international flavor. Students used computers in every aspect of party planning—creating invitations, flyers, decorations, and computer how-to books. Moreover, they produced these resources in three languages: English, Spanish, and Laotian. Party activities included software demos, computer-based bingo games, and hands-on computer instruction.





**“As an extra-curricular organization, a computer club lets students go beyond the standard academic courseware.”**

On the opposite coast, Lewis Girod, an 11th-grader in the 115 Computer Club in Kenmore, New York, created two software programs in Apple Pascal. Teachers can use his CAT Converter Program to translate individual California Achievement Test scores into an appropriate set of remedial-skills lessons. Girod also put together a menu-driven AIDS-Education Package containing two games: Mr. T-Cell and the AIDS Gang, and Guillotine. Both test students' knowledge of AIDS facts and fallacies, and conform to the New York State AIDS Curriculum.

Talented duos produced the next two award-winning projects. Julissa Gonzalez and Olivia Moreno, fifth-graders at Tijerina Elementary School in Houston, Texas, used their combined programming talent to create tutorial software for their schoolmates. The Safety Patrol Program, which Gonzales and Moreno wrote in BASIC for the IIe and IIGS, uses low-resolution graphics, animation, and music to introduce students to the requirements for becoming a member of the school's safety patrol.

To the far north in Silver Bay, Minnesota, are James Martin and Amy Jorgenson, who attend William M. Kelley High School. This computer team designed seven programs to show a different side of mathematics. Instead of formulas, Martin and Jorgenson used graphics programmed in BASIC and assembly-language routines to illustrate obscure concepts, such as mathematical limits and infinity.

How about a repeat finalist? David Harris, a 10th-grade student at Murray Junior High in Ridgecrest, California, is a veteran Merit Competition winner. This year he submitted a potpourri of programming projects for the Apple II and the Macintosh, including utilities, games, mathematical amusements, and a simulation of the 6502 microprocessor.

Barbara Kuhl, from Ferguson Elementary School in York, Pennsylvania, and her second-grade computer club embarked on a year-long study of trees and their importance to local and global ecology. Students used Apple IIes to construct information databases, create charts and graphs, write stories and poems, and conduct a public-awareness campaign. The Pennsylvania Governor's Office recognized the students' efforts at the end of the school year with a firm commitment to environmental conservation.

Mike Sloomaker's science class/computer club at Fremont Middle School in Fremont, Michigan, used Apple computers to gain an understanding of a number of scientific concepts. Students attached Apples to roof-mounted probes, then analyzed the weather data they collected. Club members also used their computers to study real-time graphing of moving objects, rocketry, solar heating, temperature, and light.

From the science lab, we move on to Rosemarie Orlick and Jackie Cleveland, who ran a writing-lab computer club at Frost Elementary School in Chandler, Arizona. Students used the lab's IIes to develop their writing skills. After they completed the program, Orlick and Cleveland put them to work in the school's own business—a publishing company that produces hard-bound volumes of student compositions. Company CEOs were teachers, but students held all other management and staff positions. Their responsibilities included evaluating and editing manuscripts, desktop publishing, printing, and binding.

As you can tell by the 1989 winning projects, Apple computer clubs come up with some creative computing ventures. But be warned: The Merit Competition is tough. If you're up to the challenge and want to participate, the following information can get you started.

ACC members can enter their 1990 projects in one of three categories: community service, computers in the curriculum, or student programming. The first category is for clubs that use computers to help their local communities or to solve a social problem. Submissions must communicate club members' social involvement and teamwork. In this category the club wins the computer system.

The curriculum division is designed for individual teachers who use the club format to integrate computers into regular education. Entries must include sample lesson plans, information about the integration process, and an evaluation of student reactions and progress. ACC will award the computer to the winning teacher.

The third category, programming, challenges individual students to create original software for the Apple II or the Macintosh. Programs must be original and written entirely by the student in the language of his or her choice. While an ACC adviser has to supervise the project, Apple will award the computer system to the student.

Chances of winning a computer this year are better than in 1989 because ACC has increased the number of regions from three to five—Northeastern, Central, Southern, Northwestern, and Southwestern. As in past competitions, both first- and second-place winners in each region will receive computer systems. That means ACC will award 15 first-place and 15 second-place prizes—a total of 30 computers.

Unfortunately, if you enter the contest with your heart set on winning an Apple IIGS, you can forget it. In 1990 ACC Merit Competition prize winners will receive a Macintosh SE with one 800K floppy drive and a 20-megabyte internal hard drive. (Apple's going to make Mac users out of you one way or another.)

As in the past, first-place winners will receive, in addition to a new computer, an invitation to join the ACC staff for the annual V.I.P. trip and awards ceremony. ACC hasn't finalized plans for next year's event, so the location is under wraps.

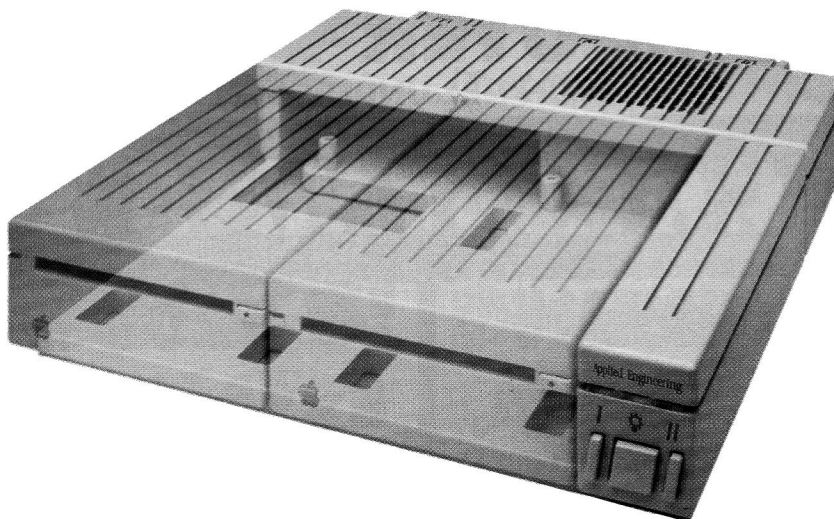
#### **EVERYONE'S A WINNER**

The ACC program is a great way for teachers to get started with computers or for experts to try something new.

If you're interested in joining, the Apple Computer Clubs organization is offering a back-to-school special on the membership fee. Until October 15, ACC memberships are available for \$14.95. For more information write or call Apple Computer Clubs, Apple Computer Inc., 20525 Mariani Avenue, MS:36AA, Cupertino, CA 95014, (800) 538-9696, extension 225. □

JENNIFER BRAWER WAS THE EDUCATION EDITOR OF A + MAGAZINE AND IS CURRENTLY A FREE-LANCE WRITER AND CONSULTANT IN EDUCATIONAL TECHNOLOGY. WRITE TO HER AT 789 PARMA WAY, LOS ALTOS, CA 94022. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.





# Be Cool

## ***Conserver™. The Integrated Disk Drive Organizer/Switched Power/Cooling Fan***

Heat is your computer's most insidious enemy. Peripheral cards allow you to do wonderful things with your computer, but they unavoidably produce heat inside your cpu. Load a IIGS with several peripheral cards and that heat is multiplied. Heat-related failures become a real (and devastating) possibility.

Conserver™, from Applied Engineering, effectively cools your IIGS while it protects against power surges and helps organize a cluttered work-space.

Conserver's quiet but powerful cooling fan efficiently maintains a safe operating temperature at all times. Drawing air from the top of the IIGS at a rate of 18 cubic feet per minute, Conserver offsets the heat produced by expansion cards. In fact, tests show a IIGS operates more than 20 degrees cooler with a Conserver than without. The difference can be critical to the life of your computer.

Power surges are another invisible risk to your computer's well-being. Power surges occur when voltage spikes surge through your wiring looking for a place to dissipate. If that place is inside your computer, you'll very quickly gain a greater understanding of the laws of electricity. It's not a pretty sight.

Conserver incorporates special line

conditioning filters and dual surge suppression circuitry to protect against surges, reduce noise and provide "clean" power. Six switched AC power outlets line the rear of Conserver to

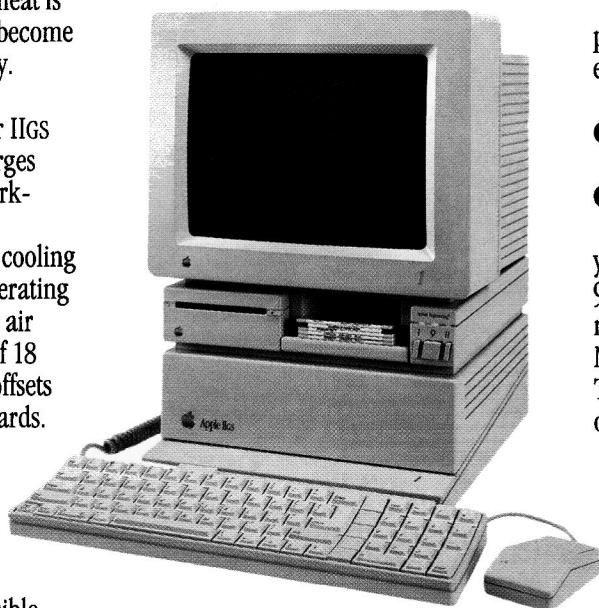
perfectly matched platinum color. To reduce desktop clutter, the unit was cleverly designed to house two 3.5" disk drives, or one drive and the special diskette holder we include.

Conserver. The cool, safe choice to protect your IIGS from its invisible enemies.

**Conserver .....\$119**

### **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.



accommodate your computer, monitor and four other peripherals. Thus protecting your computer and your peripherals from surges. The outlets are conveniently controlled by three front-mounted switches with LED indicators.

For beauty, we gave Conserver the same sleek lines of the IIGS and a

**AE APPLIED ENGINEERING®**  
*The Apple enhancement experts.*  
 A Division of AE Research Corporation.

**(214) 241-6060**

P.O. Box 5100, Carrollton, TX 75011  
 Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders.





# COMPUTER DIRECT

WE WON'T BE UNDERSOLD!\*

EXPIRES 10/31/89

## PRE-CHRISTMAS SALE

### 2400 Baud External Modem *Made in the USA!*

- 100% Hayes Compatible
- 2400 Baud Bell 212A at 300/1200/2400 bps
- 7 System Indicator Lights
- Tone/Pulse Dialing
- Stores Dialed Numbers
- Uses RS232 Interface (Cable Required)

Our Low Sale Price

# \$99<sup>95</sup>

List \$349.00



### 1200 Baud External Modem *100% Hayes Compatible*

- RS232/DB25 Connector Included
- DB9 Pin Adapter Included
- Telephone Cord Included
- 100% Hayes Compatible
- 1200/300 bps Asynchronous
- Full or Half Duplex
- Auto Dial/Auto Answer
- Standard 9 Volt Battery or AC Adapter\*

\*AC Adapter Sold Separately \$4.95



Our Low Sale Price

# \$69<sup>95</sup>

List \$579.65

## SPACE SAVER

### Roll About Computer Cart

The New Generation "All in One" space saving roll about computer cart. Roll it where you need it!

Everyday Low Price

# \$89<sup>95</sup>

- Pull Out Keyboard
- Pull Out Printer
- Roll About Casters
- Extra Storage Space
- Paper Feed Compartment



Compact Design only: 29 1/2" High x 26 5/8" Wide x 19 3/8" Deep  
Equipment Not Included

### Open Up New Worlds For Your Family Complete Apple Compatible Computer System



Includes:

- ☆ LASER128 Personal Computer
- ☆ NLQ 180-II Printer
- ☆ 12" Hi-Resolution Monochrome Monitor
- ☆ LASER128 Printer Interface
- ☆ Free Software - A \$19.95 Value!

# \$599<sup>95</sup>

LIST \$1016.95

## BRAND NAMES

### Magnavox RGB Color Monitor



- RGB, TTL, CGA & Composite Inputs
- 640(H) x 240(V) Resolution
- Variable Sharpness Control
- Audio Input
- Interface Cables Included
- Built-In Tilt Stand

Our Low Sale Price

# \$234<sup>95</sup>

List \$399

**IMMEDIATE ANSWER**  
**800-BUY-WISE EXT. 24**

800-289-9473 EXT. 24

Outside Service Area call 312 382 5058

*We Love Our Customers*

COMPUTER DIRECT  
22292 N. Pepper Rd.  
Barrington, IL 60010

Circle 205 on Reader Service Card.



# BEST SERVICE IN THE USA

# PRICE IS NOT ENOUGH!

- 90 Day Immediate Replacement
- Experts In Customer Satisfaction

- Free Technical Assistance
- Bulletin Board Service

- Fast, Low Cost Delivery
- No Credit Card Fees

- 15 Day Home Trial
- Free Catalogs

## LARGEST SELECTION EVER

### BULK DISKS!

MADE IN THE U.S.A.!!!

#### 5 1/4" DSDD Disks

Lots of 25  
Low As

**19<sup>¢</sup>**  
ea

Qty. of 25.....\$4.75  
Qty. of 25 w/sleeves.....\$5.25  
Qty. of 100 w/sleeves, labels...\$24.00



**100% Certified  
Lifetime Guarantee  
NO LIMITS!**

#### 5 1/4" High Density Disks

Lots of 25  
Low As

**45<sup>¢</sup>**  
ea

Qty. of 25.....\$11.25  
Qty. of 25 w/sleeves.....\$11.75  
Qty. of 100 w/sleeves, labels...\$48.00



#### 3 1/2" DSDD Disks

Lots of 10

**59<sup>¢</sup>**  
ea

Qty. of 10.....\$5.90  
Qty. of 50.....\$29.50  
Qty. of 100.....\$59.00



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

### EDUCATIONAL SOFTWARE

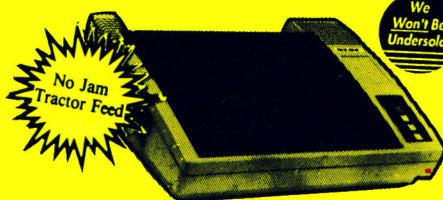
PROGRAMS FOR ALL AGES!!!

**SPELL CASTLE.....\$6.95**  
from Computer Easy  
**Decimals/fractions/percents...\$10.95**  
from Vision Software  
**U.S. History.....\$12.95**  
from A.E.C.  
**Word Munchers.....\$28.95**  
from M.E.C.C.



**No One Can Sell This Printer For Less!**

### 180 CPS Printer



**NLQ 180-II**

• Near Letter Quality •

- 2yr. Immediate Replacement
- Dot Addressable Graphics
- Italics, Elite, Pica, Condensed
- Centronics Parallel Port
- 8K Printer Buffer
- NLQ Selectable From Front Panel
- Low Cost Adapters Available
- Pressure Sensitive Controls
- One Ribbon Included

Our Low  
Sale Price

**\$149<sup>95</sup>**  
LIST \$299

### UP to 50% OFF

**Shatters The Gap  
Between  
Action And Reaction!  
The Ergostick**

- True Ergonomic Design
- Soft And Pliable
- Form-fit To The Human Hand
- Microswitch Technology

Low, Low Price  
**\$29<sup>95</sup>**

List \$39.95



**Professional Mouse  
For The  
Apple II Series  
And LASER 128**

Sale Price **\$49<sup>95</sup>**  
List \$99.95

### EXPAND

**Laser 128/Apple IIc  
Or Apple IIe  
160K 5 1/4" Disk Drive**



- 256 Bytes
- 160K Bytes Capacity
- 5 1/4" Floppy Disk Drive
- For Laser 128/Apple IIc  
Or Apple IIe
- External Disk Drive

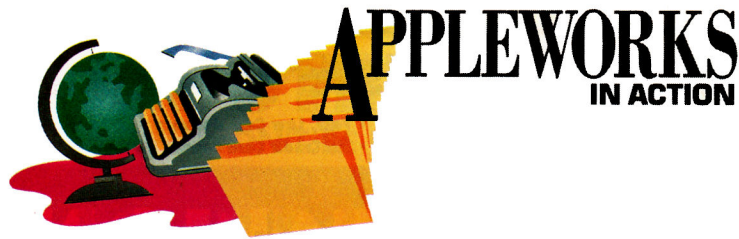
**\$94<sup>95</sup>**  
LIST \$299

VISA  
MASTERCARD  
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 \$3.75. Illinois residents add 6.5% sales tax. We ship to all points in the U.S., Canada, Puerto Rico, Alaska, Hawaii, Guam, and APO & FPO (Color Monitors shipped in Continental USA only.) PRICES AND AVAILABILITY SUBJECT TO CHANGE WITHOUT NOTICE.





# PERSONAL WORTH

Feel like a million? An AppleWorks spreadsheet lets you determine your personal net worth and find out whether you need to tighten those purse strings.

By RUTH K. WITKIN

GRADE YOURSELF AS A MONEY MANAGER. Are you getting straight As, flunking the course, or settled somewhere in between?

One of the best ways to find out is with a personal net-worth statement that shows what you own (assets), what you owe (liabilities), and how much is left (net worth) after you deduct what you owe from what you own.

## WHAT'S IT WORTH?

The spreadsheet in **Figure 1** makes it easy to figure this out. The first category is *liquid assets*—cash or anything you can turn into cash quickly and easily, including savings, checking, and credit-union accounts; money funds; stocks; and bonds.

The next category is *personal assets*, the most important of which is likely to be your house. To get a realistic picture of what it's worth, scan newspaper for-sale ads for similar houses and locations, check with your local land-records office, or ask a real-estate broker to assess its market value.

Be conservative when valuing household furnishings (furniture, appliances, treasured mementos, and so on). If you choose not to make a room-by-room inventory, estimate what's inside your home as 5 percent of the value of the home itself.

To get the current market value of your car,

consult an automobile price guide at your local library or a bank that makes auto loans, or ask your good buddy at a car dealership to give you the average retail market value listed in the *NADA Official Used Car Guide* or *Kelly Blue Book*. The value you assign to clothing, furs, jewelry, computers, and collectibles (stamps, coins, art, and so on) should be what you think you could get if you had to sell them tomorrow.

*Nonliquid assets* include such investments as business interests, IRA and Keogh retirement funds, and profit-sharing plans. Unless you're sure you can get your money back today if you asked for it, personal loans belong here instead of in liquid assets.

Your liabilities come next. *Short-term obligations*—those due for payment within one year—include such things as mortgages, rent, loans, insurance, and credit charges, projected for the next 12 months. *Long-term obligations* are those due for payment in more than one year.

## THE TALLY

After you enter your assets and liabilities, AppleWorks takes over. A group of formulas adds the amounts in each category, subtracts total liabilities from total assets, and, like magic, produces your total net worth.

Net worth indicates how you're faring as a money manager. If you end up with a negative

number, you're deeply in debt; how seriously depends on where you are at this stage. A negative net worth may be acceptable, for instance, if you're a student or a recent graduate just starting out. But if you've been out in the world for a while, repaying some debts should take top priority. If your net worth is positive, but not by much, you're doing somewhat better. Again, pay off some loans and look for ways to increase your assets.

If your net worth is significantly in the black, pat yourself on the back, but take a critical look at asset mix. If a relatively large proportion of your assets is tied up in cars, clothing, and household furnishings, which tend to decline in value as soon as you buy them, consider income-producing assets, such as real estate, which stand a good chance of increasing in value over time.

## A SPREADSHEET FROM SCRATCH

Now load the AppleWorks program and create a new spreadsheet file named **PNET-WORTH**. You should see the spreadsheet Review/Add/Change screen with the cursor in A1. Use the following summary to start the spreadsheet:

**Long lines.** Enter a double line across row 3 in columns A through E: Place the cursor on A3 and type quotation marks. Hold down the equal-sign key until the sign reaches the right edge of E3, and hit Return.

Next, enter a single line across row 5 in columns A through E: Place the cursor on A5, type quotation marks, hold down the minus-sign key until the sign reaches the right edge of E5, and hit Return. Enter the double line in D35 to E35 and another one in D40 to E40 in the same way.

**Column width.** Each column is now nine characters wide. Use the Layout command (OA-L), *Columns*, and *Column width* to change the following column widths: Increase column A to 26 characters and column B to 10



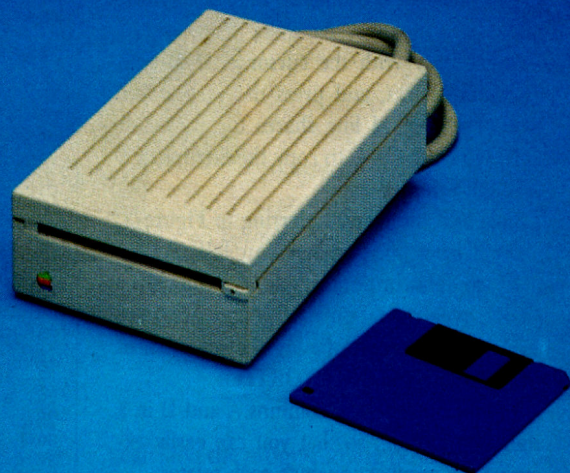
# Think Hard Drive

## OverDrive

## Apple 3.5" Drive



**20 megabytes**  
**\$399**



**800 Kbytes**  
**\$429**

The question you may be asking yourself is, "Why is the OverDrive only \$399 while other 20 megabyte hard drives cost \$650?". The first answer to that question is... "It takes Ingenuity to make quality affordable". Secondly, Applied Ingenuity and the dealers that carry Applied Ingenuity's products really care about the Apple II users. As Apple users ourselves we grew tired of paying high prices for hardware, so we set about to make products affordable by efficient manufacturing techniques and by not making a killing on every sale, giving you more money left over to buy the extra hardware and software you want. So if your dealer doesn't carry Applied Ingenuity, go to one that does!

Applied Ingenuity innovated the internal hard drive for the IIs, and the first 16 bit data transfer. With a track record of over a year and several thousand units in service you can bet that products from Applied Ingenuity are as good as they come

and are the best value ever for the Apple II computers. OverDrive is compatible with the IIs, IIe, II+, and the Laser 128 computers.

### Features:

- 6 megabytes of free software.
- 16 bit data transfer.
- Formatted and ready to run.
- Complete with controller card and cables.
- Compact size.
- 100% compatible with ProDos.
- Powerful hard disk utility programs
- Probably the fastest hard drive in its class

**OverDrive 20 Megabytes \$399, 40 Megabytes \$599**  
**Falcon 10 Megabytes \$299**  
**SCSI 20 - 720 megabytes CALL**

**AI Applied Ingenuity**

**Call Now 800-346-0811** or inside CA **818-960-1485**

**14922M Ramona Blvd Baldwin Park, CA 91706**

or see your Dealer.

Prices subject to change without notice

Circle 54 on Reader Service Card.



characters. Reduce column C to 2 characters (to provide a narrow column for the vertical line). Increase column D to 26 characters and column E to 10 characters.

**Short lines.** Enter the short line in B16: Place the cursor on B16 and type quotation marks. Press the spacebar, type 8 minus signs, and move the cursor to B29. Enter the same line there, then do it again in B39, E16, E27, and E38.

**Vertical line.** With the cursor on C4, type quotation marks, and press the vertical-line key. (The vertical line shares the backslash key.) Now use OA-C to copy the line into C5 through C40.

**Labels and numbers.** Referring to Figure 2, enter all labels and numbers. (AppleWorks will enter commas in numbers after you format.) In B1, type quotation marks, and press the spacebar once before typing the spreadsheet title, **PERSONAL NETWORTH**.

Indent the labels in columns A and D in a stair-step fashion, so that you can easily examine the number to which each relates.

Indent a label under a general heading (such as *Cash on hand* in A7 under general heading *Liquid Assets* in A6) by typing quotation marks and pressing the spacebar once.

To indent an AppleWorks label that identifies a total (such as *Total Liquid Assets* in A17), type quotation marks and press the spacebar twice.

Instead of pressing Return after typing a label or number, move the cursor to the next cell that needs an entry and AppleWorks will enter what you just typed in its cell. After typing the last entry, hit Return.

**Formats.** Use the Value command (OA-V) to set a standard *Value format* of *Commas* with zero decimal places. Now press OA-S to store all your work on disk.

## ENTERING FORMULAS

Next, enter the formulas that perform your calculations. First read how the formula works. Then place the cursor on the cell receiving the formula. Move the cursor to the cell locations shown in the formula, and type everything else.

When the formula is complete, compare each character on your screen with the way it appears here. If everything agrees, press Return. If something's amiss, press Escape and start again.

Each SUM formula (B17, B30, B40, E17, and E28) includes the empty cell above the list of items and the line below the list. This way,

Figure 1. Personal net worth.

=====A=====		B=====	C=====	D=====	E=====
11		PERSONAL NET WORTH			
21		as of September 1989			
31		=====			
41	ASSETS - What I Own			LIABILITIES - What I Owe	
51					
61	Liquid Assets:			Short-Term Liabilities:	
71	Cash on hand	650		Mortgage or rent	7,340
81	Savings accounts	1,834		Other mortgage	1,660
91	Checking accounts	776		Fuel and utilities	2,880
101	Money market funds	14,440		Medical and dental	775
111	Credit union accounts	1,076		Income tax (not withheld)	1,150
121	Cash value-life insurance	9,800		Insurance premiums	3,456
131	Stocks, bonds	7,600		College loans	2,160
141	Personal loans to others	500		Car loans	3,500
151	Other	0		Charge accounts	1,234
161					
171	Total Liquid Assets	36,676	1	Total Short-Term Liabs	24,155
181					
191	Personal Assets:			Long-Term Liabilities:	
201	Residence	133,000		Home mortgage loan	67,500
211	Vacation property	23,000		Home improvements	8,560
221	Household furnishings	14,750		College loans	12,000
231	Cars	11,750		Car loans	9,600
241	Clothing, furs, jewelry	3,200		Vacation property loan	5,670
251	Computer equipment	1,450		Margin accounts	0
261	Collectibles	1,800		Other	0
271	Gold, silver	750			
281	Other	0		Total Long-Term Liabs	103,330 3
291					
301	Total Personal Assets	189,700			
311					
321	Nonliquid Assets:				
331	Business interests	23,000			
341	Certificates of Deposit	5,000			
351	IRAs, Keoghs	18,680			
361	Profit sharing	1,700		TOTAL ASSETS	276,006 4
371	Personal loans to others	1,250		TOTAL LIABILITIES	127,485 5
381	Other	0			
391				NET WORTH	148,521 6
401	Total Nonliquid Assets	49,630 2			

if you insert rows later for other items, AppleWorks will adjust the formula to add the new entries.

## FORMULA 1: TOTAL LIQUID ASSETS

Formula 1 adds nine items in the liquid-assets category and enters the total in B17.

Cell location: B17

Formula: @SUM(B16.B6)

Formulas take time to plan and enter, so it's always a good idea to protect them from accidental change: Leave the cursor on B17 and press OA-L to bring up the Layout screen. Press Return and type **PN** (for *Protection Nothing*).

The personal-assets category also has nine items you add. Instead of creating a new formula, copy Formula 1 (which also copies its protection): Leave the cursor on B17, press OA-C, and hit Return twice. Move the cursor to B30 and hit Return again. Both cell references are relative, so type **R** twice.

The current-liabilities category also contains nine items, so copy Formula 1 again: With the

cursor on B17, press OA-C, and hit Return twice. Move the cursor to E17 and hit Return again. Type **R** twice.

## FORMULA 2: TOTAL NONLIQUID ASSETS

Formula 2 adds six items in the nonliquid-assets category and enters the total in B40.

Cell location: B40

Formula: @SUM(B39.B32)

Protect Formula 2 and each of the other formulas as you create them.

## FORMULA 3: LONG-TERM LIABILITIES

Formula 3 adds seven items in the long-term-liabilities category and enters the total in E28.

Cell location: E28

Formula: @SUM(E27.E19)

## FORMULA 4: TOTAL ASSETS

Formula 4 adds total liquid assets (B17), total personal assets (B30), and total nonliquid assets (B40) to produce your total assets in E36.



**Figure 2. Labels, lines, and practice entries.**

11	PERSONAL NET WORTH	
21	as of September 1989	
31	=====	
41	ASSETS - What I Own	LIABILITIES - What I Owe
51	-----	-----
61	Liquid Assets:	Short-Term Liabilities:
71	Cash on hand 6501	Mortgage or rent 7340
81	Savings accounts 18341	Other mortgage 1660
91	Checking accounts 7761	Fuel and utilities 2880
101	Money market funds 144401	Medical and dental 775
111	Credit union accounts 10761	Income tax (not withheld) 1150
121	Cash value-life insurance 98001	Insurance premiums 3456
131	Stocks, bonds 76001	College loans 2160
141	Personal loans to others 5001	Car loans 3500
151	Other 01	Charge accounts 1234
161	-----	-----
171	Total Liquid Assets	Total Short-Term Liabs
181		
191	Personal Assets:	Long-Term Liabilities:
201	Residence 1330001	Home mortgage loan 67500
211	Vacation property 230001	Home improvements 8560
221	Household furnishings 147501	College loans 12000
231	Cars 117501	Car loans 9600
241	Clothing, furs, jewelry 32001	Vacation property loan 5670
251	Computer equipment 14501	Margin accounts 0
261	Collectibles 18001	Other 0
271	Gold, silver 7501	-----
281	Other 01	Total Long-Term Liabs
291	-----	
301	Total Personal Assets	
311		
321	Nonliquid Assets:	
331	Business interests 230001	
341	Certificates of Deposit 50001	
351	IRAs, Keoghs 186801	
361	Profit sharing 17001	TOTAL ASSETS
371	Personal loans to others 12501	TOTAL LIABILITIES
381	Other 01	-----
391	-----	NET WORTH
401	Total Nonliquid Assets	=====

Cell location: E36

Formula: + B17 + B30 + B40

### FORMULA 5: TOTAL LIABILITIES

Formula 5 adds total current liabilities (E17) and total long-term liabilities (E28) to produce your total liabilities in E37.

Cell location: E37

Formula: + E17 + E28

### FORMULA 6: NET WORTH

Formula 6 subtracts total liabilities (E37) from total assets (E36) to produce your net worth in E39.

Cell location: E39

Formula: + E36 - E37

And here's your (fictional) net worth of \$148,521. Press OA-S to store the spreadsheet on disk.

### PRINTING YOUR SPREADSHEET

This spreadsheet is 74 characters wide and prints at the AppleWorks standard of ten characters per inch. To position it nicely on the page, change the margins: Leave the cursor where it is and press OA-O to bring up the Printer Options screen. Type LM (for *Left Margin*), and press Return. Type .3 and hit Return again. Now type RM (for *Right Margin*), press Return, type .3, and hit Return again. And finally, type TM (for *Top Margin*) and press Return. Type .5 and hit Return again. All other print settings remain at AppleWorks standards. Press OA-S to store the margin settings on disk and return the spreadsheet to the screen.

Turn on your printer. Press OA-P to bring up the Print screen. Press Return to confirm your printer (or type a printer number, then Return). Type today's date and hit Return twice (the second time to confirm one copy). The printer starts working and here's your spreadsheet.

### PRINTING FORMULAS

AppleWorks can print formulas, too, as shown in Figure 3. A formula printout is handy when you're searching for a problem formula or working on a spreadsheet created by someone else. But it serves its purpose best when adversity strikes, and you have to re-create a spreadsheet from scratch.

Here's how to print formulas. The first step is to display the formulas on screen. To get a good view of the action, place your cursor on B17 and press OA-Z. As you can see, only as ►

**Figure 3. Formula printout.**

11	PERSONAL	NET WORTH
21	as of Sept	ember 1989
31	=====	
41	ASSETS - What I Own	LIABILITIES - What I Owe
51	-----	-----
61	Liquid Assets:	Short-Term Liabilities:
71	Cash on hand 650	Mortgage or rent 7340
81	Savings accounts 1834	Other mortgage 1660
91	Checking accounts 776	Fuel and utilities 2880
101	Money market funds 14440	Medical and dental 775
111	Credit union accounts 1076	Income tax (not withheld) 1150
121	Cash value-life insurance 9800	Insurance premiums 3456
131	Stocks, bonds 7600	College loans 2160
141	Personal loans to others 500	Car loans 3500
151	Other 0	Charge accounts 1234
161	-----	-----
171	Total Liquid Assets 2SUM(B16...B6)	Total Short-Term Liabs 2SUM(E16...E6)
181		
191	Personal Assets:	Long-Term Liabilities:
201	Residence 133000	Home mortgage loan 67500
211	Vacation property 23000	Home improvements 8560
221	Household furnishings 14750	College loans 12000
231	Cars 11750	Car loans 9600
241	Clothing, furs, jewelry 3200	Vacation property loan 5670
251	Computer equipment 1450	Margin accounts 0
261	Collectibles 1800	Other 0
271	Gold, silver 750	-----
281	Other 0	Total Long-Term Liabs 2SUM(E27...E19)
291	-----	
301	Total Personal Assets 2SUM(B29...B19)	
311		
321	Nonliquid Assets:	
331	Business interests 23000	
341	Certificates of Deposit 5000	
351	IRAs, Keoghs 18680	
361	Profit sharing 1700	TOTAL ASSETS +B17+B30+B40
371	Personal loans to others 1250	TOTAL LIABILITIES +E17+E28
381	Other 0	-----
391	-----	NET WORTH +E36-E37
401	Total Nonliquid Assets 2SUM(B39...B32)	=====



**DISCOUNTS to 50% OFF RETAIL**  
**BACK-TO-SCHOOL SPECIALS**  
**APPLE • MAC • IBM**

**Learning Services**  
**REVOLUTIONIZE YOUR CLASSROOM**  
 • EXCELLENT FOR INSTRUCTION • YOUR WHOLE CLASS CAN PARTICIPATE • SITS ON TOP OF YOUR OVERHEAD PROJECTOR

**MODEL 200S Best Buy! \$647**  
 Retail \$895  
 High Contrast Blue & Yellow Display. 640 x 200 pixel resolution. 8 shades or 8 patterns to represent colors. Use with Apple II series and IBM/compatibles with Color Graphics adapter (CGA).

**MODEL 480S \$993**  
 Retail \$1293  
 MULTI-SCAN HIGH RESOLUTION PC VIEWERS  
 640 x 480 pixel resolution. Apple II series and IBM with CGA, EGA, VGA cards.

**The PC Viewer**  
 ELMO OVERHEADS  
 ULTRA-BRIGHT... SUPER-COOL

**HP L355 ... \$237**  
 Classroom model (\$279 Retail)

**HP 285S ... \$425**  
 Portable model (\$499 Retail)

**LEARNING SERVICES TOP 10 EDUCATIONAL SOFTWARE TITLES**

Title / Publisher	Retail	Ilgs	Ap II	IBM	Mac
1. Children's Wrtg & Pub Center (Sch)	89.95-99.95	49.00	49.00	70.00	n/a
Vulcan Wrtg & Pub Center (Lab)	159.95-169.95	87.00	87.00	135.00	n/a
2. Children's Wrtg & Pub Center (Lab)	130-395.95	*64.97	64.97	140.00	279.00
3. Publish It! — Latest Version	189.95	*109.00	109.00	n/a	n/a
4. Timeout Word Pack / Beagle Bros.	44.95-59.95	42.00	35.00	42.00	42.00
5. Print Shop / Broderbund	54.95-69.95	49.00	42.00	49.00	49.00
6. Print Shop (School)	149.85	107.00	103.00	107.00	n/a
7. Print Shop / Broderbund	54.95	*39.00	39.00	39.00	42.00
8. Carmen Sandiego Series / (B)	49.95-54.95	39.00	35.00	39.00	39.00
9. Carmen Sandiego (Sch)	44.95-49.95	*35.00	35.00	35.00	n/a
10. Carmen Europe (Sch)	49.95	*42.00	42.00	42.00	n/a
11. Carmen U.S.A. (Sch)	59.95	35.00	35.00	35.00	n/a
12. Carmen World (Sch)	59.95	*84.00	84.00	35.00	35.00
13. VCR Companion / Broderbund	119.95	*35.00	35.00	42.00	n/a
14. VCR Companion (Sch)	29.95-49.95	*42.00	42.00	n/a	n/a
15. Math Blaster Plus / Davidson	59.95	*64.00	64.00	n/a	n/a
16. Logo Plus (Sch) / Terrapin	79.95				
17. Crossword Magic (Sch)					
18. Grabeusters 1/2/3 / Grabeusters					

All prices subject to change

**NEW For Fall**

**HYPER MEDIA:**  
 Hyperstudio (IIGS) 84.00  
 LinkWay™ (IBM) 110.00  
 TutorTech (Apple II/IIGS) 157.00  
 AppleWorks™ 3.0 (App II) 179.00  
 with 256k expander 357.00  
 Comic Book Maker (App II) 39.00  
 Cosmic Osmo® (MAC) 49.00  
 Studio/1 (MAC) 97.00  
 Where In Time is Carmen San Diego? (App. IBM) 39.00

**TIMEOUT Beagle Bros.**  
 DESKTOOLS I 28.00  
 DESKTOOLS II 28.00  
 FILEMASTER 28.00  
 Timeout GRAPH 49.00  
 GS FONT EDITOR 28.00  
 MACROTOOLS 15.00

**ACCESSORIES**

**DISKS**  
 3.5" DSDD Bulk Diskettes 99  
 3.5" DSDD Bulk Color Diskettes 1.25  
 5.25" DSDD Bulk Black Diskettes 37  
 5.25" DSDD Bulk Color Diskettes 60

**RIBBONS**  
 Apple ImageWriter Black 2.75  
 Apple ImageWriter 4-Color 5.75  
 Apple ImageWriter Underware 15.00

**MISCELLANEOUS**  
 CH Products Mach II Joystick 28.00  
 CH Products Mach III Joystick 35.00  
 CH Products Flight Stick (Apple) 53.00  
 Kensington System Saver IIGS 72.00  
 Kensington System Saver IIGS 79.00

**PROGRAM WRITER** 28.00  
**QUICKSPELL** 38.00  
**REPORT WRITER** 45.00  
**SIDESPREAD** 28.00  
**SPREADTOOLS** 35.00  
**SUPERFONTS** 38.00

**HARDWARE**  
**APPLIED ENGINEERING**  
 5.25" Disk Drive (Half Height) 129.00  
 Vulcan 20meg Apple Hard Disk 557.00  
 Ramworks III 256k 183.00  
 Transwarp GS 343.00

**AVATEX**  
 1200 Baud Modems 79.00  
 2400 Baud Modems 197.00

**DIGITAL VISION**  
 Computer Eyes IIGS 103.00  
 Computer Eyes IIGS, Mac, IBM 203.00  
 Computer Eyes Color, IBM 327.00

**MEMORY / CARDS**  
 LS Super IIGS Expanded 256k 177.00  
 LS Super IIGS Expanded 512k 157.00  
 LS 64/80 Extended 80 Column Card 29.00

**THUNDERWARE**  
 ThunderScan IIGS 197.00  
 ThunderScan Mac 225.00

**ZIP TECHNOLOGIES**  
 Zip Chip 4MHz 127.00  
 Zip Chip 8MHz 177.00  
 Zip Chip IIGS 257.00

**ORDER TOLL FREE 1-800-435-3276**  
 61 West Eighth • P.O. Box 10636 • Eugene, OR 97440-2636  
 PURCHASE ORDERS ACCEPTED • FREE SHIPPING WITH \$100 MINIMUM PURCHASE

## APPLEWORKS IN ACTION

much of the formula is visible as the cell width allows.

This is easily remedied by increasing the column width: Leave your cursor on B17 and press OA-L (for *Layout*). Type C (for *Columns*) and press Return. Type C (for *Column width*), press OA-Right Arrow five times, and hit Return. In the same way, increase the width of column E by five characters. Move the cursor around the spreadsheet, and you can see that all formulas are now fully displayed.

Next, check the effect of these increases on print width: Leave the cursor where it is, press OA-P, and hit Return. The Print screen shows that this spreadsheet is now 84 characters wide and, at the current 10-pitch setting, can print only 74 characters per line—an overflow of ten characters. The simple solution is to select a smaller character size: Press Escape to return to the spreadsheet. Now press OA-O, type CI (for *Chars per Inch*), and press Return. Type 12 and hit Return again.

AppleWorks now recalculates the number of characters that can print across a line and displays *Chars per line (est)* 88—more than enough for the current 84-character width. Press Escape to return to the spreadsheet.

Be sure your printer is on, because you're about to print the formulas: Press OA-P and press Return four times (to confirm *All*, your printer, the date, and one copy).

To avoid replacing the original version of this spreadsheet on disk, rename this formula version **PNETFORMS** (short for *PERSONAL NETWORK FORMULAS*): Press OA-N (for *Name*). Press the right-arrow key three times, then press OA-E to switch to the overtyping cursor. Type **FORMS** and hit Return again. Now press OA-S to save the spreadsheet. When you load **PNETFORMS** the next time, the formula results, not the formulas, will appear. Just press OA-Z to display the formulas.

### NEXT MONTH

With Thanksgiving and the holiday season just around the corner, next month's column features a food-shopping database that can help you get ready for festive occasions. □

RUTH K. WITKIN IS THE AUTHOR OF THE POPULAR TEMPLATE/HANDBOOK SERIES *SUCCESS WITH APPLEWORKS* (INCIDER, IDG COMMUNICATIONS/PETERBOROUGH). WRITE TO HER AT 5 PATRICIA STREET, PLAINVIEW, NY 11803. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A REPLY.



Napoleon Bonaparte



But Your Excellency, we've found a better way to put the world at your command.

We call it CompuServe. The world's most powerful network of people with personal computers.

We put you in command of a bigger world of communication, information, and entertainment

than the Little Emperor ever dreamed of. With just a few keystrokes on your personal computer.

To join forces with us, call 800 848-8199.

**CompuServe®**





# WORD'S OUT

Get the most for your memory *and* for your money. Create multipage newsletters with Publish It! 2 and spread the word for the price of a postage stamp.

By CYNTHIA E. FIELD, Ph.D.

YOU CAN'T GET MUCH THESE DAYS FOR two bits, whether you're talking memory or money. But thanks to **Publish It! 2**, a desktop-publishing program that requires only 128K, you can create multipage newsletters and mail them for just 25 cents apiece.

This month we'll design a template for a four-page newsletter. (See **Figure 1** for the finished product.) **Table 1** contains the specifications for size and placement of objects used in this template.

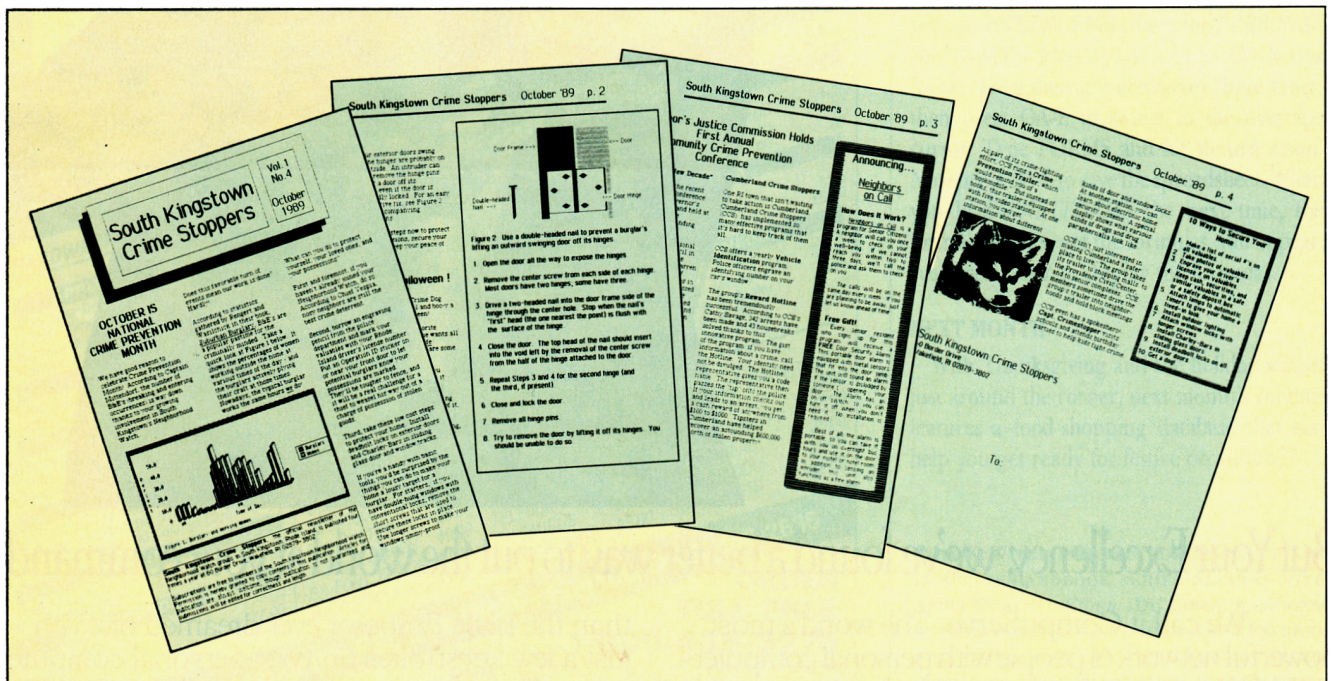
Whatever the impetus for their existence, the best newsletters give equal weight to the medium *and* the message. With Publish It! 2

and custom artwork, you can't miss getting your point across!

## THE FRONT PAGE

Start up Publish It! 2 and switch to *Size to Fit* mode (Open apple-4 or Special menu). Referring to **Figure 2**, click on the text tool and rubber-band (press and drag) a 21-by-6-inch column on Page 1. Begin about a half inch in from the left margin and 3 inches down from the top margin. Use the screen rulers as guides.

Thanks to the program's *Show Specifications* (Open apple-M or Objects menu), you needn't fret about precision. After placing an object, click on it with the pointer tool to put "handles" in its four corners. Use *Show Specifications* and the Apple keyboard to type in dimensions. With the text-area tool, rubber-band columns 2 and 3 and set specifications.



**Figure 1.** Finished newsletter.



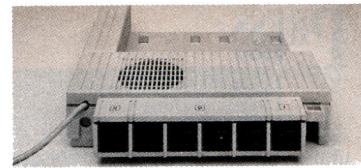
**PREFERRED'S  
BEST  
BUYS**



**Vulcan** High speed internal hard disk. Comes formatted ready to go! Specify II+, IIe or IIGS.  
20 Meg ..... **\$519**  
40 Meg ..... **\$679**  
100 Meg ..... **\$1379**



**Mirage** Turns your Joystick into a high speed, high performance mouse. Quad version for Apple IIe & IIc. ADB for IIGS or Mac.  
**Mirage 'Quad'** (IIe, IIc) ..... **\$29**  
**Mirage 'ADB'** (IIGS, Mac) ..... **\$29**



**Conservor** Integrated disk drive organizer/switched power/cooling fan. Effectively cools your IIGS while protecting against power surges. Six switched AC power outlets.  
**Special Price** ..... **\$89**

## SUMMER'S OVER. ORDER YOUR BACK TO SCHOOL SUPPLIES TODAY!

### Applied Engineering Hardware

**TransWarp GS** - More than doubles the speed of your Apple IIcs Computer ..... **\$319**

**GS-Ram, GS-Ram Plus & GS-Ram Ultra** - The best memory expansion cards for the Apple IIcs.

GS-Ram 256K ..... **\$146**  
GS-Ram 512K ..... **\$202**  
GS-Ram 1 MEG ..... **\$316**  
GS-Ram Plus 1 MEG ..... **\$333**  
GS-Ram Plus 2-6 MEG ..... **\$CALL**  
GS-Ram Ultra 256k-4 MEG ..... **\$CALL**  
**RamKeeper** ..... **\$146**

**RamWorks III** - Aux. slot memory expansion for Apple IIe

RamWorks III 256K ..... **\$169**  
RamWorks III 512K ..... **\$226**  
RamWorks III 1MEG ..... **\$329**  
RamWorks RGB options ..... **\$109**  
**256K DRAMS** Set of 8 (150 ns) ..... **\$64**  
**1 MEG DRAMS** Set of 8 ..... **\$224**  
**AE Extended 80 Column card with 64K.** ..... **\$49**

**PC Transporter & Accessories** - Lets you to run IBM software on your Apple II computer.

768K (640K IBM) ..... **\$389**  
IIGS Install Kit ..... **\$40**  
IIe Install Kit ..... **\$34**  
Single TransDrive ..... **\$209**  
Dual TransDrive ..... **\$325**

**Heavy Duty Power Supply** ..... **\$69**

**RamFactor** - RamDisk for the Apple II+, IIe, GS

RamFactor 256K ..... **\$210**  
RamFactor 512K ..... **\$267**  
RamFactor 1MEG ..... **\$369**  
**RamCharger Battery Backup** ..... **\$139**

**RamExpress** - Memory expansion card for the IIc Plus and original IIc with the expansion connector.

RamExpress 256K ..... **\$219**  
RamExpress 512K ..... **\$275**  
RamExpress 1 MEG ..... **\$389**  
DClock Option for RamExpress ..... **\$49**

**Z-Ram Ultra** - Compatible with the original IIc.

**Ultra 1** 256K ..... **\$169**  
Memory Only 512K ..... **\$227**  
**Ultra 2** 256K ..... **\$227**  
Memory, Clock 512K ..... **\$284**  
1 MEG ..... **\$399**  
**Ultra 3** 256K ..... **\$292**  
Memory, Clock 512K ..... **\$349**  
& Z-80 1 MEG ..... **\$465**

**5.25" Disk Drive** by AE ..... **\$119**

**5.25" Drive Controller** - Supports 2 drives ..... **\$59**

**TransWarp** - Runs your IIe, II+ or Franklin computer over 3.5 times faster ..... **\$139**

**TimeMaster II H.O.** (II+, IIe, IIGS) ..... **\$79**

**Sonic Blaster** (GS) ..... **\$99**  
**NEW! Audio Animator** (GS) ..... **\$195**  
**Phasor** (II+ , IIe, GS) ..... **\$129**  
**DataLink Modem** - includes over \$200 in online services  
1200/300 bps (II+ , IIe, GS) ..... **\$139**  
2400/1200/300 bps (II+ , IIe, GS) ..... **\$189**  
**NEW! EasyLink** - Great new Communications software from AE. Requires IIGS, IIc or 128k Enhanced IIe. .... **\$75**  
**Z-80+** - Runs all Apple CP/M software (II+ , IIe, GS) ... **\$119**  
**ViewMaster 80** - 80 column card for II+ ..... **\$124**  
**Pocket Rocket** - 16K RAM Card  
Upgrade your II+ to 64K and run ProDOS ..... **\$85**

### More Quality Hardware

**Sony Ultra Hi-Res 13" RGB Monitor/TV** - Without a doubt, this is the best R.G.B. monitor available for the IIGS or IIe, bar none! ..... **\$569**  
Sony digital cable (\$29 sep.) ..... **\$22**  
Sony analog cable (\$29 sep.) ..... **\$22**

**Digitizers**

Computer Eyes GS (color) ..... **\$205**  
Computer Eyes (B/W for II+ , IIe, GS) ..... **\$108**  
ThunderScan ..... **\$175**

**Joysticks / Mouse**

CH Products Flightstick ..... **\$42**  
CH Products MACH IV Plus ..... **\$69**  
CH Products MACH III Joystick ..... **\$39**  
Turbo Mouse (ADB) ..... **\$124**

**Fans / System Savers**

**SPECIAL!** Conservor by AE. fan for the IIGS ..... **\$89**  
Kensington System Saver IIe & II+ ..... **\$69**  
Kensington System Saver IIGS ..... **\$74**

### Beagle Bros Software

**TimeOut AppleWorks Enhancements**

Requires AppleWorks 2.0 or later & 128k of memory.

**NEW! ReportWriter** ..... **\$59**  
**NEW! TeleComm** ..... **\$49**  
UltraMacros or SpreadTools ..... **\$40**  
MacroTools I or II ..... **\$19**  
DeskTools I or II ..... **\$35**  
PowerPack ..... **\$35**  
QuickSpell ..... **\$49**  
SuperFonts ..... **\$49**  
Thesaurus ..... **\$35**  
SideSpread ..... **\$35**  
Graph ..... **\$69**  
FileMaster ..... **\$39**

**NEW! ProgramWriter** ..... **\$35**

**NEW! Point-to-Point** - communications software. Requires IIGS, IIc or 128k Enhanced IIe ..... **\$79**

**SPECIAL! Super MacroWorks** (AW 2.0-2.1) ..... **\$20**

### Software

**AppleWorks GS** (1.25 meg) ..... **\$229**  
**AppleWorks Classic** (128k ram) ..... **\$199**  
**NEW! Copy II+** (64k Ram) ..... **\$29**  
**NEW! DB Master Professional** (128k IIe, IIc, GS) ... **\$192**  
**Deluxe Paint II** (768k min) ..... **\$59**  
**Managing Your Money 4.0** (128k IIe, IIc, GS) ..... **\$98**  
**SPECIAL! PinPoint Spell Checker** (128k) ..... **\$25**  
**NEW! Print Shop** (64k ram) ..... **\$35**  
**NEW! Print Shop GS** (512k ram) ..... **\$45**  
**Publish It! 2** - DTP (128k IIe, IIc, GS) ..... **\$89**  
**Quicken** - Easy home accounting (128k IIe, IIc, GS) ..... **\$36**  
**SideWays** (64k ram) ..... **\$38**  
**VIP Professional** - Lotus 123 for the Apple II  
IIGS (512k min) ..... **\$69**  
IIe and IIc (256k min) ..... **\$69**  
**Where in the World is Carmen Sandiego?** ..... **\$29**  
**WordPerfect GS** (512k ram) ..... **\$104**  
**WordPerfect IIe & IIc** (128k) ..... **\$104**  
**Blank Disks**  
5.25" DS DD disks with sleeve (10) ..... **\$8**  
3.5" DS DD disks (10) ..... **\$15**

### Why Buy From Us?

1. Toll free 800 number for orders.
2. We almost always ship from OUR stock. Call us before 3:00 pm (central time) and it will ship today.
3. Memory cards have all **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 the hardware doesn't meet your needs, we'll refund the purchase price. No hassles.
7. We offer technical support on everything 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. No extra charge for insurance.

**ORDERS - CALL TOLL FREE**  
**1-800-327-7234**  
**QUESTIONS & CUSTOMER SERVICE**  
**1-214-484-5464**

*If you don't see it here - Call us.*

# Preferred Computing

ORDER BY MAIL: SEND CHECK, MONEY  
ORDER, VISA OR MASTERCARD NUMBER  
Texas Residents add 7% Sales Tax

P.O. BOX 815828,  
DALLAS, TEXAS, 75381. USA

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. Ad #1089



Or try this alternative method: Select column 1, copy it (Open apple-C or Edit menu), and drag the copy (Open apple-V or Edit menu) into position with the mouse. Paste again to create column 3. Select column 3 and lengthen it by dragging its lower-right handle straight down about 1½ inches. Use *Show Specifications* to fine-tune it if necessary.

Under columns 1 and 2 rubber-band another text area, which will function as a masthead for listing the publisher, frequency of distribution, price, and copyright notice. Make this a bordered text area by clicking on the *Frame Border* button in the *Show Specifications* dialog.

Use **Table 1** to help you duplicate the dimensions of the three rectangles and the two text areas comprising the multilevel title area. With the rectangle tool create a shape; then, while it's still selected, choose its pattern. For the grey rectangle choose a shaded pattern from the *Set Fill Pattern* dialog (Objects menu). For the black rectangle change the fill pattern to black. For the white rectangle use the white fill pattern.

Select the text tool and rubber-band two text areas in the title area. Use *Show Specifications* to frame these text areas and to fine-tune their placement.

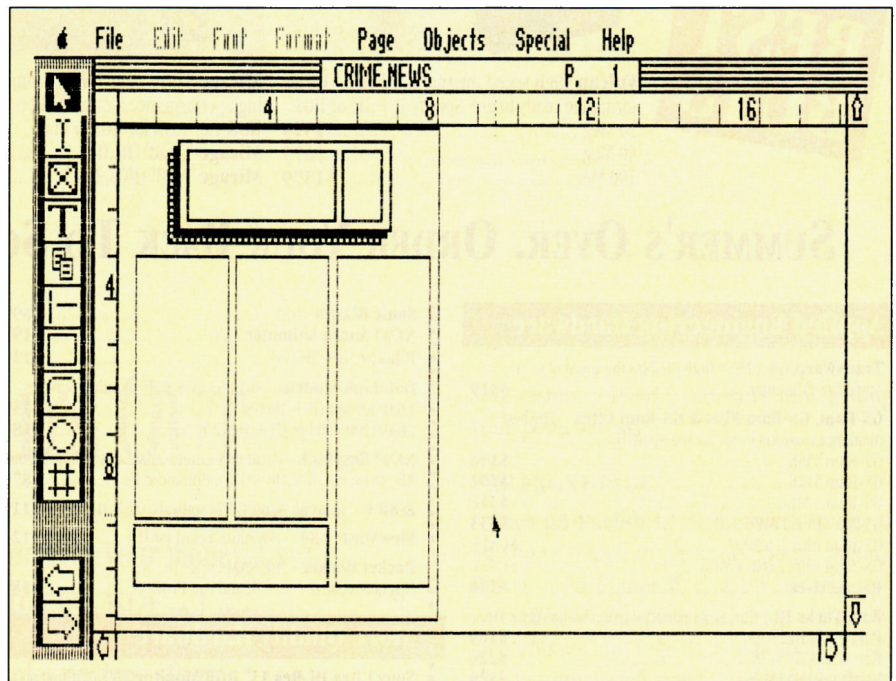
## WE INTERRUPT THIS PROGRAM

Become fluent in switching from one viewing mode to another. *Size to Fit* mode is best for laying out a page, but *Show Half Size* mode (Open apple-3) is tops for working on medium-sized objects, headlines, and sub-headings. Use *Show Full Size* mode (Open apple-1) for typing text or viewing graphics. Though perhaps least frequently used, *Show Double Size* mode (Open apple-2) is indispensable for selecting, editing, and positioning thin rules that are otherwise difficult to manipulate.

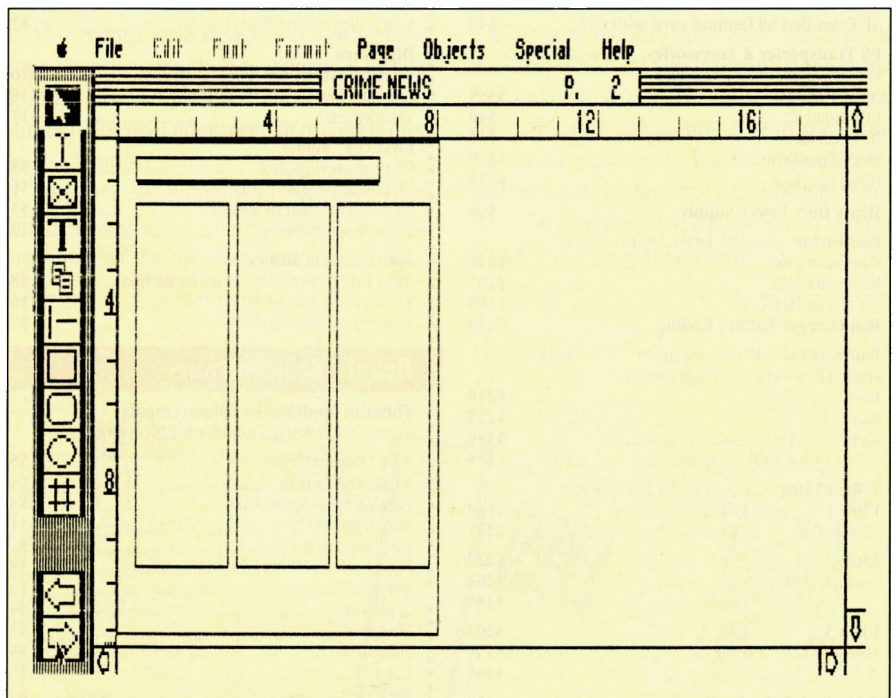
Here's one reminder: Like politicians who counsel you to "vote early and often," desktop publishers know they should save their progress with the same diligence. Use *Save As* (Open apple-A or File menu), select the drive containing your data disk, type the name of your template-in-progress, and press Return. Save your template under the same name or a slightly different name each time you complete a major step.

## MOVING RIGHT ALONG

Click on the right-arrow icon in the bottom left-hand corner of the screen and add another



**Figure 2.** Page 1 template screen dump.



**Figure 3.** Page 2 template screen dump.

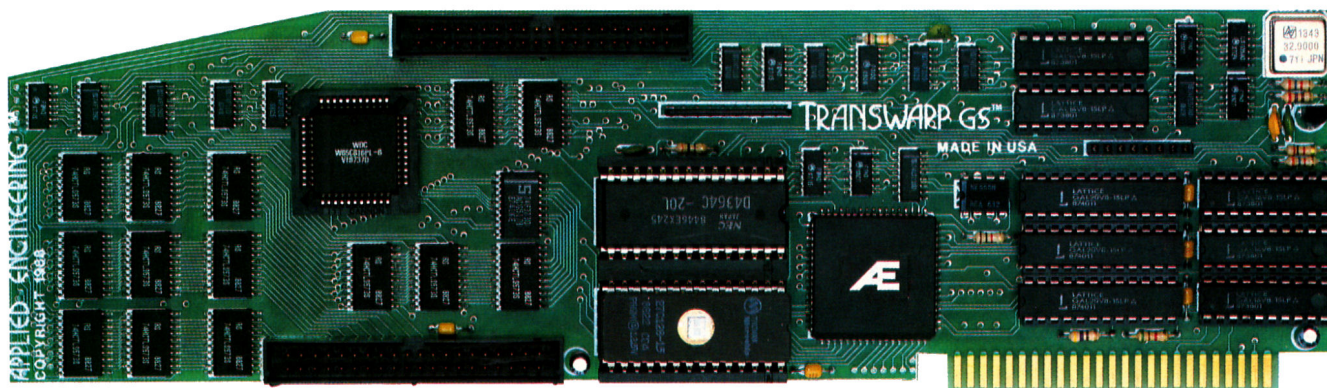
page to your newsletter. On page 2, create three identical columns according to the specifications shown in **Table 1**.

Because this template is for a multipage newsletter, it's a good idea to include a header at the top of each page; it should contain the publication's name, date, and page number. Rubber-band the header-text area. Place the

I-beam within this area, select a font such as *Desplaines 18* (Open apple-W or Font menu), and type the information.

Separate the header from the body text of the newsletter with a rule. Use the straight-line tool, and select the rule's thickness from the *Set Line Weight* dialog under the Objects menu. Page 2 should look like **Figure 3**. ►





# Fan mail GS

*"TransWarp GS has performed flawlessly ... I've become addicted to computing at warp speed ... once you get a taste, you'll wonder how you ever got anything accomplished with your IIGS lumbering along at an unaccelerated pace ... it's an improvement you're going to appreciate every time you place your fingers on the keyboard."*

— Owen Linzmayer, Technical Editor, A+

*"I'm stunned ... bordering on speechless. I used to dread waiting and waiting to run GS/OS. I don't anymore. TransWarp GS breathes new life into my computer. Thanks AE, you guys are in a class by yourselves."*

— Joe Kohn, The Source

*"Once I started using the original TransWarp in my old IIe, I found I couldn't do without it, TransWarp GS promises to be equally indispensable."*

— Lafe Low, Review Editor, Incider

*"This is the card you want. Sell whatever secondary peripherals you must in order to get a TransWarp GS plugged in."*

— Joe Abernathy, Houston, TX

*"Together with my RamKeeper, you have given me a color Mac at one-third the price. Thanks."*

— Richard Artz, Ft. Collins, CO

*"I have conducted some recent tests which indicate that the 'little' IIGS (with TransWarp GS) outperforms the MacSE. Your engineering department should take a bow."*

— George Dombrowski, Jr., Chicago, IL

*"TransWarp GS will be the best \$400 you ever spent."*

— Dan Muse, Editor in Chief, Incider

*"WOW WOW WOW! I am completely blown away with how fast it goes. Unbelievable."*

— Dean Esmay, A2-Central

*"TransWarp GS is by far the best money I've spent on my GS since purchasing my DataLink. Hats off to everyone at AE for another great product!"*

— Greg Dacosta, GENie

TransWarp GS is rapidly changing the way people use the Apple IIGS. Join the thousands of TransWarp GS owners who've discovered computing at Warp Speed. For more than nine years, Applied Engineering has led the way with proven, reliable products for the Apple II line. We plan to keep it that way. Thanks for the vote of confidence, folks.

**TransWarp GS Accelerator . . . . . \$399**

## Order today!

To order or for more information on TransWarp GS, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**

*The Apple enhancement experts.*

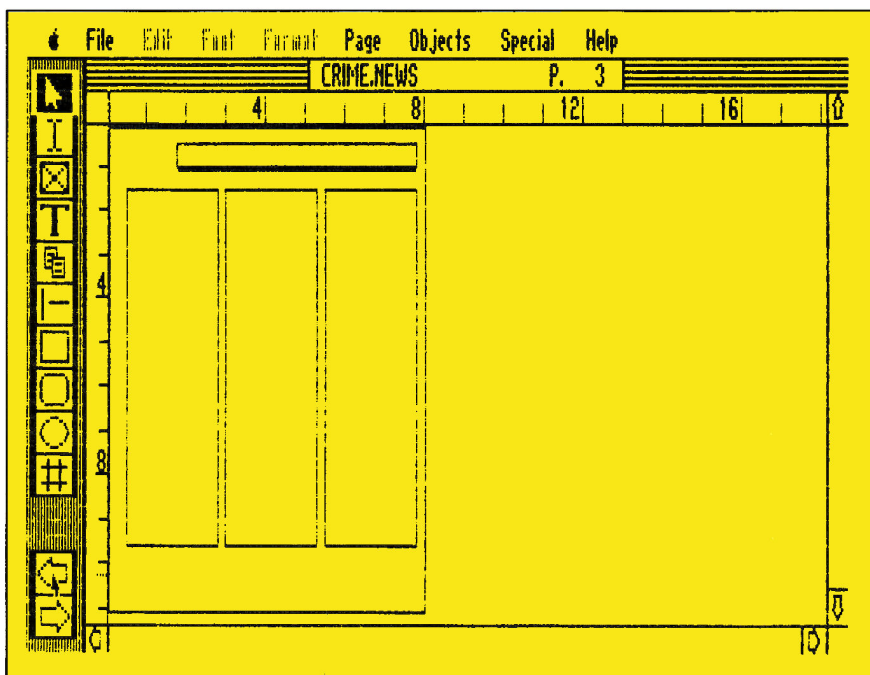
A Division of AE Research Corporation.

(214) 241-6060

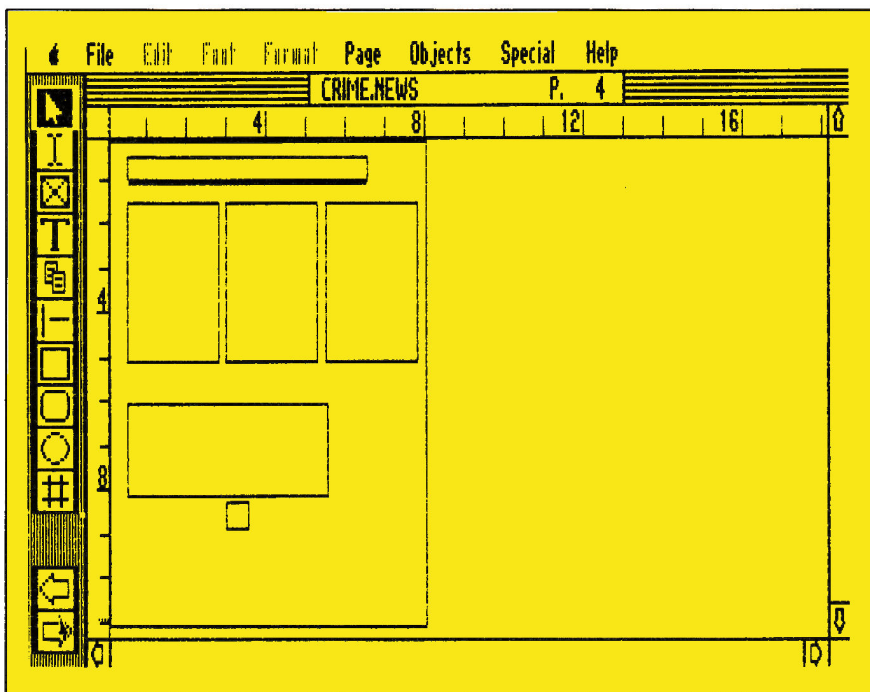
P.O. Box 5100, Carrollton, TX 75011

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





**Figure 4.** Page 3 template screen dump.



**Figure 5.** Page 4 template screen dump.

Click on the right-arrow icon and add page 3, which has the same five objects as page 2. Objects are identical except that the header-text area and the rule are shifted to the right-hand side of the page as shown in **Figure 4**. This placement makes any two facing pages appear more symmetrical.

Use the program's copy and paste functions to duplicate objects from page 2 on page 3. Then, to copy the header's text, place the I-beam at the beginning of the header text on page 2. Press Open apple-E (or Edit menu) to select this text. Press Open apple-C (or Edit menu) to copy it, then switch to page 3. Place

the I-beam in the header-text area on that page. Press Open apple-V (Edit menu). The text should flow right into place.

### THE BACK PAGE

Click on the right-arrow icon to add page 4. This page, which looks different from all others (see **Figure 5**), contains three identical short columns as well as a header-text area and a rule.

The lower half of page 4 is special. When you fold your finished newsletter in half, the bottom of the page displays your organization's return address and provides a place to attach a mailing label with the recipient's name and address.

To facilitate consistent placement of name labels, rubber-band a small text area. Place the I-beam within it, select the *Desplaines 18* font, and type the word *To*.

### DESIGN CONSIDERATIONS

Click on the left-arrow icon three times to work your way back to page 1. Think about the message you're trying to convey and the typeface that can do the job.

For our crime-prevention newsletter *Desplaines* and *Deerfield* typefaces meet requirements both for appearance and for readability. A typeface such as *Ravinia* seems much too flowery for a crime-related piece, but it could be right at home in a newsletter written for miniatures (doll houses and their furnishings) enthusiasts or garden clubbers. The *Wilmette* typeface isn't "heavy-handed" enough for a let's-get-tough-on-crime newsletter, but it could work effectively in a publication for boat-ers or restaurateurs.

But far be it from me to take the *personal* out of personal computing! Experiment and choose the typeface that looks best to *you*. If you feel "iffy" about a particular font, show a sample printout to your spouse, a fellow teacher, or a business colleague.

### EXTRA! EXTRA!

Place the I-beam in the title area's larger text space. Select the *36-point Desplaines* font and type the newsletter's title. Use our title or your own.

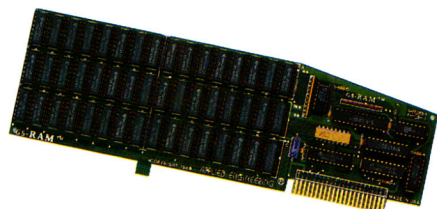
This text area can accommodate about 15 characters on each of its two lines. If you choose a different typeface and size, you may be able to fit more or fewer characters. In that case, you may want to resize all five objects comprising the title area. ►



# Three good reasons to buy a memory card from Applied Engineering.

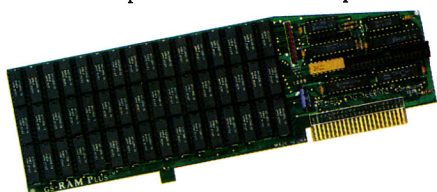
Applied Engineering makes three different memory cards for the IIGS because every IIGS owner is different. Each card was designed to suit specific needs:

**1.** **GS-RAM™** Start with as little as 256K of memory and grow in affordable 256K increments to 1.5 MEG (an amount that once sounded large, but is now considered a moderate amount of memory expansion.) Incorporates 256K x 1 chips.



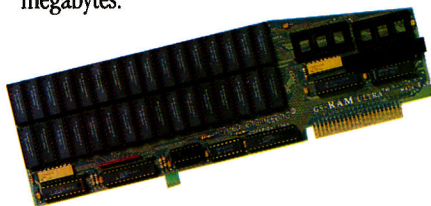
<b>GS-RAM w/256K</b>	<b>\$179</b>
<b>1 MEG</b>	<b>\$389</b>
<b>1.5 MEG</b>	<b>\$529</b>

**2.** **GS-RAM Plus™** Expands from 1 to 6 MEG in 1 MEG increments. Originally designed for power-users requiring a great deal of internal memory, this card has recently found favor with many moderate users. MEG-sized jumps in memory have now become practical for many users because of the enormous memory requirements of today's software titles. Incorporates 1 MEG x 1 chips.



<b>GS-RAM Plus w/1 MEG</b>	<b>\$419</b>
<b>2 MEG</b>	<b>\$669</b>
<b>3-6 MEG</b>	<b>CALL</b>

**3.** **GS-RAM Ultra™** AE's newest memory card incorporates a new chip - the 256K x 4, which has four times the density of 256K x 1 chips. GS-RAM Ultra offers incremental expansion like the GS-RAM and ultimate size like the GS-RAM Plus. It's expandable from 256K to 4 MEG in 256K increments, so you can start small and still grow to a massive 4 megabytes.



<b>GS-RAM Ultra 256K</b>	<b>\$229</b>
<b>512K</b>	<b>\$289</b>
<b>768K-4 MEG</b>	<b>CALL</b>

We've also added ROM sockets to the GS-RAM Ultra. ROM sockets allow hardware-based applications to be loaded permanently into EPROMs...an increasingly important feature when 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.

**AE APPLIED ENGINEERING®**

*The Apple enhancement experts.*

A Division of AE Research Corporation.

**(214) 241-6060**

P.O. Box 5100, Carrollton, TX 75011

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

\*When purchased from Applied Engineering or thru a participating dealer.



Page	Objects	Left Start	Top Start	Width	Height	Frame Border?
1	Grey Rectangle	1.250	0.600	5.330	2.075	—
"	Black Rectangle	1.375	0.475	5.330	2.075	—
"	White Rectangle	1.500	0.350	5.330	2.075	—
"	Left-Title Text	1.813	0.647	3.593	1.500	y
"	Right-Title Text	5.650	0.644	0.886	1.500	y
"	Column 1 Text	0.500	3.000	2.250	5.750	n
"	Column 2 Text	3.000	3.000	2.250	5.750	n
"	Column 3 Text	5.500	3.000	2.250	7.250	n
"	Masthead Text	0.500	9.000	4.750	1.250	y
2	Header Text	0.500	0.500	6.000	0.400	n
"	Header Rule	0.500	1.500	6.000	—	—
"	Column 1 Text	0.500	1.500	2.250	8.000	n
"	Column 2 Text	3.000	1.500	2.250	8.000	n
"	Column 3 Text	5.500	1.500	2.250	8.000	n
3	Header Text	1.750	0.500	6.000	0.400	n
"	Header Rule	1.750	1.000	6.000	—	—
"	Column 1 Text	0.500	1.500	2.250	8.000	n
"	Column 2 Text	3.000	1.500	2.250	8.000	n
"	Column 3 Text	5.500	1.500	2.250	8.000	n
4	Header Text	0.500	0.500	6.000	0.400	n
"	Header Rule	0.500	1.000	6.000	—	—
"	Column 1 Text	0.500	1.500	2.250	3.500	n
"	Column 2 Text	3.000	1.500	2.250	3.500	n
"	Column 3 Text	5.500	1.500	2.250	3.500	n
"	Return-Address Text	0.500	6.000	5.000	2.000	n
"	"To" Text	3.000	8.250	0.500	0.500	n

**Table 1.** Object specifications (inches).

Drag the I-beam to highlight the title. Make the text boldface (Open apple-B or Font menu).

Select *Justification* from the Format menu and click on *Center*. Turn off *Use Page Standard* by clicking on it.

Select *18-point Desplaines* for the volume, number, and date information contained in the smaller text area at the top of the page. Center the information.

For consistency's sake I used the Desplaines typeface in various sizes and styles for headlines as well as for the masthead text on page 1, last month's Figure 2 ("Do-It-Yourself," September 1989, p. 76) on page 2, and the sidebars on pages 3 and 4.

I used the *12-point Deerfield* font for body text. In *serif* typefaces such as Deerfield, individual characters have "tails" or embellishments that—according to some experts—

make them more readable.

*Sans-serif* typefaces like Desplaines have characters that end abruptly. While more "contemporary" in appearance, these typefaces may be more difficult to read in large doses.

#### IT FIGURES

Select the graphics-area tool, and rubber-band a graphics area above the masthead and spanning two columns' width. Refer to **Table 2** for object specifications for special effects like the one used in our crime-stopping newsletter. Click on the graphics area with the pointer tool, pull down the File menu, and click on *Import Picture*. Place the disk containing the clip art you want to use in the selected drive.

Remember the column chart we created with **Graph It!** in last month's Press Room? If

you completed that project, select the chart from your data disk's directory. Otherwise, select any piece of clip art that suits your newsletter's theme. Shrink or enlarge the graphic if necessary by tugging systematically on one or more handles.

#### DAZZLING DIAGRAMS

Turn to page 2. Remember the second illustration we created in last month's column? We used **Dazzle Draw** to design a picture of a door hinge and a double-headed nail. Import your Dazzle Drawing into Publish It! 2 (use the File menu option *Import Picture*) and complete the diagram with Publish It! 2 shape tools and text labels. Use shaded rectangles to simulate the door frame and door. Rubber-band small text areas to create labels for the diagram's parts.

Why not include instructions for the anti-►





# Teach them now.

Now is the time for them to learn. A good working relationship with a good word processor can make the difference in college, business, or almost any occupation your students choose.

Right now more people use WordPerfect than any other word processor. And every year brings more fans. Chances are good that today's school children will use WordPerfect at some point in their future, so why not give them a head start?

WordPerfect is popular on Apple machines for a lot of reasons. For some people, it's the clean strength of the program itself. For others,

toll-free customer support and continual updates are the key. An interface that makes sense and intelligent file management add to the score.

No matter what the reason, the fact is that at some point in their lives, everyone will wish he or she knew WordPerfect. The timing is right, right now, to teach them what they'll need. Because the more you can give them while they're young, the better prepared they'll be as adults. And that's sooner than you think.

**WordPerfect**  
CORPORATION

1555 N. Technology Way Orem, UT 84057

Telephone: (801) 225-5000 Telex 820618 FAX (801) 222-5318

Circle 272 on Reader Service Card.



Page	Object	Left Start	Top Start	Width	Height
1	Graph It! Chart	0.537	6.077	4.666	2.666
2	Dazzle Draw Graphic	4.036	2.445	2.416	1.180
"	Door Frame: Upper Rectangle	4.850	1.529	0.833	1.000
"	Door Frame: Lower Rectangle	4.850	2.491	0.166	1.148
"	Door: Upper Rectangle	5.738	1.566	0.758	0.962
"	Door: Right Rectangle	6.397	2.418	0.091	1.295
"	Frame-Label Text	3.820	1.880	0.981	0.155
"	Nail-Label Text	3.247	3.047	0.877	0.337
"	Door-Label Text	6.526	1.863	0.575	0.155
"	Hinge-Label Text	6.284	3.141	0.945	0.169
"	Figure 2: Border Rectangle	2.962	1.262	4.740	8.222
"	Figure 2: Text	3.169	3.911	4.252	5.173
3	Sidebar: Round Rectangle	5.444	1.479	2.333	8.222
"	Sidebar Text	5.752	1.716	1.716	7.747
4	Digitized Graphic	0.518	3.091	2.313	2.055
"	Sidebar Rectangle	5.387	1.352	2.444	3.777
"	Sidebar Text	5.484	1.491	2.250	3.500

**Table 2.** Special-effects specifications (inches).

theft project right along with the diagram? To do so, select columns 2 and 3 on page 2 and delete them (Open apple-X or Edit menu). Rubber-band a text area beneath the diagram. Into this text area type the instructions for preventing a burglar from lifting a door off its hinges. To separate **Figure 2** from the body of the newsletter, select the rectangle tool and the white fill pattern. Rubber-band a rectangle around the completed figure. To prevent the rectangle from covering up the figure, choose *Move to Back* (Objects menu).

### SIDEBAR MAGIC

On page 3 narrow and shorten column 3. Place the I-beam in it and type the sidebar's contents.

Center headings and fully justify the text. (Click on *Justification* in the Format menu; turn off *Use Page Standard*.)

Rubber-band a round rectangle around the text area. Use the round-rectangle tool and the "brick wall" fill pattern. Select *Move to Back* (Objects menu) to place the brick wall behind the text.

Create the sidebar on page 4 in similar fash-

ion. Use a different fill pattern for the border rectangle and keep the text left justified.

Had this newsletter been authentic and not hypothetical, we'd have secured permission to use a likeness of McGruff the Crime Dog (TM). Instead, I substituted a picture of Sitka "Throw a Cookie and Take What You Want" Field. We made a black-and-white copy of the original color photo on a Canon PC-14 desktop copier and digitized it with **ThunderScan**.

### MESSAGE MEETS MEDIUM

Flip back to page 1. Place the I-beam in column 1 and begin typing body text. When you fill a column, move the I-beam to the next column and continue. Here's an easier method: First link columns using Publish It! 2's linking tool; linking lets text flow from one column to the next automatically. Import text from an ASCII or **AppleWorks Classic** word-processing file (File menu).

Those who eschew using Publish It! 2 as a word processor lavish praise on AppleWorks' capability to keep pace with their turbo typing and to work with various spelling checkers. If you're a newsletter editor who depends on

other writers to supply material, it's a lot easier if they submit AppleWorks files on disk.

Depending on your circumstances (whether or not you own AppleWorks, for one thing), typing text within Publish It! 2 has its good points. First, screen columns and sidebars are narrow enough to prevent the program from redrawing the screen continually and slowing you down. Second, you can exercise better control over the length of an article or a sidebar, because you can see as you go along just how much space you've got left.

### THE BLUE PENCIL

Whatever method you choose to enter the body text of your newsletter, it'll need touch-ups. Save the final newsletter, print it, and put it aside for a few hours. Better still, let it sit overnight.

Review the overall layout to see whether any objects are out of sync. Scrutinize the newsletter as if you were its recipient, or read the newsletter out loud. Your eyes will help you find typos while your ears alert you to places where you should use a particular type style (such as underlining) for emphasis.



## PRODUCT INFORMATION

**AppleWorks Classic**  
Clarix Corp.  
5201 Patrick Henry Dr.  
P.O. Box 58168  
Santa Clara, CA 95052-8168  
(408) 987-7000  
\$249

**Dazzle Draw**  
Broderbund Software  
17 Paul Drive  
San Rafael, CA 94903-2101  
(415) 492-3200  
\$59.95

**Graph It!**, \$69.95  
**Publish It! 2**, \$129.95  
Timeworks  
444 Lake Cook Rd.  
Deerfield, IL 60015  
(312) 948-9200

**ThunderScan**  
Thunderware  
21 Orinda Way  
Orinda, CA 94563  
(415) 254-6581  
\$219

If a paragraph has "widows" or "orphans" (isolated lines of text at the beginning or end of a column), reformat it. When you're satisfied with the newsletter, save it.

### STATE YOUR CASE

Print the final "master" with Publish It! 2's *Double Strike* mode. Run off double-sided copies on white or colored paper and collate them.

Some subscribers may want to save issues of your newsletter. As a convenience, why not punch three-ring binder holes in the left margin?

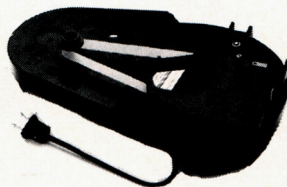
Fold the newsletter in half and staple or tape it closed. Add a mailing label. Oh, yes—don't forget that two-bit stamp. □

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 SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

# Never buy another ribbon! with MacInker™

over 100,000 sold

Each MacInker is shipped complete with free bottle of ink, reservoir cover and ink meter/dispenser



**Universal Cartridge MacInker \$68.50**      **Imagewriter or Epson MacInker \$42.00**

MacInker™, the original, automatic ribbon re-inker. The Imagewriter MacInker (mod 234IM) re-inks Imagewriter I/II black & single color cartridges. With the optional Multicolor Adapter (mod M422, \$40.00) your MacInker re-inks the multicolor Imagewriter II cartridges. The Universal MacInker also re-inks hundreds of different cartridge types (including the Imagewriter I and II (single and multicolor), and the Imagewriter LQ, (single and multicolor) with suitable adapters. Our exclusive, extra dark, dot matrix, lubricant ink yields a truly better than new print quality and helps extend printhead life. Many Customers use MacInker on brand new cartridges to enhance print crispness. New ink dispenser ensures precise ink metering. Average number of re-inkings/cartridge is 60-100. Use your MacInker to re-ink in 10 different colors: red, green, blue, yellow, purple, brown, orange, gold and silver. We have cartridges in these colors and use only high quality cloth, ink and cartridge mechanisms. With the optional Heat Transfer Adapter (available for the dedicated 234IM and the universal MacInker, \$35.00) you can re-ink Heat Transfer cartridges, print on cloth and make your own T-shirts. We have a complete range of accessories and other special inks. Our Customers include individuals, Computer Clubs, Fortune 500 Corporations, Schools, Colleges, Banks, the FAA, Airlines and many, many more. In 1982 we pioneered re-inking technology and are dedicated to its development.

**Imagewriter I/II MacInker (234IM) ...\$42.00**  
(for black or single color cartridges)  
**Multicolor Adapter (Imagwr II) .....\$40.00**  
**Heat Transfer Adapter .....\$35.00**

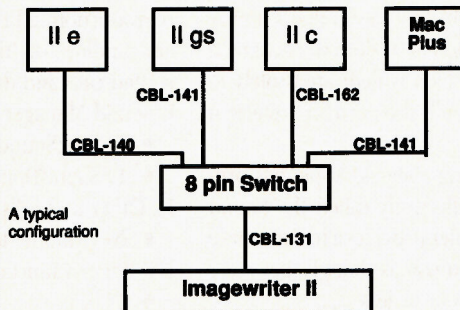
**Universal MacInker .....\$68.50**  
**Imagewriter LQ Adapter .....\$8.50**  
**Multicolor Adapter (Imagewr. II) ....\$40.00**  
**Multicolor Adapter (Imagewr. LQ) ..\$40.00**  
**Optional Timer .....\$25.00**

**Extra bottle black ink (or color) .....\$3.00**  
**Colored ink kit\* .....\$8.00**  
(\* one bottle color ink + extra reservoir)  
**Pint black Ink .....\$18.50**

**Imagewr. cartridges .....\$3.15/ea (min 6)**  
**Colored .....\$4.15/ea (min 2 per color)**  
**Imagewriter II multicolor .....\$10.00 (min 2)**  
**Imagewriter LQ .....\$14.00 (min 2)**  
**Imagewriter LQ multicolor .....\$20.00 (min 2)**  
**shipping .....\$4.50**

## Data Switches mechanical or electronic

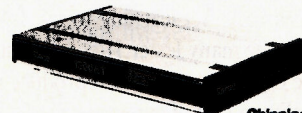
Connect up to 4 computers to one printer. We have a complete range of data switches, mechanical and electronic (autoswitching). Free technical bulletin.



**MS4-Mac8 4 pos. - 8 pin switch .....\$50.00**  
**Cables 6' .....\$16.00      Cables 12' .....\$26.00**  
**Autoswitch 2 input/1 output .....\$149.00**  
**Autoswitch 4 input/1 output .....\$169.00**

## Modems

100% Hayes compatible. 2 year warranty



Shipping \$5.50

**Mercury 1200 baud .....\$99.00**  
**Mercury 2400 baud .....\$239.00**  
**Capricorn World MiniModem .....\$139.00**  
**Cable Computer to Modem .....\$16.00**  
**CommaWorks software .....\$60.00**  
All our Modems have full front panel lights, auto answer, dial, repeat, call progress monitoring, speaker control.

**Special Offer.** Order for >\$60.00 and say "I saw it in Incider" and get a free mousepad. Order for >\$100.00 and get free key-beeper with flashlight combined (a \$15 value), or get a guaranteed, accurate, LCD electronic pedometer, jogging & step meter & calculator for only \$15.00 (a \$40 value).

Satisfaction or 30 day refund on all products - Immediate shipment - Major credit cards

**Computer Friends, Inc. Order Toll Free 1-800-547-3303**

14250 NW Science Park Dr.  
Portland OR 97229

In Oregon (503)626-2291  
fax (503)643-5379 telex 4949559 CF





# SOUND IT OUT

Hear what you've been missing! With one simple statement, GS BASIC programmers can play any digitized-sound file.

By JOE ABERNATHY

YOUR MISSIVES SAY, "LET THERE BE GRAPHICS AND sound," so tune your dial and let's round out your GS' "natural" talents. In addition to the powerful QuickDraw graphics primitives discussed in August ("Tools to Draw On," p. 78), you can add to your BASIC library an efficient and easy-to-use sound-playback capability, handy in education, special-needs, and entertainment programming.

Sound reproduction is within ready grasp of all IIgs programmers. Best of all, you don't even need to understand the technical details to use these sound-software tools. Using Micol Advanced BASIC, TML BASIC, or AC/BASIC, simply type in the accompanying **Program listings** and start listening.

If you're interested in the theory, however, sound presents one of the few occasions on which our normally friendly BASIC compilers begin to balk. Yet learning to use BASIC to program sound can help you master many lesser IIgs programming tasks.

The GS can record and reproduce multichannel sound that's similar in quality to that of expensive music synthesizers. It does so by using a special outboard logic chip, the Ensoniq, which is dedicated solely to sound tasks. For true multichannel sound, you'll also need an expansion stereo card and external speakers.

To help you access the Ensoniq's sound capabilities, Apple has provided a built-in set of software utilities, collectively called the Sound Manager tool set. In turn, your BASIC compiler provides a tool interface to make the Toolbox sound calls available to you as though they were a standard part of the BASIC language—more or less.

## ORGANIZATION PAYS

The GS can produce concert-quality sound, but achieving this magnificent effect requires an advanced music degree. So rather than fully master the GS' musical talents, we'll focus herein on a simple goal—digitized-sound playback. This procedure meets the needs of most programmers, as well as those who want to establish a foundation for

further learning. In examining this technique, we also can practice the more general skill of how to coax any program from conception to completion.

As I've emphasized repeatedly in this column, the first step in writing any program is planning. Decide what your program must do, what it should do, and what it would be nice to do. Then strike a balance weighing your goals, abilities, and time. The following

simple outline describes such a plan for sound playback:

- I. Select a file to play.
  - A. Use *Open File* dialog in desktop environment.
  - B. Request user input if in text environment.
- II. Load sound file into memory.
  - A. Reserve memory for sound.
  - B. Load file into reserved memory.
- III. Prepare for playback.
  - A. Create table of sound parameters.
  - B. Fill it with information about this sound.
- IV. Play the sound.
  - A. Start sound tools.
  - B. Begin playback.
  - C. Play until done.
  - D. Release memory.
  - E. Shut down sound tools.

The IIgs Toolbox Sound Manager contains two utilities for sound reproduction: `_FFStartSound` and `_FFSoundDoneStatus`. So our second outline lists the specific sound tool calls you'll need along with related calls and data structures:

- I. Sound Manager tool calls
  - `_FFStartSound` to start sound playback
  - `_FFSoundDoneStatus` to monitor playback progress
- II. Other tool calls
  - `_NewHandle` to get the sound into memory
- III. Related functions and DOS calls
  - `OPEN` file
  - `GET` to read file
  - `LOF` to determine file size
  - `CLOSE` file
- IV. Data structures
  - `RECORD` sound-parameter block
  - `NUMERIC VAR` playback speed
  - `MEMORY HANDLE` for sound





## Not all modems are created equal.

The right modem can change the way you use your computer. Modems allow you to step outside the limitations of your own hardware and software. But the degree to which you are benefitted by your modem is directly proportional to the quality of modem you select.

Not all modems are created equal. A new generation of 2400 baud modems, both internal and external, have appeared on the scene as of late. While Hayes AT compatibility and equivalent raw transmission speed can be expected, there are differences. Some are subtle. Others, quite significant.

### Expensive features and low cost

Applied Engineering's entry into this market, the DataLink 2400™, was designed to combine the features of expensive modems with the price of low-cost modems.

Frankly, some of the DataLink 2400's advantages are subtle. Like the ability of our firmware to intuitively accept commands in both upper and lower case, thus avoiding the nuisance of being ignored for forgetting to press the "shift" key.

Other advantages are more evident. Like the inclusion of sophisticated, genuinely useable communications software, something others offer as an expensive option.

### Hardware considerations:

While most people just plug the DataLink 2400 in and go, advanced users will find a host of sophisticated features like the ability to select firmware defaults of baud rate, data format, parity and control interrupts. Other modems require a set of obscure commands when running from firmware or don't allow you to disable interrupts.

Our DataLink 2400 has two non-volatile ROMs for pre-setting and storing different

configurations. It saves you the hassle of setting up configurations every time. We also included the ability to save phone numbers in non-volatile ROM, so you don't have to hunt for often-called numbers.

Some modems can't redirect hardware handshake lines even though most bulletin board software packages require these lines to be changeable - the DataLink 2400 can.

### The software story.

We make sure you've got the right software. We include our own.

And the software we include (*OnLine 64\** for the II+ and 64K IIe, *DataTerm* for the IIGS and IIe) comes thoroughly documented, *non-copy protected* on two 5.25" disks and one 3.5" disk, and positively loaded with features others don't have. Like VT52 terminal emulation, enabling you to address more bulletin boards and use them easier.

Our transfer protocols aren't limited to Xmodem. We include Xmodem, Ymodem, 4modem, ProDOS Xmodem and Turbo Xmodem. We also employ binary packing, squeezing and unsqueezing—techniques that divide, combine and compress files to save you time and long distance charges.

Some bulletin boards require different data formats. If you can't change formats you can't use them. Our software lets you change formats. Others don't.



### More features:

- Full Hayes AT compatibility
- Compatible with AppleLink, Point-to-Point, ASCII Express, Access II and others
- Compatible with Bell 103 and 212, European CCITT V.22 BIS, V.22 and V.21
- Two modular jacks with long cable
- Built-in capture buffer
- Adaptive equalization and descrambling
- PC Transporter compatibility
- Macro-making program
- FCC certified design
- \$200 in free memberships, discounts and on-line time to get you started
- Proudly made in the U.S.A.

Choose an AE DataLink modem for the completeness of a total communications package, the ease of use that our step-by-step instructions assure and the reliability of our name and famous five-year warranty.

**DataLink 1200\* . . . . . \$179**  
**DataLink 2400 . . . . . \$239**

### Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**  
*The Apple enhancement experts.*

A Division of AE Research Corporation.

**(214) 241-6060**

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice.

\*OnLine 64 and DataLink have most, but not all the features of DataTerm and DataLink 2400 respectively.



## ●RECORD file information

The next step is to implement your outline. Begin with the four data structures (part IV) that normally go at the top of a BASIC program. The exact form they'll take depends on your compiler.

What are data structures? IIGS Toolbox calls often require that you feed them a lot of information so that they can react properly to your particular program. They often return quite a lot of information, as well. Data structures represent a way of organizing this information into a logical grouping with which you can work easily.

The Sound Manager is no exception. Ensoniq needs to know how to reproduce your wave form. The sound-parameter table provides that information, including such data as playback speed and volume. By manipulating the sound-parameter block, you can make a soundtrack loop continuously in the background or play a succession of wave forms, for instance.

According to the *IIGS Toolbox Reference Manual*, the sound-parameter block must keep track of the following items, among others:

- waveStart: address of wave form to play
- waveSize: waveform size in pages
- freqOffset: playback rate
- docBuffer: DOC-buffer start address
- bufferSize: DOC-buffer size
- nextWavePtr: pointer to next wave's parameter block
- volSetting: DOC-volume setting

BASIC has no way to represent a hodgepodge of information such as that shown above. Standard BASIC arrays consist exclusively of mathematical or string variables. But the sound-parameter block, indeed most data structures, combine integers with memory pointers and more.

All three IIGS BASICs have a special way of feeding data structures to the tool call. Micol lets you do a pseudo POKE, while TML and AC/BASIC support a modified array that imitates a structure data type. The accompanying **Program listings** included with this column show the actual implementations for each language.

Pascal and C are rich with data structures, making the IIGS BASIC compilers pale in comparison. This one fact makes tool programming, including sound, much more difficult in BASIC than it needs to be. The compiler's publishers maintain this is because BASIC programmers don't like powerful data structures resembling those of higher languages; I've yet to meet a programmer who's of that opinion. Perhaps you should write a letter to the language publishers if you share these concerns.

Once you've taken care of data structures, you can just look over your outline to see the most straightforward way of putting together the actual source code. You'll likely want procedures to set up the environment and to let someone select a sound file to play, actually play the file, and do a clean shutdown of the environment.

In a program that implements the desktop, you'd probably get the most use out of a *play sound* option presented in a pull-down menu. Our **Program listings** implement this technique in TML and AC/BASIC.

For text-based programs or background-sound reproduction, a sub-routine such as that shown in the Micol Advanced BASIC code, **Listing 1**, is more appropriate. The subtle differences lie only in how the sound-production routines fit into your application's general structure.

After adding a sound-player utility to your software library, you may wonder how you'll obtain the sounds you'll want to play. For sound effects, which perhaps comprise the bulk of sound playback, you can ▶

## Listing 1. Micol Advanced Play.Sound source code.

```
PROGRAM PrintLib

{ ----- }
{ Show CDA Studio }
{ By Joe Abernathy BASIC }
{ (C)1989, inCider Magazine ===== }
{ Version 1.2, July 11, 1989 }
{ All Rights Reserved. }
{ Compiler: Micol Advanced BASIC }
{ ----- }

{ Sound Data structures: }

DIM FFBuff% (20)
FFBank% = 0
H_Bank% = 0
H_Address% = 0
FFAD% = 0
No_MEM! = FALSE

{ channel-generator-type word: }
ffSynthMode = 0001 { Free-form Synthesizer Mode }
noteSynthMode = 0002 { Note Synthesizer Mode }
{ END OF SOUND DATA STRUCTURES }

Done! = FALSE { init quit flag }

{ ----- }
{ PROC DoSound
This routine is based on a program
(C)1988 by Ron Lewin of Micol Systems.
Used with permission, and our thanks.
----- }

PROC DoSound [Size, SndFile$, Speed%, Vol%]
IF FILE (SndFile$) THEN BEGIN
TOOLBOX (2, 28: 0000, 0000; No_Bytes%, No_Banks%)
No_Bytes = No_Bytes%
IF No_Bytes < 0 THEN No_Bytes = No_Bytes + 65536 { Twos complement }
Total_Bytes = No_Banks% * 65536 + No_Bytes
IF Total_Bytes < Size THEN Size = Total_Bytes
LSB_BlockAdr = ADDR(LSB_Blocksize%)
MSB_BlockAdr = ADDR(MSB_Blocksize%)
LSB_Size1 = (Size MOD 65536) MOD 256
Pages = (Size MOD 65536) / 256
Banks = INT(Size / 65536)
POKE LSB_BlockAdr, LSB_Size1
POKE LSB_BlockAdr+1, Pages
POKE MSB_BlockAdr, Banks
ID% = PEEK (238) { Get User ID for using the Memory Manager }
AttribAd = ADDR(Attrib%) { Set attributes for the requested block of }
POKE AttribAd,128 { memory. }
TOOLBOX(2,9: 0000, 0000, MSB_Blocksize%, LSB_Blocksize%, ID%, ...
... Attrib%, 0000, 0000; H_Address%, H_Bank%)

IF PEEK (202) = 0 THEN BEGIN
Ttmp_Addr = H_Address% { get result returned by tool call above }
IF Ttmp_Addr < 0 THEN Ttmp_Addr = Ttmp_Addr + 65536
L_Address = (H_Bank% * 65536) + Ttmp_Addr
R_LSB = ADDR (Address%)
R_MSB = ADDR (Bank%)
POKE R_LSB, PEEK (L_Address)
POKE R_LSB + 1, PEEK (L_Address + 1)
POKE R_MSB, PEEK(L_Address + 2)
Ttmp_Addr = Address%
IF Ttmp_Addr < 0 THEN Ttmp_Addr = Ttmp_Addr + 65536 { Twos complement }
Full_Add = (Bank% * 65536) + Ttmp_Addr
BLOAD SndFile$, Full_add, Size { Load sound file into memory }
FFAD% = ADDR (FFBUFFER%())
FFBank% = PEEK (202)
FFloc = ADDR (FFBUFFER%())
FOR Buffer_Size = 0 TO 7 UNTIL 2.0 ^ (8 + Buffer_size) > Size
NEXT Buffer_size
Buffer_size = Buffer_size - 1

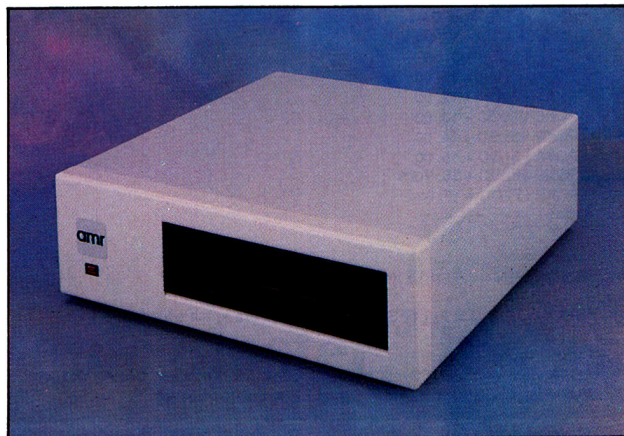
{ Consult the accompanying article for a discussion of
this wave parameter table: }

POKE FFLOC, PEEK (L_Address)
POKE FFLOC + 1, PEEK (L_Address + 1)
POKE FFLOC + 2, Bank%
POKE FFLOC + 3, 00
POKE FFLOC + 4, Pages
POKE FFLOC + 5, Banks
```

Continued



# AMERICAN MICRO RESEARCH YOUR SOURCE FOR STORAGE DEVICES



The AMR 45MB removable disk drive offers unlimited storage and is the fastest unit available with an access time of 25 milliseconds. It can be used as a primary or backup device and works with Apple IIe, IIgs and Macintosh.

AMR's *Designer Series* of external hard disk drives will enhance the performance of your Apple IIe or IIgs. We offer a complete line which includes storage capacity along with the speed and dependability to fit every users needs.




INGRAM MICRO D DP\* 112315

AMR your #1 source for the Apple II family of computers has now made available a 3½" 800K daisychainable floppy disk drive. The AS800 is completely compatible with Apple IIgs, IIc Plus and Macintosh; and with our C3 disk interface card the AS800 works as a single or daisychainable drive for Apple IIe.

For more information contact your local dealer or for a dealer  
nearest you contact:

**AMERICAN MICRO RESEARCH**  
13505 Yorba Avenue, Unit A; Chino, CA 91710  
Tel: 714/590-3900 Fax: 714/590-3643

Apple IIe, IIc Plus, IIgs and Macintosh  
are registered trademarks of Apple Computers.

 Apple Computer, Inc.  
recognizes your achievement and awards recertification to  
*American Micro Research*  
for producing quality Apple third-party products.

Congratulations!!



buy cassette tapes at any good record store, then record the sounds you need using hardware such as Sonic Blaster or FutureSound. You can also program wave forms directly—if you're feeling brave.

Also, note that you can use the central procedure producing the actual sound in a variety of fashions. If you're writing a game, for instance, the player probably won't select a sound file; he or she just needs to hear the drip of water in a dungeon or the sound of engines on the raceway. You can easily edit these sound utilities for such uses.

Before discussing language-specific features of sound, kudos are in order for several people whose help made this column much more effective. They include Applied Engineering's Phil Montoya, who wrote the software for Sonic Blaster and offered to share his insights; Absoft's Lee Rimar, Jeff Knaggs, and D.K. Keppner, who provided both source code and exceptional product support; Micol Systems' Ron Lewin, who provided insightful source code, along with a sympathetic ear; and TML Systems' newly hired Apple product manager, Vince Cooper, who let me use source code to which TML owns the copyright, and also provided ready product support.

## MICOL ADVANCED BASIC

The most interesting aspect of the Micol sound implementation (**Listing 1**) is the demonstration of how it uses PEEK and POKE commands to support tool calls. This technique, which trades familiarity for difficulty of use, will arise whenever you use the Toolbox. The good news is that Micol Systems has been listening to concerns on this subject and will include significant tool improvements in a forthcoming revision to the compiler.

You can add **Listing 1** to the *mCider* ShowFile utility, use it as a permanent entry in your library of software tools, or both. The procedure DoSound is the actual work routine you should add to your library. The procedure DoPlaySound demonstrates a more elegant way of handling user input than demonstrated previously.

Micol BASIC lacks two features important to sound playback: a way of determining a file's length and a way of reading GS/OS directory information concerning the file to be played, especially playback speed, which by default is stored in the auxiliary file-type field.

A compiler revision, which should be available as you read this, will let you open GS/OS DIRectory files and read them a line at a time, so that you can access the auxiliary file-type information. If you're anxious to work more with sound programming, implementing this capability would be your first project.

## AC/BASIC

This version of the sound player (**Listing 2**) suffers from an inability to play long wave forms. This situation arises because AC/BASIC doesn't deal well with the advanced data structures required for this type of sound handling. (In fact, that's the purpose of AC/BASIC—to shield you from such things as memory pointers.)

Theoretically, however, you could study the sound-parameter table in the manual along with this month's examples from the other languages to devise a way around this. I haven't explored it well enough to provide expert advice, but the solution is likely to require an external assembly-language subroutine. Unless your sound-playback feature must support long digitized sounds, I doubt whether the reward justifies the effort involved in this procedure.

On the other hand, a worthy enhancement would be the ability to ►

Continued

```
POKE FFLOC + 6, Speed%
POKE FFLOC + 7, 00
POKE FFLOC + 8, 00
POKE FFLOC + 9, 00
POKE FFLOC + 10, 07
POKE FFLOC + 11, 00
POKE FFLOC + 12, 00
POKE FFLOC + 13, 00
POKE FFLOC + 14, 00
POKE FFLOC + 15, 00
POKE FFLOC + 16, Vol%
POKE FFLOC + 17, 0
ENDIF

{ FFStopSound:
  PUSH genMask; bit 0-15 indicates generator(s) to stop }

  TOOLBOX (8, 15; 2) { FFStopSound: Used here to init sound tools }

{ FFStartSound:
  PUSH word genNumFFSynth (channel, generator, and type. Usually $0101)
  PUSH long pBlockPtr (ptr to ff param block created above)

  chan-gen-type word:
  15-12, DOC channel num; 11-8, gen number $0-$E;
  7-4 must equal 0; 3-0, $1 for free-form synthesizer, $2 = note synthesizer
  $0101 = DOC channel 0, generator $1, reserved val 0, ff synthesizer 1
  ... and ... $0101 (base 16) = 257 (base 10), which we use below.

  pBlockPtr:
  Note that Micol syntax requires two PUSHed parameters, FFBank% and
  FFAD%, to fulfill the one formal Toolbox pointer requirement. This is
  caused by Micol's Applesoft-like implementation of tool calls using
  word-length pseudo-PEEKs and POKEs. )

  TOOLBOX (8, 14; 257, FFBank%, FFAD%) { FFStartSound }
  REPEAT

{ FFSoundDoneStatus:
  PUSH word space, genNumber;
  PULL genDoneFlag; Boolean var, is TRUE if done playing }

  TOOLBOX (8, 20; 00, 01; Finished%) { FFSoundDoneStatus }
  UNTIL Finished% < 0 OR Continue!
  ENDIF

  TOOLBOX (2, 16; H_Bank%, H_Address%) { release memory }

ENDPROC { DoSound }
```

\* This procedure gets user input to feed to underlying  
\* sound file player, DoSound:

```
{ ..... }
{ PROC DoPlaySound }
{ Control loop for sound wave player. }
PROC DoPlaySound
HOME
GOSUB DrawLines
x$ = "< Press <RETURN> for Main Menu >"
x% = (80-LEN(x$))/2
VTAB (24)
HTAB (x%)
PRINT x$;
HTAB (1)
vtab (8)
PRINT "___ Play A Sound File ___"
VTAB (8)
INPUT "Enter Pathname -> " ; andname$
andname$ = UPPER$(andname$)
IF andname$ = "" THEN Terro! = TRUE
input "Enter Playback Speed -> " ; playrate%
IF playrate% < 10 OR playrate% > 1200 THEN Terro! = TRUE
INPUT "Enter File Size in Bytes -> " ; length
IF length = 0 THEN Terro! = TRUE
myvolume% = 255 { default -- loudest available }
IF NOT Terro! THEN BEGIN
  MUSIC (1,50,1) { Start sound tools }
  QUIET (1) { and silence them. }
  GOSUB DoSound [length, andname$, playrate%, myvolume%]
ENDIF
ENDPROC { DoPlaySound }
```

Continued



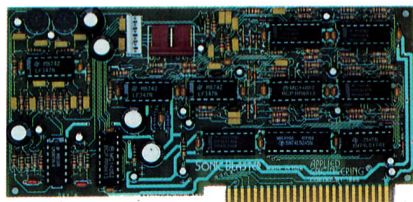


# Sonic Blaster.™ It's why they put the "S" in IIGs.

**Sonic Blaster™, the IIG'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 palette 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.

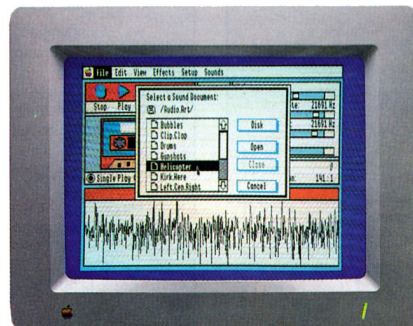
**We designed Sonic Blaster to be complete. Here's a quick tour of part of the software screen:**

### 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.



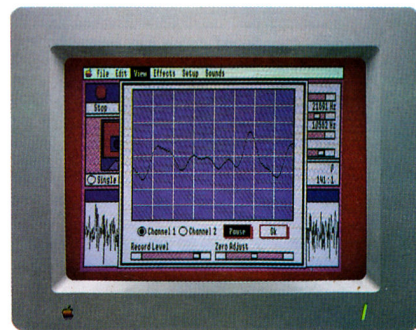
**Seventeen sound effects to get you started. Add your own collection of sounds.**

### 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.

**AE APPLIED ENGINEERING®**

*The Apple enhancement experts.*

A Division of AE Research Corporation.

**(214) 241-6060**

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice.



Continued

```
{ ----- }
{ Sub this for MainScreen procedure: }
```

```
PROC MainScreen
HOME
GOSUB DrawLines
HTAB (28)
VTAB (6)
PRINT "T -> Type a File"
HTAB (28)
PRINT "P -> Print a File"
HTAB (28)
PRINT "H -> Print File With Header"
HTAB (28)
PRINT "C -> Show Catalog"
HTAB (28)
PRINT "S -> Set GS/OS Prefix"
HTAB (28)
PRINT "I -> Environment Detail"
HTAB (28)
PRINT "D -> Play Digitized Sound"
HTAB (28)
PRINT "V -> View SHR Picture"
HTAB (28)
PRINT "Q -> Quit"
ENDPROC { MainScreen }
```

```
{ ----- }
{ Main loop }
```

```
PROC Main
```

```
' integrate Play Sound option into
' menu event interpreter:
```

```
GOSUB MainScreen
HTAB (1)
VTAB (1)
GET a$
a$ = UPPER$ (a$)
IF a$ = "Q" THEN BEGIN { Quit }
  Done! = TRUE
ELSE IF a$ = "D" THEN BEGIN { Play Sound }
  Terror! = FALSE
  REPEAT
    GOSUB DoPlaySound
    UNTIL Terror!
  Terror! = FALSE
ELSE IF a$ = "V" THEN BEGIN { SHOW PICTURE }
  Terror! = FALSE
  REPEAT
    GOSUB ShowPic
    UNTIL Terror!
  Terror! = FALSE
ELSE IF a$ = "S" THEN BEGIN { Set Prefix }
```

```
{ .... }
```

```
ENDIF
ENDPROC { Main }
```

```
{ ----- }
{ End of v1.3 revisions to ShowSrc CDA }
```

## Listing 2. AC/BASIC Play Sound source code.

```
' File: inCider.Shell Version 1.2 Revisions -- July 5, 1989
' By Joe Abernathy (Requires full inCider.Shell)
' (C)1989, inCider IIgs BASICS
' All Rights Reserved.
' Compiler: AC/BASIC for the Apple IIgs.
' Compile with "no default menus" and "no default window" options selected.

' (C)1989, inCider. Portions of this program include material copyrighted
' (C)1988, Absoft Corp. All other copyrights acknowledged. Special thanks
' to Lee Rimar, Jeff Knaggs and D.K. Keppner at Absoft.

' Version 1.2 adds ability to play digitized sound files. Also adds new
' pack, unpack procedures to replace those in the AC/BASIC manual.
```

Continued

Continued

```
' Version 1.2 additions to data structures:
DEFINT a-z
DIM ipack(31),i(43) ' Packed, unpacked instrument arrays
```

```
' Revised to add option for sound playback.
```

```
menuproc: ' Interpret menu events
menunum = MENU(0) ' Read which menu
itemnum = MENU(1) ' Read which item
IF menunum = 1 THEN ' .. FILE menu
  IF itemnum = 1 THEN ' New
    GOSUB 10
  ELSEIF itemnum = 2 THEN ' Edit
    GOSUB 20
  ELSEIF itemnum = 3 THEN ' Delete
    GOSUB 30
  ELSEIF itemnum = 4 THEN ' Print
    GOSUB 40
  ELSEIF itemnum = 5 THEN ' Type File
    GOSUB 50
  ELSEIF itemnum = 6 THEN ' Quit
    GOSUB 60
  END IF
ELSEIF menunum = 2 THEN ' GOODIES menu
  IF itemnum = 1 THEN ' Show picture
    GOSUB 70
  ELSEIF itemnum = 2 THEN ' Play a sound file
    GOSUB 80
  END IF
END IF
RETURN
```

```
' This routine added:
```

```
' Play back a digitized wave form.
```

```
80:
```

```
WINDOW 2
f$ = "null"
WHILE f$ <> ""
  f$ = FILE$(1) ' Open file dialog
  IF f$ <> "" THEN
    WAVE 0 GET,ipack ' Get the instrument array
    UNPACK ipack(),i() ' Unpack instrument bytes into integers
    i(33)=1 : i(39)=1 ' Set starting DOC address (page 1)
    i(35)=2 : i(41)=2 ' Set DOC mode to one-shot
    PACK i(),ipack() ' Pack instrument integers into bytes
    OPEN "R",1,f$,1 ' Open the disk waveform file
    length! = LOF(1) ' Get length of waveform in the file
    IF length! > 32767 THEN length! = 32767 ' max allowable size

    DIM waveform((((length!/256)+1)*256/2) ' Get space for waveform array
    ' The long calculation ensures that the array
    ' size is a multiple of 256 since the minimum
    ' DOC page size is 256 bytes.
```

```
BLOAD #1,waveform,length! ' Load the disk waveform into the array
CLOSE #1
waveform(length!/2)=0 ' Force end to waveform
WAVE 0,waveform,INT(length!/256)+1,1,ipack ' Set the instrument array,
' put waveform into DOC.
```

```
mypitch% = 0
WHILE mypitch% = 0
  INPUT "Enter playback speed: ", mypitch%
WEND
dur=70 ' Set playback duration
SOUND 0,dur,dur,mypitch%,255 ' Play the digitized sound on voice 0
PRINT
```

```
PRINT "Click mouse to continue..."
WHILE MOUSE(0) <> 0 ' Clear event queue of
  WEND ' ghost mouse clicks
WHILE MOUSE(0) = 0 ' Await real mouse click
  WEND
WAVE 0 ' Turn off voice 0
ERASE waveform ' Free memory
END IF
WEND ' Loop till cancel clicked in dialog
```

```
WINDOW CLOSE 2
```

```
MENU
RETURN
```

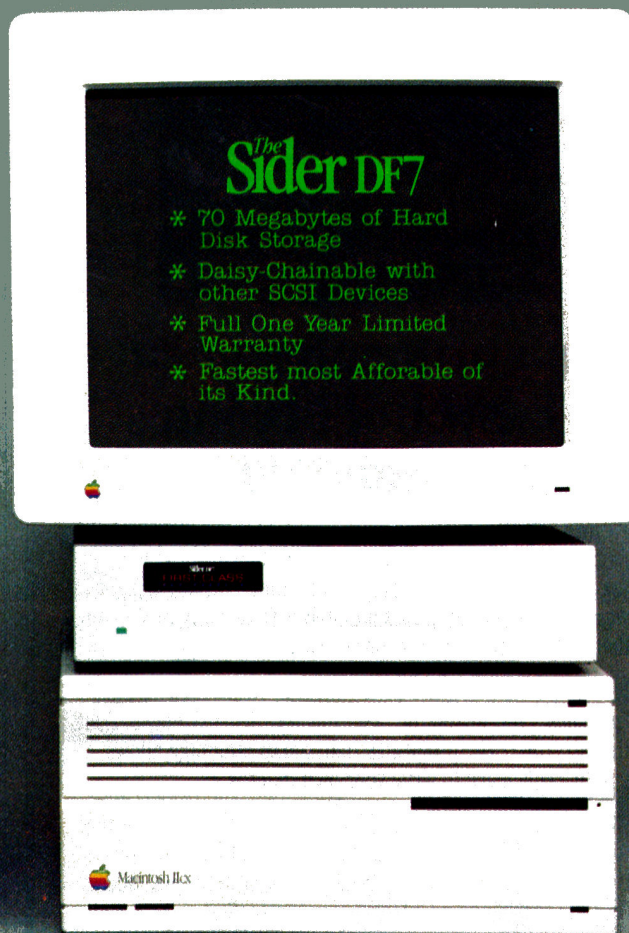
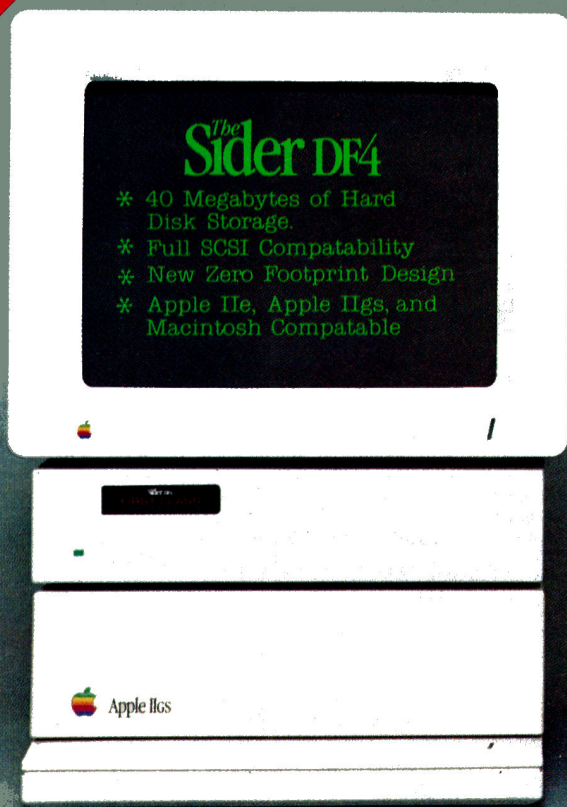
```
' Menu option added for sound playback.
```

```
SUB DoMenu ' Create menu bar
FOR p = 1 to 6 ' Eliminate screen flicker
  FOR e = 0 to 12 STEP 4 ' by whitening-out the menu bar
    PALETTE p,e+0,1,1,1 ' before building it.
```

Continued



**NEW  
FROM  
FIRST CLASS  
PERIPHERALS**



## The SIDER just got **SMALLER** and **TWELVE TIMES FASTER**

First Class Peripherals now offers you 3 new solutions to end your floppy shuffle nightmares.

Available in 20, 40, or 70 megabytes, the Sider now features a smart looking cabinet design which is lighter and more compact than ever before. Esthetically appealing the New Sider models provide more desktop space with their unique zero footprint design.

Resting comfortably beneath your GS monitor or your Macintosh, the quality look is matched by the highest quality components and the latest in hard-disk technology. The new DF-series SIDERS offer a high performance 3 1/2" drive which operates at nearly 3 times faster than other drives available. Adding our new DMA SCSI card will allow your Sider to operate at an incredible Twelve (12) times faster.

Although you may use Apple's SCSI card, your data transfer rates are improved by over 15% when using the SIDER DMA SCSI card.

The New Sider DF2 is a 20 megabyte hard-drive that will support ProDOS, Dos 3.3 CPM, Pascal and GS/OS or can be ordered to support only ProDOS & GS/OS. The New DF4 and DF7 are designed to support ProDOS and includes utilities that will automatically load GS/OS, ProSel and RAM BASED driver software that will maximize the performance of GS/OS.

If you already own a SIDER, you can achieve the same high performance ratings by simply updating your system with a new SIDER DMA SCSI card and software. All SIDER products are backed by a one year warranty, a dedicated tech-support hotline and the best upgrade and trade-in program in the industry.

Order Today! The new DF2\*, DF4 and DF7 are available for your Apple IIe, Apple IIgs, Macintosh and Laser Computers by calling (800) 982-3232, in California (408) 980-0200. 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 postage and handling.

**FIRST CLASS**  
**P E R I P H E R A L S**

2875 Northwestern Parkway, Santa Clara, CA 95051

**Call (800) 982-3232** From California and  
Canada call (408) 980-0200

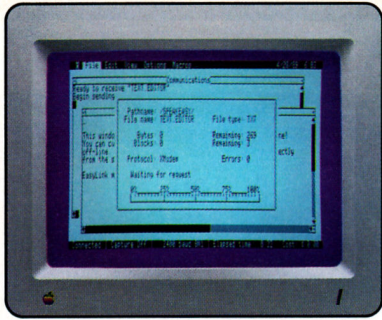
D2*	20 megabyte hard-disk subsystem-multi o/s support.....	\$549
DF2*	20 megabyte compact hard disk-prodos Only.....	\$595
M/S-DF2*	20 megabyte compact hard disk -multi o/s support.....	\$595
D4T	40 megabyte hard-disk subsystem-prodos Only.....	\$849
M/S-D4T*	40 megabyte hard disk subsystem-multi o/s support.....	\$849
DF4	40 megabyte compact hard-disk subsystem -prodos Only.....	\$895
D7T	70 megabyte hard-disk subsystem-prodos Only.....	\$949
DF7	70 MB compact hard-disk subsystem-prodos Only.....	\$995
D9	90 megabyte hard-disk subsystem-prodos Only.....	\$1395
C96	90 megabyte hard-disk & 60 megabyte tape subsystem prodos Only.....	\$1995
DMA-SCSI	DMA SCSI card for Sider hard drives.....	\$150

\*Features a 5 1/4" SASI drive and is not Macintosh compatible.

\*Actual performance may vary depending on computer type and configuration.

\*Product names are the registered trademarks of their respective holders.





## Ready? EasyLink becomes ReadyLink™

**Ready for this?** Murphy's Law strikes again. The superb new communications software we introduced as EasyLink a few months ago, has become ReadyLink™. Seems we weren't alone in liking that name. But ReadyLink *is* alone as the premiere communications software.

**Ready for a program that learns?** ReadyLink actually "watches" you log on the first time and "learns" how to do it the next time. The program's rich macro language allows you to easily learn to write your own macros.

**Ready for two windows?** ReadyLink's Mac-like interface lets you work two windows at once. Edit text while the on-line window continually updates incoming messages. Access files (or create new ones), cut, copy, paste, find or replace text; then send in perfect, edited form. Even print directly from the window - all without breaking contact with the on-line window.

**Ready for these features?** \*Hayes compatible \*Automatic protocol selection \*Mac-like desktop interface \*Automatic hardware configuration \*Automatic rate calculator \*Built-in conference mode \*Integer variables \*Complex expressions \*Conditional execution \*Subroutines \*Re-assignable keyboard commands \*132-column VT100 emulation \*Supports XModem, XModem/CRC, XModem/ProDOS, YModem (non-batch)

Compare AE's ReadyLink with any other communications software. For completeness of features, ultimately flexibility and ease of use. For beginners and bulletin board junkies alike, ReadyLink does it. **\$99**

**Order today!** To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**

*The Apple enhancement experts.*

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice.

## APPLE IIGS BASICS

Continued

```

NEXT
NEXT
MENU 1,0,1,"File"           ' Build FILE menu
MENU 1,1,1,"New"            ' and its entries ...
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"        ' Goodies menu header
MENU 2,1,1,"View Picture"    ' View SHR picture
MENU 2,2,1,"Play Sound"     ' Play a sound file
FOR p = 1 TO 6
  FOR e = 0 TO 12 STEP 4
    PALETTE p,e+0,0,0
  NEXT
NEXT
NEXT
END SUB

```

' This routine added:

' Unpack a byte-oriented waveform into integers.  
' Use this UNPACK subprogram rather than the one in the manual.

```

SUB unpack(in%(1), out%(1))
FOR count%=0 TO 21
  out%(2*count%+1)=in%(count%) AND &HFF00
NEXT
SWAP BYTES,out%
FOR count%=0 TO 21
  out%(2*count%)= in%(count%) AND &H00FF
NEXT count%
END SUB

```

' This routine added:

' Pack an integer-oriented waveform into bytes.  
' Use this PACK subprogram rather than the one in the manual.

```

SUB pack(in%(1), out%(1))
FOR count%=0 TO 21
  out%(count%)=in%(2*count%+1)
NEXT
SWAP BYTES,out%
FOR count%=0 TO 21
  out%(count%)=in%(2*count%) OR out%(count%)
NEXT
END SUB

```

' The End. (inCider.Shell v1.2 revisions)

### Listing 3. TML BASIC Play.Sound source code.

```

' File: IDG.TML.SHELL           Version 1.3 Revisions -- 7/10/89
' By Joe Abernathy              (Requires full IDG.TML.SHELL)
' (C)1989, inCider.
' All Rights Reserved.
' Compile with TML BASIC V1.10 for the Apple IIGS
'
' Change data structures to match this (stdfile array moved to DESKTOOLS,
' sound wave form array added):
'
DIM WindowTitle1$(10)          ' Stores title for a window
DIM anEventRecord1(19)         ' TaskRecord data structure
DIM aLocInfoRec1(15)           ' LocInfo record for QuickDraw
DIM ParamBlkSoundRec1(13)      ' sound wave parms (FFparms wave table)

```

' Add the Sound Manager to the list of LIBRARY commands:

```
LIBRARY "Sound"                ' Sound Manager
```

' Add a play sound option to the list of MENUDEF commands:

```

' MENUDEF 14,DoQuit            ' Quit the application
' MENUDEF 15,DoFont            ' Choose Font dialog
' MENUDEF 16,DoSound           ' ADD THIS LINE

```

' Application-specific menu items start with 17 (corresponding to  
' 267 in SetUpMenus below).

Continued



Continued

' Add goodies menu to menu startup procedure:

```
DEF PROC SetUpMenus
  PROC GoodiesMenu
  PROC StdFontMenu
  PROC StdEditMenu
  PROC StdFileMenu(1)
  PROC StdAppleMenu
  PROC DrawMenus
ENDPROC
```

' Move the old open file procedure from here into the file IDG.DESKTOOLS.  
' This makes it available to other procedures, such as DoSound below.

```
DoOpen:
  PROC DoOpenFile
  ' PROC is now in DESKTOOLS.
```

' If a valid file is selected the var "proceed%" will be set to  
' a positive value. "auxfiletype%", "filename%", and "fullpathname%"  
' also are set.

RETURN 0

' PROC DoSound -- Play a disk-based sound wave form.

```
DoSound:
  PROC DoOpenFile
  ' Standard Open File dialog.
```

```
IF proceed% <> 0 THEN
  PlaySpeed@ = 0
  OPEN FileName$, AS #10
  PlaySpeed@ = AUXID@
  Size@ = EOFMARK(10)
  CLOSE
  IF Speed@ <> 0 THEN PlaySpeed@ = Speed@
  IF PlaySpeed@ = 0 THEN PlaySpeed@ = 200
  PlaySpeed% = ((32 * PlaySpeed@) / 1645)
  CALL MaxBlock
  blockSize@ = R.STACK@ (1)
  IF Size@ > blockSize@ THEN Size@ = blockSize@
  DIM DYNAMIC mysound!(Size@)
  OPEN FileName$, AS #10, Size@
  GET #10; mysound!(0)
  CLOSE
  Pages% = (Size@ MOD 65536) / 256
  waveStart@ = VARPTR(mysound!(0))
  SET (ParamBlkSoundRec!(0)) = waveStart@
  SET (ParamBlkSoundRec!(2)) = 0
  SET (ParamBlkSoundRec!(3)) = Pages%
  SET (ParamBlkSoundRec!(5)) = Playspeed%
  SET (ParamBlkSoundRec!(7)) = 0
  SET (ParamBlkSoundRec!(9)) = 0
  SET (ParamBlkSoundRec!(10)) = 0
  SET (ParamBlkSoundRec!(12)) = 0
  SET (ParamBlkSoundRec!(13)) = 0
  SndBlkPtr@ = VARPTR(ParamBlkSoundRec!(0))
  _FFStartSound (257, SndBlkPtr@)
```

' IMPORTANT: See accompanying text to make following  
' code functional:

```
' DO
' CALL FFSoundDoneStatus%(0) ' Lets sound finish playing
' Finished% = R.STACK%(1)
' UNTIL Finished% <> 0
' ERASE mysound!
END IF
RETURN 0
```

' END of v1.3 revisions to IDG.TML.SHELL

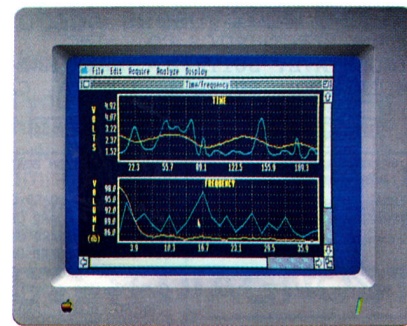
#### Listing 4. TML BASIC desk tools.

```
' File: IDG.DESKTOOLS
' (C)1988, TML Systems Inc.
' All Rights Reserved.
' Modified with permission.
' Compiler: TML BASIC V1.10 for the Apple IIGS
```

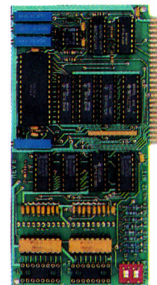
' Version 1.3 starts up the Sound Manager tools, setting aside memory  
' for them; adds a goodies menu with a "Play Sound" option; and adds  
' a library procedure for the standard "Open File" dialog box.

' Add these data structures:

Continued

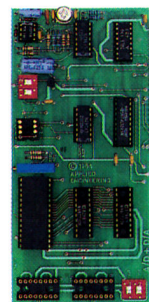
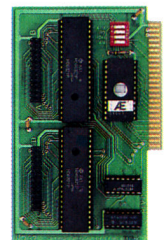


## Bring real world data to your Apple.



**12 bit, 16 channel, programmable gain A/D** Monitor flow, temperature, wind speed and direction, humidity, light intensity, pressure, RPM, soil moisture and many other conditions. Our complete 12 bit A/D converter has 16 single-ended channels, each with 9 programmable full scale ranges from  $\pm 10$  volts to  $\pm 25$  MV. Other features include very fast (.025 ms) conversion time and a user connector with +12 and -12 volts for powering your sensors. **\$279**

**I/O 32** Set up a home burglar alarm, digital joystick or directional sensor, or use with relays to turn on lights, sound buzzers, start motors, control tape recorders and printers. All 4 ports can be input or output. Inputs can vary from simple switches to high-speed logic. On-board firmware makes programming easy. **\$89**



#### 8 channel A/D & D/A

A/D specifications include fast conversion (.078 ms per channel), memory-like access, wide range of user-programmable input ranges and continuous channel sequencing.

D/A has on-board output buffer amps able to drive 5 MA, memory-like access, fast conversion (.003 ms per channel) and user-programmable output ranges of 0-5 volts and 0-10 volts. **\$199**

#### Signal conditioner

External 8 channel conditioner designed for both A/D converters and allowing almost any gain or offset. Conditioner can be powered by your A/D or from an external supply. Large bread board area. **\$79**

#### Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**  
*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.



ALLTECH ELECTRONICS CO., INC.  
1300 E. EDINGER AVE. SUITE D, SANTA ANA, CA 92705  
2018 W. LOMITA BLVD. SUITE 1, LOMITA, CA. 90717

TEL: (714) 543-5011

FAX (714) 543-0553

#### FLOPPY DRIVES FOR APPLE

II, II+, IIe, EXTERNAL FULL HEIGHT \$65.00  
IIc, LASER 128 EXTERNAL .....75.00  
IIc INTERNAL .....95.00  
LASER 128 (REFURBISHED IN BOX)....\$250.00  
LASER 128 PARALLEL PRINTER CABLE ...15.00

#### MANUALS FOR APPLE

APPLE WORKS WITH DISKS.....\$29.00  
APPLE WRITER II USERS WITH DISKS.....29.00  
PRODOS USERS WITH DISKS.....15.00

#### APPLE II, II+, IIe POWER SUPPLY

REFURBISHED .....\$35.00  
WITH EXCHANGE .....\$29.00

#### APPLE KEYBOARDS

APPLE II+, IIe, III OR MAC KEYBOARD \$65.00

#### APPLE IIc CARRYING CASE

QUANTITY LIMITED.....\$29.00

#### EXPANSION BOARDS FOR APPLE

IIgs 1MB RAM BOARD OK.....\$59.00  
IIe 1MB RAM BOARD OK.....69.00  
IIc 1MB RAM BOARD OK.....79.00  
II+ 1MB RAM BOARD OK.....89.00  
80 COLUMN CARD FOR II,II+.....69.00  
64/80 COLUMN CARD FOR IIe.....35.00  
128K/80 COLUMN CARD FOR IIe.....45.00  
CP/M Z80 CARD.....39.00  
16K RAM EXPANDER CARD FOR II+.....49.00  
SUPER SERIAL CARD.....89.00  
GRAPHIC PRINTER INTERFACE CARD.....35.00  
PRINT MAX / GRAPH MAX CARD.....45.00  
UNIDISK 5.25" CONTROLLER.....45.00  
UNIDISK 3.5" CONTROLLER.....55.00

#### APPLE MOTHER BOARDS

IIc MOTHER BOARD.....\$200.00  
IIe MOTHER BOARD.....200.00  
II+ MOTHER BOARD.....100.00  
MAC 128 MOTHER BOARD.....190.00  
MAC 512 MOTHER BOARD.....250.00

#### MEMORY CHIPS FOR APPLE

256KB RAM CHIP.....EA. \$5.50  
64KB - 15.....EA. 1.35  
64KB - 20.....EA. 0.85

ABOVE PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. REFUNDS  
SUBJECT TO 10% RESTOCKING FEE. OUR LIABILITY IS LIMITED TO  
PURCHASE PRICE. ABOVE PRICES ARE CASH AND CARRY. CREDIT CARDS,  
ADD 3%. SHIPPING, COB, AND INSURANCE CHARGES EXTRA.

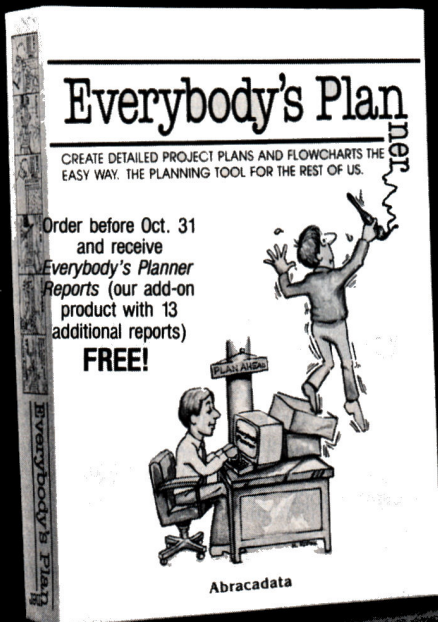
Circle 103 on Reader Service Card.

Planning all  
types of  
projects just  
got easy!

Finally!  
Project  
Management  
and  
Flowcharts  
software for  
the rest of us.

Apple II +  
IIc, IIe, IIgs  
64K. \$99.95  
IBM \$99.95

- pull-down  
menus
- mouse  
optional
- 7 reports  
included
- 13 more  
reports for  
\$39.95.



Order before Oct. 31  
and receive  
Everybody's Planner  
Reports (our add-on  
product with 13  
additional reports)

**FREE!**

Abracadata



# Abracadata

the source of plan-making software

Dept. PCM

P.O. BOX 2440  
EUGENE, OR 97402  
(503) 342-3030

## APPLE IIcs BASICS

Continued

DIM GoodMenuStr(200)  
DIM aReplyRecord(149)

' Goodies menu def string.  
' Reply record for SFGetFile

' This procedure is used to load and start up the Toolbox tool sets.  
' The Mode% parameter indicates which graphics mode to use. The value  
' should be either 320 or 640. The PrintTools% parameter indicates  
' whether the tool sets necessary for using the Print Manager should  
' be loaded or not.

DEF PROC StartUpTools(ScreenMode%,LoadPrintTools%)

' ... Add a line to StartUpTools to start the sound manager,  
' fitting in with the existing code like this:

' LIBRARY LOAD "Scrap"  
' LIBRARY LOAD "Desk"  
' LIBRARY LOAD "Sound" ' Add this line.

' Change memory manager startup:

' Start the memory manager  
AppMemoryID% = EXFN\_MMStartUp

' Allocate 7 pages of memory in bank 0 for tool set globals  
' (4 pages already allocated by TML.) (1 page = 256K bytes)  
ToolZeroPageH@ = EXFN\_NewHandle(7\*256,AppMemoryID%,-16379,0)  
ToolZeroPageP@ = VAR(ToolZeroPageH@,3)  
ToolZeroPage% = EXFN\_LoWord(ToolZeroPageP@)

' Start the printing tools if requested  
' IF LoadPrintTools% THEN  
' \_QDAuxStartUp  
' \_ListStartUp  
' \_FMStartUp(AppMemoryID%,ToolZeroPage%+1024)  
' \_PMStartUp(AppMemoryID%,ToolZeroPage%+1280)  
' \_SoundStartUp(ToolZeroPage%+1536) ' ADD THIS LINE

END PROC StartUpTools

' Tool shut down routine.

DEF PROC ShutDownTools

' GRAF OFF  
\_SoundShutDown ' ADD THIS LINE  
' IF svLoadPrintTools% THEN

END PROC ShutDownTools

' Add this procedure before the PROC StdFontMenu:

DEF PROC GoodiesMenu ' Create goodies menu  
LOCAL MenuStr\$  
MenuStr\$ =### "> Goodies \N5\0"  
MenuStr\$ = MenuStr\$ + "==Play Sound\N266\0"  
SET(GoodMenuStr(0)) = \*MenuStr\$  
\_InsertMenu(EXFN\_NewMenu(VARPTR(GoodMenuStr(1))),0)  
END PROC GoodiesMenu

' Add this procedure at the end of the file:

' Display the standard "get file" dialog box.  
' This call will display all files. To display only files of a particular  
' type, use a TypeList with the appropriate file types specified.  
' After making the call, we get the selected filename from aReplyRecord.

DEF PROC DoOpenFile  
\_SFGetFile(100,50,"Open which file:",0,0,VARPTR(aReplyRecord(0)))  
proceed% = VAR(aReplyRecord(0),2)  
IF proceed% THEN ' If NOT proceed, CANCEL was clicked.  
filetype% = VAR(aReplyRecord(2),2)  
auxfiletype% = VAR(aReplyRecord(4),2)  
FileName\$ = VAR(aReplyRecord(6),7,15)  
FullPathName\$ = VAR(aReplyRecord(32),7,127)

END IF  
END PROC DoOpenFile

END LIBRARY



read a sound file's auxiliary file type to let the program determine a sound's playback speed. To do this, open the DIRectory file containing the sound file as a random-access file. Input each line as a string, and search for lines beginning with a 0 (zero) byte, which indicates that a filename follows. Bytes 0-15 of this string will contain the name of the file; byte 16 will contain the file type; and bytes 30-31 will contain the auxiliary file type as an unsigned integer. (Don't sweat it if none of this makes sense to you. It's intended for fairly sophisticated programmers.)

#### TML BASIC

**Listings 3** and **4** show how to add a Goodies menu with sound-playback option to your TML desktop program shell. However, I discovered a bug in TML that hampers the code's effectiveness. In the procedure DoSound in **Listing 3**, you can see that the loop calling \_FFSoundDoneStatus to monitor the progress of playback is disabled. This is because \_FFSoundDoneStatus is either misspelled or missing from TML's libraries. (Because of this bug, I couldn't test the TML sound code fully, but all major features work as they should.)

As this column was going to press, TML Systems couldn't find the solution to this library problem. You should be able to call TML today, though, and get the spelling of the call the libraries use. Then you can substitute that spelling in **Listing 3** and remove the REMark characters in the DO/WHILE loop.

### PRODUCT INFORMATION

#### AC/BASIC

Absoft Corp.  
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 Systems  
8837-B Goodbys  
Executive Drive  
Jacksonville, FL 32217  
(904) 636-8592  
\$125

There are several other points of interest in the source code. In **Listing 4**, I added startup and shutdown procedures for the Sound Manager, including the allocation of direct page space using the Memory Manager. I've rewritten the *Open File* dialog and moved it from the IDG.TML.SHELL file to IDG.DESKTOOLS so that you can call it from any procedure. (The Play Sound option demonstrates this.) Also, I added the Goodies menu, showing how you can construct and use custom pull-down menus.

#### FURTHER EXPLORATION

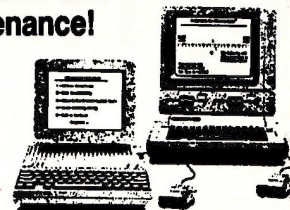
Stereo-sound playback is one attractive feature you can add easily to your sound tools. You just need to specify the channel and generator number on which a sound should be played.

To conform to Apple standards software must use channel 0 (zero) for the right-hand stereo signal and channel 1 for the left. See *Apple Developer Technical Notes 19* and *37* for more information (Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014, 408-996-1010).□

WRITE TO JOE ABERNATHY C/O INCIDER, 80 ELM ST., PETERBOROUGH, NH 03458. ENCLOSE AN SASE IF YOU'D LIKE A REPLY.

## You probably already know that Computers Need Maintenance!

But did you  
know that with  
**Intelligent Tools**  
your computer can  
maintain and  
diagnose itself?



## MASTER DIAGNOSTICS™

Master Diagnostics provides all of the tools and knowhow necessary so that *anyone* can do monthly maintenance duties. Calibrating disk drive speed, cleaning drive heads, checking track alignment or just adjusting your monitor to peak clarity is a snap.

In addition to the maintenance routines, extensive diagnostic procedures are available at the touch of a key. With our new diagnostic construction set; you can create peripheral diagnostics for any device card. Problems are diagnosed down to the chip level and tests will report: *what's right, what's wrong, what to do and how to do it.* Not just pass-fail type exams!

The user manual is easy to understand and is packed with money saving U-DO-IT information. The Drive Analyzer tests and calibration routines alone will pay for Master Diagnostics after using it just once.

### Expert Opinions

Nibble magazine says, "This program should be in the library of every Apple user". Howard Sams Tech Manual, Apple Orchard, InCider Popular Computing, and the Apple II Review have all awarded Master Diagnostics with triple AAA ratings. *Consumers Guide* chose Master Diagnostics as one of the best programs for 1985. Used by Apple service centers world-wide.

WHEN ORDERING SPECIFY:  
version: ☐ II+, ☐ IIe or ☐ IIc

Master Diagnostics - \$75.00 r.e.i

Drive Analyzer alone - \$39.95  
(included with MD)

Visa, MC, COD, School PO's

Call Free 1-800-835-2246

Apple Diagnostics  
Since 1979

**NIKROM**

Technical Products, Inc.  
176 Fort Pond Road ♦ Shirley, MA. 01464

Upgrades - return  
diskette and \$20.00

Circle 271 on Reader Service Card.

## Print Shop Users Club

Over 9000 members strong

**Special Offer:** The Membership Package contains 1250 graphics, a Graphics Index Pgm. and a copy of the Club's Newsletter on disk.

Regular Price: \$45.00 **Special Price: \$30.00**

**Color Graphics for the GS Now Available!**  
**Thousands More Original Graphics**

☐ Membership Package  
(add \$3.00 shipping)

☐ Free Brochure  
(Forty Graphic,  
Font, & Border  
Disks described)

Print Shop Users Club  
Box 3669  
Oakland, CA 94609

**For Apple II series ONLY!**  
Purchase Orders, Visa,  
MC, Checks, Accepted

Name \_\_\_\_\_

School \_\_\_\_\_

Address \_\_\_\_\_

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

**1-800-835-2246 Ext 216**

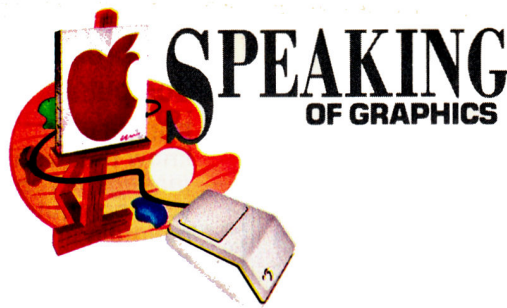
For orders only please.  
Print Shop is a registered trademark of Broderbund Software.  
Apple is a registered trademark of Apple Computer Inc.

Code  
#24

Circle 280 on Reader Service Card.

inCider October 1989 • 93





# IN THE CARDS

HyperStudio's landmark multimedia interface offers unprecedented integration—and graphics is the key to its operation.

By **ROBERTA SCHWARTZ**  
and **MICHAEL CALLERY**

GRAPHICS, IN MOST APPLE II PROGRAMS, has always been a bridesmaid, never a bride. Although it's been available from the II's beginning, graphics capability hasn't assumed an essential role in software performance.

With the arrival of **HyperStudio** (see "Hypertext for Your GS," Editors' Choice, August 1989, p. 108, and "Does HyperStudio Stack Up?" September 1989, p. 44), however, there's a new belle of the ball.

Here graphics is an integral feature, conveying much of the information and providing the primary mechanism you use to navigate through HyperStudio. We're going to take a look at how this program, which offers unprecedented integration, lets you create and use these graphics.

First, let's agree on some of the terminology. A HyperStudio data file, or *stack* (**Figure 1**), consists of individual screen-sized units called *cards*. You can place a variety of objects, including text, buttons, graphics, sounds, and video, onto each card. These objects lie on top of the card *background*, which, unless changed, is a plain, white graphics screen.

In HyperStudio, you navigate through the cards and stacks by clicking on *buttons*—rectangular areas of the screen sensitive to mouse clicks. Buttons, either transparent or custom designed, are the standard way to control HyperStudio. They let you jump to another card, make a sound, uncover information, and so on.

## THE PAINT MODULE

To enable you to create original superhi-res 640-mode graphics on your cards,

HyperStudio features a MacPaint/Paintworks Plus-like module. Standard tools include a marquee and a lasso for selection, a pencil, a brush (with a choice of 24 different shapes), and an eraser. You'll also find a line tool (with a choice of line widths), a spray can, a fill tool, a text tool, and a magnifying glass. This module also features the usual selection of geometric objects: rectangles, rounded rectangles, ovals, irregularly curved objects, and irregular polygons. Using the current line-size setting for borders, you can draw these as either empty or filled geometrics.

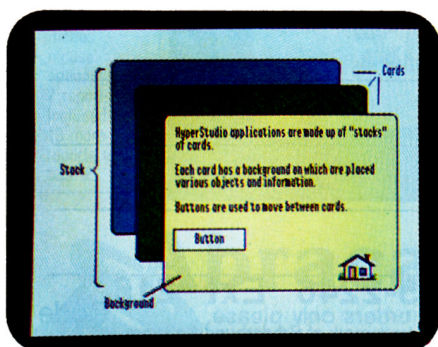
The color palette includes 16 colors and 16 dithered patterns you can't change. Because HyperStudio works in super-hi-res 640 mode, there are really only four pure colors. The extra 12 are created by dithering. (Each is a checkerboard pattern of two pure colors.) The 16 patterns, which appear as solid colors, are the result of dithering those 12 hues.

HyperStudio hides dithering; if you go into fatbits mode and count the number of pixels across the screen, you'll come up with 320, not 640. Each fatbit pixel is really two pixels very close together. This approach to 640 mode, also used in Paintworks Gold and 816/Paint, makes fatbit editing simpler. (Compare this method with that used in DeluxePaint II, in which you must cut and paste the dithered colors from the spare page to gain the "extra" colors for 640 mode.)

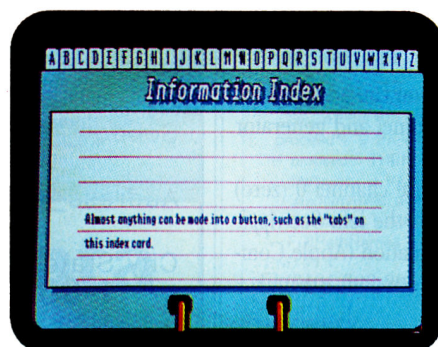
Because HyperStudio uses dithering to achieve the appearance of 16 colors, 640-mode color graphics screens look no more detailed than those in 320 mode, despite higher resolution. Note, too, that small text will look best in black or white, because these are the only truly "pure" colors in the standard 640-mode dithered palette.

## WHAT'S MISSING

HyperStudio, unlike most paint programs, doesn't offer you a palette of predefined ►



**Figure 1.** HyperStudio stack.



**Figure 2.** "Rolodex" background.



# We've Added More Than Just Our Name.

The popular *StyleWare* graphics-based programs have a new home.

First, we revised and updated them. Then we removed the copy protection. After that, we added our unmatched customer support and an unconditional guarantee.

Finally, we put our name on them.

**BeagleWrite GS** - BeagleWrite GS is the true "What You See Is What You Get" word processor. Add graphics, color and a wide variety of fonts to your documents. BeagleWrite GS makes word processing fast and fun. *Formerly MultiScribe GS.* \$99.95

**BeagleDraw** - BeagleDraw puts every graphics tool imaginable in easy to use pull-down menus. Get object-oriented drawing in a truly professional graphics environment. *Formerly TopDraw.* \$89.95

**Beagle Bros GS Desk Accessories** - These new desk accessories—for use with IIGS desktop applications—include macros, notepad, programmable calculator, alarm clock and more. *Formerly DeskWorks.* \$59.95

**Beagle Bros Font Library/Volume 1** - Get 90 new GS fonts in 40 different font families. Enjoy a wide selection of fonts with BeagleWrite GS and other IIGS programs. *Formerly StyleWare Font Library/Volume 1.* \$49.95

**Beagle Bros Clip Art/Volume 1** - These IIGS clip art graphics let you add a professional touch to letters. Includes a poster-size map of the U.S.A. *Formerly StyleWare Clip Art/Volume 1.* \$49.95

**BeagleWrite** - You'll love the Mac feeling! This is the finest graphics-based word processor you can buy for the IIe, IIc or IIc+. Pull-down menus and optional mouse control add power to "What You See Is What You Get". *Formerly MultiScribe.* \$79.95

**BeagleWrite Picture Manager** - Take graphics from all major graphics programs—including Print Shop and Newsroom—and add them to your BeagleWrite documents. BeagleWrite required. *Formerly MultiScribe Picture Manager.* \$39.95

**BeagleWrite Desk Accessories** - Add a full function scientific calculator, clock, calendar, appointment book and even macros to BeagleWrite. All these new features are integrated seamlessly. BeagleWrite required. *Formerly MultiScribe Desk Accessories.* \$39.95

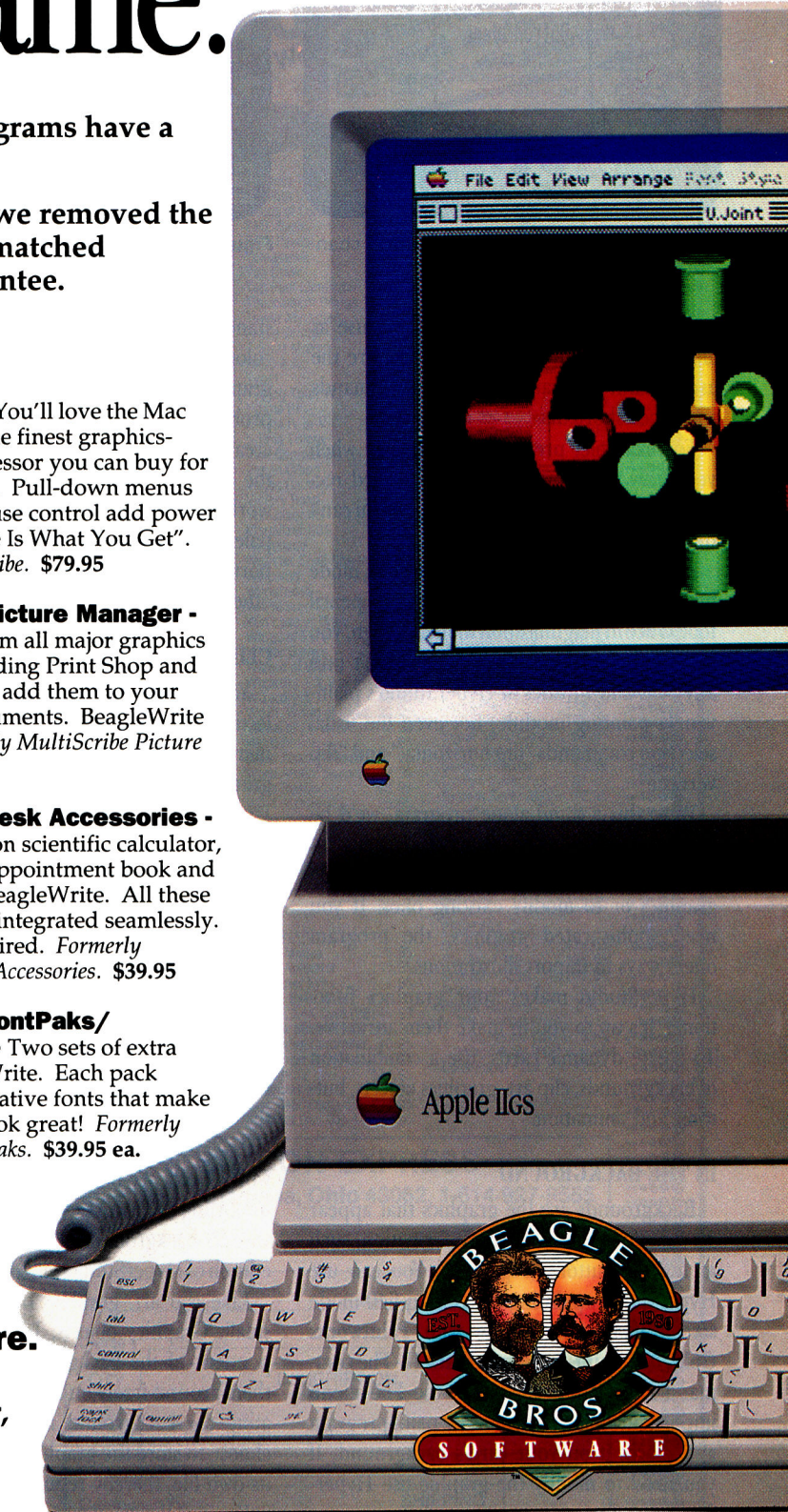
**BeagleWrite FontPaks/Volume 1 & 2** - Two sets of extra fonts for BeagleWrite. Each pack contains 40 decorative fonts that make your printouts look great! *Formerly MultiScribe FontPaks.* \$39.95 ea.

**Go to your local dealer today and buy the best name in Apple II software.**

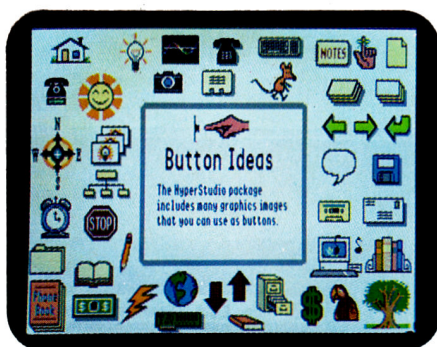
For a free catalog, call (619) 452-5500. To order, call (800) 345-1750, in California call (800) 992-4022, or fax your orders anytime to (619) 452-6374.

**Come and see us at San Francisco AppleFest Booth #306**

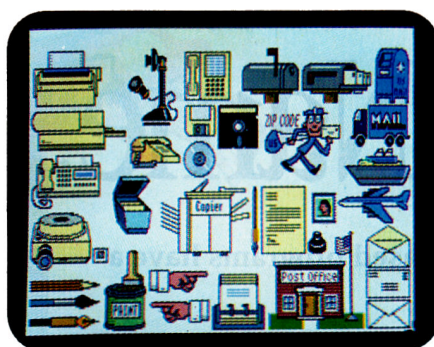
©1989 Beagle Bros, Inc., 6215 Ferris Square, Suite 100, San Diego, CA 92121 • Network, District and Site licenses available.  
Circle 179 on Reader Service Card.







**Figure 3a.** HyperStudio offers more than 250 clip-art images.



**Figure 3b.** More clip art.



**Figure 4.** Transparent button over custom-made button.

patterns (stripes, dots, and so on) to use as fills or as line patterns. Missing, too, are the usual paint-program keyboard commands and other shortcuts.

For example, pressing the shift key when you draw a rectangle, oval, or rounded rectangle doesn't constrain the object, so you can't draw a perfect shape.

Also, you can't get into magnification mode by open-apple clicking when using the pencil tool. Once in magnification mode, though, you can use only the pencil tool. You won't find any bells and whistles in HyperStudio's plain-vanilla painting module, not even the usual selection commands "flip horizontal" and "flip vertical."

Were this a stand-alone program, we'd be hard-pressed to recommend it. But it's intended only to give you tools to create simple graphics or to modify existing ones. If you need sophisticated graphics, the program offers ways to import illustrations.

HyperStudio makes your graphics functional; it's up to you to make them attractive. To create dynamic cards, use a combination of backgrounds, clip art, graphics objects, buttons, and animation.

## IN THE BACKGROUND

Backgrounds are the graphics that appear on the card behind specific information, such as text or buttons (Figure 2). You can use HyperStudio's painting tools or any 640-mode screen image you create with **Paintworks Gold**, **816/Paint**, or **DeluxePaint II**. The command *Load Background* from the File menu imports an image from another paint program and places it on your card's background. If you need to modify the graphic use HyperStudio's paint tools.

You can load a 320-mode picture, but HyperStudio will convert it to the program's

standard 640-mode palette. Unless you like colorful surprises, you'll want to create all your graphics in 640 mode. Note that we found a problem loading even 640-mode backgrounds created in **Paintworks Gold**. Instead of loading the palette, HyperStudio converts the **Paintworks Gold** image to the standard 640-mode palette. We had no problem with images imported from **816/Paint**, **Graphic Studio**, or other paint programs.

## CLIP ART AND GRAPHICS

You can import pieces of a graphic by selecting *Add Clip Art*, which is also in the File menu. When you choose this option, the program prompts you to open a graphic. HyperStudio offers more than 250 clip-art images. (See Figure 3.) Once open, the picture appears in its own window with scroll bars. You can scroll around the image and use either a lasso or the marquee tool to select a piece of the picture. Pressing the OK icon returns you to your card with the clipped image selected.

Be aware that if the clip-art image has a custom palette, HyperStudio will transform the entire card's palette to match your clip art's—except with art brought in from **Paintworks Gold**. We had the same color problems importing **Paintworks Gold** clip art as we had with its backgrounds. We're hoping a future edition of HyperStudio will solve this problem.

Like clip art, graphics objects are usually small. Graphics objects, however, are independent of the background; you can move them around freely on screen without obliterating the background image. You can also choose to store the graphic, unlike clip art, in its own file, thereby reducing your stack.

You can change the graphic without having to change the HyperStudio stack, too. Thus, if you had a card with digitized pictures of

your employees, you could add Jake's picture to the card or update his picture to show his new beard by revising the graphic. Because HyperStudio knows the graphic by name, the program loads the new image automatically without your renaming it.

This feature is also useful on a network, where you can store graphics in a central file server, saving disk space on your machine by eliminating the need for multiple copies of graphics. An added bonus is that once you've positioned your object, HyperStudio lets you select a border to place around it.

## BUTTONS

Buttons may be visible or transparent. Using transparent buttons, you can make something happen by clicking on a portion of your graphic. If you don't like the buttons HyperStudio offers, use some of the supplied clip art, or design your own button and place a transparent one on top of it. (See Figure 4.)

As you use buttons to get around in your stacks, you can trigger interesting graphics effects; HyperStudio offers 12 transitions, wipes, and dissolves when you link one card to another. Be creative! Use these features to produce such exciting effects as book pages turning, objects dissolving, and so on.

## ANIMATION AND VIDEO

HyperStudio can do more than import a static image; it can also import a **Paintworks**-type animation. Unlike background pictures and clip art, animation is linked to buttons.

When you choose to tie a button to animation, HyperStudio prompts you for the name of an animation file. After loading the file, you can size the animation window and position it anywhere on screen. When you're browsing through the stack, simply click on the appropriate button to see the animation. ►



**SILICON  
EXPRESS  
DISKS**  
SS/DD 4.95  
DS/DD 5.95

**VERBATIM  
OR MAXELL**  
SS/DD 9.95  
DS/DD 10.95

**DISK  
STORAGE**  
7.95

**DISK  
NOTCHER**  
3.95

**SILICON  
EXPRESS**

**YOUR TOLL FREE ACCESS  
CALL...FOR THE  
BEST PRICES...BEST DELIVERY**  
**1-800-999-6868**  
We have hundreds of other  
programs in stock at  
Fantastic savings.

ACT (Harcourt)	29.95	Dinosaurs	27.95
Adv. Flight Trainer	25.95	Dinosaur Days	27.95
Adventure Const.	9.95	Dive Bomber	13.95
Airheart	9.95	Draw Plus IGS	45.95
Algeblaster	27.95	Dungeon Master	26.95
Aliens	9.95	Early Games	21.95
Alphabet Zoo	18.95	Easy As ABC	23.95
Ancient Art of War	29.95	Easy Drive	55.95
Animate	41.95	Easy Link	80.95
Appletworks	186.95	816 Paint	49.95
Appletworks IIGS	214.95	Essential Data Dup 4	19.95
ASC II Express	69.95	F-15 Strike Eagle	24.95
Assembly Lines Bk	13.95	Factory	26.95
Aussie's Poker	27.95	Facemaker	32.95
Auto Duel	24.95	Family Feud	9.95
Award Maker Plus	23.95	Family Roots	169.95
Bag of Tricks #2	29.95	Fantavision	29.95
Balance of Power	28.49	Fantavision GS	36.95
Balance of Power 1990	32.95	First Letters & Words	34.95
Bank Street Filer	48.95	Fish Scales	23.95
Bank Street Mailer	17.95	Flight Sim II	31.95
Bank St. Writer Plus	46.95	Font Library	27.95
Bard's Tale	28.95	Fract & Inches	31.95
Bard's Tale II or III	31.95	Fractation Factory	17.95
Battle Chess	34.95	Fractation Fever	7.95
Beagle Compiler	45.49	Fractation Fuel-Up	23.95
Beagle Graphics	35.95	Game Show	27.95
Bnth. Apple Pro DOS	12.95	Gato	10.95
Beyond Zork	10.95	Geantlet	24.95
Blackjack Academy	27.95	Geometry	49.95
Blazing Paddles	24.95	GEOS	49.95
Body Transparent	29.95	GEO CALC	48.95
Bop & Wrestle	18.95	GEO File	48.95
Bubble Bobble	24.95	GEO Publish	64.95
Bubble Ghost	21.95	Gertrude's Secrets	25.49
Bus. works Bundle	298.95	Ghostbusters	9.95
Bus. works Payroll	138.95	Grade Buster	64.95
Cad Apple	69.95	Grammar Gremlins	27.95
Calendar Crafter	62.95	Grammar Examiner	30.95
California Games	23.95	Graphic Exchange	34.95
Car Builder	29.95	Graphics Expander	23.95
Carmen Sandiego Europe	28.95	Graphics Magician	25.95
Carmen Sandiego USA	27.95	Guitar Wizard	20.95
Carmen Sandiego World	24.95	Hardball	9.95
Certificate Maker	23.95	Hitchhiker's Guide	9.95
Library Vol. 1	19.95	Hobbit	24.95
Chshp. Basketball	9.95	Home Video Pro	41.95
Chshp. Football	10.95	Hunt For Red Oct.	27.95
Chshp. Lode Runner	21.95	Ikari Warrior	22.49
Chshp. Wrestling	13.95	Incredible Lab	31.95
Charley Brown ABC	20.95	Infiltrator	19.95
Charley Brown 123	20.95	Jeopardy I or II	9.95
Chart'n Graph Tlbox	27.95	Jet	25.95
Chessmaster 2100	31.95	Jigsaw	27.95
Children's Publishing	39.95	Karateka	9.95
Choplifter	6.95	Kid Writer	25.95
Classmates	27.95	Kids on Keys	17.95
Clip Art Vol. 1, 2 or 3	13.95	Kinder Comp	26.95
Color Me	27.95	Kings Quest (Each)	30.95
Command	9.95	Labels Labels	37.95
Compuserve Starter	21.95	Last Ninja	24.95
Concentration	9.95	Leather Goddess	9.95
Conflict in Vietnam	14.95	Legacy of Ancients	25.95
Copy II +	20.95	Leisure Larry I	24.95
Create a Calendar	19.49	Leisure Larry II	30.95
Create w/Garfield	20.95	Locksmith	38.49
Create w/Gar. Del.	27.95	Lode Runner	6.95
Crossword Magic	31.49	Magical Spells	24.95
Database Toolbox	27.95	Magnacharta	41.95
Dazzle Draw	33.95	Man. Your Money	94.95
DB Master	159.95	Maniac Mansion	22.95
Deathlord	10.95	Marble Madness	10.95
Death Sword	20.95	Master Type	23.95
Defender of the Crown	30.95	Math & Me	22.95
Deluxe Paint IIGS	64.95	Math Blaster +	27.95
Deluxe Write IIGS	55.95	Math Blaster Mystery	41.95
Designasaurus	23.95	Math Maze	27.95
Design Your Home	52.95	Math Rabbit	23.95
Design Your Interior	52.95	Mavis Beacon	28.95
Design Your Landscape	52.95	Mean 18	29.95
Design Your Train	39.95	Megaworks	49.95
Desk Accessories	27.95	Memory Castle	31.95
Desk Works	41.95	Merlin	44.95
Destroyer	13.95	Merlin 8/16	88.95
		Merlin Pro	69.95

Spellicopter	24.95	Timeout Thesaurus	30.95
Spell It	27.95	Timeout Ultramacros	34.95
Springboard Publisher	79.95	Times of Lore	27.95
Fonts	20.95	TML Basic	84.95
Star Fleet I	33.95	TML Pascal	84.95
Star Trek	24.95	Tomahawk	24.95
Sticky Bear ABC	23.95	Top Draw	62.95
Basic	29.95	Top Fuel Eliminator	20.95
Basket Bounce	23.95	Tournament Bridge	34.95
BOP	23.95	Tower Myrarglen	31.95
Drawing	29.95	Triple-Dump	24.49
Math 1 or 2	23.95	T-Shirt Maker	9.95
Music	29.95	2400 A.D.	20.95
Numbers	23.95	Type!	18.95
Opposites	23.95	Typing Tutor IV	27.95
Parts of Speech	29.95	Ultima III	23.95
Printer	29.95	Ultima IV or V	35.95
Reading	23.95	Ultima Trilogy	39.95
Rd. Comprehension	29.95	VCR Companion	31.95
Shapes	23.95	Vegas Craps	27.95
Spellgrabber	29.95	Vegas Gambler	27.95
Talking Alphabet	29.95	Victory Road	24.95
Town Builder	29.95	Visualizer IIE	54.95
Typing	29.95	Visualizer IIGS	59.95
Word Problems	29.95	Wasteland	31.95
Street Sport Baseball	13.95	Webster Spell Chker.	37.49
St. Sport Basketball	13.95	Welcome	63.95
St. Sport Football	13.95	Wilderness	20.95
Street Sport Soccer	13.95	Will Maker	35.95
Strike Fleet	24.49	Win Lose or Draw	9.95
Sub Battle	13.95	Wings of Fury	21.49
Sum. Games I, II	13.95	Winter Games	13.95
Super Huey	9.95	Wizard of Words	27.95
Sword of Sodan	34.95	Wizardry 1, 2, 3 or 5	30.95
Take 1 Deluxe	36.95	Wizardry 4	38.95
Teddy Barrel of Fun	27.95	Wdrfl. World of Paws	29.95
Term Paper Writer	33.95	Wheel of Fortune I or II	9.95
Terrapin Logo +	79.95	Word Attack +	27.95
Test Drive	30.95	Word Attack French	27.95
Test Drive II	22.95	Word Attack Spanish	27.95
The Games Summer	34.95	Word Bench	98.95
The Games Winter	34.95	Word Master	25.95
Thexder	22.49	Word Perfect	94.95
Think Quick	29.95	Word Perfect GS	94.95
Thinkworks	49.95	World Games	13.95
Thunder Chopper	20.95	Writer Rabbit	29.95
Tic Tac Show	27.95	Writer's Choice	64.95
Timeout Desktools I	30.95	Zany Golf	27.95
Timeout Desktools II	30.95	Zork Trilogy	34.95
Timeout Filemaster	30.95		
Timeout Graph	51.95		
Timeout Macrotools I	16.95		
Timeout Macrotools II	16.95		
Timeout Powerpack	30.95		
Timeout Report Writer	49.95		
Timeout Quickspell	42.49		
Timeout Sidespread	30.95		
Timeout Spreadtools	39.95		
Timeout Superfont	42.49		
Timeout Telecomm	39.95		

Fingerprint GSI	89.95
Fingerprint Plus	99.95
Flight Stick	43.95
Geo Mouse	34.95
Grappler Plus	69.95
Grappler Pro	79.95
Grappler (serial)	60.95
Grappler C Mac IIGS	84.95
GS-Ram 256K	179.95
GS-Ram 512K	295.95
GS-Ram 1 MEG	524.95
GS-Ram 1 1/2 MEG	754.95
Hotlink	48.95
Juice Box	31.95
Koala Pad +	79.95
Kraft 2 Button	22.95
Kraft 3 Button	29.95
Laser 128 EX	439.95
Laser Disk Drive	88.95
Laser 800 K Drive	184.95
Laser Mouse	51.95
Mach III Joystick	34.95
Mach IV Joystick	62.95
Mirage	37.95
No Slot Clock	39.95
Parallel Printer Card	49.95
PC Transporter 640K	556.95
Power Supply IIE	64.95
Print-It	122.95
Ram Factor 256K	249.95
Ram Factor 512K	359.95
Ram Factor 1 MEG	589.95
Ramworks 64K	194.95
Ramworks 256K	204.95
Ramworks 512K	319.95
Ramworks 1 MEG	548.95
Ram Keeper	139.95
Rocket Chip	169.95
Serial Pro	114.95
Sonic Blaster	105.95
Super Serial Card	64.95
Super Sonic	54.95
Surge Protector	13.95
System Saver Fan	61.95
System Saver IIGS	72.95
Thunderscan	169.95
Timemaster H.O.	78.95
Transwarp	162.95
Transwarp GS	289.95
Uni Drive American	149.95
Univ. Disk Controller	79.95
Zip Chip	159.95

## SILICON EXPRESS

50 E. Mill, Pataskala, Ohio 43062, 1-614-927-9555

Name \_\_\_\_\_

Address \_\_\_\_\_

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

Charge # \_\_\_\_\_ Exp. Date \_\_\_\_\_

QTY.	DESCRIPTION	PRICE

Computer Type \_\_\_\_\_ SHIPPING \_\_\_\_\_

Phone No. \_\_\_\_\_ TOTAL \_\_\_\_\_

Add \$3.95 min. U.S. shipping. C.O.D. \$5 extra. Hawaii and Alaska \$7.00 min. Orders outside U.S. are not insured. Canada & Mexico 10% min. \$10.00. All other countries 30% min. \$30.00 MasterCard, Visa and school purchase orders accepted. Personal checks allow 3 weeks. 6% sales tax for Ohio residents. Defective replaced within 20 days. Compatibility not guaranteed. Prices subject to change without notice.



## 1-800-221-4892

PA HOTLINE 215-524-9760

### RIBBON SPECIALS

APPLE IW I & II	2.36
APPLE IW I & II (ECHO DATA BRAND)	3.00
APPLE IW II 4-COLOR	6.65
APPLE IW LQ	11.36
APPLE IW LQ 4-COLOR	15.90
EPSON LQ500/800/850	3.31
EPSON LQ1000/1050	3.68
EPSON LX80/86/90/HOMEWRITER 10	2.09
EPSON MX.FX.RX 80/85	2.42
EPSON MX.FX.RX 100/185/286	3.23
OKIDATA 120/182/192	3.40
OKIDATA 82/83/92/93	1.50
PAN.KX-P 1080/1090/1091/1092	3.24
PAN.1080/1090 WITH INKING BUTTON	4.20
PAN.KX-P 1181/1191	3.83
PAN.KX-P 1124	4.93
STAR NX1000	3.23
STAR NX1000 4-COLOR	7.95

"WE WILL BEAT ANY ADVERTISED PRICE IN THIS ISSUE FOR RIBBONS LISTED ABOVE"

\*SUBJECT TO VERIFICATION • RIBBONS ABOVE ARE BLACK UNLESS NOTED •  
\*9 DIFFERENT COLORS AVAILABLE FOR MOST RIBBON TYPES, CALL FOR PRICING •

RIBBONS ARE SOLD IN QUANTITIES OF 6/PACK

### DISK SPECIALS

5.25" DS/DD (10/BX W/LABELS & SLEEVES)*	25¢EA
3.5" DS/DD (50/BX)	65¢EA

\*SUPPLIES ARE LIMITED • 5.25" DISKS ARE SOLD IN QUANTITIES OF 100 DISKS •

### ACCESSORY SPECIALS\*

NETWORK™ SURGE/RFI	8.95	6-OUTLET SURGE	9.95
NETWORK™ AB,ABC,ABAB-STARTING AT	14.95		
SUP-R-LIFE™ IMAGEWRITER DEDICATED RE-INKER	34.95		

\*SUPPLIES ARE LIMITED •

### MAKE YOUR OWN T-SHIRTS

#### T-SHIRT RIBBONS

APPLE IW I & II SINGLE COLOR	5.63
APPLE IW II 4-COLOR	10.29
EPSON LQ500/510/800/850/MX80	5.63

\*4 COLORS: RED, BLUE, YELLOW, & BLACK • OTHER MODELS AVAILABLE •

#### T-SHIRT PAPER

PRINT 'N WEAR (FOR NON-LASER PRINTERS) 10 SHEETS/PK.	8.95
------------------------------------------------------	------

#### T-SHIRT PENS

BROAD TIP MARKER SETS (FOR FILLING IN)	13.00
FINE LINE MARKER SETS (FOR ENHANCING)	11.00

\*SETS INCLUDE 5 COLOR MARKERS: RED, BLUE, GREEN, ORANGE, & YELLOW •

### GREETING CARDS

#### BRIGHT PAPER & PRINT SHOP ENVELOPES

PAPER (100 SHEETS/PK-CHOICE OF 7 COLORS)	4.95
RAINBOW BRIGHT PACK (600 SHEETS/PK)	27.00
PRINT SHOP SIZE ENVELOPES (50/PK)	4.50

\*COLORS: RED, BLUE, GREEN, YELLOW, GOLD, HOT PINK, & WHITE •

\*RAINBOW BRIGHT PACK INCLUDES 100 OF EACH COLOR EXCEPT WHITE •

#### PASTEL PAPER & PRINT SHOP ENVELOPES

PAPER (100 SHEETS/PK-CHOICE OF 6 COLORS)	4.45
RAINBOW PASTEL PACK (600 SHEETS/PK)	24.00
PRINT SHOP SIZE ENVELOPES (50/PK)	4.50

\*COLORS: PINK, BABY BLUE, LT. GREEN, CANARY, IVORY, & LILAC •

\*RAINBOW PASTEL PACK INCLUDES 100 OF EACH COLOR •

### BANNERS

#### BANNER PAPER & MAILING/STORAGE TUBES

PAPER (45 FT. ROLL-PIN FEED W/O CROSS PERFS)	8.95
BANNER TUBES (CLEAR PLASTIC-5/PK)	4.95

\*COLORS: PINK, BABY BLUE, LT. GREEN, CANARY, GOLD, GREEN BAR, & WHITE •

\*DESIGNS: CHRISTMAS, HALLOWEEN, PARTY, CONGRATULATIONS, & BIRTHDAY •

### CERTIFICATES/RESUMES

#### PARCHMENT PAPER & ENVELOPES

PAPER (100 SHEETS/PK-CHOICE OF 4 COLORS)	8.95
PRINT SHOP SIZE ENVELOPES (50/PK)	4.95
#10 BUSINESS SIZE ENVELOPES (50/PK)	7.95
CERTIFICATE SIZE ENVELOPES (25/PK)	7.95

\*COLORS: IVORY, GREY, TAN, & GOLD •

### Misc. ACCESSORIES

3.5" OR 5.25" DISK DRIVE CLEANING KITS	2.99
ANTI-STAT LINT FREE WIPES 50/PK	4.62
CRT CLEANER (8 OZ.)	6.30
DUST OFF SPRAY	4.80
CABLES - IIGS, IIE, IIC STARTING AT	8.00
CONTINUOUS DISK LABELS (100/PK) 5.25" OR 3.5"	3.99
CONTINUOUS COMPUTER PAPER (1000 SHEETS/CTN)*	9.99
DISK NOTCHER (5.25")	4.20
MOUSE PAD - BLUE OR GREY (9"X 8")	4.20
PRINT HEAD CLEANING KITS	7.77

\*CALL FOR SHIPPING & HANDLING CHARGE ON THIS ITEM

S & H • UPS GROUND-\$4/ORDER • US MAIL-\$6/ORDER • OTHERS CALL •  
TERMS • MASTERCARD, VISA, (AMEX ADD 5%) •

RIBBONLAND • PO Box 506 • EXTON • PA • 19341

## PRODUCT INFORMATION

### Apple II Video Overlay Card

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

### DeluxePaint II

Electronic Arts  
1820 Gateway Drive  
San Mateo, CA 94404  
(415) 572-2787  
(800) 245-2526  
\$99

### 816/Paint

Baudville  
53820 52nd Street S.E.  
Grand Rapids, MI 49512  
(616) 698-0888  
\$75

### Graphic Studio

Accolade Inc.  
550 South Winchester  
Suite 200  
San Jose, CA 95128  
(408) 296-8400  
(408) 985-1700  
\$49.95

### HyperStudio

Roger Wagner Publishing  
1050 Pioneer Way  
Suite P  
El Cajon, CA 92020  
(619) 442-0524  
\$129.95  
\$65/system site license  
\$35/system  
software-only site license

### The New Print Shop

Broderbund Software  
17 Paul Drive  
San Rafael, CA 94903-2101  
(415) 492-3200  
(415) 492-3500  
technical support  
\$49.95

Paintworks Plus, \$79.95

Paintworks Gold, \$99.95,

\$40 upgrade

Mediagenic

3885 Bohannon Drive

Menlo Park, CA 94025

(415) 329-0800

If you choose *Add a Card Video*, you can attach a video image or sequence from a videodisc player to a specific card. You'll get a rectangle you can drag and resize. If you have the **Apple II Video Overlay Card**, this rectangle represents the area where you'll display the video image on screen.

After you click outside the rectangle, a dialog box appears; its function is similar to that of a videodisc player's remote-control unit. Using these controls, you specify the particular frame or video sequence you want to display whenever that card appears. Currently, you can't attach video images to a button, but if you have a Pioneer 1200 videodisc player (or compatible) you can attach a video to a card.

At this writing, HyperStudio is incomplete, but the graphics features are mostly in place. Although lacking a scripting—or programming—language (HyperTalk is the scripting language for HyperCard on the Macintosh), HyperStudio has the potential to unleash your creativity—even if you've never thought about "doing graphics." If you're working with HyperStudio, you *are* "doing graphics."

## UPDATES AND UPGRADES

This is a big one! Broderbund has announced **The New Print Shop** for the Apple IIc, IIc Plus, IIe, and GS. This major product

upgrade fixes one of our biggest gripes about **The Print Shop**. Now you no longer have to redo every option to change only one. Instead, you can "backtrack" without repeating all your steps. Bravo!

Graphics support is also much stronger. For example, each graphic is available in two sizes with multiple colors, a single New Print Shop page can hold up to 26 graphics, and placement is much more flexible. Brand-new features include an integrated calendar maker (formerly part of **The Print Shop Companion**) and poster (up to 9 feet tall by 6½ feet wide) capabilities.

Although we haven't seen the product, we're confident of Broderbund's track record and are sure you'll want to check it out. The upgrade is only \$20; if you purchased **The Print Shop** after May 25, 1989, the upgrade is free. For additional information, call **The New Print Shop Hotline** at (800) 999-3256. □

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. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.



**CALL FOR A FREE  
120 PAGE CATALOG**

**EDUCATIONAL**

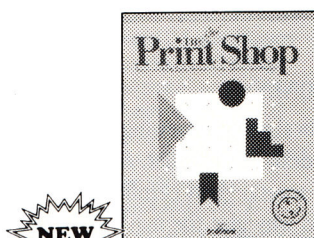
**YOUR SINGLE SOURCE SUPPLIER FOR COMPUTER SOFTWARE • DISKETTES • ACCESSORIES**

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

**RESOURCES**

**IN ILLINOIS CALL  
312-884-7040**

**SAVE  
UP TO  
50%  
EVERYDAY**

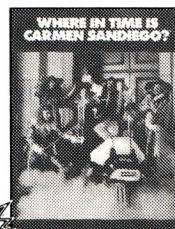


**NEW**

**Your Cost**  
**\$2895\* \$3595**  
APL IBM/IIGs

School & Business/Sampler/Party Edition \$23.00 ea. School versions add \$7.99.

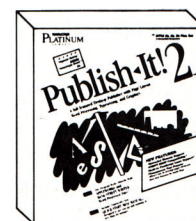
\* Coming soon! Please order on a separate purchase order.



**NEW**

**Your Cost**  
**\$2495\*** APL/IBM  
IIGs Compatible

School Version \$31.95



**2.0  
Version**

**Your Cost**  
**\$6395**  
APL  
IIGs Compatible

- 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 ALWAYS AVAILABLE

**PROJECT YOUR BEST IDEAS WITH THIS PRESENTATION PACKAGE!**

**Infocus 400AVS** **\$669<sup>00</sup>**  
PC Viewer

- Higher resolution! 640 x 400
- Sturdy Metal School Case
- APL/IBM/MAC compatible\*
- High heat resistant supertwist LCD

\*Mac+ & SE require AVS20.

**Your Cost \$99<sup>95</sup>**



**\$249<sup>95</sup>** **Dukane PORTABLE**  
Overhead Projector  
Model  
28A641

- Weighs only 17 lbs.
- Designed to move easily from one place to another!
- Comes with carrying case!

**NEW**

**LOWEST RIBBON & ACCESSORY PRICES**



(Quantities of 6)

Imagewriter I & II\* ..... **\$2.50**  
Imagewriter II 4 Color Ribbons..... **5.75**  
Imagewriter II 4 Color Heat Trans..... **13.95**  
Panasonic KX-P 1090,1091,1092\* ..... **3.25**  
Epson MX/FX/RX 70,80\* ..... **2.50**

\* Available in Most Colors: Red, Green, Blue, Purple & Yellow - Add \$1.00 Each.

Epson LX 80/90\* ..... **\$2.50**  
Epson MX 100..... **4.00**  
IBM Pro Printer..... **3.50**  
Okidata 182/192/193\* ..... **2.99**

**Call If You Don't See It!**

**DISKETTES/PAPER**

Diskettes-5 1/4", DS/DD (Multiples of 50) ... **\$.35**  
Diskettes-3 1/2", DS/DD (Multiples of 10) ... **1.19**  
Color Diskettes (10 Pk., Asst.) 5-1/4" **6.95**  
Color Diskettes (10 Pk., Asst.) 3-1/2" **14.50**  
Color Paper, Asst., 250 Sheets..... **10.95**

**ACCESSORIES**

Computer Eyes, B/W Ite/Illc.. **\$102.95** System Saver IIGs ..... **\$75.95**  
Computer Eyes, Color, IIGs.. **204.95** Disk Notcher ..... **3.95**  
Thunderscan..... **189.95** 80 Col. Printer Stand.... **19.95**  
Kraft KC3 Joystick..... **19.95** Diskette Storage 60 ..... **9.95**  
Surge Protector (6 Outlet - 6' Cord)... **19.95** Mouse Pads..... **4.95**



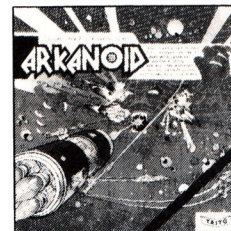
**Your Cost**  
**\$2795**  
IIGs



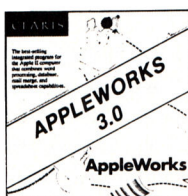
**Your Cost**  
**\$995**  
APL



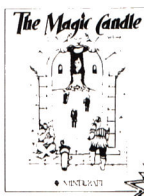
**Your Cost**  
**\$3295** **NEW**  
APL/IIGs compatible



**Your Cost**  
**\$895 \$2295**  
APL/IBM IIGs  
Arkanoid II \$22.95 IIGs/IBM



**Your Cost**  
**\$17495 \$19495**  
APL 128K IIGs 1.25 mb



**Your Cost**  
**\$2895**  
APL/IBM

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



2360 HASSELL ROAD  
HOFFMAN ESTATES, IL 60195

Prices effective Sept.-Oct.  
Checks and School P.O.'s welcome.  
\$50 minimum on charge cards.  
Free shipping over \$300.00 (Continental U.S. only).  
Add 5% shipping with a \$3.00 minimum.  
Canada add 10% with a \$5.00 minimum.  
Call now for the new free video catalog!

**CALL  
FOR A FREE  
120 PAGE  
CATALOG**



# REVIEWS

Continued from p. 41

move through the document.

If you decide you don't like what you see, erase any text or graphics element by selecting *Erase* from the Tool menu. Here you'll find six eraser sizes. Press the spacebar to scroll through the list, then decide on the distance of movement by selecting a number from 1 to 9. Press Return to begin erasing.

Working with graphics reveals another one of the program's strengths. After loading the clip-art file and selecting a particular category for viewing, press the spacebar to see the images.

When you find a picture you'd like to use, position it anywhere on screen and press Return to stamp it. You can place multiple copies of an image in the document by moving it to a new position with the arrow keys or mouse and pressing Return.

The program lets you stamp 50 copies of the same image on screen before asking you to save the design. After saving, you can re-enter clip-art mode, select the same category, and again choose the image for stamping. Until you press Escape to return to the clip-art menu, you'll be able to delete any image

stamped on screen simply by striking the delete key.

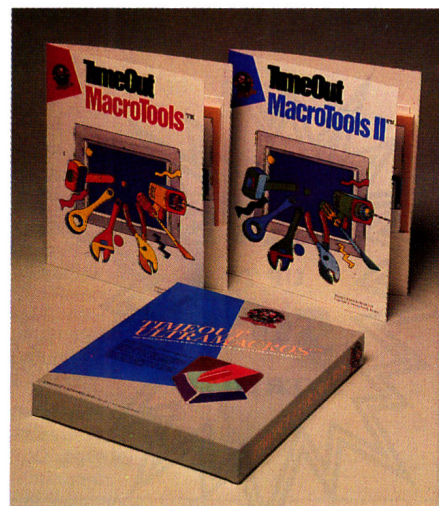
Certificates and More! doesn't require you to quit the program to format a data file; it includes a format option accessible from the File menu. Other options include *Save As*, to copy your document to the data disk, and *Delete Files*, to remove documents permanently from a data disk.

## MORE FOR YOUR MONEY

Initially, I was skeptical about reviewing yet another new low-end desktop publisher. After all, there are already several good certificate programs available, so why glut the market? But after spending some time with the software and producing an assortment of high-impact designs, my apprehension disappeared. Certificates and More! offers good value for the money. It packs enough features to make it a serious contender for the best certificate-producing utility around. Now if Mindscape would only release some additional Certificates clip art!

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

## TIMEOUT MACROTOOLS MACROTOOLS II



**BEAGLE BROS.**  
6215 Ferris Square, Suite 100, San Diego, CA  
92121, (619) 452-5500

Macro enhancements for AppleWorks;  
128K Apple IIe, IIc, IIgs; UltraMacros 2.3;  
\$25 each

Rating: ♦ ♦ ♦

# The High School Math Student's Survival Kit

## The Learning Series

The INTELLIGENT TUTOR Learning Series is an outstanding way for students to learn mathematics. Through the use of special graphics and animation, the concepts, ideas, and techniques of each subject are dynamically brought to life. Each program covers a complete, one-year course.

PRE-ALGEBRA ..... \$ 49.95  
ALGEBRA 1 ..... \$ 49.95  
GEOMETRY ..... \$ 49.95  
ALGEBRA 2 ..... \$ 49.95  
TRIGONOMETRY AND  
ADVANCED TOPICS ..... \$ 49.95  
INTRODUCTORY CALCULUS \$ 49.95  
SPECIAL PRICE FOR ALL 6 . \$219.95

## The Mastery Series

The INTELLIGENT TUTOR Mastery Series is an outstanding way for students to develop their problem-solving skills, and deepen their understanding of concepts and principles. A special Test Mode also measures students' skill levels, and highlights their areas of strength and weakness.

PRE-ALGEBRA ..... \$ 49.95  
ALGEBRA 1 ..... \$ 49.95  
GEOMETRY ..... \$ 49.95  
ALGEBRA 2 ..... \$ 49.95  
TRIGONOMETRY AND  
ADVANCED TOPICS ..... \$ 49.95  
INTRODUCTORY CALCULUS \$ 49.95  
SAT MATH ..... \$ 69.95  
SPECIAL PRICE FOR ALL 7 . \$269.95

AVAILABLE FOR:  
Apple II Series, Macintosh  
Commodore 64/128  
IBM PC and compatibles.

TO ORDER, CALL:  
**(800) 521-4518**  
IN INDIANA: 219-923-6166  
When ordering add \$3.50 shipping and handling.  
Indiana residents add 5% sales tax.



**Intelligent Tutor™**

Intelligent Software, Inc. • 9609 Cypress Avenue • Munster, IN 46321

Way back in the early days of the Apple II, the most common way to create new applications was to use Applesoft BASIC—and Beagle Bros forged a strong reputation selling high-quality utility programs for BASIC programmers.

Times have changed; there's no longer one standard language for Apple programmers. There is a standard application, however—AppleWorks—and Beagle Bros has again done more than any other company to bring greater flexibility and power to this immensely popular program. Beagle Bros' UltraMacros macro-creation package includes many features common to programming languages, in that you can add your own extensions and subroutines to AppleWorks. Now the Timeout MacroTools duo has taken the work out of AppleWorks, with a mixed bag of prepackaged macros serving a wide variety of functions.

## MIXED MACROS

You'll no doubt find something of value in each package, probably enough to justify the cost of both MacroTools and MacroTools II. Each set may also contain a number of things you'll never use, but they might serve as programming examples for macros you'll write later yourself.



Let's look at five of the more intriguing new applications on the first disk—routines that help you manage your data and your other macros.

FileStatus is a utility you can use anytime within AppleWorks to examine and change certain characteristics of your files. Add it to your AppleWorks program disk, then press Open apple-Escape and select *FileStatus*; you'll get a list showing the number assigned to your current file in AppleWorks' desktop index, the file size in memory, the file type, and whether it's *New*, *Saved*, *Unchanged*, or *Changed*.

Of course you could find out all this information—with a few more keypresses—in AppleWorks' Remove Files from Desktop list, but this TimeOut application goes further by letting you change your file's status. You can take a new file, for example, and mark it *Saved* or *Unchanged*.

Task Launcher loads a precompiled set of macros. You can also switch the macros you're using currently without restarting AppleWorks. When you're done, an Exit macro returns you to your standard macro set.

Three other new MacroTools are of interest primarily to UltraMacros programmers. Menumaker puts custom AppleWorks-style menus into your own macros. Debug gives you information about your active macros and macro variables to help you find errors as you write and test them. (The more complex your macros are, the more you'll need this one.) Finally, UM Tokens gives you a pop-up list of all UltraMacros tokens and what they do.

## TOOLS OF THE TRADE

The MacroTools disk contains more than 50 other macros of various types. Let's take a look at six more you'll probably want to add to your standard macro file.

Two make it easier to add new files to the AppleWorks desktop: automating the process of moving through your disk file lists to select new files; and adding a standard text file to the word processor without typing the ProDOS pathname.

Two more new macros work with the AppleWorks spreadsheet. One searches columns or rows for a particular value or label; the other converts numeric values automatically to labels (particularly helpful if you're a teacher and must convert percentages to letter grades).

Two others provide decimal tabs in the word processor and print a word-processor file with-

out marking it *Changed* (which makes it easier to remove the file after printing).

Some of the macros are for programmers only: printing sequential items from a list, moving to preset points on screen, and testing memory bits, for example. Most of the macros, however, help you do ordinary things in AppleWorks, such as linking files so that they print or load together, saving files automatically every five or ten minutes for safety, removing files from the desktop, resetting the date without leaving AppleWorks, and doing chemistry calculations.

## MACROTOOLS II

The second Beagle MacroTools collection includes—among many others—four new applications intended primarily for UltraMacros programmers. File Lister lets you include a list of files in a macro and select files from that list. Ultra Lock lets you mark a compiled macro file so that nobody (not even you) can “decompile” and read the macros. UM Reference lists the UltraMacros commands you can use in your own macros.

The most significant new application on MacroTools II, however, is Ultra Publisher. ▶

## Small Business Owners Praise New Product For Improving Cash Flow.

**T**he word is starting to spread. There is a better and faster way to get your invoices and statements out. The sooner your clients get their bills, the sooner you will get paid.

All over America, thousands of small business owners and managers are finding out that “The Invoicer with Accounts Receivable,” a proven software product from noted accounting expert Michael S. Kelley, helps them get computer perfect bills out to their clients quickly and easily. In fact, we guarantee the performance and ease of use of “The Invoicer” or your money back\*.

*“Thanks for a great invoicing package . . . an overall brilliant bit of software.”*

**Ted Dillard Photography**

*“We are very please with quality and accuracy of our invoices . . .”*  
**Heritage Manufacturing Corp.**

*“Your indispensable invoicing software . . . program has saved us time and money.”*  
**American Business Systems**

Getting “The Invoicer” up and running on your IBM, IBM compatible, Macintosh or Apple II is so easy that most people are producing invoices in 30 minutes or less.

Whether your business sells goods or services, whether you bill monthly, weekly or even daily, “The Invoicer” can save you money and improve your cash flow.

With “The Invoicer” also comes two very valuable features included at **no extra charge**. You get a 30 day money back guarantee\* and free 60 day telephone support to provide you with valuable assistance for your unique needs.

In addition, we can custom modify the program to precisely fit your exact needs. (Try getting that from DAC or Peachtree!) All at an unbelievable price. **Call us at 1-800-950-7943.**

*“I find ‘The Invoicer’ outstanding.”*  
**Arwine Company**

*“Your phone support has been extremely helpful.”*  
**East Coast Vans**

*“Ease of use . . . free telephone support from people who know what they're talking about.”*  
**InCider Magazine**

*“Extremely easy to start up and use.”*  
**Robert Blier Door Systems**

For Complete Information Call or Write Now:

MiccaSoft, Inc.  
406 Windsor Lane  
New Braunfels, TX 78132  
**1-800-950-7943**  
1-512-629-4341

Prices start at \$149 per package. Additional modules available include sales tracking, inventory and accounts payable.

\*All guarantees subject to our written warranty policy.



## AT A GLANCE

Continued from p. 38

**Design Your Own Home: Interiors** (September 1989, p. 30, by James Trunzo), Abracadata, P.O. Box 2440, Eugene, OR 97402, (503) 342-3030; 1-megabyte Apple IIgs, ImageWriter or LaserWriter printer; \$89  
Rating: ♦ ♦ ♦

Interiors, part of Abracadata's Design Your Own Home series, is now available in a GS-specific format that boasts improved speed, color-printing options, and even better ease of use than its IIe/IIc predecessor. In a nutshell, Interiors lets you create custom room designs or modify any of the two dozen predrawn rooms provided on disk.

Abracadata has created an effective program in Interiors. Novices who simply want an idea of what can fit where

Continued

This one takes a standard word-processor file and formats it into two or three columns per page, on multiple pages if necessary. Just put your file on the desktop, activate Ultra Publisher by choosing Macro Options from the UltraMacros menu, and watch as the program moves your word-processor file into two- or three-column format. Print it as is, or press Solid apple-P to move it to the clipboard and then to a new word-processor file.

One set of macros on the MacroTools II disk gives you a new way to write mail-merge documents in the word processor—without your database information in the clipboard and without using Open apple-O to add the merge categories. The macros then convert your document to a printable mail-merge file. (Whether you regard this as an improvement or not probably depends on what kinds of documents you write.)

MacroTools II offers more than 50 new macros. If you're a programmer, you'll get macros that let you use multiple sets of variables, add assembly-language routines to other macros, disable certain keys, get filenames, print mes-

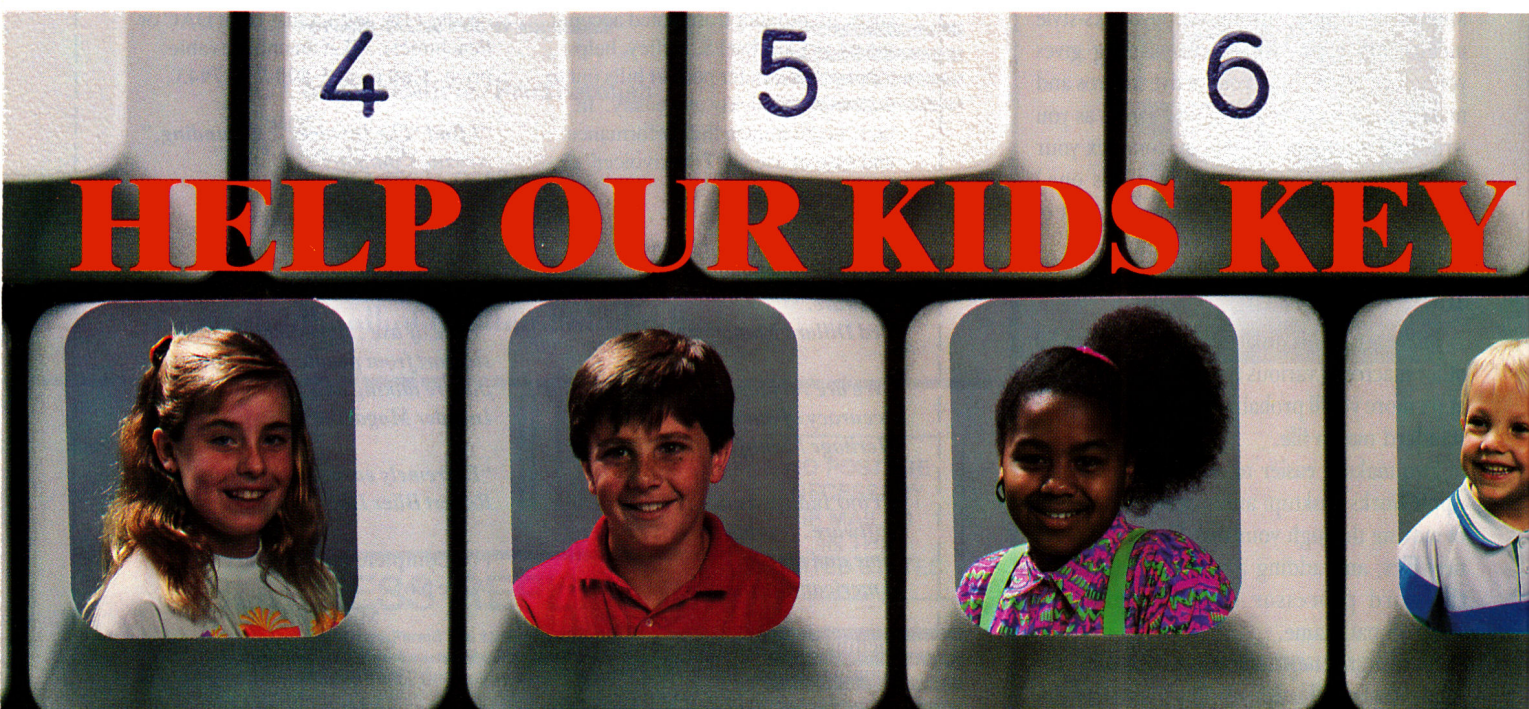
sages on screen, and deactivate UltraMacros, as well as many other functions.

Macros for nonprogrammers include ones that address envelopes, print the date and time to the screen, reset the date, send control codes to your printer, type text directly to your printer, copy the current screen image to a word-processor file, and count the number of records selected by Open apple-R in the database.

## THE "MACRO" VIEW

It's difficult to do justice to such a large and varied collection of applications and macros in a brief review. I've tested almost all of them, and except for one that's supposed to eject 3½-inch disks, all of them so far have worked. A few may need some changes to work just the way you want or expect them to.

The programs are easy to use if you're already familiar with UltraMacros; the macros are in word-processor files that include some information about each and how to use it. Simply copy a new macro to your own macro word-processor file, change the macro name



**K**ids are key to America's future. And so are computers. By the year 2010, virtually every job in our nation will require some computing skills. That means preparing all of our youth today to take on technology tomorrow.

Our students' math and science scores are far below those in other countries. To excel in our high tech times, our kids need to catch on to computers. They're tools that can inspire them to think more independently. More creatively.

The Computer Learning Foundation is a non-profit organization that's taking the lead in computer literacy efforts nationwide. We're bringing together companies, state departments of education, national non-profits and local groups.

Our Computer Learning Month in October is a focus for thousands of community and classroom programs. We've involved millions in discovering the benefits of computing.



if you want, and compile the file. You'll probably try many you won't end up using at all, but that's part of the fun. They're as easy to remove as they are to add.

MacroTools and MacroTools II work only with UltraMacros version 2.3, but if you have an earlier edition there's a TimeOut application on each disk that will update your UltraMacros system. Each MacroTools disk also contains the updated default-macros file that comes with version 2.3 and a file containing a number of macros that were included originally with the SuperMacros program.

Overall, if you use UltraMacros often and enjoy adding new functions to AppleWorks, you'll probably find either MacroTools disk useful and interesting. One of the big advantages of these Beagle Bros disks is that they're completely accessible—you can transfer, change, and test all the macros and applications and use the ideas in your own macros and programs. If you program your own macros, Beagle Bros can teach you a lot. □

**Robert Tighe**

**Albuquerque, NM**

## AT A GLANCE

*Continued*

can use Interiors with little effort. Serious designers can employ the most powerful of Interiors' features with only a little more work. By porting this segment of the Design Your Own Home series over to the GS, Abracadata has made a good program even better.

**All the Right Type** (September 1989, p. 94, by Carol Holzberg), Didatech Software, 3812 William St., Burnaby, B.C., Canada V5C 3H9, (604) 299-4435; 64K Apple IIe, IIc, IIGS; \$49.95  
Rating: ♦ ♦ ♦

All the Right Type is an interactive program designed to help youngsters learn to type. It uses a four-step approach: introducing new keys; emphasizing accuracy and speed; building typing skills with words, sentences, and paragraphs; and test performance.

When students finish the lessons, skill builders, and tests, they can use the program's Mini Word Processor to reinforce their new keyboard skills.

Youngsters can repeat each lesson or test as necessary to improve speed and accuracy.

Immediate, specific feedback keeps both teachers and typists informed. The manual contains detailed instructions, lesson plans, and black-line masters suitable for reproduction.

While All the Right Type has no serious flaws, it lacks certain features offered by other keyboard applications. For instance, there are no skill-building typing games.

All things considered, All the Right Type can best be described as an electronic textbook—heavy on content, but low on pizzazz. □



Join us. We're here to help you discover the ease and fun of computing.

Contact the Foundation now for more information about our contests, books, free materials, programs and events. We're dedicated to sharing computer learning ideas. Write us today: Computer Learning Foundation, Dept. IN10 P.O. Box 60007, Palo Alto, CA 94306-0007.

*You Won't Believe  
What You'll Achieve!*







# CITIZENS OF THE WORLD

Around the globe, kids are logging on to exchange stories, pictures, data, and points of view—and the happy result is a new sense of international identity.

By **SETH J. ITZKAN**

"EVERY TV TOLD OF HIS DEATH. EVERY announcer wore a formal black suit. We would have liked to watch another [show], but we could not. For two days every TV told only of his death..." So laments a middle-school teacher from Fukuoka, Japan, who reveals a previously unseen side to Emperor Hirohito's passing.

Another Japanese educator is even more to the point: "Many people fed up with Emperor-oriented programs rushed to the video store to rent tapes."

These commentaries, unavailable from any news service, were sent directly to American students through the use of computer telecommunications. By simply logging onto a network and reading their "electronic mail," the students got a down-to-earth and even humorous angle on an otherwise solemn affair. As important as Hirohito's life story is, it's equally valuable to discover that many Japanese, like Americans, would rather watch videos than a state funeral.

The teachers and students who take part in international electronic dialogues like this are the pioneers of an emerging "global classroom." Fostered by the proliferation of computer networks, educators around the world are going on line and letting their students teach one another about their respective coun-

tries and cultures—personal information they could never get from a textbook or news wire. This is education at its best: a radical shift in the way youngsters learn about the world, the construction of a community of globally oriented leaders for tomorrow.

For many, the global classroom has brought excitement and relevance back to learning. "The students were ecstatic," says Anne Pemberton, a Virginia teacher whose classroom conducted an e-mail dialogue with a school in Papua New Guinea. The children were especially engrossed, she continues, when they read about an "alligator hunter who grew up in a head-hunter tribe." (Eat your heart out, Dundee!)

## NATIONAL GEOGRAPHIC

One of the most impressive classroom projects, and one of particular interest for Apple IIGS owners, is the **National Geographic Kids Network**. This comprehensive science program lets students share their locally collected data on acid rain with other schools across the nation and around the globe. Special software automates the telecommunications process and sends the data to a central computer. Once tabulated, information on acid-rain levels is downloaded to each site and presented as vivid color maps on the GS. Location and data from each site are included on the maps, giving students a sense of participation and accom-

plishment. Since its inception, more than 500 classes have participated in the Kids Network, with sites in the United States, Canada, Japan, Hong Kong, and the U.S.S.R.

Students at each site on the Kids Network get to know one another through a segment called "Hello!" This introductory piece accustoms students to the software and gives them practice in sharing data through the network. The Hello! unit creates a sense of on-line community that persists for the duration of the six-week project.

## LONG DISTANCE

Another educational telecommunications project of equal magnitude and merit is AT&T's **Long Distance Learning Network (LDLN)**. This program, still in trial phase, supports a variety of curriculum topics and is available for grades 3–12. Through a computerized "matching service," schools are grouped together according to curriculum interest, grade level, and geographic diversity.

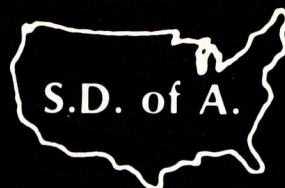
Like those participating in the Kids Network, classes are grouped into teams or "Learning Circles." In desiring each unit to be a cultural melting pot, an LDLN newsletter states, "The ideal Learning Circle would be made up of members from the East, West, South, and Central United States with a few foreign classes." At present, LDLN includes classes from 20 states in the U.S. and six countries: Australia, Canada, France, Japan, the Netherlands, and West Germany.

LDLN offers a segment similar to Kids' Hello! unit. Students are encouraged to send photos, class registers, town maps, or other items of personal and regional interest. These "welcome packs" break the ice and help create a tone of camaraderie before starting the on-line curricular exercises.

Topics on LDLN are extensive and well suited to an international environment. Current choices include The Computer ►



# SOFTWARE DISCOUNTERS OF AMERICA



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

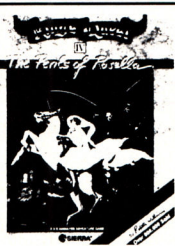
ORDER LINE HOURS: Mon.-Thurs. 9:00 AM-9:00 PM Fri. 9:00 AM-7:00 PM Sat. 10:00 AM-4:00 PM Eastern Time.

## SIERRA

Here's your chance to find out why the King's Quest series is the best selling graphic adventure with over 800,000 sold! 128K or GS versions.

King's Quest 4  
List \$49.95

SDA Discount Price \$32



<b>ACCOLADE</b>	S.P. Data Disks ..... Call
Bubble Ghost GS ..... \$25	S.P. 2 Data Female #1 GS ..... Call
4th & Inches Football GS ..... \$29	<b>BERKELEY</b>
4th & Inches Team Const. GS \$9.88	Geos (128K) ..... \$44
Hardball ..... \$9.88	Geocalc ..... \$44
Hardball GS ..... \$25	Geopublish ..... \$65
Mean 18 Golf GS ..... \$25	<b>BRITANNICA/FANFARE</b>
Famous Course Disks #2	Great Western Shoot Out GS \$19
for Mean 18 GS ..... \$14	Laser Force GS ..... \$19
Famous Course Disks #3 & #4 for Mean 18 GS ..... \$23	Narly Golf GS ..... \$19
Mini Putt GS ..... \$25	<b>BRODERBUND</b>
Serve & Volley GS ..... \$25	Ancient Art War at Sea (128K) \$29
Test Drive (128K) ..... \$23	Ancient Land of Y's GS ..... \$29
T. Drive 2: The Duel GS ..... \$29	Bank St. Writer + (128K) \$49
T. Drive 2: Europe Scenery GS \$14	Carmen S.D.—Europe (128K) \$29
T.D. 2 Calif. Scenery GS ..... \$14	Carmen S.D.—World ..... \$25
T.D. 2 Super Cars GS ..... \$14	Carmen S.D.—World GS ..... \$29
<b>ACTIVISION</b>	Dazzle Draw (128K) ..... \$39
Battle Chess GS ..... \$32	Fantavision GS ..... \$39
Black Jack Academy GS ..... \$25	Geometry GS ..... \$49
Last Ninja (128K) ..... \$23	Print Shop (Enhanced) ..... \$29
Last Ninja GS ..... \$25	Print Shop Companion ..... \$39
Might & Magic 1 or 2 ..... \$32	Print Shop GS ..... \$23
Music Studio 2.0 GS ..... \$65	P.S. Graphics #1, 2 or 3 \$15 Ea.
Neuromancer (128K) ..... \$29	P.S. Graphics Library
Neuromancer GS ..... \$32	Party Edition GS ..... \$23
Paintworks Gold GS ..... \$65	Sampler Edition GS ..... \$23
Rampage (128K) ..... \$23	VCR Companion (128K) ..... \$32
Shanghai ..... \$9.88	<b>CENTRAL POINT</b>
Teleworks Plus GS ..... \$65	Copy 2 ..... \$25
<b>ARTWORX</b>	<b>CINEMAWARE</b>
Bridge 6.0 ..... \$25	Defender of Crown GS ..... \$32
Kaleidokubes GS ..... \$19	King of Chicago GS ..... \$16
Kaleidokubes ..... \$16	Rocket Ranger GS ..... \$32
Strip Poker ..... \$19	The Three Stooges GS ..... Call
Strip Poker 2 GS ..... \$25	



**AEC Software**

The remarkable database adventure enhances intuitive thinking & problem solving abilities. 4 exciting levels of fun for the whole family.

Return of the Dinosaurs  
List \$39.95  
SDA Discount Price \$24



### DATA EAST

Bad Dudes ..... \$23
Batman ..... Call
Heavy Barrel ..... \$23
Ikari Warriors (128K) ..... \$9.88
Platoon (128K) ..... \$9.88
Robo Cop ..... Call
<b>DAVIDSON</b>
Algeblaster ..... \$29
Grammar Gremlins ..... \$29
Math Blaster Mystery ..... \$32
Math Blaster Plus (128K) ..... \$29
Math & Me (128K) ..... \$19
Read 'N Roll (128K) ..... \$23
Reading & Me (128K) ..... \$29
Spell It ..... \$32
Talking Math & Me GS ..... \$29
Talking Reading & Me GS ..... \$32
Word Attack Plus (128K) ..... \$29
<b>DESIGNWARE</b>
Designasaurus (128K) ..... \$25
Designasaurus GS ..... \$32
Jigsaw GS ..... \$25

### ELECTRONIC ARTS

Bard's Tale ..... \$29
Bard's Tale 2 or 3 ..... \$32 Ea.
Bard's Tale 1 or 2 GS ..... \$32 Ea.
Chessmaster 2100 ..... \$26
Chuck Yeager's AFT ..... \$26
Death Lord ..... \$9.88
Deluxe Paint II GS ..... \$65
E. Weaver Baseball ..... \$26
Hunt For Red Oct. ..... \$26
Hunt for Red Oct. GS ..... \$32

### FTL

Dungeon Master GS ..... \$25
<b>GAMESTAR</b>
Champ. Baseball (128K) ..... \$9.88
Champ. Basketball GS ..... \$29
Champ. Basketball (128K) ..... \$9.88
Champ. Football (128K) ..... \$9.88
Star Rank Boxing 2 (128K) \$9.88
<b>GAMETEK</b>
Double Dare ..... \$9.88
Hollywood Squares (128K) \$9.88
Super Password (128K) ..... \$9.88
<b>HI-TECH EXPRESSIONS</b>
Big Bird's Spc. Delivery ..... \$6.88
Desk Power ..... \$9.88
Ernie's Magic Shapes ..... \$6.88
Fun House ..... \$8.88
Muppet Adventure ..... \$9.88
Muppet Print Kit ..... \$9.88
Print Power ..... \$9.88
Remote Control ..... \$8.88
Sesame St. Print Kit ..... \$9.88
Win, Lose or Draw ..... \$8.88
<b>INFOCOM</b>
BattleTech ..... \$32
Beyond Zork (128K) ..... \$9.88
Hitchhikers Guide ..... \$9.88
Journey ..... \$32
King Arthur ..... \$25
Leather Goddesses ..... \$9.88
Mines of Titan ..... Call
Shogun ..... \$32
Zork Trilogy ..... \$16
Zork Zero ..... \$32

Ask your salesperson:  
"What's on Sale this Month?"

Instant Music GS ..... \$14
Legacy of Ancients ..... \$9.88
Life & Death GS ..... \$32
M. Beacon Typing GS ..... \$32
Madden Football ..... \$32
Madness GS ..... \$32
Marble Madness (128K) ..... \$9.88
Marble Madness GS ..... \$14
Music Const. Set GS ..... \$14
Skate or Die GS ..... \$26
Strike Fleet ..... \$23
Wasteland ..... \$32
World Tour Golf GS ..... \$14
Zany Golf GS ..... \$26

### EPYX

Art & Film Director GS ..... \$49
California Games GS ..... \$29
California Games (128K) ..... \$24
Destroyer GS ..... \$14
Final Assault GS ..... \$14
Home Video Producer (128K) \$32
Impossible Mission 2 ..... \$14
Legend of Black Silver ..... \$24
Print Magic (128K) ..... \$32
Sporting News Baseball ..... \$23
S.S. Baseball (128K) ..... \$14
S.S. Basketball (128K) ..... \$14
S.S. Football ..... \$14
Street Sports Soccer GS ..... \$14
Sub Battle 64K or GS ..... \$9.88 Ea.
The Games:
Summer Edition (128K) ..... \$32
Winter Edition (128K) ..... \$32
Technocop ..... \$24
Winter Games 64K or GS \$9.88 Ea.
World Games (128K) ..... \$9.88
World Games GS ..... \$9.88
World Karate Champ ..... \$14

### LEARNING COMPANY

Math Rabbit ..... \$24
Reader Rabbit GS ..... \$39
Reader Rabbit ..... \$24
Think Quick! ..... \$32
Writer Rabbit ..... \$32
<b>MASTERTRONIC</b>
Risk ..... \$26
Scrabble ..... \$26
Scruples ..... \$26
<b>MELBOURNE HOUSE</b>
Elway's Quarterback ..... \$19
Magic Johnson's Basketball GS Call
War In Middle Earth GS ..... \$32
<b>MICROPROSE</b>
F-15 Strike Eagle ..... \$23
Pirates (128K) or GS ..... \$29 Ea.
Silent Service (128K) or GS ..... \$25
<b>MINDSCAPE</b>
Balance of Power (128K) ..... \$25
Balance of Power 1990 GS ..... \$32
Captain Blood GS ..... \$29
De Ja Vu 1 or 2 GS ..... \$32
Gauntlet GS ..... \$29
Gauntlet 1 or 2 (128K) ..... \$25 Ea.
Hostage GS ..... \$25
Paperboy GS ..... \$25
Uninvited GS ..... \$29
<b>ORIGIN</b>
Knights of Legend ..... Call
Omega ..... \$32
Quest For Clues Book 2 ..... \$19
Space Rogue ..... \$32
Tangled Tales ..... \$19
Times of Lore ..... \$25



The sequel to the best selling Arkanoid is here with 67 complex barriers, more power capsules & a construction set!

Arkanoid 2:

Revenge of DOH

List \$34.95

SDA Discount Price \$23



Ultima 4 or 5 ..... \$39 Ea.	Overrun ..... \$32
Ultima Trilogy ..... \$39	Phantasia 3 ..... \$26
Windwalker ..... Call	Pool of Radiance ..... \$29
<b>SHARE DATA</b>	Pool of Radiance GS ..... Call
Concentration 1 or 2 ..... \$9.88	Typhoon of Steel ..... \$32
Jeopardy Jr. ..... \$9.88	War of the Lance ..... Call
Sports Jeopardy ..... \$8.88	<b>SUBLOGIC</b>
Wheel of Fortune 3 (128K) \$9.88	Flight Simulator 2 ..... \$32
Wipe Out ..... \$9.88	Hawaii Scenery ..... Call
<b>SIERRA</b>	Jet ..... \$26
Gold Rush GS ..... \$25	<b>TAITO</b>
King's Quest 1, 2, 3 or 4 (128K) or GS ..... \$32 Ea.	Arkanoid ..... \$9.88
Leisure Suit Larry GS ..... \$25	Arkanoid 2: Revenge GS ..... \$23
Leisure Suit Larry (128K) ..... \$25	Bubble Bobble ..... \$19
Manhunter GS ..... \$32	Qix ..... \$19
Mother Goose (128K) ..... \$19	Renegade ..... \$19
Mother Goose GS ..... \$19	Renegade GS ..... \$23
Police Quest GS ..... \$32	<b>THREE SIXTY</b>
Police Quest (128K) ..... \$32	Dark Castle GS ..... \$29
Silphed GS ..... \$32	Warlock GS ..... \$24
Space Quest (128K) ..... \$32	<b>TIMWORKS</b>
Space Quest 2 (128K) ..... \$32	Publish It! 2 ..... \$84
Space Quest 1 or 2 GS ..... \$32 Ea.	<b>UNICORN</b>
<b>SIR TECH</b>	Kinderama GS ..... \$32
Heart of Maelstrom ..... \$32	Math Wizard GS ..... \$29
Knight of Diamonds ..... \$32	<b>WEEKLY READER</b>
Legacy of Lylgamin ..... \$32	Stickbear Math 1 or 2 ..... \$24 Ea.
Proving Ground ..... \$32	Stickbear Reading ..... \$24
Return of Werdna ..... \$39	Talking Alphabet GS ..... \$32
<b>SPRINGBOARD</b>	<b>WORD PERFECT</b>
Atlas Explorer ..... \$32	Word perfect (128K) or GS ..... \$97
Certificate Maker ..... \$24	<b>ACCESSORIES</b>
Newsroom ..... \$23	Disk Case 5 1/4 or 3 1/2 ..... \$6.88 Ea.
N.R. Clip Art 1, 2, 3 ..... \$14	Drive Cleaner 5 1/4 or 3 1/2 ..... \$6.88 Ea.
<b>SSI</b>	Sony 3 1/2 DSDD ..... \$16.90 Bx.
Curse of Azure Bonds ..... Call	Sony 5 1/4 DSDD ..... \$6.99 Bx.
First Over Germany ..... \$32	Epox 500 XI Joystick ..... \$25

## SONY

The #1 rated disks in the world are here at low SDA pricing. Certified to be 100% error free. Lifetime guarantee by Sony. Box of 10.

Sony 3 1/2 DSDD  
List \$39.95  
SDA price \$16.90



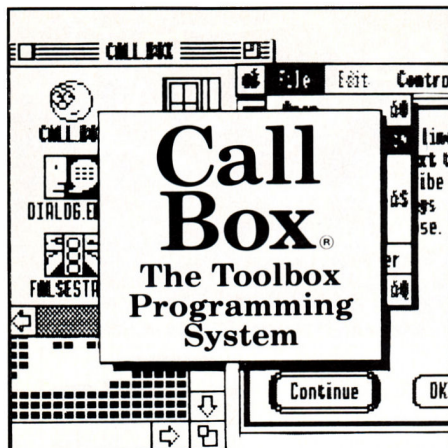
Sony 5 1/4 DSDD  
List \$19.95  
SDA price \$6.99

P.O. BOX 111327—DEPT. INC—BLAWNOX, PA 15238

\*Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order: Orders with cashiers check or money order shipped immediately on in stock items! Personal & Company checks, allow 3 weeks clearance. No C.O.D.'s! Shipping: Continental U.S.A.—Orders under \$100 add \$3; free shipping on orders over \$100. AK, HI, FPO, APO—add \$5 on all orders. Canada & Puerto Rico—add \$7.50 on all orders. Sorry, no other international orders accepted! PA residents add 6% sales tax on the total amount of order including shipping charges. CUSTOMER SERVICE HOURS: Mon.-Fri. 9 AM-5:30 PM Eastern Time. REASONS FOR CALLING: CUSTOMER SERVICE—412-361-5291 (1) Status of order or back order (2) if any merchandise purchased within 60 days from S.D.O. of A. is defective, please call for a return authorization number. We will not process a return without a return auth. #! Defective merchandise will be replaced with the same merchandise only. Other returns subject to a 20% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased & return directly to the manufacturer. Customer service will not accept collect calls or calls on S.D.O. of A.'s 800# order lines! Prices & availability are subject to change! New titles are arriving daily! Please call for more information.

MODEM OWNERS: You can order on-line from our APPLE Shop via the CompuServe and Genie electronic malls.





## WYSIWYG?

(What You See Is What You Get)

Four powerful **WYSIWYG** editors slash programming time dramatically for Assembly, C, Pascal and Applesoft BASIC programs, YES! . . . I said Applesoft, CALL-BOX includes the first full function Applesoft BASIC interface for the Ilgs toolbox as well but let's talk about the editors first.

- **Image Editor** . . . Create Icons, Cursors, and Pixel images in either 640 or 320 mode.
- **Window Editor** . . . Create Window templates with scroll bars, controls, etc. plus custom colors.
- **Dialog Editor** . . . Create Dialog templates using Radio buttons, Check boxes, Line edit items, text in various styles, etc.
- **Menu Editor** . . . Create Menu templates with keypress equivalents, checks, diamonds, Font styles, etc.

All editors output APW source code, Linkable object code or resource files to make the best match to your current development system. Everything is accessible from the CALL-BOX Editor shell that includes these editors plus File utilities, Configuration utilities, programmable application launcher and the BASIC interface.

The **CALL-BOX BASIC interface** allows the Apple-soft programmer to use Super Hi-Res via Quickdraw II, desktops, menu bars, windows, ports, fonts, dialog boxes, and the cursor linked task master system in the Ilgs. This interface incorporates automated calls to minimize the code needed in your BASIC program and has added Long Call, Long Poke, Long Peek, and super array functions to bring Applesoft up to snuff with the additional memory in your Ilgs.

All this plus a demo, sample code and bound manuals. Fully GS/OS V5.0 compatible and all in one place for the first time ever!

**WYSIWYG EDITORS** . . . . . \$60.00  
**BASIC INTERFACE** . . . . . \$50.00  
 Shipping Each . . . . . \$3.50

The **CALL-BOX TPS** . . . . . \$99.00  
 Add \$4.50 shipping and handling.  
 Foreign add \$10.50.



(714) 964-4298



**INCIDER**  
ON LINE

## PRODUCT INFORMATION

### CompuServe Information Service

CompuServe Inc.  
5000 Arlington Centre Blvd.  
P.O. Box 20212  
Columbus, Ohio 43220  
(800) 848-8199

### Delphi

General Videotex Corp.  
3 Blackstone St.  
Cambridge, MA 02139  
(617) 491-3393

### FrEdMail

CUE Softswap  
P.O. Box 271704  
Concord, CA 94527-1704  
(415) 685-7289

### GEMNET

Global Education Motivators  
Chestnut Hill College  
Germantown & Northwestern  
Avenues  
Chestnut Hill, PA 19118-2695  
(215) 248-1150

### GENie

GE Information Services  
401 N. Washington St.  
Rockville, MD 20850  
(800) 638-9636

### Long Distance Learning Network

AT&T  
P.O. Box 716  
Basking Ridge, NJ 07920-0716  
(800) 367-7225 x4158

### National Geographic Kids Network

National Geographic Society  
Dept. 1001  
Washington, D.C. 20077-9966  
(301) 921-1330

### The Source

Source Telecomputing Corp.  
P.O. Box 1305  
McLean, VA 22102  
(800) 336-3366

Chronicles, Mind Works, Global Issues, Places and Perspectives, Society's Problems, and Energy Works. Each curricular module is supported by teacher materials and on-line assistance.

Two particularly involving subjects on LDLN are Global Issues and Mind Works. Global Issues includes segments on nuclear energy and weapons, national conflict and cooperation, protection of national and global resources, pollution problems, and effects of changing weather patterns. Mind Works supports creative writing and group publication of a journal. The unit's "round-robin stories"—pieces begun by one class and continued by others—are especially lively productions, with each group of students contributing its own unique perspective.

In addition to formal curricula, foreign-language study often happens on its own, explains Valerie Sarris, project manager for LDLN. With at least one foreign school per Learning Circle, impromptu bilingual discourses are common. LDLN staff members are now looking into the possibility of a languages unit for the future.

LDLN's telecommunications functions are fully automated. Students and teachers create letters, articles, and other data off line, then, with just a few keystrokes, upload them to a central computer, which distributes them to the appropriate e-mail folder or mailbox. LDLN software is available for most com-

puters, including the Apple II series, the Macintosh, AT&T machines, and IBMs and their compatibles.

## UNITED NATIONS

If your class has a special interest in international issues or is considering a segment on the United Nations, investigate **GEMNET**. Global Education Motivators is a nongovernment organization registered with the United Nations, and chartered to increase awareness about the UN and its programs.

GEM's network lets schools communicate through electronic mail and offers access to an extensive array of international databases and news services. UN information on topics ranging from human rights to acid rain is readily available, as are news wires from American, European, and Third World nations. Wayne Jacoby, the director of Global Education Motivators, explains that these news clippings show students how different parts of the world react to a particular news topic. Currently, more than 250 classes participate in GEMNET with representation in the United States, the United Kingdom, and Norway.

GEMNET is more open-ended than either the Kids Network or LDLN in that no specific curriculum is associated with it, and schools aren't matched for electronic exchange. GEMNET does provide assistance, however, with a comprehensive "foreign schools database" of information on member classes, plus periodic



## CompuServe Acquires The Source

As this issue of *inCider* went to press, we learned that CompuServe of Columbus, Ohio, has acquired Source Telecomputing Corporation of McLean, Virginia, operators of The Source on-line information service.

Source membership (53,000 users) will be consolidated with that of the CompuServe Information Service, which has 500,000 subscribers currently. According to Maurice Cox, executive vice president of Compu-

Serve Inc.'s Information Services Division, a CompuServe user-identification number and password, eligible for a \$20 usage credit, will be mailed to each Source subscriber.

For more information, enter GO OLT-335 at any CompuServe ! prompt. In addition, a customized welcome menu posted on CompuServe will help Source members become accustomed to the network's navigation commands, databases, and on-line support services. □

mailings of UN publications that teachers can integrate into their curricula.

### GRASS ROOTS

Although formal programs such as those discussed above are helping build the global classroom, the decade-old (a lifetime in this business) system of networking through bulletin boards and "echoed" or "distributed" conferencing is still the main method of electronic communication between schools.

One grass-roots bulletin board that deserves special attention is **FrEdMail**, the Free Educational Electronic Mail Network. Unlike many other services, it's devoted to education and simplified to let nontechnical teachers function as system operators. FrEdMail runs on Apple IIs and GSe's, but can be accessed from any machine.

At the heart of FrEdMail are "echo-posted" conferences and bulletin boards, which automatically distribute, or *echo*, comments on any particular subject to all other participating sites.

### DIAL UP

Among the larger commercial on-line information services, let's not forget **CompuServe**, **GEIE**, and **Delphi**. Each boasts thousands of subscribers with access to other users around the world; each network also hosts educational user groups, conferences, and databases.

One school in Boston, Snowden International High, recently made good use of the Delphi network. Via a Delphi correspondent in Japan, students in Snowden's Japanese-language class were able to send messages in

Japanese. Students in Japan were thrilled to see Americans address them in their own language and responded eagerly—in English.

If the study of *perestroika* is on your list of curriculum objectives, the Bridges '89 segment on **The Source** is an excellent resource. In an unprecedented move, and as a direct result of *glasnost*, The Source offers e-mail communication with Soviet citizens—including media experts and scientists ready to discuss cultural questions and issues such as emigration and human rights. The architects of the program are Harry Stevens, inventor of The Source's Participate conferencing system, and Sergei Alexandrov, a pioneer in Soviet telecommunications and an employee of the Novosti Press Agency.

Our world is becoming a "global village," and education is seeing the emergence of the global classroom. Children raised in this environment acquire a sense of international identity their parents may never know. Because they work cooperatively with peers overseas on issues of world concern, they become "global ambassadors," stewards of the next millennium. As Anne Pemberton of Notoway High School states, "I can think of no greater 'threat to world war' than the binding together of all the world's children by computer networking." □

SETH ITZKAN IS A TELECOMMUNICATIONS CONSULTANT AND FREE-LANCE JOURNALIST. HE IS CURRENTLY WRITING A BOOK ON THE USE OF TELECOMMUNICATIONS IN EDUCATION, TO BE TITLED *EMERGENCE OF THE GLOBAL CLASSROOM*. ADDRESS YOUR CORRESPONDENCE TO 308 COMMONWEALTH AVENUE, BOSTON, MA 02115.

# Animated Interactive Storybooks NEW

You and your child choose what happens next.

Reading aloud with young children is an essential step in their early education. The Lapware™ programs in Reading Magic Library™ bring a new dimension to this valued family tradition.



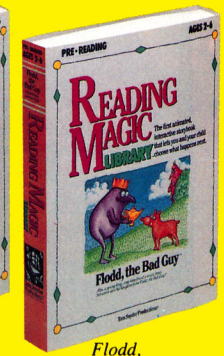
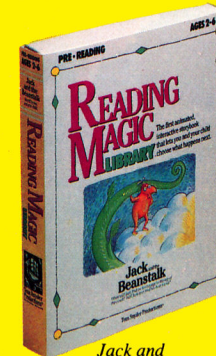
Hours of animated graphics

These delightfully told and beautifully animated stories allow you and your child to step into the hero's shoes, deciding what will happen next. Learning to read has never been so exciting!



Choose what happens next

Reading Magic Library. The greatest way to introduce your child to computers.



Pre-Reading Software for ages 2-6. Available for Apple II GS, Apple II series, and IBM/Tandy.

Teachers: Call us for our free catalog of award winning K-12 school software.

**Tom Snyder Productions**

90 Sherman St., Cambridge, MA 02140

Call 1-800-342-0236.

Circle 50 on Reader Service Card.





## LEARNING CURVE

**C**omputer programs that facilitate the creation of "microworlds" can provide weeks of challenging activities and spark a lifelong interest in math.

# FISHING FOR QUESTIONS

By DAVID D. THORNBURG, Ph.D.

PICASSO ONCE SAID, "COMPUTERS ARE USELESS; they provide answers, not questions." From an educational standpoint I think he was selling technology short. A well-designed computer system can function as a lab for conceptual experiments—unlimited opportunities for students to ask, and answer, their own questions.

Last month we explored just such an environment when we described the chaotic function we called the Gingerbread Man ("An Ordered World," September 1989, p. 110). Computer programs that facilitate the creation of "microworlds" provide weeks of challenging activities for motivated students. And although the Gingerbread Man is fairly simple, there are even simpler worlds whose properties are equally fascinating.

To see one of these worlds, imagine a checkerboard surface with a few pieces scattered about the squares. This original arrangement is our starting position. Each square has eight neighboring squares—four sides and four corners. (See **Figure 1**.)

To find the next position, apply the following rule: Each square on the new layout gets a checker if in the previous generation it had an odd number of neighboring squares with checkers. Note that you must apply the rule to all cells simultaneously. (This rule defines "Fredkin's Game," designed by Ed Fredkin.)

The graphics shown in **Figure 2** illustrate the evolution of a pattern resulting from one checker in the middle of the board. As you can imagine, other starting positions can lead to other patterns. Activities like this are called *zero-player games*, a name coined by John Conway, creator of a similar game called Life. (See "Life Goes On," GS BASICS, October 1988, p. 78.)

Another term for these types of games is *cellular automata*, so called because such a game centers around the states of individual cells and, once rules and starting position are determined, all future evolution occurs automatically.

Mathematical activities of this type would get pretty boring if you had to play them on real checkerboards—each generation might take several min-

utes to appear. Fortunately games like this are easy to program on personal computers.

The finest tool yet for experimenting with cellular automata on Apple IIs is **Phantom Fishtank**, a product from Logo Computer Systems International (1000 Roche Boulevard, Vaudreuil, Quebec, Canada J7V 6B3, 800-321-LOGO, \$29.95). Designed by Brian Silverman, a brilliant exponent of the Logo movement, Phantom Fishtank is a version of that language in which its high-resolution turtle graphics has been replaced by a low-resolution 40-by-40 checkerboard for various zero-player games. Although a knowledge of Logo isn't required to follow the activities provided with the software, Logo enthusiasts will find the inclusion of the language a powerful improvement over programs (such as the many public-domain Life games) that use only a single rule set.

As with most other open-ended tools, you can explore Phantom Fishtank many ways. Some students enjoy going through the manual and trying each activity, then experimenting a bit before going on to the next. Others look at the manual only long enough to understand how the software works, then jump immediately into creating their own sets of rules. Because your Apple computes successive generations in machine language, display screens turn into riots of animated patterns that grow, collapse, stabilize, or evolve haphazardly for hours.

If you wanted to play Conway's Life game, you'd boot up Phantom Fishtank, then enter the following line:

```
loadrules "life
```

This replaces Phantom Fishtank's rule set with Life's. Conway's game has three rules:

- 1) A dead cell with three live neighbors comes alive.
  - 2) A live cell with fewer than two neighbors dies.
  - 3) A live cell with more than three neighbors dies.
- Although Life's more complex than Fredkin's Game, its rules are still simple.

Next, create a starting position on screen. Using Phantom Fishtank's CELL and LINE commands, you can create live cells from the keyboard. For ►



## ORGANIZE AND PROTECT YOUR COPIES OF inCider

Now there's an easy way to keep copies of your favorite magazine readily available for future reference.

Designed exclusively for inCider by Jesse Jones Industries, these custom-made titled cases and binders are sized to hold a year's issues (may vary with issue sizes).

inCider

Jesse Jones Industries, Dept. InCider  
499 East Erie Ave., Philadelphia, PA 19134

Cases:	1-\$7.95	3-\$21.95	6-\$39.95
Binders:	1-\$9.95	3-\$27.95	6-\$52.95

Enclosed is \$ \_\_\_\_\_

Add \$1 per case/binder for postage & handling. Outside USA \$2.50 per case/binder (US funds only).

Please send \_\_\_\_\_ cases; \_\_\_\_\_ binders for inCider Magazine.

Charge Orders: Call TOLL FREE 7 days, 24 hours 1-800-972-5858 (minimum order \$15)

Print Name \_\_\_\_\_

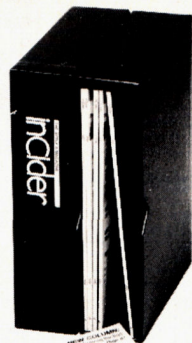
Address \_\_\_\_\_

No P.O. Box numbers please

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

PA residents add 6% sales tax

**SATISFACTION GUARANTEED**



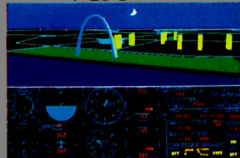
## Attention Foreign Computer Stores/ Magazine Dealers

You have a large technical audience that speaks English and is in need of the kind of microcomputer information that IDG Communications/Peterborough provides.

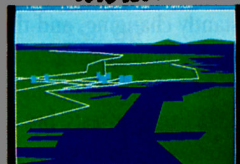
Provide your audience with the magazines they need and make money at the same time. For details on selling AmigaWorld, RUN, PC Games, Portable Computer Review, PC Resource and inCider contact:

**Marjorie Rubin**  
**Boarts International**  
**747 3rd Avenue**  
**New York, NY 10017**  
**Phone: (212) 688-2778**

*St. Louis*



*Hawaii*



*Paris*



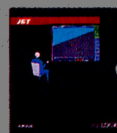
*Tokyo*



# World of Flight



Travel the globe with the best in simulation software: Flight Simulator™ and Jet™. Discover the world with Flight Controls I and Scenery Disk supplements to our integrated flight line! Call (800) 637-4983 for our new brochure.



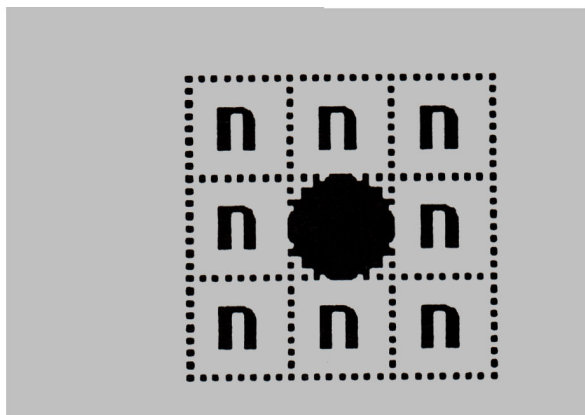
Flight Simulator, Jet, and Flight Controls I are trademarks of SubLOGIC Corp. IBM screens shown. Other computer versions may vary.

**subLOGIC**



	0	1	2	3	4	5	6	7	8
0	0	0	0	0	15	0	0	0	0
15	0	0	15	15	0	0	0	0	0

**Table.** Implementing Conway's rules.



**Figure 1.** Eight neighbor positions per cell.

example, the following command draws a line five units long near the center of your screen:

```
line 15 20 20 20
```

The GO command applies the rules to the screen successively until you press any key.

For any set of rules you can create you must ask a number of questions. Can you predict the patterns resulting from any given starting pattern? For example, will a line six units long create patterns similar to those generated by the five-unit line? What kinds of patterns create stable structures that don't change from generation to generation? Which patterns create oscillators that bounce between several states before starting over again? Do certain starting positions lead to constantly changing patterns, or do all arrangements reach steady state if you wait long enough?

These questions and many more have been asked by thousands of students and mathematicians since the 1960s, when

cellular automata were created. Every answer seems to generate more questions.

If Phantom Fishtank did nothing more than provide an environment for experimenting with some interesting rule sets, it would still be valuable. But just as you have the freedom to create arbitrary starting positions, you can also modify rule sets or create them from scratch.

How? With a *rule table*. Each row in the table corresponds to one of the 16 lo-res colors; each column corresponds to a number of "live" neighbors (0-8). Cells with colors 0-7 are "dead"; those from 8 to 15 are "live."

The accompanying **Table** shows the only lines you need to implement Conway's rules. A 15 (live white cell) in column 3, for instance, indicates that when the background state (0) has three live neighbors it becomes live, or reaches state 15—that's rule 1. Rules 2 and 3 deal with live cells and are handled in line 15: Only

cells with two or three live neighbors stay alive; all others die.

The ease with which you can create and save rule sets and starting positions affords tremendous opportunities for exploration. For example, you can examine the same starting position with different rule sets to see how game rules affect the outcome.

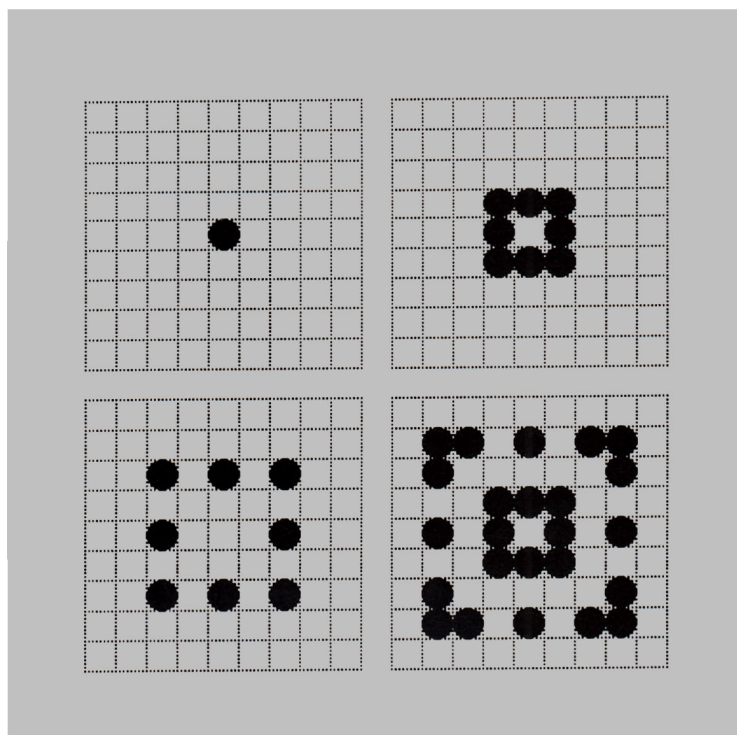
As with many activities centered around computational micro-worlds, some educators who are also computer users question the value of such experiments. After all, unless you're studying specifically the theory of zero-player games, why would you want to explore this domain?

The answer hinges on your philosophy of education. If you agree with Plutarch that "the mind is a fire to be kindled, not a vessel to be filled," then activities like Phantom Fishtank are valuable additions to your software library. Tools like this can lead to in-depth math projects and may even spark a lifelong interest in math.

On the other hand, if your model of effective education is built around imparting concrete facts and rules that match the topics covered on standardized tests, you probably won't try tools like Phantom Fishtank and the Gingerbread Man.

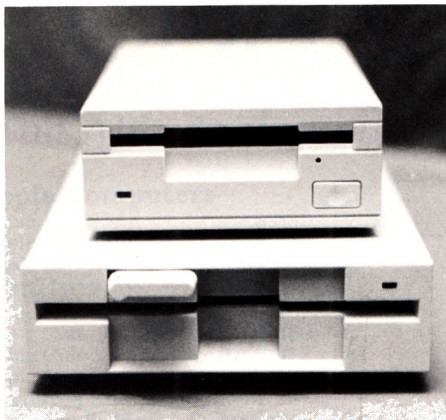
If you're in the latter category, keep this in mind: Our world is constantly changing, and the rate of change is increasing. A strictly fact-based curriculum may prepare children for tests, but it does nothing to prepare them for the only life game that really counts—their own. □

DAVID THORNBURG IS INVOLVED IN THE CREATIVE USES OF COMPUTERS IN EDUCATION. HIS DAY-LONG WORKSHOP FOR TEACHERS, "EDUCATION FOR THE WHOLE MIND," EXPLORES TOOLS LIKE THOSE DESCRIBED IN THIS COLUMN IN THE CONTEXT OF GARDNER'S THEORY OF MULTIPLE INTELLIGENCES. WRITE TO DR. THORNBURG AT INNOVISION, P.O. BOX 1317, LOS ALTOS, CA 94023.



**Figure 2.** First four generations of Fredkin's rules applied to isolated live cell.





## 5 1/4" DISK DRIVES FOR APPLE

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

Apple II, II+, IIe  
Franklin Ace 1000  
Apple IIc, IIc+, IIGS  
Apple IIe UniDisk  
Laser 128  
Apple IIc+, IIGS  
Daisy Chain

**\$79.00**

**\$79.00**

**\$99.00**

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

Shipping & handling \$5.50

**\$225.00**

ZIP CHIP 4 Mhz.....\$125.00  
8 Mhz.....\$158.00

### CHECKMATE PRODUCTS

PRO TERM  
**\$79.95**

MultiRam RGB IIe  
0K to 1 Meg.  
from \$99.00

MultiRam IIe  
0K to 768K  
from \$79.00

MultiRam IIc  
0K to 1 Meg.  
from \$89.00

Memory Saver GS  
**\$109.00**

MultiRam GS  
0K to 2 Meg.  
from \$79.50

AI Juice Plus GS  
0K to 4 Meg. .... from \$65.00

Super Expander IIe 1 Year Warranty  
W/Appleworks Expansion S-ware  
0K to 1 Meg..... from \$52.50

256K RAM..... Call

Green or Amber Monitor...\$99.00

MINI DIN 8  
Switch Box  
A/B..... \$24.95  
A/B/C/D .. \$29.95

5 Amp Power Supply  
**\$49.00**  
Apple II, II+ & IIe

Replacement  
Keyboard For IIe  
**\$55.00**

MINI  
A/B Switch Box  
Serial or Parallel  
**\$24.95**

Extended 80 Column Card  
With 64K For Apple IIe

100% Appleworks  
Compatible

**\$38.95**

5 Year Warranty

Super Serial Card  
100% Apple Compatible

5 Year  
Warranty

**\$48.95**

Graphics Printer Card w/Cable  
For Apple II+ & IIe

5 Year  
Warranty

**\$44.95**

Cables From ..... \$9.95  
IIe to Modem IIc to Modem  
IIe to IMG I IIc to IMG II  
IIe to IMG II Others

Talk & Data Kits  
SCSI Cables

DISKETTE STORAGE W/Lock  
5 1/4 Holds 70 Disks ..... \$6.95  
5 1/4 Holds 100 Disks ..... \$8.95  
5 1/4 Holds 120 Disks .... \$10.95  
3 1/2 Holds 50 Disks ..... \$6.95  
3 1/2 Holds 100 Disks ..... \$8.95

II+ Owners

16K Card ..... \$34.95  
128K Card ..... \$64.95  
80 Column Card .... \$48.95  
Plus Works ..... \$49.00

5 Year Warranty

UNIVERSAL Disk Controller  
Run 800K Disc Drives  
on your II+ and IIe  
**\$64.95**

800K DISK DRIVE 3 1/2"  
for II+, IIe, MAC, LASER 128  
**\$179.00**

Disk Controller Card  
For Apple II, II+ & IIe

**\$34.95**

5 Year Warranty

CPM Card for Apple II+ & IIe

5 Year Warranty **\$34.95**

Cooling Fan For Apple II+ & IIe  
With Surge Suppressor ..... \$26.95

Cooling Fan  
For  
Apple IIGS

**\$19.95**

No  
Noise  
Interference

### ACCESSORIES

Mouse Pad ..... \$4.95  
Disk Notcher ..... \$4.50  
Disk Clean 5 1/4 ..... \$4.00  
Disk Clean 3 1/2 ..... \$4.00  
LASER Add on's ..... Call  
Mouse ..... \$59.00

LASER 190A Printer

**\$225.00**

EPIC 2400 Baud Modem

**\$99.00**

LASER 128 EX

Three Times the Speed of a IIe  
Built in Memory Expansion Board

**\$445.00**

Prices subject to change without notice

Numeric Keypad  
For Apple IIe  
**\$34.95**

RF Modulator  
II+ & IIe  
**\$15.95**

Joystick for Apple IIe, IIc,  
IIc+, & IIGS

With Fire Button  
Same as Mach III

**\$24.95**

We  
Ship  
2nd Day Air  
Continental US Only

VISA & MASTERCARD — NO EXTRA CHARGE

DEALER PRICING

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

## MEMORY PLUS DISTRIBUTORS, INC.

505 South 48th Street, Suite #104

Tempe, Arizona 85281

(602) 820-8819

(602) 830-6457

FAX# (602) 968-3211

Serving Apple Users Since 1983

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

University & School P.O.  
Accepted

20% Restocking charge  
on returned items

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

We  
Ship  
2nd Day Air  
Continental US Only





# T YPE IT UP

Apple users know there's always an easier way to get the job done. A shortcut here, an elegant twist there—that's what Hints & Techniques is all about. Bracketed numbers in program listings refer to *inCider's* Applesoft Proofer Program. For your copy send a self-addressed, stamped envelope to Proofer, c/o *inCider*, 80 Elm St., Peterborough, NH 03458.

## FONT CONVERSION

by Terrence H. Davis

**P**UBLISH IT! AND PUBLISH IT! 2 (TIMEWORKS, Deerfield, IL) let you create attractive cards and newsletters, but they also limit your font selection: You can use only the fonts included with the programs or those obtainable from the publisher. Dozens of Apple II GS fonts are available from a variety of public-domain sources, including the National AppleWorks User's Group (NAUG); programs such as TimeOut SuperFonts (Beagle Bros, San Diego, CA) use them directly. Wouldn't it be handy if you could use them with

your version of Publish It! as well?

Publish It! fonts are stored on disk as file type \$F7. Interestingly, the file type is the only real barrier to using GS fonts with Publish It!. **Listing 1** is a fairly simple program that converts an Apple II GS font (file type \$C8) to a Publish It!-compatible font file type.

Type in the program and SAVE it as Font.Convert. To make things a bit easier, insert the disk with your GS fonts and use the PREFIX command to prepare a pathname. For example, type PREFIX /System.Disk /System/Fonts to access them on a backup of

your GS system disk. Then RUN Font.Convert. When prompted, enter the pathname of the GS font. Convert all the fonts you want to use, then boot and run the Install Font utility from Publish It!'s new Apple menu to load those converted fonts.

There's only one difficulty with converted GS fonts: When you use Publish It! to print them they'll appear slightly smaller than they do with other programs. Consequently, you may have to alter the letter spacing for more attractive printed results.

**Write to Terrence H. Davis at 134 Northwestern Parkway, Louisville, KY 40212.**

Listing 1. Font Converter.

```
10 REM FONT.CONVERT [2419]
20 REM BY TERRENCE H. DAVIS [3944]
30 REM COPYRIGHT 1989, INCIDER [4765]
60 FOR I = 768 TO 782 [1505]
70 READ J [402]
80 POKE I,J [811]
90 NEXT I [451]
100 DATA 32,0,191,196,12,3,144,3,141,30,3,96,10,31,
3 [9894]
110 REM [4780]
120 REM INPUT FILENAME [3091]
130 REM [788]
140 TEXT : HOME [376]
150 PRINT "PLEASE ENTER PATHNAME OF THE FONT" [2227]
160 PRINT "WHOSE TYPE WILL BE CONVERTED TO $F7." [2978]
170 VTAB 10: PRINT "NOTE- TYPE THE FONT'S FULL PATHN
AME:" [7540]
180 PRINT "/VOLUME/DIRECTORY/FILE" [1791]
190 PRINT "OR SET PREFIX BEFORE RUNNING PROGRAM" [2807]
200 PRINT "AND ENTER DIRECTORY/FILE." [2560]
210 PRINT : PRINT "PRESS RETURN ALONE" [4376]
220 PRINT "OR SPECIFY /VOLUME/DIRECTORY": PRINT "
FOR A CATALOG." [6966]
230 VTAB 21: PRINT "ENTER 'Q' TO QUIT." [4839]
240 VTAB 4: INPUT FILE$: IF FILE$ = "Q" THEN HOME :
END [3569]
250 L = LEN (FILE$):X = 0 [2363]
```

Continued

Continued

```
260 IF L = 0 THEN HOME : PRINT CHR$ (4); "CAT": GET
AS: GOTO 140 [2520]
270 REM STORE LENGTH AND NAME OF FILE IN PATHNAME B
UFFER [9362]
280 POKE 799,L [1095]
290 FOR I = 800 TO (799 + L) [1868]
300 X = X + 1 [637]
310 POKE I, ASC ( MID$ (FILE$,X,1)) [3142]
320 NEXT I [398]
330 REM [5219]
340 REM READ FILE PARAMETERS [4408]
350 REM [5227]
360 POKE 798,0: POKE 771,196: POKE 780,10 [4066]
370 CALL 768: REM GET FILE INFO [2136]
380 GOSUB 400: GOTO 520 [1627]
390 REM [859]
400 REM CHECK FOR ERRORS [1306]
410 REM [867]
420 EC = PEEK (798): VTAB 21 [1922]
430 IF EC = 39 THEN PRINT "I/O ERROR": POP : GOTO 4
80 [4416]
440 IF EC = 43 THEN PRINT "DISK IS WRITE PROTECTED"
: POP : GOTO 480 [6680]
450 IF EC = 64 OR EC = 69 OR EC = 70 THEN PRINT "IN
VALID PATHNAME OF VOL/FILE NOT FOUND": POP : GOTO
480 [11856]
460 IF EC < > 0 THEN PRINT "GETTING ERRORS TRYING
```

Continued



# CDA Computer Sales

The Affordable Source for Apple® Hardware, Software & Accessories

## Apple Computers

Apple IIGS 256K	\$ 835
Apple IIGS 512K	\$ 895
Apple IIC Plus	\$ 499

## Monitors

Apple Color RGB	\$ 465
Apple Color Composite IIC	\$ 339
Apple Color Composite IIC	\$ 312
Apple Monochrome	\$ 135
Magnavox RGB/Comp.	\$ 299

## Floppy & Hard Drives

Apple 3.5 Disk Drive	\$ 349
Apple 3.5 UniDisk IIe/IIC	\$ 319
UniDisk 3.5 Controller	\$ 59
Apple 5.25 Disk Drive	\$ 259
Apple 5.25 Controller	\$ 59
System Gate 3.5 Daisy Chainable Disk Drive	\$ 189
Applied 5.25 Disk Drive	\$ 118
Applied Vulcan HD/20	\$ 499
Applied Vulcan HD/40	\$ 649
Applied Vulcan HD/100	\$ 1375
CMS 20 Meg w/SCSI	\$ 579
CMS 30 Meg w/SCSI	\$ 659
CMS 43 Meg w/SCSI	\$ 786
CMS 60 Meg w/SCSI	\$ 839

## Printers

ImageWriter II w/Cable	\$ 459
Epson LX-810	\$ 209
Panasonic KX-P1180	\$ 219
Panasonic KX-P1190	\$ 279
Olympia NP-30 w/Cable	\$ 289

## Printer Interface Cards

Apple Super Serial	\$ 109
Orange Grappler C/M/GS	\$ 79
Orange ProGrappler	\$ 82
Thirdware Fingerprint GSI Plus	\$ 85

## Modems

Applied DataLink 1200	\$ 135
Applied DataLink 2400	\$ 175
Practical 1200 SA Mini	\$ 85
Practical 2400 SA	\$ 185
IIGS/IIC Modem Cable	\$ 19

## PC Transporter

PC Transporter 768K	\$ 389
IIGS Installation Kit	\$ 45
IIC Installation Kit	\$ 39
Single 360K Drive	\$ 219
Dual 360K Drive	\$ 329

## Sound & Music

Apple MIDI Interface	\$ 79
Applied Sonic Blaster	\$ 99
Applied Audio Animator	\$ 179
Applied Phasor	\$ 132
Opcode MIDI Pro Plus	\$ 99



## Apple IIGS 512K Color System

Complete system includes:

- Apple IIGS 256K CPU w/Keyboard & Mouse
- Apple RGB Analog Monitor
- Apple 3.5" & 5.25" Disk Drives
- Apple ImageWriter II 220cps Printer w/cable
- Apple Memory Card with 256K
- Color Rainbow Ribbon
- 3.5" & 5.25" Diskettes - Box of 10 each
- Dust Cover for IIGS & ImageWriter II
- Computer Paper - Pkg. of 500
- Mouse Pad

Suggested List \$3257 Package #8920  
**CDA Price \$2399 Save Over \$850**

## Apple IIGS Super 20 Meg System

Same system as above with the addition of the New Applied Vulcan 20 Megabyte Hard Drive. (5.25" disk drive not included)

Suggested List \$4,054 Package #8918  
**CDA Price \$2,649 Save Over \$1,200**

Bose Roommate Speaker System	\$ 199
Passport MIDI Interface with Drum Sync	\$ 99
Passport MIDI Interface w/Tape & Drum Sync	\$ 139
<b>Power/Surge Protection</b>	
Applied Heavy Duty Power Supply for IIC/IIGS	\$ 59

EPD EC-1 6 Outlet Surge Protector	\$ 29
Kensington Sys. Saver IIC	\$ 68
Kensington Sys. Saver GS	\$ 77
Triplite 350 Watt UPS	
Battery Backup	\$ 399
<b>Input Devices and Joysticks</b>	
Apple IIC Mouse	\$ 79

Apple IIC Mouse w/Card	\$ 119
CH Mach II Joystick	\$ 29
CH Mach III Joystick	\$ 36
CH Flight Stick	\$ 48

## Digitizers & Scanners

ComputerEyes IIGS	\$ 209
ComputerEyes IIC	\$ 109
ThunderScan	\$ 179

## Time & Accelerators

TransWarp GS	\$ 299
TransWarp Accelerator	\$ 175
SMT No Slot Clock	\$ 39

## Memory Upgrades

We sell only pure Applied Eng. Memory Cards. Complete with 5 year warranty.

GS-RAM 0K	\$ 89
GS-RAM 256K	\$ 139
GS-RAM 512K	\$ 189
GS-RAM 1 Meg	\$ 299
GS-RAM 1.5 Meg	\$ 409
GS-RAM Ultra 256K	\$ 179
GS-RAM Ultra 512K	\$ 229
GS-RAM Ultra 1 Meg	\$ 319
GS-RAM Ultra 2 Meg	\$ 499
GS-RAM Plus 1 Meg	\$ 329
GS-RAM Plus 2 Meg	\$ 529
RamKeeper	\$ 142
RamKeeper Slot Mover	\$ 32
RamWorks III 256K	\$ 159
RamWorks III 512K	\$ 219
RamWorks III 1 Meg	\$ 329
RamFactor 256K	\$ 199
RamFactor 512K	\$ 259
RamFactor 1 Meg	\$ 359
RamCharger Backup	\$ 145
Ram Express 256K	\$ 219
Ram Express 512K	\$ 259
Ram Express 1 Meg	\$ 369
Ram Exp. Clock Option	\$ 49
Checkmate Mem Saver	\$ 119
Apple Memory Card 256K for IIGS	\$ 129
Applied Ingenuity Extd. 80 Column 64K IIC	\$ 49

## Chip Sets

Upgrade your IIGS, IIC, or IIC Memory card. Most memory cards take the 150ns chips. Recent revisions of the Applied GS-RAM use 120ns chips.

256K Chip Set 150ns	\$ 59
256K Chip Set 120ns	\$ 69
256K Chip Set for RamPak & GS-Ram Ultra	\$ 59
1Mb Chip Set GS-Ram+	\$ 129

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 Mail- GO CDA

**CDA** computer sales

*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.





inCider announces

# SPECIAL PRODUCTS

## DESIGNED WITH YOU IN MIND

For business, for personal use . . .  
practical and fun, these products will  
enhance your Apple II experience.

Power up your business . . .  
manage your affairs more effectively . . .  
boost your career with . . .

### Success with AppleWorks

by Ruth Witkin

Ruth Witkin, inCider's AppleWorks in Action columnist, has created these templates *exclusively for inCider*. Each volume of the popular *Success with AppleWorks* series delivers ten ready-to-use templates on a disk—all set up and ready for your data! Fast, efficient and error-free! Plus, each disk is accompanied by a detailed Documentation Booklet.

**VOLUME IV**—Annual Interest Calculations, Retirement Budget Plan, Business Statements, Business Startup Expenses, Resume Layouts, Stock Portfolio, Job Search Employer Database, Shopping Lists, Resumé Cover Letters, Investment Payouts

**VOLUME III**—Car Costs, Retirement, Living Expenses, Credit Cards, Return-Address Labels, Handbook, Wine List, Taxes, Loan II, Travel Expenses

**VOLUME II**—Cash Flow, Breakeven, Net Worth, Menu, 3-Across Labels, Income, Car Loan, Rent or Buy, Cover Letter, Important Numbers

**VOLUME I**—Mail List, Checkbook, Price Quote, Loan, Quote Letter, Newsletter, Price/Volume, Budget, Sales Report, Expenses

Build an instant library of exclusive AppleWorks applications with **SUCCESS WITH APPLEWORKS!**

Only \$29.97 each or SAVE \$40 and order all four for just \$79.97.

AppleWorks is a registered trademark of Claris Corporation. Requires AppleWorks version 2.0 or higher.

inCider's

### CLIP-ART COLLECTION

Get 400 images and designs working for you.

Bring a professional look to newsletters, lesson plans, flyers, announcements, memos and personal communications!

#### Borders! Fonts! Graphics!

**VOLUME I. HOLIDAY, VACATION AND TRAVEL**—

Enhance your holiday, special event or travel announcements with a variety of crisp, sharp designs.

**VOLUME II. ANIMALS AND PEOPLE**—A Noah's Ark full of animals from whales to bears. You get dozens of people too!

**VOLUME III. EDUCATIONAL IMAGES**—All 50 states and many foreign countries are here. Plus, major historic sites, international signs and more.

**VOLUME IV. BORDERS AND FONTS**—Add punch to every type of document with unusual border designs and eye-catching fonts.

This extensive four volume set provides all the top quality art you'll need for any project you assemble using The Print Shop or other compatible desktop-publishing program.

IIC/IE/IIGS Edition, just \$49.95 (four 5¼" disks)

IIGS Specific Edition\*, just \$69.95 (two 3½" disks)

\*requires The Print Shop IIGS

The Print Shop is a registered trademark of Broderbund Software.

**ORDER**

FOR IMMEDIATE SERVICE CALL

**TODAY!**

TOLL FREE 1-800-343-0728

or complete mail the coupon below.

#### SUCCESS WITH APPLEWORKS

Send me the following for just \$29.97 each:

- ☐ Volume I ☐ Volume II ☐ Volume III ☐ Volume IV  
☐ Send me all four Success with AppleWorks disks for just \$79.97—I save \$40 off the single volume price!  
☐ Foreign air mail, add \$3.95

SA95I

#### CLIP-ART COLLECTION

Send me the four volume Clip-Art Collection I've checked below:

- ☐ IIC/IE/IIGS Edition, just \$49.95  
(four 5¼" disks)  
☐ IIGS Specific Edition\*, just \$69.95 (two 3½" disks)  
☐ Foreign air mail, add \$3.95

\*requires The Print Shop IIGS

CA95I

☐ Check enclosed (please make payable to inCider)

Charge my ☐ MasterCard ☐ Visa ☐ American Express

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

Name \_\_\_\_\_

Address \_\_\_\_\_

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

Mail to: inCider Special Products, 80 Elm Street, Peterborough, NH 03458



Continued

```

TO READ/WRITE": PRINT "PRODOS MLI ERROR CODE = "
:EC;" (DECIMAL)": POP : GOTO 480 [13028]
470 RETURN [317]
480 VTAB 23: PRINT "PRESS <RETURN> TO CONTINUE": GET
K$: PRINT [6877]
490 IF K$ < > CHR$(13) THEN 480 [1908]
500 GOTO 140 [648]
510 REM ===== [2600]
520 REM TEST FOR GS FONT FILE TYPE [5227]
530 REM ===== [4038]
540 HOME : IF PEEK (784) = 200 THEN FT = 247: GOTO
600 [3237]
550 IF PEEK (784) = 247 THEN VTAB 10: PRINT FILES:
PRINT "ALREADY IS TYPE $F7": GOTO 480 [7663]
IF PEEK (784) < > 15 THEN 580: REM CATALOG? [2767]
570 PRINT CHR$(4);"CAT ";FILES: GET A$: GOTO 140 [2471]
580 VTAB 10: PRINT FILES: PRINT "ISN'T A GS FONT! T
RY AGAIN.": GOTO 480 [7694]
590 REM ===== [4570]
600 REM SAVE NEW FILE TYPE [3727]
610 REM ===== [4590]
620 POKE 771,195: REM SET FUNCTION CODE TO 'SET FIL
E INFO' [4346]
630 POKE 784,FT: REM CHANGE FILE TYPE [2818]
640 POKE 780,7: REM CHANGE NUMBER OF PARMS TO 7 [5802]
650 CALL 768: REM SET FILE INFO [3112]
660 GOSUB 400 [258]
670 HOME : PRINT "YOUR FONT HAS BEEN CHANGED!": GOTO
480 [5922]

```

## Listing 2. Music Maker.

```

10 REM MUSIC.MAKER [2357]
20 REM BY JAKE SZAT [2498]
30 REM COPYRIGHT 1989, INCIDER [4765]
40 GOSUB 1000: REM INIT SOUND [1696]
50 POKE 768, INT ( RND (1) * 256): REM PITCH [3308]
60 POKE 769, INT ( RND (1) * 10) + 1: REM DURATION [2854]
70 CALL 771 [978]
80 IF PEEK (49152) < 128 THEN 50: REM PRESS KEY TO
STOP [4956]
90 GET A$: END [858]
1000 REM INIT SOUND ROUTINE [1389]
1001 FOR I = 771 TO 798: READ N: POKE I,N: NEXT : RETURN
[2809]
1010 DATA 169,0,141,2,3,172,1,3 [2323]
1020 DATA 174,0,3,173,48,192,206,2 [2672]
1030 DATA 3,208,3,136,240,5,202,240 [4164]
1040 DATA 239,208,243,96 [2358]

```

## APPLE SOUND

by Jake Szat

**S**YNTHESIZERS, MIDI BOARDS, SOUND CARDS—UNLESS you purchase expensive equipment, the best an Applesoft program can do is create a lot of clicks and buzzes.

Here's a program that mixes machine language with BASIC to produce music from your Apple II. Type in Listing 2 and SAVE it as

MUSIC.MAKER. When you RUN it, this demonstration program GOSUBs (line 40) to a subroutine in lines 1000–1040, which POKE the machine-language music program into memory. Add that subroutine to your own BASIC programs you want to embellish with music.

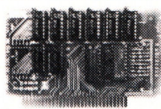
Lines 50–70 in MUSIC.MAKER demonstrate how to play notes by CALLing the machine-language music program: Simply POKE 768, the pitch value of your musical note (0–255). The pitch will deepen with higher numbers. Then POKE 769, how long you want your note to play (duration, 0–255). Finally, CALL 771 to play that selected note for the prescribed duration.

For a sample of what MUSIC.MAKER can do, try the demo—it sets the pitch and duration randomly to create "sci-fi" sound. □

Write to Jake Szat at 215 Harper Avenue, Winnipeg, Manitoba, Canada R2J 1K7.

## Ile KEYBOARD \$44.95

### Apple Compatible Cards and Products



**SALE!**

JE864 Pictured

16K RAM Card (Language Card) - Expand from 48K to 64K.  
**JE860** For Apple II and II+ .....\$34.95  
 Extended 80-Column Card - Doubles display & memory capacity  
**JE864** For Apple IIe.....\$39.95  
 Disk Drive Controller Card - Capable of handling 2 drives.  
**JE875** For Apple II, II+ and IIe.....\$34.95  
 Parallel Printer Card - Compatible with most dot matrix printers.  
**JE880** For Apple II, II+ and IIe.....\$39.95  
 12" Monochrome Green Monitor - Cable Included.  
**AMON** For Apple II, II+, IIe and IIc.....\$99.95  
 No-Slot Clock - Plugs into your motherboard -10 year battery.  
**IB137** For Apple IIe, IIc and IIGS.....\$39.95

### Apple II, II+ & IIe Replacement Keyboards

AKB



• All the same keys as the original II/II+ and IIe • Includes Cursor Control (AKB2E only) • Software Compatible  
**AKB** Apple II/II+ Replacement Keyboard .....\$39.95  
**AKB2E** Apple IIe Replacement Keyboard .....\$44.95

## APPLE DRIVES \$79.95

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

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

**JE1027** Disk Drive (for II, II+ and IIe) .....\$79.95  
**JE1028** Disk Drive - no controller needed (for IIc) .....\$79.95  
**AAM** Adapts standard Apple drives for use with IIc.....\$4.95

### Apple II/II+ Compatible Enhanced Keyboard/Case

Features: • 68 key keyboard • 15-key numeric keypad • Predefined function keys • Direct connection to motherboard • Fits original Apple II/II+ motherboard and power supply

**AEKB**...\$49.95

### Apple Cooling Fan For Apple II, II+ and IIe



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

### Switching Power Supply For Apple II /II+ /IIe

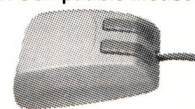


• 110V/220V • +5 @ 5A, +12 @ 2.5A, -5 @ 5A, -12 @ 5A  
**KHP4007**.....\$44.95

## IIc MOUSE \$29.95

### Apple IIc/Laser 128EX Compatible Mouse

• 6 ft. cord with 9-pin male connector • Also compatible with Macintosh 128K 512K & 512E • Size: 4"L x 2.325"W x 1.25"H • Color: Light Gray



**MACM**.....\$29.95

### ZIP CHIP

Increase the Speed of Your Apple up to 400%!

• Apple II, II+, IIe, IIc compatible • Replaces the microprocessor • Lifetime Warranty

**ZIP**.....\$139.95



### LocalTalk™ for AppleTalk™ Networking Applications

Part no.	Description	Price
AT8	8-pin DIN Connector (ImgWtr. II/LQ. LsrWtr. II NT/NTX, Apple II, II+, IIe or IIGS with AppleTalk Card) ....	\$19.95
AT7	6 foot AppleTalk Extension Cable .....	\$4.95
AT6	AppleTalk Coupler (Connects Two Cables).....	\$3.95

### Apple Cable Assemblies

APC2	Apple to ImgWtr. or GS/Mac to Modem Cable .....	\$4.95
APC3	Apple IIGS/Mac to ImgWtr. or LsrWtr. Cable ....	\$4.95
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

1355 SHOREWAY ROAD  
 BELMONT, CALIFORNIA 94002  
 24 HR. ORDER HOTLINE (415) 592-8097  
 Telex #176043 FAX (415) 592-2503  
 CUSTOMER SERVICE 7AM-5PM P.S.T.  
 (415) 592-8121



Mail Order Electronics - Worldwide  
**Jameco**  
 ELECTRONICS

15<sup>th</sup> ANNIVERSARY  
 1974 - 1989

\$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. 10/89

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



# READER SERVICE INDEX

## Reader Service Page

58	Abbs Discount Software	118
40	Abracadata	92
103	Alltech Electronics Co. Inc.	92
95	American Micro Research	85
*	Applied Engineering	11, 31, 39, 46
		47, 63, 75, 77, 83, 87, 90, 91
47	Applied Ingenuity	23
54	Applied Ingenuity	67
48	Barnum Software	118
179	Beagle Bros, Inc.	95
87	Bible Research Systems	120
151	Big Red Apple	19
225	Black Sun	119
66	Borg Industries	118
32	Britannica Software	CV4
116	Canadian Computer Outlet	121
8	CDA Computer Sales	113
*	Central Point Software	37
94	Choice Computer Products	119
*	Compucraft	121
124	Compuserve	71
109	Compushare	119
205	Computer Direct, Inc.	64, 65
288	Computer Friends	81
*	Computer Learning Foundation	102, 103
142	Computers Plus Company	117
80	Dandam Software	117
134	Dayton Computer Supply	120
73	DMA Technologies	119
220	Educational Resources	99

Reader Service	Page	Reader Service	Page
135	Entertainment Online	18	280
85	Fas-Track Computer Products	21	128
132	First Class Peripherals	89	*
61	GE Ridge Services	118	136
*	Golem Computers	2, 3	7
27	Gosselin Computer Services	120	117
20	Grade File	120	90
*	inCider		185
	Clip-Art Collection	114, 123	41
	Success with AppleWorks IV	114, 121	240
*	Intelligent Software, Inc.	100	143
23	International Software Library	118	277
43	Island Computer Services	119	292
70	Island Computer Supply	117	96
199	Jameco Electronics	115	127
30	KAT	121	270
*	Kensington Microware	CV3	18
131	Kinson Products	41	*
175	Laser Computer Inc.	CV2	156
222	Learning Services	70	110
147	MECC	18	78
248	Memory Plus Distribution	111	11
4	Merritt Computer Products	121	10
86	Miccasoft, Inc.	101	68
55	National AW User Group	120	140
173	New Science Prospects	119	243
271	Nikrom	93	50
89	North Forty Enterprises	120	297
*	NRI Schools	68A	283
145	Origin Systems	43	272
42	Origin Systems	5	260
77	PIE	118	
84	Precision Data Products	117	
*	Preferred Computing	73	
105	Price Busters	27	
	Print Shop User Group	93	
	Programs Plus	32, 35	
	Public Domain Exchange	20	
	Quality Computers	28, 29	
	Ramco Computer Supplies	119	
	Ribbonland	98	
	Roger Coats	14, 15	
	S.A. AuTeur Company	120	
	Scholastic	9	
	Sensible Software	12	
	Silicon Express	97	
	So What Software	106	
	Softdisk	1	
	Softronics	117	
	SoftSpoken	118	
	Software Disc. of America	105	
	Sports Software Assoc.	119	
	Street Electronics	6	
	subLOGIC Corp.	109	
	Taito Software Inc.	25	
	TCX Ltd.	121	
	Telexmax	117	
	The Experts	121	
	Thunderware	13	
	Timeworks	45	
	TML Systems	26	
	Tom Snyder Productions	107	
	USA Micro	40	
	Virginia Reel Company	118	
	Word Perfect Corp.	79	
	Zimco Int.	4	

This index is provided as an additional service. The publisher does not assume liability for errors or omissions.

## inCider

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.

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 contribute to the new IDG News Service offering the latest on domestic and international computer news. IDG Communications publications include: ARGENTINA'S *Computerworld Argentina*, ASIA'S *Communications World*, *Computerworld Hong Kong*, *Computerworld Malaysia*, *Computerworld Singapore*, *Computerworld SE Asia*, *PC Review*; AUSTRALIA'S *Computerworld Australia*, *Communications World*, *Australian PC World*, *Australian Macworld*; AUSTRIA'S *Computerwelt Oesterreich*; BRAZIL'S *DataNews*, *PC Mundo*, *Micro Mundo*; CANADA'S *Computer Data*; CHILE'S *Informatica*, *Computacion Personal*; DENMARK'S *Computerworld Denmark*, *PC World Denmark*; FINLAND'S *Mikro*, *Tietovikko*; FRANCE'S *Le Monde Informatique*, *Distributive*, *InfoPC*, *Telecom International*; GREECE'S *Micro & Computer Age*; HUNGARY'S *Computerworld/SZT*, *Mikrovilag*; INDIA'S *Dataquest*; ISRAEL'S *People & Computers Weekly*, *People & Computers Biweekly*; ITALY'S *Computerworld Italia*; JAPAN'S *Computerworld Japan*; MEXICO'S *Computerworld Mexico*; THE NETHERLANDS' *Computerworld Netherlands*, *PC World Benelux*; NEW ZEALAND'S *Computerworld New Zealand*; NORWAY'S *Computerworld Norge*, *PC World Norge*; PEOPLE'S REPUBLIC OF CHINA'S *China Computerworld*, *China Computerworld Monthly*; SAUDI ARABIA'S *Arabian Computer News*; SOUTH KOREA'S *Computerworld Korea*, *PC World Korea*; SPAIN'S *CIMWORLD*, *Computerworld Espana*, *Commodore World*, *PC World Espana*, *Comunicaciones World*, *Informatica Industrial*; SWEDEN'S *Computer Sweden*, *MikroDatorn*, *Svenska PC World*; SWITZERLAND'S *Computerworld Schweiz*; UNITED KINGDOM'S *Computer News*, *DEC Today*, *ICL Today*, *LOTUS*, *PC Business World*, *UNITED STATES' AmigaWorld*, *CD-ROM Review*, *CIO*, *Computer Currents*, *Computerworld*, *Computers in Science*, *Digital News*, *Federal Computer Week*, *80 Micro*, *FOCUS Publications*, *inCider*, *InfoWorld*, *Macintosh Today*, *MacWorld*, *Computer & Software News* (Micro Marketworld/Lebhar-Friedman), *Network World*, *PC World*, *Portable Computer Review*, *Publish!*, *PC Resource*, *RUN*, *Windows*; VENEZUELA'S *Computerworld Venezuela*; WEST GERMANY'S *Computerwoche*, *Information Management*, *PC Welt*, *PC Woche*, *Run*.

**Problems with Advertisers:** Send a description of the problem and your current address to inCider, Route 101 and Elm Street, Peterborough, NH 05458, attn. Rita Rivard, Customer Service Manager. If urgent, call (800) 441-4405.

**Problems with Subscriptions:** Send a description of the problem and your current and/or most recent address to: inCider, Subscription Department, P.O. Box 58618, Boulder, CO 80322-8618. Or call (800) 525-0643, 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 you.

**Change of Address:** Send an old label or a copy of your old address and new address to: inCider, P.O. Box 58618, Boulder, CO 80322-8618. Please give eight weeks' advance notice.

**Microfilm:** This publication is available in microform from University Microfilms International. United States address: 300 North Zeeb Road, Dept. P.R., Ann Arbor, MI 48106. Foreign address: 18 Bedford Row, Dept. P.R., London, WC1R4EJ, England.

**Dealers:** Contact Linda Ruth, Direct and Newsstand Sales Manager, inCider, Route 101 and Elm Street, Peterborough, NH 05458. Call (800) 543-0728.

**Back Issues:** Send \$3.50, plus \$1.00 postage for each copy to inCider, Back Issues Dept., Route 101 and Elm Street, Peterborough, NH 05458. 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.



## 24 TERMINAL EMULATIONS

**Softerm 2**, an advanced communications package, includes 24 terminal emulations such as:

- DEC VT52, VT100, VT102
- IBM 3101-20 (block mode)
- HP 2622A • VIP7801, 7803
- DG D200 ... and many more.

*Guaranteed Compatibility!!*

**Supports** Script Files, Disk Capture, Softekeys, ProDos (floppy), DOS, CP/M, Pascal, & most vendor boards/modems.

Comes with Keyboard enhancer.  
For the Apple II, II+, IIe, IIC, IIGs.

**\$195 MC-VISA-COD**

**SETRONICS**

1-800-225-8590

Call for information

(719) 593-9540

(719) 548-1878 FAX

Telex 450236

Circle 96 on Reader Service Card.

# MARKETPLACE

Marketplace Ads get results! You can place an ad in this attention-getting section at a very reasonable cost. Call Fiona toll-free at **800-441-4403** for helpful advice and reservations. Start seeing *your* ad here next month!

CANADIAN M.

SPECIAL  
128EX/2  
CALL



**DANDAM  
SOFTWARE**

"We specialize in Apple II Software & Peripherals"

**LASER 128EX-384K \$679 2 Yr. CDN. WARRANTY**

LASER 3.5" DRIVE \$269 with U.D.C. \$358.00

LASER 5.25" DRIVES \$145 /e or /c

AUTHORIZED APPLIED ENGINEERING DEALER

LARGE SELECTION OF APPLE II & IBM SOFTWARE

TIMEOUT SERIES - SPRINGBOARD - TIMEWORKS - EPYX

**CHINOOK HARD DRIVES FROM \$849.00  
EDUCATIONAL DISCOUNTS**

MODEMS - CMS HARD DRIVES - ZIP CHIP

MANY NEW PRODUCTS ARRIVING EVERY DAY

WE ARE 100% CANADIAN OWNED & OPERATED

member of the BETTER BUSINESS BUREAU OF WINDSOR

Call for free Catalogue

**\$ CANADIAN FUNDS \$**

TOLL FREE

CANADA WIDE

P.O. Box 3374 Tacumseh, Ontario. N8N 3C4 • Canada  
(519) 974-3011 ORDER DESK 1-800-265-9576

Circle 80 on Reader Service Card.

## For IIGS & IIe

**Transwarp for:GS \$289,IIe\$169**

**GSRAM PLUS 1Meg \$278; 2 Meg \$399**

**1 Meg memory set for GS Ram.....\$120**

**256K 150ns set for IIGS memory card\$59**

**System Saver (Kensington) for IIGS.....\$65**

**CH Mach III Joystick (Platinum) \$32**

**Turbo Mouse Kensington ADB for IIGS\$109**

**If you are likely to switch to Mac, get an SCSI External Hard Drive for IIGS:**

The following drives work perfect with Mac Plus, Mac SE, Mac IIX as well as IIGS & SCSI I/F kit.

**40Meg \$499, 60Meg \$599, 100Meg \$849**

**Add \$149 for GS OS 5.0 formatable IIGS interface(I/F) kit.**

Internal non SCSI drives (Specify whether for IIGS or IIe)

**AI's Inner Drive 20 Meg \$459,40 M \$589**

**AE'sVulcan 20Meg\$489,40M\$639,100M\$1299**

**Imagewriter compatible Printers with cable:-**

**Fortis 1310AP (friction/pin feed).....\$229**

**Fortis 2210AP (240cps wide carriage).....\$449**

**20-pinDrive Adaptor for IIGS/IIc+.....\$39**

**Grappler c/Mac/GS \$89, Grappler Plus ..\$89**

**Appleworks GS \$195,AppleWorksIIe,IIc \$179**

## HyperStudio IIGS \$79

**DB Master Version 5 .....\$99**

**DB Master Professional .....\$189**

**6 Ribbons for Scribe Color or black\$24**

**6 Ribbons for Imagewriter,Black .....\$24**

**6 Ribbons for Imagewriter multicolor\$42**

Circle Reader Service Card for a free catalog.

**Note 1:** Shipping \$5 per \$100 by surface in USA.

Extra for other modes of shipment.

**Note 2:** Prices subject to change w/o notice.

**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**

Circle 142 on Reader Service Card.

## Incider Adds

### POWER To APPLEWORKS!

Get Ruth K. Witkin's popular disks

"Success with AppleWorks" Vol I and Vol II

Each volume contains 10 easy-to-use

templates and is accompanied by an attractive documentation booklet.

#### Vol I

- Mail List
- Price Quote
- Quote Letter
- Price/Volume
- Sales Report
- Checkbook
- Loan
- Newsletter
- Budget
- Expenses

#### Vol II

- Cash Flow
- Net Worth
- 3-Across Labels
- Car Loan
- Cover Letter
- Breakeven
- Menu
- Income
- Rent or Buy
- Important Numbers

Only **\$29.97** each or **\$53.94** for both.

Order Now—Call Toll-Free

**1-800-343-0728**

Incider Magazine—80 Elm St—Peterborough, NH 03458

Circle 11 on Reader Service Card.

## FACTORY FRESH RIBBONS

Ribbon	Black	Color
Apple Imagewriter I, II	\$ 2.50	\$ 3.00
Imagewriter II 4 color		\$ 7.95
Imagewriter II 4 color Heat transfer	\$10.50	
Imagewriter LQ (Black or 4C)	\$12.50	\$15.95
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.

### Genuine Sony® Disks

3.5" DSDD (1.0 MB)

50/Pkg. #SB-2DD

**87¢** 200+

**89¢** Less than 200



### 3M Data Cartridges



DC2000

DC300XL/P

DC600A

1-9

10+

\$16.95

\$15.95

\$18.95

\$17.95

\$20.95

\$19.95

### 5.25" DSDD Disk

W/Env. & WP Tabs

Lifetime Warranty



**29¢** ea. Min. 50

### 3.5" Storage Box

Protects 45 Diskettes

**\$2.99** 12+

**\$3.99** Less than 12



### 6 Outlet Surge & Spike Protector

✓ 6' Cord

✓ Lighted Switch

✓ U.L. Approved

#PP112 **\$9.95** ea.

### 3.5" DS/HD (2.0 MB)

50 per Pk.



**\$1.99**

**Order Toll Free: 1-800-258-0028**

Minimum 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.



## 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.

## NEW! A REAL TREASURE HUNT ADVENTURE

Problems seem insurmountable but nothing quite prepares you for the Great Temple.



intro. special  
**\$34.95**

THE GREAT TEMPLE OF MOCTEZUMA

TENPINS DUCKPINS  
**ANCHORMAN**

REALISTIC BOWLING  
**\$39.95**

"the next best thing to a trip to the local bowling alley." Neil Shapiro, nibble  
"really is good fun." Lefe Low, inCider  
**Satisfaction Guaranteed**



**Virginia REAL**

VISA/MC CALL (804) 587-4952  
Check/M.O. MAIL To: Virginia Real Software, Inc.  
Box 8545, Norfolk, VA 23503

Circle 283 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. ↔ WordPerfect**

Keeps underline, bold, center, margins, etc!

**Spreadsheet ↔ 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 (Ile, Ilc, & Ilgs to PC, XT, AT, PS/2 & compatibles). Supports modem transfers too.

5 1/4 & 3 1/2 inch disks.  
Only \$79.95!

Call (919) 878-7725  
for free information.

**SoftSpoken**

P.O. Box 97623  
Raleigh, NC 27624

Circle 127 on Reader Service Card.

## CUT RIBBON COSTS



Re-ink your ribbons  
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**

**B** Borg Industries, Ltd. In Iowa  
Janesville, IA 50647 319-987-2976

Circle 66 on Reader Service Card.



## DISCOUNT SOFTWARE

11 S. Wright Avenue  
Fairborn, Ohio 45324

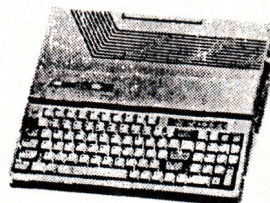
CALL TOLL FREE: 1-(800)-282-0333 CUSTOMER SERVICE & OHIO RESIDENTS 1-(513)-879-9699

### APPLE COMPATIBLE

Laser 128... \$369.00, Laser 128 EX... \$429.00

#### ACCESSORIES & PERIPHERALS

5 1/4" Disk Drive . . . . .	95.00	Laser 128 Mouse . . . . .	59.00
3 1/2" Disk Drive . . . . .	179.00	Laser 128 Cables . . . . .	16.95
2-Slot Expansion Box . . . . .	54.95	Laser Tech Ref. Manual . . . . .	22.95
Universal Disk Controller . . . . .	74.95	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 add \$3 orders under \$50. HARDWARE and all orders requiring shipment via U.S. Post Office are subject to additional freight charges. C.O.D. orders under \$100.00 are accepted-add \$5. Charge card orders add \$2 service charge. Ohio residents add 6% sales tax. Personal checks require a three-week waiting period. All items subject to availability and price change. ALL RETURNS MUST BE ACCOMPANIED BY AN AUTHORIZATION NUMBER. FOR YOUR PROTECTION WE CHECK FOR CREDIT CARD FRAUD.

Circle 58 on Reader Service Card.



## WIN LOTTO MILLIONS\$!

NOW FOR APPLE! LOTTO PICKER PLUS, the original lottery selection software, allows you to store winning Lotto, Keno, & Pick 3 numbers & choose between three modes of probability analysis (hot, due, unbiased) in order to give you the winning edge! Guaranteed to work for all lotteries. Bonus numbers are easily handled and our full-featured database editor gives you access to your files. We give you the PICKS—not a bunch of jumbled statistics! \$39.95 for 5.25" disk. \$44.95 for 3.5" (+ \$2.55 S/H). For all Apple II, Laser, MS-DOS, and Commodore 64/128. NY residents please add sales tax. NOT Copy-protected!

CREDIT CARD ORDERS:  
1-800-634-5463 ext. 293  
GE RIDGE SERVICES  
170 Broadway, Suite 201-1C  
New York, NY 10038 Info 718-317-1961



Circle 61 on Reader Service Card.

## The Quarter Mile™

It's a hot arcade-style MATH game for ages 5 thru adult. Whole numbers, fractions, percents and more! With accessory disks: 150 topics / 34,000 problems.



- It's a fast moving, animated 6-lane drag race (like video arcade games), complete with smoke, screeching tires and screaming engines (has volume control).
- The lanes scroll down the screen faster and faster as the dragsters accelerate.
- Your dragster gains speed each time you answer a math problem correctly.
- Your competitors (in the other 5 lanes) are video images of your own best 5 races replayed exactly as they occurred -- **screeching tires and all!**

**\$45.00**

Add 5% for s/h;  
CA residents add 6% sales tax.

Demo:  
**\$3.00**

CALL (800) 332-3638 • In CA (415) 268-0804

**Barnum Software**

2201 Broadway, Suite 201C, Oakland, CA 94612

Circle 48 on Reader Service Card.

## NEW LOWER PRICES

### CARDS: LOWEST PRICES

Extended 80 Column w/64K (Ile).	\$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 eeprom burner	49.95
Ile Keyboard replacement	59.95
IIGS 1 Meg/Ram card	CALL
Disk Notcher	4.95

1 year warranty. Add 5% shipping (minimum \$5); APO/Canada add \$2 extra). VISA/MC add 4% Minnesota residents add 6% sales tax.

**P.I.E.**

P.O. Box 13509, MINNEAPOLIS, MN 55414  
612-545-1715 (11 am- 7 pm Mon-Fri)

**SCHOOL P.O. & DEALERS WELCOME**

Circle 77 on Reader Service Card.



## Choice Computer Products

PO BOX 8432, CEDAR RAPIDS, IA 52408  
CUSTOMER SATISFACTION IS OUR #1 PRIORITY

AUTHORIZED **AE** APPLIED ENGINEERING™ DEALER

### FACTORY INSTALLED / WARRANTED RAM

PC TRANSPORTER	\$374	SONIC BLASTER	\$ 97
SINGLE TRANSDRIVE	.194	AUDIO ANIMATOR	.179
DUAL TRANSDRIVE	.292	PHASOR	.127
IIGS KIT	.37	DATALINK 1200	.134
IIE KIT	.29	DATALINK 2400	.179
RAMWORKS III 256K	.157	SERIAL PRO	.104
RAMFACTOR 256K	.194	PARALLEL PRO	.74
RAMCHARGER	.134	COLORLINK	.97
GS RAM 256K	.134	VIEWMASTER 80	.119
GS-RAM ULTRA 256K	.160	AE EXTENDED 80	.74
GS RAM + 1MEG	.314	TIMEMASTER	.74
RAMKEEPER	.142	H.D. POWER SUPPLY	.59
RAM EXPRESS 256K	.202	AE DISK DRIVES	.112
RAM EXPRESS D-CLOCK	.44	POCKET ROCKET	.74
TRANSWARP GS	.309	TRANSWARP	.127
VULCAN 20	.487	VULCAN 40	.637

### OTHER FINE PRODUCTS

KENSINGTON SYSTEM SAVER IIGS	\$ 76	KENSINGTON SYSTEM SAVER IIE	\$ 69
CHINOOK 20MEG	.550	SCSI INTERFACE	.125
CHINOOK CT20C	.669	APPLEWORKS GS	.229
CHINOOK 40MEG	.738		

Call 319-396-2306 (9 am to 9 pm)

MasterCard, Visa, COD, P.O. & Checks Accepted Prices subject to change

Circle 94 on Reader Service Card.

## RENT SOFTWARE

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



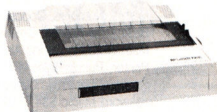
Circle 225 on Reader Service Card.

### NEW SCIENCE PROSPECTS

"Your Full Laser Computer Service Center."

## LASER® Printers

Apple  
ImageWriter  
Compatible



The perfect accessory for your Laser 128®, Apple® II, or Macintosh® system. Fight back against the high cost of an ImageWriter. Choose a Laser Printer. The reliable and affordable alternative!

#### Laser® 190A

10" carriage

parallel Int. \$219.00  
Serial Int. \$259.00

#### Laser® 240

15" carriage

parallel Int. \$359.00  
Serial Int. \$439.00

Also Computers—Drives—Peripherals!

8938 Spring Branch Dr. • Houston, TX 77080  
(713)464-7071 (800)777-8288 orders only

Cash or certified checks. COD orders add \$2.30 plus shipping.

SEND YOUR CHECK TODAY—AND WE PAY SHIPPING!!

Circle 173 on Reader Service Card.

## For results you can predict.

9 out of 10 users will not get what they want from their computers.

Research shows many people do not feel they are getting what they want from their computers.

Your computer should help you be creative, get organized, make decisions, get the job done right.

Don't miss out any longer.

Can you afford to miss out any longer? It's time to be the master of your machine.

Circle CompuShare's Reader Service Card number and be the one user who does.

CompuShare has what you want.



For results you can predict  
(206) 776-9890

Circle 109 on Reader Service Card.

## COLOR RIBBONS & PAPER

Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

Ribbons: price each	Black	Color	T-Shirt Ribbons
Apple Image, I & II	\$3.75	\$4.50	\$6.50
Apple Image, II 4-Color		\$7.50	\$10.50
Epson MX-80	\$3.75	\$4.50	\$6.75
Okidata 182/192	\$6.50	\$7.50	\$6.00
Panasonic KXP 1090	\$6.75	\$7.75	

#### T-Shirt (Heat Transfer Ribbons)

Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

Color Paper	200 shts assorted	
Bright Pack:	9 1/2 x 11	\$11.95/pk
Pastel Pack:	9 1/2 x 11	\$11.95/pk
Color Certificate Paper:	100 sheets	\$12.00/pk
Color Banner Paper:	45 ft./roll	\$ 9.95/roll
Greeting Cards:	50 cards & 40 envelopes/pk	\$11.95/pk

Min. orders: \$25.00. Minimum S&H: \$3.50. Call for other ribbons and supplies. Price and spec. are subject to change w/o notice.

### RAMCO COMPUTER SUPPLIES

PO Box 475, Manteno, IL 60950 U.S.A.

USA 800-522-6922 or 815-468-8081

(Canada) 800-621-5444

Circle 7 on Reader Service Card.

## 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!

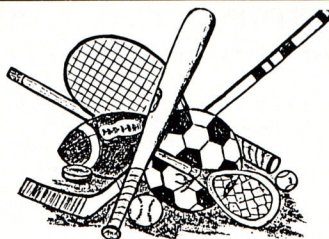
ISLAND COMPUTER SERVICES

3501 E. YACHT DRIVE

LONG BEACH, N.C. 28465

919-278-9483 919-278-7444

Circle 43 on Reader Service Card.



## Sports Scheduler

#### FEATURES:

- Any league or category with 4 to 22 teams.
- No limit on the number of categories that can be scheduled.
- Equal distribution of teams in playing slots.
- Up to 231 games per schedule.
- Dates calculated automatically.
- Schedules list date, day, time, location, game number and opponents for each game.
- Only minutes to schedule a league or category.

APPLE IIE (128K) IIC, IIGS	99.95
IBM PC & Compatibles	+ 3.00 S&H
	\$102.95

Send check or money order to:  
SPORTS SOFTWARE ASSOCIATES  
75 Recreation Park Drive, Hingham, MA 02043  
(617) 749-7880

Circle 18 on Reader Service Card.

## 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 IIGS 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.**

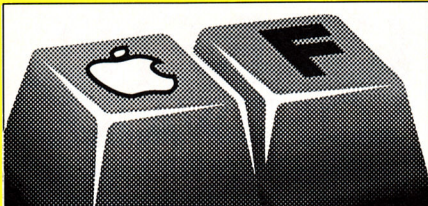
601 Pine Ave., Goleta, CA 93117

Call 805-964-0733 for information

Fax: 805-964-0734

Circle 73 on Reader Service Card.





**Trying to find the best source of AppleWorks information?**

Read the AppleWorks Forum, the largest and most comprehensive monthly AppleWorks newsletter. Only \$27 a year.

National AppleWorks Users Group  
Box 87453  
Canton, Michigan 48187  
(313) 454-1115

Circle 55 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.

**COMPUTER GRADING WITH FLEXIBILITY**





**GRADE FILE**  
The Most Versatile Grading Program Available Today!

Fast Easy Editing, Three Grading Formulas  
Category Grading, Extra Credit  
Term Grade Storage, Term Grade Averaging  
Determine Your Letter Grades Using Percents Or  
Curve Your Grades Using Grade File's Visual On Screen System.

**Give Your Apple The Power To Match Your Personal Grading Style**

30 Day Money Back Guarantee  
For the Apple® IIE, IIG, IGS \$49.95 Plus \$3.00 Shipping  
Call Toll FREE 1-800-552-3354  
Or 406-293-6910

  **GRADE FILE**  
812 Reserve Rd.  
Libby, MT 59923

Apple is a Registered Trademark Of Apple Computer Inc.

Circle 20 on Reader Service Card.

## QUALITY AT A DISCOUNT

### HARD DISK & FLOPPY DRIVES:

AMR 3.5" 800K GS Compatible Daisy Chain.....	199
5.25 Drive \$115 5.25 Daisy Chainable.....	145
Chinook SCSI, Auto Parking, Multi Language, Stackg:	
68ms: 20Mb 625 29ms/40Mb \$790 lic.....	769
19ms: 80Mb 1399 105Mb.....	1475
Crate Technology w/card: 20 Mb \$599 40Mb.....	750
60Mb \$823 80Mb \$916 100Mb \$999 160Mb.....	1499
Cutting Edge w/o SCSI: 30Mb \$25 45Mb.....	599
Inner Drive 20Mb \$474 40Mb \$660 (specify 2e/GS)	
Vulcan Inter.: 20Mb \$485 40Mb \$635 100Mb.....	1345

### APPLIED ENGINEERING:

Audio Animator (Due Nov) \$185 Sonic Blaster.....	99
DataLink Modem 1200 Bd \$135 2400 Bd.....	174
GS Ram Plus: 1Mb \$259 2Mb \$394 3Mb.....	529
4Mb \$665 5Mb 800 6Mb 935 7Mb.....	1385
GS Ram Ultra: OK 125 256K 170 512K.....	215
1Mb 294 1.5Mb 395 2Mb 485 3Mb.....	660
Parallel Pro \$74 BufferPro 32K 81 Add'l 32K.....	6
PC Transporter 768K \$374 Math Co-Processor.....	179
Keyboard \$110 Installation Kit GS \$39 Ile/+.....	31
Single Drive \$199 Dual \$299 Xtra Dr.....	110
RamCharger \$135 RamKeeper \$147 Slot Mover.....	32

Ram Express: 256K 199 512K \$245 1Mb.....	337
Ramfactor OK 149 256K 195 512K.....	240
1Mb \$333 2Mb 625 3Mb 750 4Mb.....	895
RamWorks III OK 111 64K 135 256K.....	150
512K 200 1Mb 299 2Mb 535 3Mb.....	670
Transwrap for GS 292 Transwrap 2e/2+.....	130
Z Ram Ultra 1 OK \$110 256K 150 512K.....	200
Z Ram Ultra 2 OK 169 256K 215 512K.....	261
768K \$307 1Mb 355 Z Ram Ultra 3 OK.....	232
256K 278 512K 324 768K 370 1Mb.....	415
Ram Chips: 256K 100/120/150ns sets of 8.....	42
1Mb: 80ns \$135 100ns or 120ns \$120 (Sets of 8)	

### LASER COMPUTERS:

Laser 128 \$365 128EX \$445 EX2 Due 12/89.....	Call
3.5" Drive + UDC Controller \$255 3.5" Dr.....	190
Mouse \$49 Ext Expan Bx \$59 TV Interf.....	\$29

### MUSIC, HARDWARE AND SOFTWARE

Bose RoomMate Speakers \$229 DiversiTune.....	55
Glasstracks \$79 Instant Music.....	33
Instrument Designer \$95 Mr. Py&L.....	44
Master Tracks Pro Ile \$190 NEW GS Pro.....	295
Master Tracks \$170 Master Tracks Jr.....	99

### MIDI: Passport w/Drum Sync/Specify GS

or 2E/2+.....	89
w/Drum&Tape \$135 Apple MIDI.....	79
MIDI Trans. \$59 Music Shapes \$140/Lab pk.....	315
Music Const. \$33 Music Studio \$75 Music Tutor.....	172
OpCode Prof \$128 Personal Musician.....	104
PolyWriter \$190 Utilities \$65 MIDI 8+.....	110
Softwood GS \$60 Studio +2.....	\$233
SuperSequen.....	185
Supersonic \$49 Digitizer \$49 Digitizer Pro.....	152

### PRINTERS, GRAPHICS, HARDWARE & SOFTWARE

Award Maker + \$24 C/Mac/GS.....	\$78
Cert Maker Lb.....	19
Computer Eyes: Ile/+ \$99 GS \$190 Camera.....	240
Clip Art \$21 Dazzle Draw \$39 Deluxe Paint II.....	65
FingerPrint GSi #2 \$79 Plus \$89 G+.....	59
Geos \$49 Geos w/C+ Mouse \$95 Geo Publish.....	64
Graphic Edge + Fonts \$50 GraphicWriter 2.0.....	99
ImageWriter II Buffer 64K \$63 128K.....	93
Kurta Tablet IS/ADB.....	\$299
8.5x11 \$299 12x12.....	445
Merlin 816 \$88 Paintworks Plus \$30 Printech.....	37
MultiScribe 3.0 \$59 GS \$65 GS Font Library.....	14
PaintWork Gold \$66 ProGrappler \$89 PublishIt.....	79

PrintShop \$29 GS \$39 Complan \$25 Graphic Lib.....	16
Spectragraphix \$65 SpringBd Publ \$84 Fonts.....	19
ThunderScan 159 Top Draw \$58 Writs. Choe El.....	64

### EDUCATIONAL

AppleWorks 3.0 \$189 2.0 \$195 Appleworks GS.....	197
Sticky Bear ABC, Basket Bounce, Bop, Math I.....	24
Math II, Numbers, Opposites, Reading, Shapes.....	24
Basic, Car Builder, Drawing, Map Skill, Music.....	31
Math Word Pr, Talking Alpha, Parts of Speech.....	31
Printer, Punct. Rules, Reading Compreh.....	31
Spellgrabber, Townbuilder, Typing, Vocab.....	31
Crossword Magic \$34 Designaasurus \$24 GS.....	28
Revolution 76 \$28 Geometry \$55 Math Blast +.....	29
Where in the World is CS \$25 Europe or USA.....	29
World GS or USA GS or Europe GS.....	29

**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% surcharge: 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.

## FRENCH GERMAN EuroWorks™ ITALIAN SPANISH

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 "f") 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; an 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  
Apple®, AppleWorks®, ImageWriter® by Apple Computer, Inc.

Check, Money Order, Net-30 School PO, Visa, or MC

**The S.A. NetTeur Co: A66**  
P.O. Box 7459 Beaverton, OR 97007  
(503) 645-2306

Circle 185 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 CONSULTANTS

P.O. Box 1083  
Brighton, MI 48116  
(313) 229-2453



Circle 27 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	—	7.95
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.



**GOOD THINGS COME IN SMALL PACKAGES!**

## COLORED PAPER

School Approved

1-800-322-2580  
In Michigan (313) 227-9401

VISA, MC, C.O.D.  
Minimum Order \$25.00  
S/H Add \$3.50

**A. - BRITETONES • 9-1/2x11 • CLEAN EDGE**  
Red • Yellow • Green • Hot Pink • Blue • Gold

**PRISM PACK** 25 of each color.....\$12.95  
Single Color 50 Pack.....\$ 3.95  
Envelopes 25 Single Color.....\$ 2.50

**B. - SOFTONES • 9-1/2x11 • CLEAN EDGE**  
Pink • Ivory • Green • Yellow • Blue • Lilac

**PRISM PACK** 25 of each color.....\$10.95  
Single Color 50 Pack.....\$ 3.25  
Envelopes 25 Single Color.....\$ 2.50

**C. - GLOTONES • 9-1/2x11 • CLEAN EDGE**  
Glo Pink • Glo Melon • Glo Lemon

**PRISM PACK** 25 of each color.....\$ 6.95  
Single Color 50 Pack.....\$ 4.95  
Envelopes 25 Single Color.....\$ 2.50

**D. - CERTIFICATE PAPER • 9-1/2x11 • CLEAN EDGE**

**PARCHMENT PACK** 25 with Gold Metallic Seals.....\$ 4.95

Write for Our **FREE** Brochure Featuring  
**COLORED PAPER & SEASONAL PACKS**  
Continuous Labels, File & Post Cards, Disks,  
Classic Laid Stationery and Much More!

The Experts • PO BOX 928 • Brighton, MI 48116

Circle 10 on Reader Service Card.

## STITCH GRAPHER

### 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.

Circle 11 on Reader Service Card.

## APPLE II POWER USERS!

### HARD DRIVES

KAT 33MB / 48MB SCSI W/Cable .....\$499 / \$549  
KAT 65MB / 84MB SCSI W/Cable .....\$649 / \$749  
KAT 44MB SCSI Removable / Cartridge .....\$779 / \$899  
AI Inner Drive 20MB / 40MB .....\$459 / \$659

### PERIPHERALS

AI GS Juice Plus 1MB / 2MB .....\$279 / \$449  
Cardinal 2400 Ext. Hayes Comp. USA Made .....\$129  
Checkmate Memory Saver / Extender .....\$119 / \$35  
Cirtech SCSI, Memory, StatDisk, Farns .....\$69 / \$79  
Kensington System Saver / GS .....\$129  
Kensington Turbo Mouse ADB or Regular .....\$99.95 / Call  
MDIdeas OctaRam ØK, Other Products .....\$24.99  
Ohio Multi-Kache Card / SCSI Option .....\$349 / \$390  
Ram 256K / 1M / 1M SIMM .....\$6.25 / \$15.99 / \$149.99  
Zip Chip 4MHz / 8MHz .....\$129 / \$169

### SOFTWARE

Checkmate ProTERM 2.1 .....\$89  
Claris Appleworks Classic / GS .....\$175 / \$199  
Manzanita BusinessWorks / Payroll .....\$299 / \$139  
Milliken Medley .....\$119  
Stone Edge DB Master Professional .....\$219  
TF 500 Phone, FAX, Modem, TAD Switcher .....\$299  
Murata 1200 Fax / Other Brands .....\$599 / Call  
Bulk Generic DS/DD 3.5 Floppies (min. 50) .....\$89

Call for those hard to find hardware, software, and office supply items!

## KAT

Prices subject to change without notice.

Call: (913) 642-4611  
Or Mail Orders To: KAT  
P.O. Box 335, Mission, KS 66201

Circle 30 on Reader Service Card.

# CANADIAN COMPUTER OUTLET



**LASER**  
128 EX/2 \$599



**CHINOOK**  
CT-20C \$869  
CT-20 \$799  
CT-40 \$999



**cordata**  
BRIDGE  
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 (416) 849-0918 FAX

Circle 116 on Reader Service Card.

## Protects while you type!



- Remains in Place while you type.
- Protects from dust, spills, smoke, ashes, staples.
- Soft, Flexible, retains normal keyboard feel.
- Washable, Durable High-Tech Polymer lasts years.
- Hundreds of Models. PCs, laptops, clones.
- Office • Home • Factory • Classroom • Laboratory

List Price \$29.95. Please call or write for free color brochure. Dealer inquiries encouraged.

## SafeSkin™

KEYBOARD PROTECTOR

Merritt Computer Products, Inc. 5565 Red Bird Center Drive  
Suite 150, Dallas, Texas 75234/(214) 339-0753 • FAX (214) 339-1313  
In Canada call 1-800-663-1061

Circle 4 on Reader Service Card.

### Schools! NET 30

## YOUR P.O.'S ARE WELCOME

### 30 Day Money Back Guarantee

## 80 Col./64K Card

**\$27.50 (100% AppleWorks Comp.)**  
**1/2 Height Drive**  
**\$77.00 (100% Apple Comp.)**

Graphic Parallel Printer Card  
W/Cable .....\$39.00  
Super Serial Card .....\$48.00  
(Orig. Apple Super serial card 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 subject to change w/o notice. Add \$4.00 min. per \$100.00 for shipping. (Cash or bank check. Net 30 to univ. & schools.)

(516) 249-1200  
41 N. Mall  
Plainview, NY 11803

## TEX LTD

Circle 78 on Reader Service Card.

inCider presents . . .

## Success with AppleWorks IV

by Ruth Witkin

Get 10 all-new templates designed to capture the power of AppleWorks and put it to work for YOU!

*Volume IV* of the popular *Success with AppleWorks* series delivers ready-to-use templates on a disk—all set up and ready for your data! Fast, efficient and error-free! Plus, each disk is accompanied by a detailed Documentation Booklet.

Power up your business . . . boost your career . . . manage your affairs more effectively with practical templates for:

- Annual interest calculations
- Business statements
- Resumé layouts
- Job search employer database
- Resumé cover letters
- Retirement budget plan
- Business startup expenses
- Stock portfolio
- Shopping lists
- Investment payouts

*Volumes I, II and III* are still available. Build an instant library of exclusive AppleWorks applications by ordering all four volumes and **save up to \$40!**

*Volume I*—Mail List, Checkbook, Price Quote, Loan, Quote Letter, Newsletter, Price/Volume, Budget, Sales Report, Expenses  
*Volume II*—Cash Flow, Breakeven, Net Worth, Menu, 3-Across Labels, Income, Car Loan, Rent or Buy, Cover Letter, Important Numbers  
*Volume III*—Car Costs, Retirement, Living Expenses, Credit Cards, Return-Address Labels, Handbook, Wine List, Taxes, Loan II, Travel Expenses

**Only \$29.97 each or SAVE \$40 and order all four for just \$79.97.**  
**Order Now—Call Toll-Free**  
**1-800-343-0728**

inCider Magazine—80 Elm Street, Peterborough, NH 03458  
SA971



## SALVAGING SUNKEN FILES

YOU'VE JUST FINISHED ADDING NEW records to your 85K AppleWorks database of shipwrecks. You go back to check it out, and the program tells you, "Getting errors trying to read Wrecks." Now you realize you never made a backup copy on another disk. Is all your work lost? Have you wasted all those hours typing in entries? Not necessarily—if you have **RepairWorks** from Quality Computers.

RepairWorks recovers and restores damaged word-processor and database files, so corrupt data or bad blocks that have prevented AppleWorks from reading your files—and you from working on them—are no longer fatal.

Because you're already familiar with AppleWorks, you'll be able to put RepairWorks through its paces just fine. It's menu driven and simple to use.

First, from the RepairWorks main menu, you can repair a file, catalog a particular disk or ProDOS path, configure your printer, or exit the program.

The program offers two options for repairing your trashed word-processor files: You can either create a new AppleWorks file from the old one, or create a text (ASCII) file from the damaged source and convert it later to an AppleWorks file. Always try the first alternative; it's easier and faster. If you're still unsuccessful, then try creating a text file from the ruins of your work. This second method may work better if your file has suffered serious damage.

Once you've repaired your file, you can rename it or accept the default name RepairWorks assigns to it—your original filename with *.RW* added to the end.

The procedure is similar for fixing demolished database files, except database files are repaired as ASCII text, which you'll later have to convert back to Apple-

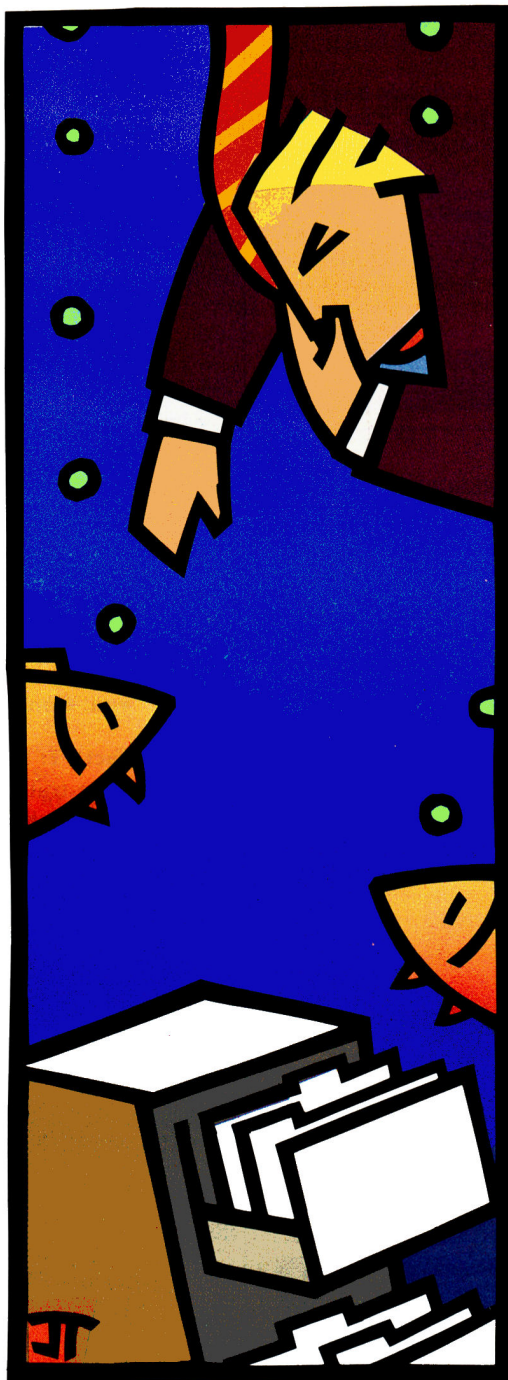
Works. In resurrecting database files, RepairWorks can save only the data, not any supplementary information such as record layout, report formats, or selection criteria. So, while you may need to specify new report formats, you won't have to re-enter all your data. RepairWorks will add *.TXT* as the default title filename after resuscitation, or you can rename the file.

You may also print a damage-control report after repairing a database file, with such information as filename and type, number of blocks used, and block number of the Key pointer—the block in your file that tells ProDOS where your file is stored.

"If you spill something on your data disk, nothing but a backup will save you," notes Senior Editor Paul Statt, speaking from experience. "But RepairWorks is nice insurance otherwise."

"I wish RepairWorks had been around a few years ago when I was writing my very first feature for *inCider*," says Review Editor Lafe Low. "I still remember how angry I was when AppleWorks couldn't read the file I was working on after I'd finished about two-thirds of it. I ended up being a week past my deadline, and I still haven't caught up."

So don't start looking for a bridge to jump off of the next time you can't read one of your precious AppleWorks files. Run it through RepairWorks, and you'll save yourself a lot of time, effort, and frustration. Add RepairWorks to your AppleWorks repertoire for \$39.95, from Quality Computers, 15102 Charlevoix, Grosse Pointe, MI 48230, (313) 331-1115. □



EDITORS' CHOICE SINGLES OUT ONE PRODUCT EACH MONTH THAT THE *inCider* EDITORS FEEL IS A SIGNIFICANT ADDITION TO THE APPLE II FAMILY. PRODUCTS EVALUATED MAY NOT BE AVAILABLE YET FOR RETAIL DISTRIBUTION.





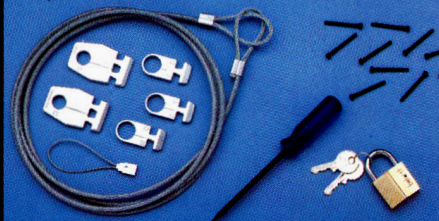
System Saver IIgs, \$99.95

*"If it didn't say  
Kensington on the  
front, you might  
think it came  
from Cupertino."*

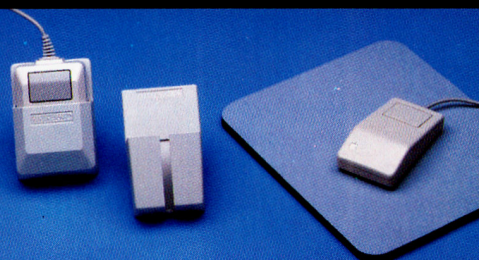
Editors' Choice  
inCider magazine



System Saver®, \$89.95



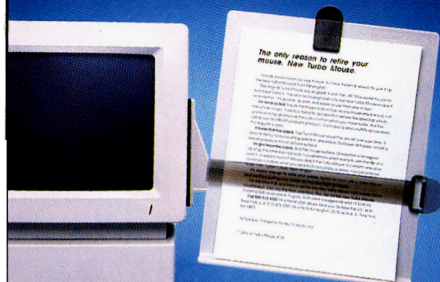
Apple® Security System, \$49.95



Mouseway, Mouse Pockets, \$9.95 ea.



IGS® Anti-Glare Filter, \$49.95



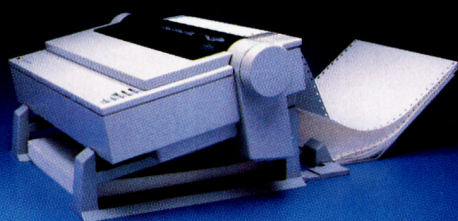
Copy Stand, \$29.95



Turbo Mouse® ADB, \$169.95



Printer Muffler® 80 and Stand,  
\$69.95 and \$29.95



Universal Printer Stand, \$24.95



Dust Covers, \$9.95 to \$24.95

That's why inCider magazine named System Saver IIgs Editors' Choice for March '88.

They were impressed at how well its styling blends in with the IIgs. 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.

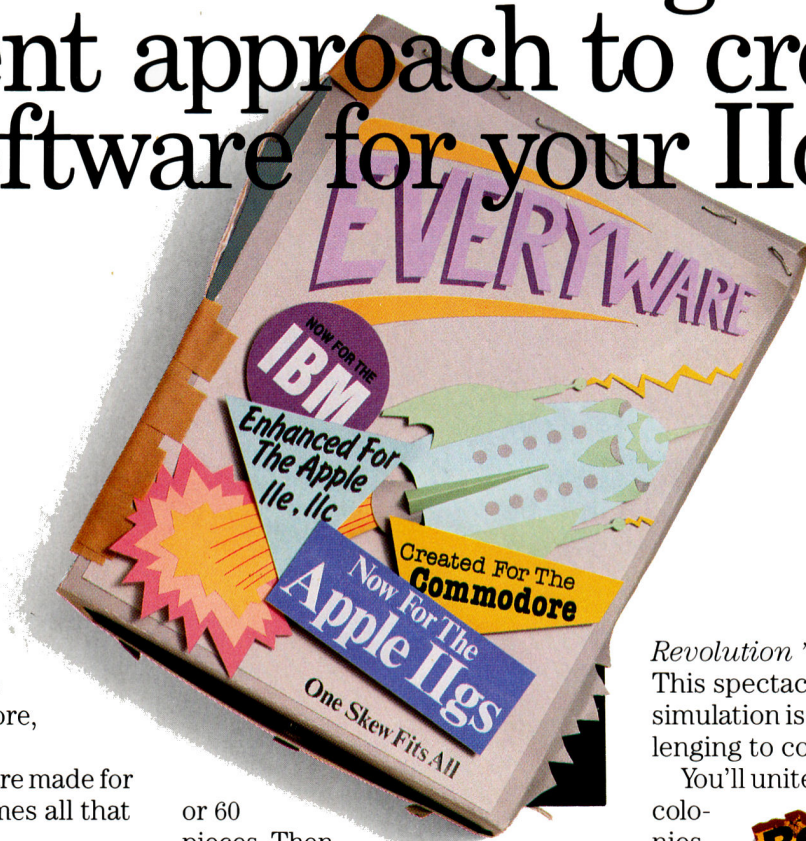
**Call (800) 535-4242**

**KENSINGTON** 

*Setting new standards  
of performance.*



# We've taken a slightly different approach to creating software for your IIGs.



Most IIGs software is created for everyone else first—for IBM, Commodore, Apple IIe.

Then minor changes are made for the IIGs. In fact, sometimes all that changes is the sticker.

At Britannica we don't work that way. We start out by designing *on* the IIGs—for the IIGs.

That's why our software takes full advantage of your 4,000 colors, digitized sound, pull-down menus, GS/OS and, of course, your friendly mouse.

So isn't it time you give your IIGs the software it deserves—like these?

## JIGSAW!

Awarded "Editor's Choice" in the December '88 edition of *inCider*. *JIGSAW!* was called "deceptively simple, yet maddeningly complex."

This wonderfully addicting electronic puzzle uses all 4,000 of your IIGs colors in its 24 images. Each image can be scrambled into 8, 15, 40

or 60 pieces. Then you see how fast you can point and click it back together. Definitely captivating for anyone from 4 to 104.

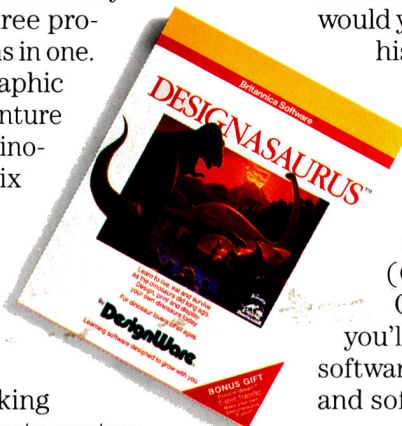


## Designasaurus.

Winner of the Best *Educational Program* award from the Software Publishers Association, this run-away hit is actually three programs in one.

It's a graphic survival adventure (you're the dinosaur). It's a mix and match game (create your own species). And it's a printing program for making dinosaur reports, posters, booklets—even T-shirts.

For dinosaur-lovers of all ages.



## Revolution '76.

This spectacularly rich historic simulation is easy to learn. Yet challenging to conquer.

You'll unite colonies. Build armies. Make or break alliances. And pick leaders.

Could you have set the groundwork for one of the world's most successful nations? And how would you have changed America's history? Play *Revolution '76* and find out.

For time-travellers 14 and up.

Look for all three programs in software stores near you, or call 800/572-2272 (CA: 415/546-1866).

Once you try our software, you'll see the difference between software created for everyone else and software created just for you.



**BRITANNICA®  
SOFTWARE**

Circle 32 on Reader Service Card.