Quality Computers™

A QUALITY COMPUTERS PUBLICATION
VOL.1 NO. 6 - JAN/FEB 94
PRICE $3.95

CELEBRATING THE APPLE II

II ALIVE

CELEBRATING THE APPLE II

SYSTEM SOFTWARE

AN INTRODUCTION TO THE HEART AND SOUL OF THE APPLE IIGS

BACKUP/ RESTORE PROGRAMS HEAD TO HEAD

SOUND LOGIC PART II: SOFTWARE

USING APPLEWORKS AT TAX TIME

GRAPHIC FORMATS AND YOUR APPLE II

"QUALITY COMPUTERS' SYSTEM 6 BO
WAY TO ADD VALUE AND FUN TO YOU

New Bundles!
Apple IIGS System 6.0.1 is BIG news!

HOT New Features!

So are the new bundles that we are offering to make your upgrade more fun and value-packed! With System 6.0.1 you get:

- Easy to use Finder that navigates with keyboard or mouse.
- Ability to read IBM files directly into your IIGS (with special drive).
- Magic System Folder that knows just where to stash your fonts and DA's
- Add Alias to let you set up your desktop like a push-button menu selector.
- Boot ProDOS 8 quickly.
- Over 100 bug fixes.

With the QC System 6.0.1 Upgrade you get the System 6.0.1 disks plus our own System 6 Book with 6.0.1 Addendum, and a free program to customize your desktop—DeskPicture. All for just **$29.95**

1 THE ORIGINAL BONUS PACK

The Apple II Enhancement Guide: This book is packed with information to help you upgrade your Apple II. It covers RAM, hard drives, accelerators, the Finder, and more.

FlashBoot: What is faster than a speeding disk drive? A RAM disk. FlashBoot lets you automatically set up a super-fast, super-convenient RAM disk.

Clip Art: We're throwing in over 100 beautiful clip art images, perfect for desktop publishing or hypermedia applications.

Clip Sounds: Because the IIGS's sound capacity is so great, we're also including over 50 digitized sound files. Some are classics while some are the newest on the market. They go great in HyperStudio and other sound programs, or you can have music playing in the background while you work.

Icons: Over 50 fun, useful icons.

Desk Accessories: Just to give you more to choose from, we're giving you several handy desk accessories including: Enhanced Calculator, Scrapbook, Games, and more.

Fonts: Using the same font for everything is very uncool, so our Bonus Pack includes over 30 display ar text fonts.

Video: Our 1-hour video takes you from installation of System 6 to moving through the Finder with speed and agility.

$59.95

2 THE NEW BONUS PACK

- 15 New Fonts
- 45 New Digitized Sounds
- 230 New Clip Art Images
- Icon Editor
- Art Gallery
- Animated Pointer Symbols
- Virus Detector
- DA Word Processor
- Sound Editor
- Window Hider
- Software Demos
- Utilities

$39.95

NUS PACK...THE MOST COST-EFFECTIVE R APPLE IIGS." –THE APPLEWORKS EDUCATOR

❸ SIX PACK An incredible set of Finder Extensions including:

MoreInfo: Displays more information about your files, including their actual type and auxiliary type, access information, and more.

AlarmClock: Displays the time in a window or at the right of the menu bar. Plus it'll alert you for important occasions.

SuperDataPath: Remembers a default data directory for your programs so you don't have to change folders every time you launch an application.

HotKeys: Add dozens of functions to your function keys (on an extended keyboard) or to your numeric keypad.

CDEV Alias: Add any frequently-used Control Panel function (CDEV) directly to the Apple menu.

CPU & Memory Use: Shows visually how much of your computer's resources are being used at any time.

SelectIcons: Select icons in the front window based on partial filename, filetype, modification date, and more!

PrintCatalog: Prints and old-style directory listing on your printer, including filename, filetype, and more.

Encrypt: Save your data from prying eyes! Encrypt creates a password-protected copy of any file.

FilePeeker: Preview the contents of graphics, text, and sound files—and more—without having to launch a separate application!

WorkSet: Remembers a group of files and opens them all at once, with one double-click! Open a group of AppleWorks documents—or a group of folders—or a group of anything—all at once!

FileCompare: Check seemingly identical files for differences you might have missed comparing them visually.

ButtonBar: Places a button bar on the desktop with user programable buttons.

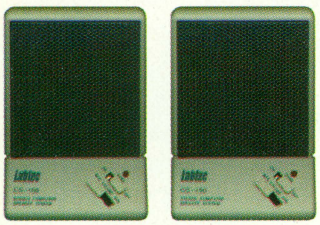
SizeUp: Calculates the size of the currently selected files, including files residing in selected folders, from within the Finder. SizeUp also tells you the total number of files or folders selected.

LaunchList: Provides a list of applications in a window when running the Finder. The LaunchList window can be configured to contain any application, or all of your applications.

XtraSounds: Adds over thirty new sound events to your system. Each of these new sounds is associated with a Finder function. Now you can have the Finder "talk" to you whenever it's doing something.

$29.95

VALUE-PACKED SOFTWARE BUNDLES



Buy any bundle with the purchase of the QC System 6.0.1 Upgrade and SAVE $10! Or buy any 3 bundles & SAVE $30, plus get a set of speakers for only $10!

WHILE SUPPLIES LAST!

(Speakers sold separately for $19.95 a pair)

30 Day Money Back Guarantee

...advantage of your IIGS's sound capability with a sound input card and microphone, sound editor, and sound effects disk with twelve new sounds!

$49.95

Quality Computers™

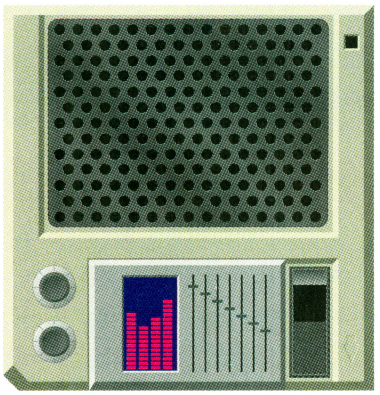
20200 Nine Mile Rd. • St.Clair Shores, MI 48080
(313) 774-7200 • Fax: (313) 774-2698

SCHOOL P.O.s

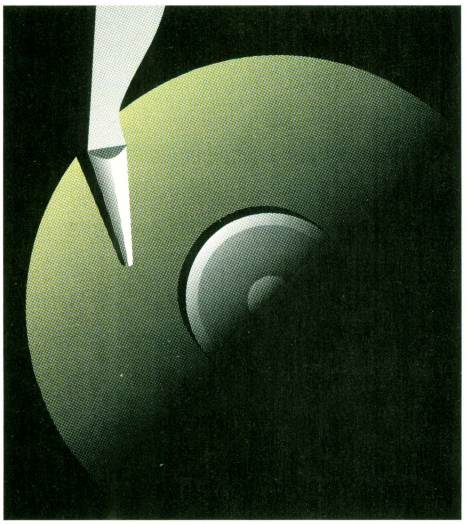
To place your order call . . .

1-800-777-3642

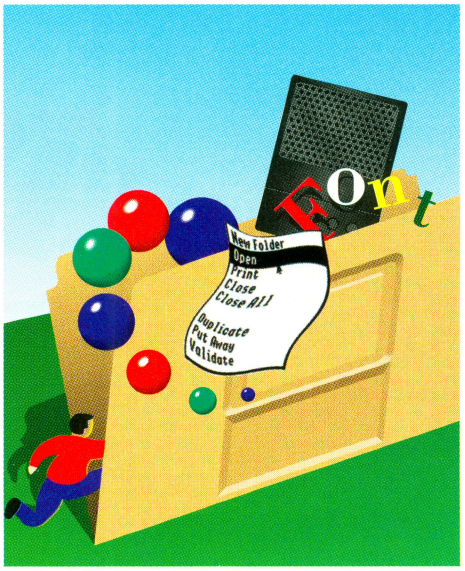
in this issue



Page 24



Page 30



Page 52

features

departments

SHAPING THE FUTURE

BY JERRY KINDALL

I'll tell you up front: this editorial is only marginally related to the Apple II. Although the Apple II does come up toward the end, this article is mainly about the PowerPC. The reason is simple: I'm convinced that the PowerPC represents the "next big thing" in computing. The PowerPC itself may not be the next big thing, but what it represents—RISC for the massess—almost certainly is. And this will, eventually, touch your life as surely as the Apple II has.

The new PowerPC technology is being developed jointly by IBM, Apple, and Motorola. Much of the hoopla centers on the new line of computers Apple will build around the new technology. Many Apple II owners are intensely curious about Apple's next move, but aren't quite sure what to make of the whole PowerPC thing since it doesn't seem to involve the Apple II. "What, exactly," they cry, "does it mean to me?"

Good question. Here's a brief summary of the basic technology involved. Consider this to be background information which will make everything you hear about the PowerPC a little clearer.

PowerPC Basics

The PowerPC is a microprocessor chip. Despite the "PC" part of its name, it's not, by itself, a personal computer. Like the 6502, 65C02, or 65816 chip in your Apple II, the PowerPC needs memory, input/output devices, and built-in ROM programs to do anything besides give you a dumb look.

The design of the PowerPC chip is based on IBM's POWER architecture, which is used in the company's RS/6000 line of workstations. ("Workstation" is a word for a computer that's rather more complicated and expensive than ordinary desktop computers—it's not quite a minicomputer, but it's a definite step up from a personal computer.) The first PowerPC chip, the 601, is being produced by IBM. Future versions will be produced by Motorola, the semiconductor giant which manufactures the 68000-series microprocessors used in current Macintosh, Amiga, and Atari computers.

The PowerPC design follows the RISC philosophy. RISC stands for Reduced Instruction Set Computer, and means that the chip uses less complex instructions than traditional microprocessors. A RISC chip might require three instructions to do what a traditional chip can do with one. This might be seen as a limitation, if not for the fact that the chip can carry out these instructions much more quickly than standard chips. In some cases, RISC processors can even execute more than one instruction at a time! (For example, if the processor has to calculate two additions, a+b and c+d, neither of which depend on the result of the other, it could conceivably carry them out simultaneously.)

RISC itself is really nothing new—the PowerPC is simply the first RISC processor to become available to the multitudes. The relative simplicity of RISC processor design means that the chip is smaller, uses less power, and generates less heat than its traditional equivalent. (The new Pentium microprocessor, the successor to the 486 used in DOS and Windows computers, uses 16 watts and occupies 262 square millimeters of real estate. By comparison, an equivalent PowerPC 601 occupies only 120 square millimeters and uses only 8.5 watts.)

The PowerPC 601, the first version of the PowerPC technology, is just the beginning. The 603, which should be available by late 1994, will have all the performance of the 601 but will use much less power, making it suitable for portable computers and embedded systems (such as automotive control systems and even appliances). It'll also cost much less (under $50 vs. $450 for the 601). The 604, also slated for late 1994, will be the high-end processor for desktop machines, running as much as twice as fast as the 601. The 620 (1995) will be reserved for workstations—and higher: IBM is rumored to be designing mainframes and even a supercomputer around a massively parallel PowerPC 620 architecture.

Now you've got the background. A new generation of computer horsepower is upon us. The next obvious question is, of course, what the computers based around the new chip will be like. The PowerPC is not compatible with any existing microprocessors, so a PowerPC-based computer must necessarily be a completely new kind of beast—neither Apple II nor Macintosh. Or must it?

Emulation Solution

Apple's solution to the incompatibility problem is to use emulation software to allow the PowerPC to emulate the 68000 series. In other words, the computer will have built-in software that looks at each instruction in a 68000 program and executes a corresponding sequence of PowerPC code. The first PowerPC-based machines from Apple will have this emulation software in ROM. They'll be called Macintoshes, and will run existing Macintosh software. (IBM's first PowerPC-based computers, already on the market, are called PowerStations and run a version of Unix. It's likely we'll see IBM PowerPC machines capable of running DOS, Windows, and OS/2 in 1994.)

Now, if you've seen emulation software before—like II In A Mac or SoftPC—you may have cause to believe that the PowerPC Macs will be somewhat slower than regular Macs. After all, making one processor act like another is inherently inefficient. This is progress? But Apple has two tricks up its sleeve to improve emulation performance. First, the PowerPC is really, really fast, possessing the raw horsepower to make emulation a viable solution. Second, Apple is translating the most frequently used portions of the Macintosh Toolbox into native PowerPC code. Since Mac programs spend 80-90% of their time executing Toolbox routines, this is a cheap and effective way to bring the emulation up to speed. Early reports are that a 66 MHz PowerPC-based Mac is about as fast as a 68040-based Quadra. And remember, that's with the 601 chip—the first and slowest of the bunch! 604-based machines should be even faster, and performance will further increase as more and more of the Mac Toolbox is con-

(Continued on page 12)

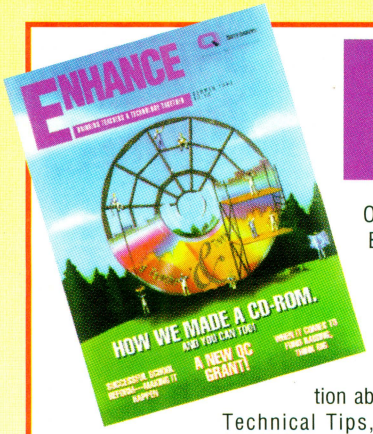
"You are a credit to the mail order industry." —George R. James

Quality Computers™

SPECIAL • SPECIAL • SPECIAL • SPECIAL • SPECIAL

92 TrueType Fonts **$79.95**
PLUS Pointless for one low price
Font Packs $47.95 • Pointless $49.95

SPECIAL • SPECIAL • SPECIAL • SPECIAL • SPECIAL



ENHANCE

Only Quality Computers gives you Enhance—our free publication designed to give computer-using teachers the kind of information they need to make an impact in their classrooms. Four times a year, Enhance gives you information about Funding Technology, Multimedia, Technical Tips, Product Reviews, New Product Announcements, and more. You also get our complete catalog covering hundreds of products for Macintosh, IBM, and Apple II. Enhance is free when you order from Quality Computers, or just clip this order form and mail it today.

"Thank you for providing the opportunity for schools like ours to have a chance at getting some of the technology that can bring our computer program into the 90's"

Sandy Kowalczuk
Key School, Annapolis, MD

Get ENHANCE free!

Join the hundreds of thousands who have enjoyed Enhance for over 6 years. Get your free subscription today!

Name _____

Address _____

City _____ State _____ Zip _____

Phone (_____) _____

Clip and mail to: Quality Computers, P.O. Box 349, St. Clair Shores, MI 48080

HARD DRIVES

QUALITY COMPUTERS
Q Drive 42 ..... 179.95
Q Drive 127 ..... 299.95
Q Drive 170 ..... 349.95
Q Drive 240 ..... 399.95
Apple SCSI Card 109.95

MEMORY

QUALITY COMPUTERS
Q-RAM GS2 4 MB 199.95
Q-RAM IIe 1 MB 99.95

RAM CHIPS
256K (set of 8) 19.95
256x4 (set of 2) 19.95
1 MB (set of 8) 59.95

MODEMS

QUALITY COMPUTERS
Q-Modem 2400 ..... 74.95
Q-Modem 2400 with ProTERM 139.95
Q-Modem v.32 bis 299.95

MODEM UTILITIES

INTREC
ProTERM 79.95

PARKHURST MICRO
ANSITerm IIgs 79.95

DISK DRIVES

APPLIED ENGINEERING
5.25" Drive 179.95

APPLE
3.5" FDHD Drive 349.95
3.5" FDHD Controller 149.95

PRINTERS

APPLE
ImageWriter II 429.95

PANASONIC
Panasonic 2180 ..... 199.95
Panasonic 2123 ..... 299.95

PRINTER DEVICES

QUALITY COMPUTERS
32K ImageWriter Buffer ..29.95

PACE MARK
Ileasy Print Plus
512K 199.95
1 MB 249.95
Serial Printer Card 49.95
Super Serial Card 69.95

ORANGE MICRO
Grappler+ 89.95

XETEC
Superwriter 924 ..... 64.95

APRICORN
Apricord 8 ..... 49.95

INPUT DEVICES

APPLE SPECIAL ▼
ADB Desktop Mouse 49.95
ADB Keyboard 129.95
ADB Ext. Keyboard 199.95

CH PRODUCTS
RollerMouse 79.95

KENSINGTON SPECIAL ▼
TurboMouse 3 ..... 59.95

GRAVIS
Gravis Joystick 39.95

INTELLITOOLS
IntelliKeys 359.95

VITESSE
Quickie Scanner 129.95
Quickie/InWords 199.95

DIGITAL VISION
ComputerEyes IIe 99.95
ComputerEyes GS 199.95

ACCESSORIES & SUPPLIES

KENSINGTON
System Saver GS 29.95
Anti-Glare Filter GS 9.95

EMCO
IIe Cooling Fan 19.95

APPLE
IIe Enhancement Kit 59.95

FLOPPY DISKS
5.25" 10-Pack 5.95
3.5" 10-Pack 7.95

QUALITY COMPUTERS
Extended 80 Col. Card 19.95
10 or more ..... 17.95 ea.

SMT
No Slot Clock 39.95

NITE OWL
IIGS Battery Kit 14.95

ZIP TECHNOLOGY
Zip GSX Accelerator 199.95

MISCELLANEOUS
Power Supply IIe 79.95
Power Supply IIGS 89.95
ImageWriter Dust Cover 9.95
Surge Suppressor 9.95
Cables ..... from 14.95
Mouse Pad 4.95
Locking Disk Holder 11.95
Keyboard Skins 12.95
Head Cleaning Kit 6.95

MONITORS

MAGNAVOX
RGB Monitor 299.95
IIgs Cable 19.95

GOLDSTAR
12" Composite Monitor .129.95

SOUND DEVICES

STREET ELECTRONICS
Echo II 109.95

APPLEWORKS & ADD-ONS

QUALITY COMPUTERS
AppleWorks 4.0 Upgrades
From v.3 ..... 79.95
From v.2 ..... 99.95
From v.1 ..... 119.95
10-Pack 499.95
50+ Site License ..... CALL
AppleWorks 4.0 New Installs
Consumer 169.95
10-Pack 949.95
50+ Site License 39/CPU
RepairWorks 34.95
SuperPatch 34.95
AppleWorks GS 199.95
Upgrade 99.95
10-Pack 1139.95

BEAGLE BROS
TimeOut ReportWriter 48.95
TimeOut Graph 52.95
TimeOut SuperFonts 42.95
TimeOut SuperForms 42.95
TimeOut SideSpread 32.95
TimeOut SpreadTools 40.95
TimeOut UltraMacros 39.95
TimeOut MacroEase 25.95
TimeOut FileMaster 32.95
TimeOut DeskTools 32.95
TimeOut DeskTools II 32.95
TimeOut DeskTools IV 29.95
TimeOut ShrinkIt Plus 29.95
TimeOut PowerPack 32.95
TimeOut Grammar 49.95
Outliner 42.95
TimeOut TextTools 32.95
TimeOut QuickSpell 40.95
TimeOut Thesaurus 32.95

Buy any 3 TimeOut Programs for $79.95 or any 4 for $99.95!

WORD PROCESSORS

BEAGLE BROS
BeagleWrite 48.95
BeagleWrite DA's 14.95
BeagleWrite Pic Mgr. 14.95
BeagleWrite Font Pak 1 ..... 14.95
BeagleWrite Font Pak 2 ..... 14.95
BeagleWrite GS 59.95

CREATIVITY

BAUDVILLE
Award Maker Plus 36.95
Sports Graphics 19.95
Education Graphics 19.95
Cartoon Sports 19.95

BRODERBUND
The New Print Shop 29.95
Party Graphics 16.95
Sampler Graphics 16.95
School/Business 16.95
Classroom Pack 129.95
The Print Shop IIGS 36.95
The Print Shop Companion IIGS 29.95
Party Graphics 24.95
Sampler Graphics 24.95
Classroom Pack 99.95
VCR Companion 29.95

BEAGLE BROS
Clip Art 32.95
Platinum Paint 59.95
BeagleDraw 64.95

QUALITY COMPUTERS
Clip Art GS
Holidays 19.95
Bus. & Education 19.95
Sports 19.95
200 PS Graphics 19.95
Coloring Disk for Platinum Paint 19.95
Platinum Paint Activity Guide 32.95
90 IIGS Fonts 47.95

TIMEWORKS
Publish It! 4 ..... 89.95

ABRACADATA
Design Your Own Home
Architecture 29.95
Architecture Pro 44.95
Interiors 29.95
Landscape 29.95
Design Your Own Home GS
Architecture 32.95
Interiors 32.95
Landscape 32.95

ROGER WAGNER
HyperStudio 99.95

SEVEN HILLS
GraphicWriter III 89.95

SALES & SERVICE

1-800-777-3642

Technical Support 313-774-7740
M-F 9am-8pm Sat 10am-4pm

24-hour Fax 313-774-2698 24-Hour BBS 313-774-2652

20200 Nine Mile Rd. • P.O. Box 349 • St. Clair Shores, MI 48080

"Your people are always friendly and helpful." —*Ray A. Oltman*

Quality Computers™

SPECIAL • SPECIAL • SPECIAL • SPECIAL • SPECIAL

The finest in Apple II word processing

BeagleWrite $48.95

BeagleWrite GS.....$59.95

SPECIAL • SPECIAL • SPECIAL • SPECIAL • SPECIAL

SPECIAL • SPECIAL • SPECIAL • SPECIAL • SPECIAL

Save $19

Ultimate Apple IIGS Utilities

Signature/Six Pack Combo $39.95

Signature $29.95 • Six Pack $29.95

SPECIAL • SPECIAL • SPECIAL • SPECIAL • SPECIAL

SPECIAL • SPECIAL • SPECIAL • SPECIAL • SPECIAL

Save $44

Creativity IIGS Style

Platinum Paint BeagleDraw Combo..... $79.95

Platinum Paint $59.95 • BeagleDraw $64.95

SPECIAL • SPECIAL • SPECIAL • SPECIAL • SPECIAL

UTILITIES

SYSTEM 6 UPGRADE

QUALITY COMPUTERS

System 6.0.1 Upgrade
- QC System 6.0.1 Upgrade.....29.95
- Original Bonus Pack ...59.95
- New Bonus Pack 39.95
- Six Pack 29.95
- Bonus Sound Pack 49.95

Signature.....29.95
RepairWorks 34.95
SuperPatch 34.95
EasyDrive 39.95

SEVEN HILLS
Express 32.95
Super Convert 27.95
TransProg III 29.95
The Manager 49.95

VITESSE
Harmonie 34.95
HP Driver Set 24.95
PerfectImage.....19.95
Salvation Supreme 89.95
Bakkup 2.0 .....44.95

BEAGLE BROS
Program Writer 32.95
GS Desk Accessories 34.95

ECON
Auto Ark 27.95

BYTEWORKS
Toolbox Pascal.....74.95
Toolbox C.....74.95
Orca/M 2.0 .....69.95
Orca/C 79.95
Orca/C Bundle 119.95
Orca/Pascal 79.95
Orca/Pascal Bundle 119.95

SOFTSPOKEN
Cross-Works 69.95

EARLY LEARNING

BRODERBUND
The Playroom.....24.95
The Treehouse 29.95

MECC
Arithmetic Critters.....39.95
Counting Critters.....39.95
First-Letter Fun.....39.95
Fun From A to Z 39.95
Paint with Words.....39.95

STICKYBEAR
ABC 24.95
Numbers 24.95
Opposites.....24.95
Shapes GS 29.95
Opposites GS 29.95
Shapes 24.95
Alphabet GS 29.95

DAVIDSON
Math and Me.....21.95
Math and Me GS 29.95
Reading and Me 24.95
Reading and Me GS 29.95

LAWRENCE PRODUCTIONS
The Lost Tribe.....29.95
Katie's Farm GS.....29.95
McGee GS 29.95
McGee at the Fun Fair.....29.95

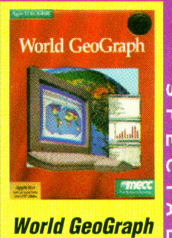
ORANGE CHERRY
Talking Alpha Chimp GS..39.95
Talking Animals GS 39.95
Talking ABC's GS 39.95
Talking Dinosaurs GS.....39.95
Talking First Words GS ...39.95
Talking School Bus GS 39.95

SOCIAL STUDIES

BRODERBUND
Carmen USA.....29.95
Carmen USA GS 29.95
Carmen World 25.95
Carmen World GS 29.95
Carmen Time.....29.95
Carmen America's Past ...29.95

MECC
USA GeoGraph GS 49.95
World GeoGraph GS.....14.95

SPECIAL



World GeoGraph

$14.95

SPECIAL

Oregon Trail 24.95

LANGUAGE ARTS

MECC
Word Munchers 24.95
Spellevator 39.95

LEARNING COMPANY
Reader Rabbit 1 .....44.95
Reader Rabbit GS.....54.95
Magic Spells.....49.95
Children's Writing & Publishing Center ...34.95

DAVIDSON
Read 'n Roll.....29.95
Word Attack Plus 29.95
Grammar Gremlins.....29.95

ORANGE CHERRY
Talking First Reader GS...39.95
Talking Reading RR GS...39.95
Talking Speller 1 GS.....39.95
Talking Speller 2 GS.....39.95

STICKYBEAR
Reading.....24.95
Reading Comp 29.95
Reading Tutor 29.95
Spellgrabber.....29.95

MATH

DAVIDSON
Algeblaster Plus 29.95
Math Blaster Plus.....29.95
Math Blaster Mystery 29.95

LEARNING COMPANY
Math Rabbit 24.95

STICKYBEAR
Math.....24.95
Math 2.....24.95
Math Tutor 29.95
Word Problems.....29.95

ORANGE CHERRY
Talking Addition & Subtraction GS 39.95
Talking Money GS.....39.95
Talking Clock GS.....39.95

MECC
Number Munchers 24.95
Fraction Munchers 39.95

BOOKS & VIDEOS

Apple II Guide 6.00
Using AppleWorks GS.....19.95
AppleWorks QuickStart ...19.95
Print Shop Handbook.....19.95
System 6 Book.....12.95
Programmer's Reference to System 6 .....44.95
Q Drive Video 19.95
System 6 Video 19.95

GAMES

FOR THE IIGS
Mean 18 .....14.95
Transylvania III.....14.95
Serve & Volley.....14.95
Revolution '76 .....14.95
Designasaurus 14.95
Three Stooges.....14.95
Mixed Up Mother Goose .14.95
Great Western Shootout..14.95

FOR THE APPLE II
Conflict in Vietnam.....14.95
Renegade 14.95
Super Sunday.....14.95
Tsushima 14.95
Beast War.....14.95
Empire Overmind 14.95
Dr. Ruth 14.95
Voyager.....14.95
Free Trader.....14.95
Scimmars.....14.95
Mission on Thunderhead.14.95
Conflict 2500.....14.95
Planet Miners 14.95
Lords of Karma 14.95
Beyond Zork.....14.95
Mines of Titan 14.95
Shogun 14.95
Body Transparent.....14.95
Remember 14.95
Millionaire II 14.95
Summer Games II 14.95
Championship Wrestling.14.95
Sargon III 14.95
Bad Silent Service 14.95
Impossible Mission III.....14.95
Card Sharks 14.95
Wheel of Fortune II.....14.95
Dragonworld 14.95
Death Lord 14.95
Comics.....14.95
Mixed Up Mother Goose .14.95
Hunt for Red October 14.95

1-800-777-3642

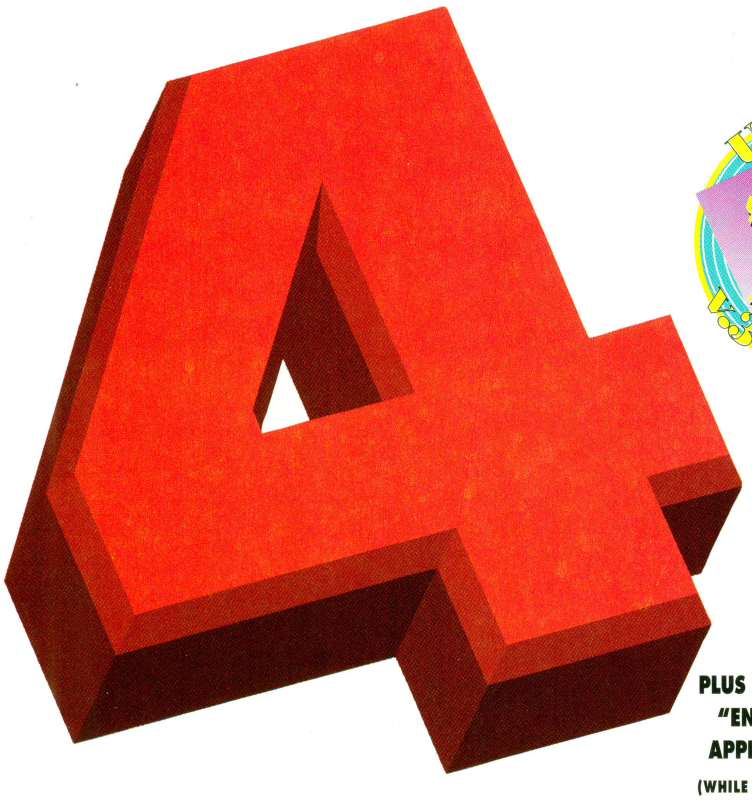
We will meet or beat any nationally advertised price

VISA MasterCard AMERICAN EXPRESS Card DISCOVER

SCHOOL P.O.s

AppleWorks® 4.0

More power, more speed, easier to use!



PLUS FREE VIDEO "ENHANCING APPLEWORKS" (WHILE SUPPLIES LAST)

EVEN EASIER TO USE

Making AppleWorks, an already friendly program, even friendlier, was something we thought about carefully. We had to be careful that what we were doing was REALLY making AppleWorks easier. We think we succeeded. For example, AppleWorks 4.0 can remember what order you used for each of your reports and will automatically sort the data base for you. The Spreadsheet now features a pop-up list of functions so users don't have to remember codes when entering formulas. The Word Processor uses distinctive symbols for formatting codes (instead of just carets) so boldface and underline can be recognized at a glance, instead of requiring the cursor to be on the formatting code to read it. The "Change Disk" menu allows users to display disk names by pressing OA-? instead of requiring them to know what slot and drive their data disk is in. "Add Files" displays text files and automatically loads them as word processor files instead of requiring users to go to a separate "New File" menu. The Word Processor lets you see and edit tab rulers right in the document. AppleWorks 4.0 even takes away the worry of saving your files with its Auto-Save function.

MORE COOL STUFF

Other major features include built-in support for HP's popular Deskjet printers, faster display and finds in the Data Base, split screen capability in the Word Processor, and data math functions in the Spreadsheet. The Data Base will have improved import and export

AppleWorks, the way it should be.

30 DAY FREE TRIAL

In 1988, AppleWorks seemed to have reached its pinnacle with the release of version 3.0. But you weren't satisfied and either were we. That's why Quality Computers, and AppleWorks veterans Randy Brandt and Dan Verkade have developed AppleWorks 4.0—the most extensive upgrade in AppleWorks history.

ONE TOUCH COMPUTING

How would you like to automate AppleWorks? You can with AppleWorks 4.0. That's because AppleWorks 4.0 features dozens of built-in automatic functions that you can do with just a keypress. Imagine being able to set up and print an envelope automatically, or open a new data base with pre-formatted fields by pressing a key or two. There's lots of others just like it, and they're easy with AppleWorks 4.0!

TRUE INTEGRATION

Integration, always AppleWorks' strong suit, will become tighter than ever with new features to allow the Word Processor to access data base files, the Spreadsheet to access other spreadsheet files, and the Data Base to access word processor, data base, and spreadsheet files. For example, AppleWorks 4.0 will allow users to create a data base of names and addresses, then "link" the Data Base with a word processor file. Using the glossary function, AppleWorks 4.0 can look up and import an address directly into the current word processing document—without switching modules, copying, or manually formatting. You can also import categories from other data bases (and cells from spreadsheets) and to export information to other data bases, providing the Data Base module with relational capabilities.

APPLEWORKS 4.0

PLUS FREE VIDEO

UPGRADES **$79.95**

from version 3 5.25"	
from version 3 3.5"	79.95
from version 2.0, 2.1 5.25"	99.95
from version 2.0, 2.1 3.5"	99.95
from version 1 5.25"	119.95
from version 1 3.5"	119.95
10-Pack	499.95
50 User Site License	19.00/CPU

NEW INSTALLS

Consumer	$169.95
10-Pack	949.95
3.0 Network version	1,089.95
50 User Site License	39.00/CPU

Call for Site Licenses over 50 Users

Quality Computers™

VISA MasterCard AMERICAN EXPRESS Card DISCOVER

School P.O's by phone, fax or mail

"It has exceeded my expectations. Smooth, powerful, professional!"

"My Mac-using friends are jealous!"

facilities for exchanging data with other computers, and will feature spreadsheet-style formulas in calculated fields. A global auto-save feature, available in all AppleWorks modules, will protect users' work from power failures; and a QuickPath menu will let users set up a menu of their most frequently-used directories.

Because AppleWorks 4.0 includes TimeOut, adding useful enhancements is easier than ever. In fact, you can even install most enhancements without leaving AppleWorks. *See Pages 38 & 39 for available enhancements.*

TRUE TO ITS HERITAGE

AppleWorks 4.0 will remain true to the AppleWorks spirit. Menus will remain easy to navigate; commands will continue to be simple-to-remember Apple-key combinations; help will still be available with a single keypress; all previous functions will remain the same.

FREE ENHANCING APPLEWORKS VIDEO!

AppleWorks 4.0 will ship October 1, but you can order your copy now. While supplies last, you can get the video "Enhancing AppleWorks" FREE!

KEY FEATURES OF APPLEWORKS 4.0

DESKTOP

- Three desktops allow up to 36 files
- "Add files to Desktop" lists up to 255 files instead of 170
- "Add files" automatically converts text files to word processor files
- "Add to clipboard" option allows you to append material to the clipboard
- Independent clipboards for Word Processor, Database, and Spreadsheet modules
- Auto-save feature saves files after a preset number of minutes
- Five printers may be defined instead of three
- Built-in support for Hewlett-Packard DeskJet printers
- QuickPath feature allows you to choose from a pre-defined list of path names
- "Change disk" menu shows volume names when OA-? is pressed

WORD PROCESSOR

- Split-screen function
- Improved mail-merge & find options
- Distinct symbols for formatting options (instead of all carets)
- New glossary feature allows easy entry of addresses and other info from data bases

DATA BASE

- 60 categories per record instead of 30
- 30 reports per file instead of 20
- Selection rules can be imported from a report format
- Faster display on large files when selection rules are active
- Lightning-fast finds in sorted categories (binary search)
- Reports automatically sorted before printing
- Date categories support years from 1000 AD to 9999 AD
- Export/import character-delimited text files for transfer to other programs
- Formulas allow spreadsheet-style calculations in data base files
- Categories can be imported from other data base and spreadsheet files and exported to other data base files

SPREADSHEET

- Spreadsheet formulas can refer to cells in other spreadsheets
- Date math features make it easier to calculate the number of days between two dates
- Titles can be defined to be printed at the top of each page
- New find option allows searches for numbers and formulas by rows or columns
- Pop-up list allows choosing functions from a menu
- New functions include ALERT, DATE, FIND, JOIN, LC, LEN, MID, TEXT, UC, VAL

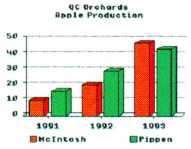
ULTRAMACROS

- UltraMacros run-time (playback-only) feature built in
- UltraMacros programs selectable from TimeOut menu

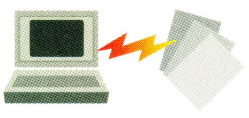
SYSTEM REQUIREMENTS

- Requires 128K RAM, IIe or better (IIc, IIc+, IIGS). 256K RAM, enhanced IIe recommended (required for use of macro player). TimeOut Manager, Init Manager, and Macro player built in; 3.5" and 5.25" disks included.

COMING SOON for APPLEWORKS USERS



TimeOut SuperGraph for the IIGS



TimeOut FAX

Get more from AppleWorks 4.0 with these enhancements—and SAVE

32K IMAGEWRITER BUFFER

This internal 32K buffer for older model ImageWriter II's can store a 10-page text document inside the printer. No more waiting for the printer to finish..... ***$24.95***

when you order it with AppleWorks 4.0

Q-RAM IIe

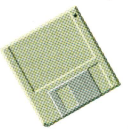
End disk swapping. Get more done. Load ALL of AppleWorks 4.0 into memory with this 1 MEG memory board at a fantastic price. ***$89.95***

when you order it with AppleWorks 4.0

Q-RAM IIGS

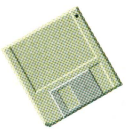
A 4 MEG RAM powerhouse for your Apple IIGS that lets you load ALL of AppleWorks 4.0 into memory, or set up a convenient RAM disk..... ***$179.95***

when you order it with AppleWorks 4.0



ONE-TOUCH COMMANDS DISK

AppleWorks 4.0 comes with dozens of one-touch functions. This disk is packed with even more..... ***$14.95***



CHECKWORKS

Balance your checkbook, write checks, and do what other good checkbook programs do—all inside of AppleWorks. Tie in letters and spreads to the wonders of finance..... ***$29.95***

AppleWorks 4.0 TUTORIAL VIDEO

Learn the ins and outs of AppleWorks 4.0 from the people who developed it..... ***$19.95***

AFTERWORK *Coming Soon for AppleWorks 4.0*

AfterWork runs inside AppleWorks to give you a variety of attractive and fun screen savers that look great while preventing screen damage. ***$24.95***

The icon above is symbolic of the effects that are available

FEDERAL EXPRESS *Ask For Overnight Delivery*

1-800-777-3642

Dear *II Alive,*

I wish to set the record straight concerning the review I wrote of the OmniMac extended keyboard for the July/August issue (Vol.1 Number 2) of II Alive. The review I wrote and sent to the magazine was nowhere near the version which finally saw the light of day.

The OmniMac extended keyboard is a fine piece of equipment; however, I cannot at this time recommend that Apple IIGS users purchase it as a replacement for their current keyboards—primarily because of the problem that was mentioned in the review. The keyboard will not send a Control-Reset properly. This greatly hinders the ability to restart the computer in every conceivable situation. No matter which modifier keys are pressed (such as Command or Option), only a Control-Reset is sent by the keyboard—which will not restart the computer in all situations. I have discovered some other problems using an extended keyboard using an Apple IIGS; however, these appear to be software conflicts that apply to all extended keyboards, not just the OmniMac.

Sun Remarketing is aware of the problems that IIGS users are having with this keyboard, and it appears to be a flaw in the design of the keyboard. According to Sun, all units they currently have in stock are likely to exhibit the same problem, and sales have been slow enough that this flaw is not likely to be fixed. However, newer Macintosh models (such as the LC series) can be restarted the same way as the IIGS (by holding down Control and Command, and pressing Reset); if the OmniMac exhibits this same problem with these machines, the keyboard won't be able to restart new Macs, either.

Having tried several extended keyboards, including both of Apple's, I have to say that I enjoy working with an OmniMac keyboard on my desk. But I am tired of having to have both my original IIGS keyboard hooked up concurrently with the OmniMac in order to work effectively at my computer. I will be returning the OmniMac to Sun Remarketing for a refund, or for credit on a genuine Apple extended keyboard. I know that it will work with an Apple IIGS, since I am typing this letter on one. At any rate, I felt that the review that was published did not accurately represent my feelings on the matter.

Bill Moore

Bill: I'm not sure at what stage in our editing process your review took a turn for the worse, but I apologize for the misunderstanding. Thanks for setting this straight. —Editor

Dear *II Alive,*

This is in regard to your review of Twilight II in the September/October issue of II Alive, and also the mention of the product of in the November/December issue.

The pricing mentioned in both issues incorrect. Twilight II's list price is $39.95, not $49.95. Street price is typically about $30. In addition, we offer upgrades for owners of other screen blankers ($24, plus $2 shipping and

handling and the manual cover from the competing product). Registered users of the original Twilight (which was shareware) can upgrade for $20 (plus $2 shipping and handling, along with a copy of the check used to pay the original shareware fee). We also have special user group pricing plans; please contact us if your group is interested.

We have been using Seven Hills' Kangaroo with Twilight II for several months with no problems, and have heard no reports of such incompatibilities from users.

Since Quality Computers doesn't carry Twilight II, we wonder if some users are having a hard time locating it. Both Big Red Computer Club (402/379-4680) and Resource Central (913/469-6502) carry it.

Thanks to everyone involved in publishing II Alive for their hard work in prolonging the life of our favorite computer. We appreciate being featured in your publication. Keep up the good work!

Jim Maricondo
DigiSoft Innovations
PO Box 380
Trumbull, CT 06611

PS—Please note the capital "S" in DigiSoft!

Jim: Thanks for the corrections!—Editor

Dear *II Alive,*

I'm having problems running the Applesoft version of the Forest Fire program listed in the November/December issue (in the Letters column). Help!

Denny Sharpe
New York, NY

Denny: Uh, well. That's because we left off the last two lines. The correct version (with all the lines) is in Listing 1. Sorry!—Editor

Dear *II Alive,*

I'm currently the owner of an Apple IIgs, and I love using it. So does my 3-year-old. I am also a senior programmer analyst and work on an IBM PC all day. Is there any chance that there will be a Windows or MS-DOS emulator for the Apple II? Please don't tell me to buy the PC Transporter, because for the money I spend on that card and a disk drive, I can add a couple hundred dollars and buy a PC!

Peter Calabrese
Nesconset, NY

Peter: We wouldn't recommend a PC Transporter for exactly the reason you stated. Also, the PC Transporter is an XT clone with 640K and CGA graphics (neither the memory nor the graphics can be upgraded). Due to technical and economic considerations, it is considerably more expensive to make a reasonable (say, 386-level) MS-DOS or Windows card for the Apple II than to build a PC clone. (First you have to take into account all the research and development necessary to connect the emulator card to Apple peripherals, then you have to figure that you're not going to sell very many, so the product needs to be priced so that the R&D can be paid off with the first couple hundred boards sold.) If you need to run MS-DOS or Windows, the best solution is a stand-alone "clone" computer.—Editor

Dear *II Alive,*

I noticed on the cover of the November/December issue an article called "Past Perfect: The History Of The Apple II." However, I can't find the article in the magazine! Where is it?

Roger Hansen
Bellevue, WA

Roger: We'd originally intended to include the article, which was a condensed version of Steve Weyhrich's popular Apple II history, but when we read the condensed article we decided that the Apple II's proud and elaborate history is not something that condenses well. Additionally, Steve's history series has appeared in many user group newsletters and is available on most online services, so we decided to let it stand on its own. Our art department had already sent the cover to press by the time we decided not to use the article.—Editor

Listing 1

```
10 DIM A(1,39,39)
20 PRINT CHR$(21): TEXT: HOME: GR: T=.55
30 FOR I =1 TO 38: FOR J = 1 TO 38: A(1,I,J) = 4: NEXT: NEXT: A(1,19,19) = 1
40 COLOR=4: FOR I = 1 TO 38: HLIN 1,38 AT I: NEXT: COLOR=1: PLOT 19,19
50 VTAB 22: PRINT "Time: 0"
60 FOR N = 1 TO 150: NB = 0
70 FOR I = 1 TO 38: FOR J = 1 TO 38: A(0,I,J) = A(1,I,J): NEXT: NEXT
80 FOR I = 1 TO 38: FOR J = 1 TO 38: IF A(0,I,J) <> 1 GOTO 140
90 IF A(0,I-1,J) = 4 THEN IF RND (1) < T THEN A(1,I-1,J) = 1
100 IF A(0,I+1,J) = 4 THEN IF RND (1) < T THEN A(1,I+1,J) = 1
110 IF A(0,I,J-1) = 4 THEN IF RND (1) < T THEN A(1,I,J-1) = 1
120 IF A(0,I,J+1) = 4 THEN IF RND (1) < T THEN A(1,I,J+1) = 1
130 A(1,I,J) = 0: NB = 1
140 NEXT: NEXT
150 FOR I = 1 TO 38: FOR J=1 TO 38: COLOR= A(1,I,J): PLOT I,J: NEXT: NEXT
160 VTAB 22: PRINT "Time: ";N: IF NB = 0 THEN N = 150
170 NEXT: PRINT CHR$(7);: GET A$: PRINT
180 TEXT: HOME: END
```

II ALIVE

September/October 1993
Volume 1 Number 4

A Quality Computers Publication

Publisher	**Joseph Gleason**
Editor-In-Chief	**Jerry Kindall**
Managing Editor	**Ellen Konowitz Rosenberg**
Contributing Editor	**Douglas Cuff**
Interview Editor	**Tara Dillinger**
Art & Design	**Audrey Wolfe** **Carl Sperber** **Paul Sheppard** **Marcy Schwartzberg**
Advertising Sales	**Matthew Spatafora**
Review Editor	**Jeff Hurlburt**

Our Address: *II Alive*, PO Box 349, St. Clair Shores, MI 48080 USA. (If shipping by UPS or some other carrier requiring a street address, use 20200 Nine Mile Rd., St. Clair Shores, MI 48080 USA.) Also check our Voice Mail, Fax, and Electronic Mail addresses (below) for faster ways of getting in touch.

Our Phone Number: Subscription-related inquiries *only* can be handled by our Sales Department at 1-800-777-3642 or (810) 774-7200. This number is not for editorial or technical inquiries; we prefer to receive those by mail or fax.

Our Fax: We accept correspondence via fax at 810-774-2698.

Voice Mail: Letters to the Editor *only* may be left on our Voice Mail system. Dial 1-800-777-3642 (US and Canada; other countries dial +1-810-774-7200). When our phone droid answers, dial 839 on your Touch-Tone phone, or wait for an operator and ask to be transferred to extension 839. All voice mail messages become the property of *II Alive*.

Electronic Mail: We accept electronic correspondence via our BBS at +1-810-774-2652, or via one of the following online services: GEnie (QUALITY), America Online (QualityCom), CompuServe (73477,3364), or the Internet (iialive@pro-quality.cts.com).

Disclaimer: Sorry, but due to the volume of mail we receive, we cannot promise replies to individual letters, faxes, or messages. All letters, faxes, and messages sent to *II Alive* become the property of *II Alive* and may be edited for publication or used for promotional purposes. We cannot return disks.

Letters to the Editor: Send your comments, questions, and concerns to *II Alive*—Letters at the address above.

Ask Mr. Tech: Send technical quesitions and answers to *II Alive*—Mr. Tech at the address above.

Shareware Spy: Send new freeware and shareware programs for review to *II Alive*—Shareware Spy at the address above.

Macro Exchange: All macro submissions become public-domain. If we print your macro, we'll send you $10. Send macro submissions to *II Alive*—Macro Exchange at the address above. Please include a disk if your submission is longer than half a printed page.

Art Gallery: You retain copyright on graphics we print in our Art Gallery department. Send graphics files (in a standard high-resolution, double-high-resolution, or Apple Preferred super-high-resolution format) to *II Alive*—Art Gallery at the address above.

Reviews: Send products for review to *II Alive*—Reviews, c/o Jeff Hurlburt, 7814 Santa Elena St., Houston, TX 77061. Also contact Jeff if you are interested in writing a review for *II Alive*.

Publication Schedule: *II Alive* is published on a bi-monthly schedule, with issues appearing in January, March, May, July, September, and November. Please allow until the 15th of the cover month for delivery (international subscribers allow slightly longer).

Susbcription Information: U.S. subscriptions cost $19.95 (for a six-issue, one-year subscription). In Canada and Mexico, the annual rate is US $29.95. Outside North America, susbcriptions are US $39.95 (for surface delivery) and US $49.95 (for airmail delivery). To subscribe, send check, money order, or credit card number (Visa, MasterCard, Discover, or American Express) to *II Alive*—Subscriptions at the address above. You may also subscribe by credit card by calling our Sales Department at the phone number above.

Damaged and Missing Issues: If you receive a damaged copy of II Alive, or do not receive a copy at all, contact Subscriber Services at the address above, or call our Sales Department at the phone number above.

Expiration Dates: Your subscription expiration date is printed on your mailing label. This date indicates the *last* issue you will receive—i.e., an expiration date of 3/94 means that the March/April 1994 issue will be the last you will receive. Renew at least a month before this date to ensure uninterrupted service.

Change of Address: Please mail a copy of your current mailing label, along with your new address, to *II Alive*—Subscriber Services at the address above.

Writing for II Alive: Send a self-addressed stamped envelope to *II Alive*—Editorial Department at the address above for our detailed Writer's Guidelines.

PRINTED IN THE UNITED STATES OF AMERICA

Dear *II Alive*,

It's now January 6, and I just got my November/December issue of II Alive. What's the problem? Can't you guys keep a schedule?

Gene McCullogh
Goshen, OH

Gene: We plead circumstances beyond our control. Not only did AppleWorks 4 take longer to bring to market than we expected (your editor was involved in writing the manual, which put the November/December issue back over a month), but we also sent out the issue during the busiest mailing season of the year. One consolation: if you're upset about getting the November/December late, imagine how our advertisers feel. You might notice that this issue is a late, as well, due to an unexpectedly busy Christmas season, but the March/April issue will be back on track.—Editor

ATTENTION:

INCIDER/A+ SUBSCRIBERS: If are a charter subscriber to II Alive, and also had a susbcription to inCider/A+, you may have recently received a renewal notice despite the fact that we should have converted your outstanding inCider/A+ issues to II Alive. This notice was sent in error; you may ignore it. The remainder of your inCider/A+ subscription will be converted to II Alive beginning with the next issue (March/April 1994). At that time, the expiration date on your mailing label will be changed to reflect the converted issues. If you do not receive the March/April 1994 issue, or if you believe the adjusted expiration date to be incorrect, please call Subscriber Services at 800/777-3642 or 810/774-7200.

New Venture for Resource Central

I Like ICON

The International Computer Owners Network (ICON) is a newly formed user group sponsored by Resource Central. The group focuses on the spreading of relevant information through printed, electronic and face-to-face channels. Dues for membership are a mere $8 per year, but will be waived for those who subscribe to any Resource Central publication or who are active on GEnie and send e-mail requesting membership to ICON. Additionally, there is a discount equal to the membership fee paid on any Resource Central/ICON publication. The benefits of membership include Ahs, a quarterly newsletter written by Tom Weishaar, system software and other goodies published by Apple Computer, Inc. for just $3 per disk, and an invitation to the members-only summer conference.

The summer conference, known popularly as KansasFest will be aimed average users, power users, and programmers alike, creating an exciting new opportunity for computer enthusiasts of all denominations.

For more information, or to join, write to ICON at Box 11250-I, Overland Park, KS 66207, call 913-469-6502, fax 913-468-6507. Electronic mail may be sent directly on GEnie to the e-mail address of ICON or through the Internet (ICON@genie.geis.com).

Historically Speaking

Historically Brewed is the name of the bimonthly newsletter of the Historical Computer Society. Billing itself as the National User Group for Enthusiasts of Classic Computing, the HCS intends to become the authority on "retired" personal computers and the premiere source for answers to questions about them. Subscriptions are $15 per year. Contact the Historical Computer Society at 10928 Ted Williams Place, El Paso, TX 79934.

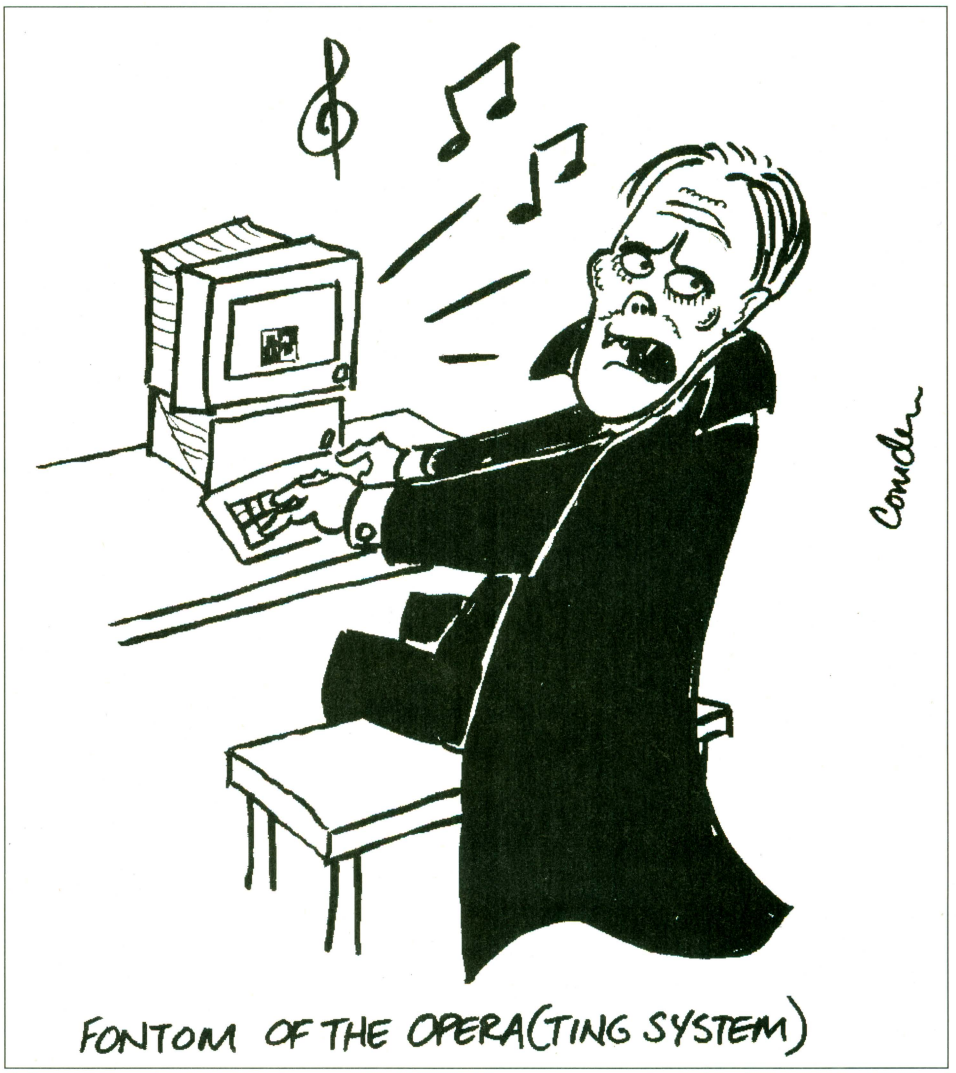
Relief For Taxing Times

You need no longer beware the Ides of April if you've got TaxCalc-93. Now in its seventh year, TaxCalc is a powerful menu-driven tax preparation program for the entire Apple II family of computers. It's easy to use and highly automated, with tax theory and IRS worksheets built in. The program calculates your best tax strategy, fills out related forms, and even enters your tax from the built-in tax table—fast!

"TaxCalc provides you with a lot of intuitive insight, and offers great technical support," wrote Craig Crossman of USA Today. Cynthia Field of inCider magazine noted that TaxCalc "offers a host of timesaving features, including a pop-up calculator and data-save" and is "the only program to offer toll-free support for questions about the program and taxes."

The program, at $29 plus $3 shipping, includes a tax guide with tips. TaxCalc-93 calculates the 1040, plus schedules and forms A, B, C, D, E, EIC, SE, 2106, 2119, 2441, 3903, and 4562, and runs on any Apple II with at least 48K RAM and one 5.25" or 3.5" disk drive. Printer is optional.

Contact Perfect Solutions Software, 12657 Coral Breeze Drive, West Palm Beach, FL 33414, 800/726-7086, FAX 407/790-0108. ■



verted to PowerPC code. Tools are also available to allow developers to create "native" PowerPC applications which bypass the emulation entirely.

Just in case you want to run Windows on a PowerPC Mac, you might want to know that Insignia Solutions, producers of the popular SoftPC package, has licensed Windows source code from Microsoft and is converting Windows to native PowerPC code. SoftWindows (as the Windows emulator for the PowerPC will be called) will, according to the latest reports, run at about the speed of a 33 MHz 486 on a PowerPC 601. So a PowerPC Mac will be able to run both Mac and Windows software at quite acceptable speeds.

Back To The Apple II

I know, I know. This is II Alive. You want to hear about Apple II stuff. It's taken me a while to get to the point, because there's so much background information, but the point is this: there's no reason Apple (or some enterprising third party) couldn't write an Apple II emulator for the PowerPC. The Apple IIgs uses a Toolbox much like the Mac's, which would make the Toolbox translation trick a possibility.

It wouldn't be an easy job, by any means. In addition to emulating the 65C02 or 65816 processors, a PowerPC-Mac Apple II emulator would also have to emulate the Apple II's unique hardware features. Take, for example, the Apple II's text mode. The Macintosh has no text mode, so the Apple II text screen would have to be converted to a Macintosh graphics display. As would the standard hi-res and double-hi-res modes—and don't think this would be any easier just because it's just translating one graphics mode to another; the Apple II's pixels (screen dots) aren't square, while the Mac's are, and then there's that rather bizarre way the Apple II hardware represents color internally. Basically, every single hardware feature of the Apple II would have to be redesigned into software. Then there'd have to be some way to tie the Macintosh hardware features (3.5" disk drive, hard drive, expanded memory, etc.) to "slots" in the software-based Apple II.

And that's just for an Apple IIe emulation. An Apple IIgs emulation would be even more involved. The IIgs has many more hardware features, ranging from scan line interrupts to "fill mode" graphics to Ensoniq-based sound. (You'd likely need an AV Mac, with a digital signal processor chip, to even think about emulating the Ensoniq chip in software.) The IIgs also has much more built-in software. And then there are the legal problems—the IIe ROM has been successfully and legally "cloned" (in the Laser 128), but the IIgs Toolbox hasn't, and Apple is likely to take legal action against anything that looks like it might infringe on their technology. This could be a major hurdle for any third party attempting to develop a IIgs emulator.

Of course, if Apple itself develops an Apple II emulator for the PowerPC Mac, it won't have any of the legal problems a third party might have. Judging from the "no-compromises" Apple IIe Card for the Macintosh, though, we'll probably never see an Apple IIgs emulator from Apple. In fact, it may well be that the IIe Card will be the only official solution we'll get. (That might not be as bad as you imagine. A IIe Card in a PowerPC-based Mac should have a much faster screen display than the same card in, say, an LC, since the Apple II screen display is handled by the Macintosh's processor.)

We know of at least one software publisher (Quality Computers, naturally) which is currently investigating the possibility of creating such emulation software independently of Apple. If you want it, let your voice be heard—at Quality and at Apple. With a software-based Apple II for the PowerPC, the Apple II really could be "forever" at last. ■

Games, Sound Digitizer, and Virus Protection

II ALIVE RATINGS

★★★★	Excellent
★★★	Very Good
★★	Good
★	Fair
☆	Poor

MAZER II

★★★

"Virtual Reality" fantasy action game
Farfetch Software
(distributed by Big Red Computer Club)
$25 retail
Requires Apple IIgs with 1.25 MB RAM
(2 MB recommended) and
System 5.0.4 or later

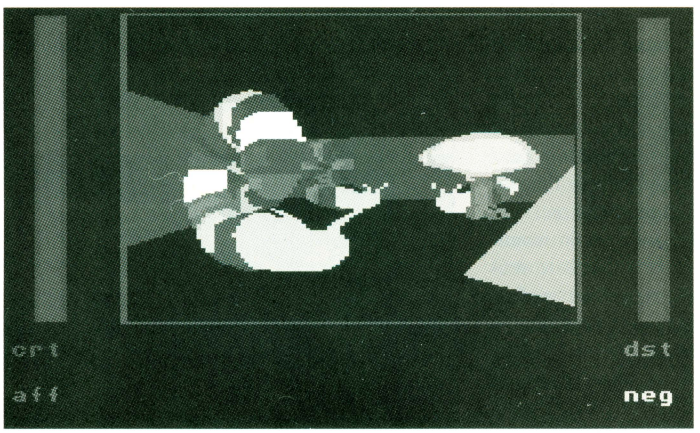
Once in a great while, a game comes along that expands your concept of what your computer can do. The most recent such excursion into the world of GS graphics is Mazer II, a fantasy game which takes place entirely in a 3-D "Virtual Reality" environment.

Mazer II begins in a forest in the middle of the Mazeworld. Here you are introduced to George, an invisible creature who will act as interpreter when you converse with the realm's more verbose denizens. The game's fold-out Directions sheet says that your first goal is to discover your mission; sure enough, you soon encounter several brightly-colored snails who explain that the Mazelands have been invaded! Everyone is threatened by an army of monsters unleashed by the evil Adversary. It's up to you to destroy the Adversary and return Mazeworld to normal.

Virtual reality controls must be simple in order to pull the player into the game's world, and that's exactly what you'll find in Mazer II. Move the mouse, and the screen instantly shifts to accommodate a new view of your surroundings. Click the mouse, and you shoot an energy bolt. Pressing Escape brings up the Pause menu, where you can Save and Restore games, then Quit, or return to the game you were playing.

The down side of all this simplicity is that it can make game play a bit awkward. Instead of using icons or keypresses, all communication with the game is handled by shooting energy bolts. You fire a "Creative" bolt to say hello, and use "Affirmative" or "Negative" bolts to answer yes-or-no questions. If you want to get violent with a creature, you can use a "Destructive" bolt to attack it. You set the kind of bolt by clicking a label beneath the maze view. Moving the mouse to move through the maze is certainly simple, but you quickly run out of desk space and must frequently lift and reposition the mouse.

The difficulty of Mazer II challenges varies quite a bit. Some missions are pretty simple, like clearing an area of minor monsters. Others can be very tough, such as having to escort a group of friendly snails through a maze full of snail-eating Amoeboids. With no in-program mapping, the mazes can be confusing, especially when visibility is just a few feet. Have your graph paper ready—ven rough line-and-box maps are a big help when you're in the fog with a flock of monsters hot on your trail.



Besides Amoeboids, Mazeworld monsters include Killer Rats, Shades, Seahorses, and the Eashire Cat. Some of these enemies can be killed with a simple destructive energy bolt; others require a little more strategy to dispose of. Learning how to dispose of each kind of enemy is part of the game's challenge.

Meanwhile, you must strive to maintain Health and Energy levels, as indicated by bars to the left and right of the screen. Health is decreased by running into—or getting shot at by—the various bad guys. If Health hits zero, you're dead! Health can be restored by resting or visiting special fountains. The Energy bar drops as you fire energy bolts. No energy means no bolts—fortunately, it recharges fairly quickly.

Mazer II's animation is pretty smooth even on a stock GS, although the display can get a bit jerky when the action involves several monsters. An accelerator board solves the problem. (If you have a TransWarp GS, be sure to set Appletalk/IRQ off, or you won't appreciate the added speed.) The docs recommend turning off the High Speed Mouse in the Control Panel, but after getting the hang of things, I found the mouse sluggish, so I switched it back on.

You will not need to fiddle with Sound settings in the Control Panel. Incredibly, there is absolutely no sound or music to accompany the action! The author explains that, in a 'virtually real' world, sound effects pose a serious design problem. Give players a little sound, and they'll expect to hear everything (for example, a killer rat sneaking up on them), not just footsteps and energy bolt zaps. Maybe so, but some SoundSmith or SynthLab music would have been nice.

Overall, I liked Mazer II. I still haven't beaten it, which speaks well for its challenge and addiction factors. It's a different kind of action game that's deep and thoroughly enjoyable. With characters and mazescapes beautifully rendered in 3-D super-res, the graphics are sure to amaze you. So if you want music, put on a good CD; then prepare for a quest that will take you through some of the most fiendish mazes ever seen on a computer. Mazer II is an exciting, involving world you will happily lose yourself in for days!—**Colin Williamson**

SOUNDMEISTER/DIGITAL SESSION

★

Stereo card & digitizer
Econ Technologies
$89.95
Requires Apple IIGS with 1.5 MB RAM and System 6; hard disk recommended

Supplied with "Digital Session" software, SoundMeister is the latest entry in the IIgs stereo/digitizer card market. The Econ board offers two-channel amplified output to directly drive speakers, and two-channel line level output for connection to a stereo system. SoundMeister also includes an input digitizer, so you can record music, voice, and sound effects from either a microphone or a line level source such as a cassette or compact disc player. The board does not provide stereo input, but the included software permits you to convert mono sounds to stereo and process the two channels independently.

To install SoundMeister, you first mount the I/O panel in a rear opening, then plug the board into any available slot except 3, and finally connect a cable from the card to the sound plug (at the front of the motherboard, near the memory expansion slot). The card does not override the slot's internal function. With these constraints, installation should be a snap, but the choice of slot is limited by the way SoundMeister's stiff cable connects to the sound connector on the motherboard. I didn't like the bending needed to put the card in Slots 5-7, and, since I have an an accelerator in Slot 3, Slots 1 or 2 didn't fit well, either. It went comfortably only into Slot 4.

Many IIgs users will appreciate the convenience of amplified outputs. I connected the card to three sets of speakers—from a small inexpensive set of Walkman-type speakers to a pair of Cerwin-Vega 3-ways— and it drove them all without difficulty. The major attraction, of course, is true two-channel output. Suddenly, the instruments in Instant Music and Jam Session seem to 'spread out'. When playing your favorite IIgs adventure and arcade games, stereo sound can makes the the difference between watching the game and actually being in the game. Even when the computer is generating monophonic sound, the SoundMeister seems to produce much "wider" sound—but then, almost anything would be an improvement on the built-in speaker.

Like other IIgs stereo cards, SoundMeister does not send the standard system beep (nor any sound generated by IIe/IIc programs) to its outputs. This is because these sounds are not produced by the IIgs Ensoniq chip, but by directly addressing the speaker output, and thus are not sent to the stereo card (the sound connector on the motherboard only carries signals from the Ensoniq). The SoundMeister Pro card, costing $50 more, was slated to include this feature, but Econ has canceled the Pro project because of high startup costs. On the other hand, plugging in SoundMeister does not turn off "old Apple II" sounds. You can still hear them via the internal speaker or an amplified speaker plugged into the IIgs headphone jack.

Some IIgs users may notice some noise in their SoundMeister output. The card seems to pick up a lot of 'computer hash' from my ROM 1 machine. (To be fair, this is largely a design deficiency in the IIgs, not the SoundMeister. Newer ROM 3 machines are somewhat quieter.) SoundMeister does have an automatic volume reduction feature to help reduce "idle noise" but, even with idle volume set at 0, I could still hear some noise while scrolling through word processing documents in AppleWorks GS. The only cure is to simply turn down your speaker L-pads or amplifier volume control.

I felt SoundMeister processing caused sounds to lose some clarity, especially at high and low ends of the spectrum. Granted, only your ears are golden, but in a test using a portable amplifier and a mono sound to compare quality from the card's line-level outputs with that from the IIgs headphone jack, the SoundMeister just seemed to lose definition.

The second major piece of Econ's SoundMeister package is their proprietary DigitalSession software. Featuring a healthy collection of filters and effects, it can import, manipulate, and save sounds in HyperStudio, raw, and rSound formats. Additional filters, effects, and file translators can be developed and added just by dropping them into the appropriate folder. The translators are necessary because, unlike HyperStudio's Sound Shop, DigitalSession will not attempt to load file formats it does not recognize.

The version of DigitalSession supplied with my review unit was not finished. I used prerelease version 0.9b7, and was told version 1.0, which will be supplied free to all current purchasers, was still a few months away. Aside from a couple of glitches—mainly, problems with recording and importing long sounds—DigitalSession worked reasonably well, including tests with Sound Shop and rSounds files. A major roadblock is the documentation, which is slim to none. A comprehensive manual, scheduled for completion once version 1.0 is ready, will cost an extra $20.

Perhaps scrapping the SoundMeister Pro project will allow Econ smooth out some of the rough edges on the current package. If so, the promise offered by a versatile duo will certainly be worth another look. For now, I remain dissatisfied with the board's sound quality and the performance of the "under development" version of DigitalSession. Add (or subtract) the missing DigitalSession manual, and the result is a product difficult to recommend with any great enthusiasm.—**Bill Bert**

CRYLLAN MISSION 2088

★★★

Science fiction role-playing adventure game
Victory Software
$69.95
Requires Apple IIGS with 1.25 MB RAM and 3.5" drive; second drive or hard disk recommended

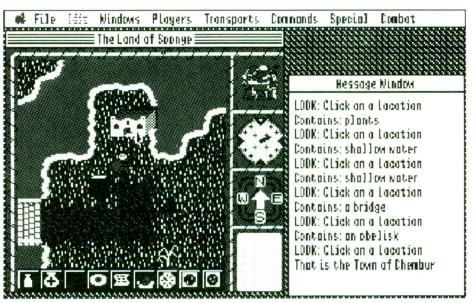
It's June 13, 2087 when, halfway across the galaxy, the Earthship U.S.S. Houston discovers an inhabited planet! Located within a binary-star system, Crylla boasts numerous cities and villages. The Houston's Captain reports that, while strange and dangerous creatures roam much of the planet's surface, the humanoid Cryllans seem friendly enough. Scientists and other contact team members are uniformly enthusiastic. On July 31, 2087, the Captain advises the United Space Exploration Council (USEC) that Crylla is about to pass on the far side of the binary stars, preventing deep-space transmission for nine months.

The nine months pass—followed by week after week of utter silence. At last, USEC orders preparation of a rescue mission. As Captain, your first assignment is to handpick a crew from graduates of the Kinnar Space Academy. The team of six custom-created or pre-generated characters may include soldiers, nurses, doctors, and science officers. Your orders: where possible, recover members of the original mission—and, no matter what, find out what went wrong!

Despite an identical start, the second 2088 game is not merely an upgrade or revision to the original scenario, but a new game. Besides a new storyline and new characters—you can't transfer developed characters from the original game—there are a number of player-friendly enhancements, too.

Handy game instruments are arranged along the right edge of the main window. For example, a miniature map represents the area the team is exploring, with your position marked by a flashing white dot. There is also a clock displaying local Cryllan time, a compass, and a body status indicator that shows the current health of each team member. Along the bottom of the screen are nine ready-to-click buttons for Life Form and Terrain scans—plus Camp, Attack, Talk, and other actions.

Like the original scenario, the new 2088



employs crisp, colorful 640-mode screens to illustrate your travels along pathways and through woods, towns, buildings, and underground complexes. In the countryside and cities, the view is top-down, and your team is represented by a single figure. For combats, a 'break-out' display shows all team members and enemies on a grid. Finally, when inside subterranean structures, such as caverns or dungeons, you get a 3D forward view and auto-mapping of your progress through the maze of rooms and hallways.

When your team first lands on Crylla, you have only light weapons, and no money. Too bad—your survival depends on having piles of money, or Terraens, to spend. With money, you can buy food, weapons, and medial treatment. (Like any real force, your team consumes food and energy—it is possible quite possible for the team to starve!) Terraens can be earned by selling items, but in general, especially at the start of the game, you obtain money, weapons, and other goodies by winning battles.

2088''s tactical combat scheme is easy to learn and, once your team is better equipped, lets you turn over minor battles to the game's computer control. Most of the time, retreat is an available option, but it's generally best to take advantage of early combat opportunities. The rogues, robotoids, and other enemies found on the surface are much less dangerous than those you will eventually encounter in Crylla's numerous underground mazes. Survival hint: the first time you come across a major treasure chest, grab it and proceed immediately to the nearest town where weapons are available. Buy at least one long-range cannon and a large supply of grenades.

As in other Victory adventures, you won't get anywhere without information obtained in conversations with inhabitants. Inside towns and villages, dialog boxes allow you to converse with all sorts of people. Much of what you hear amounts to trivia, but sometimes information gleaned from these exchanges will become useful, or even essential, later on. For example, to enter certain towns or villages, your team must have an entry pass. Unless you speak to the right person, you'll never get one.

Besides adding depth and realism to the game experience, the verbose conversations coincidentally reduce the need for print documentation. So why, I wonder, doesn't the manual provide more detail about things that will trip up new players—like, for instance, how to assign team member attributes—and less information that can be gleaned from the game itself? Why isn't there at least a rough map of Crylla? (I can wish for a full color, fold-out map, can't I?) As for the software itself, it would certainly help if the Academy program allowed naming characters after dice rolls and attribute adjustments. Chalk it up to ego, but I'd like to name the strongest team member after myself!

Despite some minor inconveniences, I have found playing The Second Scenario an enjoyable experience. The situations are challenging enough to maintain interest, yet not so overwhelming as to discourage forging ahead. With each failure, you gain more insight, and make each victory all the sweeter. The newest Cryllan Mission is a long-play adventure. As of this writing, I've yet to find the missing crew, but I've had hours of fun trying!—**Larry Melton**

VIRUS MD 2.1

★★★

Virus detector and eradicator
Morgan Davis Group
$19.95 list
Requires Apple IIGS with 1.25 MB RAM

It's unfortunate that there is a need for programs like VirusMD. The world, however, is not a perfect place, and computer viruses do indeed exist. Though there are hundreds of different viruses in the Macintosh and PC realms, the Apple II community has been relatively lucky in its exposure to these destructive little programs. This reviewer knows of only four Apple II viruses. VirusMD 2.1 can eradicate three of them.

A computer virus is to your computer what a biological virus is to your body. A computer virus silently duplicates itself, spreading as far and as wide as it can. It infects any disks it comes into contact with. After a certain amount of time, or on a certain preset date, the virus's second stage is triggered. It may simply display an annoying message on your screen, or it may do something much more destructive, such as erasing your hard drive. Unless you have (and use) a good detection program, a virus could strike at any time with devastating results.

Lest we incite a panic, we should also point out that viruses are computer programs. Your computer can't spontaneously come down with a virus, and you can't get a virus from merely downloading files with your computer. In order for a virus to spread, an infected program must be run. You can have dozens of infected programs on your hard drive, but if you never actually run any of them, you are not at any risk. Furthermore, viruses can't infect data files. Apple II viruses are actually relatively rare, thanks in part to the diligent effort of BBS operators and programs like this one. Still, the effects of a virus can be disastrous—so $20 is a small sum to invest for peace of mind.

VirusMD's user interface makes using it a breeze. For speed, it utilizes text-based pull-down menus with limited mouse support and hot-key access to most menu selections. Some customization of program program operation is possible; unfortunately, preferences are not saved and must be reentered each time the program is run.

Scanning a volume for a virus is as simple as hitting two keys. Everything is done automatically, but in case you get stuck, there's online help plus a decent on-disk manual. (Morgan Davis also maintains a technical support hotline.) Version 2.1 has the ability to detect and cure three Apple II viruses: CyberAIDS, Festering Hate, and Lode Runner. The program can also repair damage done to a disk's boot blocks, which can harbor a virus.

VirusMD is not the only IIgs virus killer on the market. Vitesse's Exorciser is probably better-known, and it is a bit faster at scanning. Exorciser also adds the ability to specifically detect the Blackout virus (VirusMD will find the damage the virus does to the boot block, but does not specifically look for the virus) and features the a standard Desktop user interface. Still, considering Exorciser's $54.95 price tag, VirusMD seems to be a genuine bargain.

Tests were performed on an unaccelerated IIgs with 2 MB RAM. Hard.1 consists of 122 folders and 1,845 files. Hard.2 consists of 75 folders and 1,328 files.

If you routinely download files from BBSs or swap programs with other IIgs users, you should protect yourself against viruses. VirusMD will detect and squash your next virus before it can cause any damage—which makes it a smart investment, indeed. For dependable defense against computer viruses in a compact, easy-to-use package, VirusMD is a sound choice.—**Jamie Conroy** ■

	VirusMD v1.2	Exorciser v1.02
Scanning of Hard.1	53 sec	43 sec
Scanning of Hard.2	22 sec	20 sec
Program boot time	2 sec	9 sec

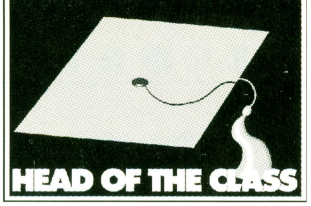
Vendor Information

BIG RED COMPUTER CLUB
423 Norfolk Avenue, Norfolk, NE 68701
(402/379-4680)

ECON TECHNOLOGIES
99 N. Central Ave., Suite B
Oviedo, FL 32765.
(407) 365-4209

MORGAN DAVIS GROUP
10079 Nuerto Lane
Rancho San Diego, CA 91977-7132
(619) 670-0563

VICTORY SOFTWARE
P.O. Box 821381
Houston, TX 77282-1381



Making Coloring Books

by Jeffrey W. Damerst

Coloring books have been part of the classroom scene since the days of the one-room schoolhouse. Many special-interest groups have used the medium to promote their interests. While these professionally-designed products are nice and do fill many needs within the classroom, often, a need arises for one that is unavailable on the commercial market.

That's where a little creativity comes into play. If you have a word processor, a graphics program, and a desktop publishing program, you can combine them to produce specialized, unit-oriented coloring books. While they won't be as slick as commercial books, your students won't mind. I recently designed two coloring books for my third grade class: one to compliment a unit on trains, and one on famous aircraft. They were produced using AppleWorks 3.0, the Original Print Shop, The New Print Shop, my collection of Print Shop graphics, and Publish It! 4.

Before you can do anything else, you need a topic. Topic ideas can be drawn from your class curriculum or from the general interests of your students. Often, choosing a coloring book topic which is peripherally related to the topic you're studying can serve to broaden the scope of the lesson or cast a new perspective on material you've covered.

Prepare a rough draft, jotting down captions and picture ideas, then look for graphics that will suit your need. I prefer to use graphics I've drawn myself, if I can, but when that fails, I turn to the many disks of public-domain Print Shop graphics in existence. If you have a scanner, you can draw pictures on white paper with fine line ink markers, pencil, or an ink pen. Then scan the picture, clean it up a little with a paint program, and add it to your graphic library. Even if you don't think you can't draw very well, scanning a hand-drawn image is easier than trying to create the picture directly on the computer using a clumsy input device like a mouse or a joystick.

I usually write the text using AppleWorks and save it on a data disk—it's far faster than entering the text in Publish It! 4. The caption for each picture might include not only the name of the object or scene depicted, but a brief, informative description.

The first step is to design a cover page. Try to combine text with graphics that will catch the student's attention. Naturally, since the student will be coloring the book, you want to use only black and white line art. You might want to include a table of contents if the book has more than ten pages.

I try to include at least two graphic areas on each page. (The layout can vary according to the age and coordination of the target audience.) I use Publish It! 4 to set up each page, but the method could be adapted for use with any other desktop publishing program. I prepare several pages by using the "Add pages with Links" option. This ensures that all pages are identical and the format stays the same. Prepare a sample page which should be saved as a template. It is convenient save your document in 8-10 page groups. As you put the book together, open files of several pages, print that group and then go on the next page group. If there is an error on a page, it is easier to fix small print runs then a large block.

Borders can be designed using the box tool. Once drawn, use the Fill menu to pick the pattern. To keep the border narrow, I redraw another box inside with the fill pattern changed to white. Then I choose the X tool to place a graphic picture. Put text under the picture by using the T tool. Make a text box by dragging the tool from the left corner to the right corner. Change to the I-beam tool to type your text. Place the cursor in the upper left hand corner of the text box and click the mouse.

As I said earlier, I type my text in AppleWorks and import the word processor files into Publish It! 4. Once it has been imported, the text size can be changed to suit. The 18 point size is legible, though you might be able to use smaller text with older students. You can set up each page individually, or use the linking feature to "flow" the text from one page to the next.

Graphic images from various sources can be used in your coloring book. Be careful of copyright rules if you use a scanner to obtain your graphic from a book or copyrighted item. If you use the original Print Shop, The New Print Shop, or a paint program, you can draw your own graphics. Publish It! 4 can import either DOS 3.3 (Old Print Shop) or ProDOS (New Print Shop) graphics. Graphic images can be stretched, compressed, or flattened as needed. Dragging the corners of the graphic image with the arrow tool adjusts the proportion of the image to make it look "correct."

Print the book using a new ribbon and the "double strike" option, which will make the print solid and dark for best reproduction. It's best to print the whole book just once and a use copier to make copies for the class. Although you could use your own printer if you don't have access to a copier, printing multiple pages with large areas of graphics will cause the print head to heat up excessively. This produces extra wear and tear on the printer—and besides, it takes a long time to print books for a whole class.

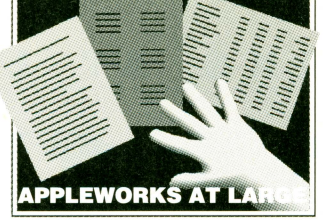
The book can simply be stapled together in the corner or along the sides, or you can punch holes in it and have your students keep all their coloring books together in a binder. Involving your students in the actual assembly of the books is a good way to give them an increased sense of pride and ownership in "their" coloring books.

Here are some things to try in conjunction with the coloring books. Some are more applicable to specific topics than others.

- Have the students arrange the pictures in an order that seems to tell a story, then have them write the story to go with the pictures. Allow the students to draw one or two pictures of their own to help tie the story together.
- Print the captions on a separate page and have the students match the captions to the appropriate picture.
- Divide the students into groups and give each group a theme. Have each group study each picture and determine whether it fits the group's theme, then color the pictures which fit.
- Have the students choose a theme based on the unit they're studying and determine what sorts of pictures are necessary to create the book.

Students really appreciate coloring books designed and produced especially for them. This concept makes a good class project for older students, who could make coloring books as class projects or for students in the lower grades. A sample project might involve making a coloring book about your community or state. If your class has a pen-pal relationship with another class, you could exchange coloring books as a way of learning more about the other class's community, state, or country.

Making your own coloring books can be very rewarding. If you use all your own home made graphics, you might even be able to market the book to other teachers in your district. Try making a small coloring book, and you'll soon get the urge to make bigger and better books. Now… where are my crayons? ■



It's Tax Time!

by Steve Miller

Yes friends, it's that time of year again—time to face the tax man. But you can make the situation a little less frightening by using your trusty Apple II and the AppleWorks database to create a professional-looking list of tax deductions, with a subtotal for each type of deduction. Give this list to your tax-preparer and you'll make his day a little brighter. Who knows, he may even charge you less because you're not handing him boxes and bags full of little illegible receipts!

I've used this system for the past seven or eight years, and although it may take 2-4 hours of data entry, it's well worth the effort. The process will probably remind you of deductions that you otherwise would have missed. If you're the type that likes to plan ahead instead of letting everything go until the last minute, it's even easier and more accurate if you remember to do the data entry once a month throughout the year.

I make my list of deductible expenses by going through my checkbooks and entering only the deductible items into a database. (If you already keep your checkbook on the computer, this may be turn out to be a simple matter of cut-and-paste.) It doesn't matter what order you enter them in, because when you're finished, the database can organize them any way you like. This is especially helpful if you run one or more small businesses and have to file a Schedule C with your tax return.

CREATE THE DATABASE

To create your tax-deduction database, start at the AppleWorks Main Menu and choose "Create A New File," then "For the Data Base."

Name the file "Deductions 93" or another descriptive name and create the following categories:

DATE	
ENTITY	**if you have a business**
ACCOUNT	**if you have multiple checking accounts**
CHECK#	
TO	**who you paid**
PURPOSE	**what you bought**
TYPE	**type of deduction**
AMOUNT	

After naming the categories, press Escape. You'll be prompted to press the spacebar to begin adding records. (AppleWorks 4 doesn't have an "Add Records" mode, so make sure "Auto-add DB records at end" in the Miscellaneous standard settings is activated so that you can always add records.) Start at the beginning of the year and enter any check that is, or might be, tax-deductible. If you're unsure whether an expense is deductible, enter it for now and make a final judgement later—or leave it up to your tax preparer.

Entries in the Entity category may be coded J for joint deductions (those your spouse and you qualify for on your personal returns) and B for business deductions. If you operate more than one business, use a specific letter for each one. The specific code you use isn't important, as long as it's consistent.

Potential values for the TYPE category include:

Car-Insurance	
Car-Gas	
Car-Repair	**(automobile expenses must be separated this way)**
Charity	
Supplies	
Phones	
Legal	
Inventory	
Repairs	
Dues	
Subscriptions	
Continuing Education	
Accounting	
Travel	
Insurance	
Taxes & Licenses	

Check last year's tax return to see if you use any others. By the way, if you have AppleWorks 4, this is a perfect place to use a glossary rule to avoid having to type in the complete name of each deduction type. (You should also set the AMOUNT category to have two decimal places in the OA-O menu.) If you enter the types manually, it's important to be consistent because when you're finished entering data, you'll want AppleWorks to group all the similar deductions together.

SAVE, SAVE, SAVE

Remember to save your work frequently. The first year I did this, I decided to take a break after two hours of data entry. Of course, while I was stretching, my foot bumped the plug and everything went kaput—including my data. Never again! Save your data at least every 15 minutes by pressing OA-S. (After the file is saved, you'll have to press OA-I to continue inserting new records, unless you're using AppleWorks 4. Of course, if you are using AppleWorks 4, you'll probably use the auto-save feature.)

Deductible expenses paid with credit cards or cash can be entered too. In place of the check number, just enter "VISA" or "CASH." You'll need receipts to back up those cash purchases (your canceled checks or credit card bills will be sufficient for other entries, but you should keep as many receipts as possible anyway—there's no such thing as "overdocumentation" where the IRS is concerned).

If you have a mortgage, you'll get a statement from your lender giving the amount of deductible interest you paid in the past year. This, too, can be entered as a separate record.

It's not necessary to enter all your deduc-

tions at once. Spread the task out over several days and it's not too painful. Just be sure to save your work after each and every session. In fact, I strongly suggest making a backup copy on a separate disk. When your tax return is finished, you should store the backup disk with your copy of the tax return, along with a copy of your printouts.

ARRANGE AND EDIT

After you've entered all the deductions, you're ready to arrange the data and check for errors. The order of priority for sorting the data is:

ENTITY
TYPE
TO
DATE

That is, you want to arrange the information by entity so that all deductions for your business are together; within that section, records are arranged by type so that all of your insurance deductions are together, and the records are further subdivided according to the payee, and so on for date.

AppleWorks 3.0 and 4.0 can arrange on up to three categories at once. However, here we need to arrange on four categories. In such case it's probably easiest to do four separate arrange operations. Arrange the least important category first, then the next least important category, and so on. This would mean arranging on DATE, then on TO, then on TYPE, and finally on ENTITY.

To sort a category, place the cursor anywhere on that category, and press OA-A. Then choose to arrange alphabetically or chronologically, whichever is appropriate. Remember to save your file again after sorting.

Go to the multiple-record layout, scroll through the file, and look for any obvious errors. You might also want to look at the file with only very large expenditures showing. To do this, press OA-R (record selection) and create a rule which says "Amount is greater than 300," or the amount of your choice. This can help find typing errors where you might have entered 300 or 3000, when the check was really for $30.00. To view all the records again, press OA-R and choose "Yes." (With AppleWorks 4, choose "Select all records" from the OA-R menu.)

TIME TO PRINT

Go to the Print menu by pressing OA-P, and choose option 2, "Create a new tables format." Expand or contract each category to an appropriate width by using the OA key with the left or right arrow key. To change the order in which categories appear, use OA with the < or > key.

To tell AppleWorks that you want dollar amounts totaled, put the cursor on the Amount column, and press OA-T. Choose 2 decimal places, press Return, and ask for either 1 or 2 blank spaces after the category. (If you use AppleWorks 4, you should have entered the number of decimal places when setting up the data base via the OA-O menu's "Set formatting" option.)

Since we want a subtotal for each type of deduction, put the cursor on the "Type" column, and press Open Apple G (for group). Choose No when you're asked if you want to "Print group totals only?" and No when asked "Go to a new page after each group total?"

If you have more than one entity (such as personal deductions and business deductions), you should print their records separately. To do this, press OA-R (record selection) and create a rule which says "Entity equals J" (use the entity codes you chose).

To create a title for your report, press OA-N (name). You will be asked if you want to change the report name. Since you don't, press Return. Now you'll be given a chance to create a heading for each page of your report, which might be something like "Tax Deductions, John and Mary Smith, 1993." Press Return after you've type the heading.

You'll need to use a fairly small typeface in order to get all of the information for each deduction on a single line. To change the type size, press OA-O (options). Now type CI, press Return, type the number of characters per inch (I recommend 17), and press Return. In the same way, change the left and right margins (LM and RM) to small values, like .3 and 0.

Near the center of the Options menu, AppleWorks tells you the "Char per line (est)." This is the number of characters which can be printed using the current type face and margins. Make a mental note of this number. Now leave the Options menu by pressing Esc and use the right arrow key to reach the far right of your print layout.You'll see a vertical number which tells you how many characters the current layout width requires. If the number of characters required is larger than the "Char per line (est)" which you saw on the Options screen, you'll have to either make the layout narrower (using OA-and arrow keys on one or more categories) or increase the number of characters per inch (CI) on the Options screen. An Imagewriter printer has a limit of 17 characters per inch, though AppleWorks can go as high as 20.

Before using any paper, try printing your report to your computer's screen by pressing OA-P and choosing "to the Screen." Chances are part of the report will be cut off, but that's OK. If the layout looks correct, press Escape, then print the report to your printer.

After printing, make any changes in the layout that might be necessary and print a final copy. Save your work once again and remember to make a backup on another disk.

If you've ever used the AppleWorks database before, this project will give you no trouble. Even if you haven't, the steps I've outlined and common sense will make you a hero to your tax preparer—and possibly even to Uncle Sam, should an audit be deemed necessary. ■

BOTTOM LINE

NEW!

BottomLine is the easiest-to-use home financial program ever made. In under 10 minutes, you will be up and running managing all of your financial accounts. Features include Record Keeping, Reconciliation, Budgeting, Recurring Transactions, Check Writing and a full range of custom reports.

"Simple, quick, and reliable!"

BottomLine features pull down menus for mouse or keyboard support. A handy, full feature calculator and notepad are also included.

"I like it better than Quicken."

Finding transactions has never been easier. The program lets you search by check number, payee, dollar amount, and text. Tax related transactions can easily be flagged allowing easier reporting at the end of the year.

Up to 800 transactions per month and an entire year can be contained on just one diskette. BottomLine even lets you export your financial information to an AppleWorks® Spreadsheet. This feature is compatible with any AppleWorks® program including the new AppleWorks 4.0. *Suggested retail price: $64.95*

Requirements: Enhanced IIe or later; 128K or greater; 5.25" or 3.5" drive; Printer Optional (Compatible with most popular printers); Mouse Optional. Note: BottomLine is currently not hard disk installablle.

QC's price: $34.95

Quality Computers™

20200 Nine Mile Road • St. Clair Shores, MI 48080

1-800-777-3642

Q-RAMS

MORE MEMORY MEANS MORE SPEED!

MONEY BACK 30 DAY Guarantee

The only IIGS RAM card that gives you the power of a RAM disk... *automatically!*

FOR VALUE AND POWER YOU CAN'T BEAT THE Q-RAM GS2

When we could no longer find reliable, affordable hard drives, we made our own—the Q Drive. The Q Drive made Apples faster and easier to use. In fact, it was such a success that we had to wonder why we'd waited so long. Now we've done it again.

The Q-RAM GS2 is an economical way to add 4 MEG of memory to your Apple IIGS. It's fully compatible with all Apple IIGS hardware and software—including the IIGS RAM Disk and DMA peripherals like the Apple II High Speed SCSI Card.

The 4 MEG Q-RAM GS2 is not only affordable, but comes with FlashBoot free! FlashBoot lets you create a super fast, super convenient RAM disk on your Apple IIGS.

When you install the Q-RAM GS, life becomes just a lot easier. Programs load completely into memory at startup, eliminating disk swapping. Out-of-memory error messages disappear. You'll have memory to spare—memory to load desk accessories, or to set up a convenient RAM disk.

The Q-RAM GS2 installs easily, replacing your original 1 MEG. Apple memory board, or any other underachieving memory card you may own. But don't worry about getting stuck with a left over board that you can't use. Ask your sales rep about a RAM card trade-in. It is a terrific way to recycle your old card and save money at the same time!

Of course, since you're dealing with Quality Computers, you get an unconditional 30-day money-back guarantee and a five-year warranty. And the price is the best news of all—a 4 MEG Q-RAM GS2 costs about the same or even less than other IIGS memory cards in a 1 MEG configuration!

4 MEG Only
$199.95

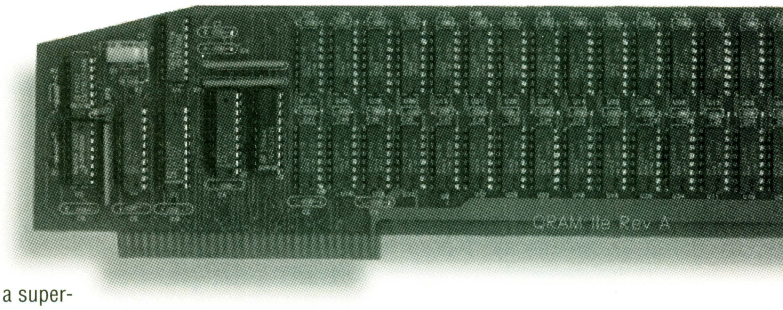
FLASHBOOT FREE WITH Q-RAM GS2

As an added bonus, when you buy a 4 MEG Q-RAM GS2, you get FlashBoot free. FlashBoot lets you quickly save and load the contents of a RAM Disk. What is a RAM Disk? Every Apple IIGS has a built-in RAM Disk capability that lets you reserve some of your computer's memory as a super-fast electronic disk drive. Set up your RAM Disk in the morning and you might not have to swap program disks all day! You can discover the speed and convenience of a RAM Disk with FlashBoot. FlashBoot offers several flexible options to boot the RAM Disk and the other drives attached to your computer, and makes loading your RAM disk easy.

Beef up your Apple IIe to 1 MEG for only $99.95 and get more from AppleWorks, too!

Snap the Q-RAM IIe into your Apple IIe, and you'll create a whole new computing experience. Programs load completely. A lot less disk swapping. A lot more productivity. All of AppleWorks, plus your TimeOut applications will completely load into RAM. That means you can concentrate on working—not waiting for disk drives. Plus with a huge 1 MEG treasure trove of RAM, you can create huge documents, and not run into a single "Out of Memory" message.

Imagine students in your school's IIe lab doing more learning and less waiting. Imagine the joy of starting AppleWorks, completing a project, and never having to go back to the disk drive. It can happen with the Q-RAM IIe.



Now imagine all of this convenience and productivity at a price 1/2 of what other 1 MEG cards for the IIe cost. It's true, the new Q-RAM IIe costs only $99.95. At this price, the savings can really add up. You can upgrade your IIe lab and save $100 per computer. Now you can afford more software.

The Q-RAM IIe replaces your IIe's 80 Column Card or Extended 80 Column Card, and is 100% software compatible. The Q-RAM IIe comes with diagnostic software that test the card for peace of mind, and expansion software to boost the performance of AppleWorks.

The Q-RAM IIe is 100% software compatible, and comes with a 5 year warranty. If you're not completely satisfied, return it within 30 days for a full refund.

Quality Computers™

1-800-777-3642

20200 Nine Mile Rd. • St. Clair Shores, MI 48080 • 313-774-7200 • FAX 313-774-2698

This month, the Shareware Spy thinks it would be appropriate to complement Nathaniel Sloan's article on System 6 with programs to help make the system software even more functional. And because II Alive is committed to ALL Apple II users, we'll find some neat stuff for those that are Finderless as well.

Close All Except Front Finder Extension (IIgs)

by Steve Bernacki, freeware

Have you ever found yourself with so many open windows in the Finder that you didn't have the energy or muscle power to close them all? Maybe you did an Option–Open Apple–W, which closed them all effortlessly, only to realize that you wanted the front window to remain open? I have—but no more. I recently discovered this little Finder Extension, that once installed in the System.Setup or FinderExtra folder of your System folder, will close all windows except the front (active) window. This can be done either from the pull-down Extras Menu or by pressing the default keys of Open Apple–K.

Cleaner Cleanup v 1.0.3 (IIgs)

by Eric Shepard, freeware

Every now and then (or more often than that), people have been known to inadvertently select Clean Up from the Special Menu in the Finder. Maybe it's compulsiveness or just plain absentmindedness. If no windows are open, Finder will automatically assume that you mean what you click, and very neatly clean up the icons you've carefully placed on your desktop. This is not always A Good Thing. Sometimes, you've taken many minutes (okay, hours) arranging those icons to your liking and Finder may not agree with your interior decoration plan.

This Finder Extension eliminates the possibility of an unwanted Finder cleanup. If no windows are opened, an alert will appear, reminding you that you are about to perform a cleanup of the desktop. You can choose to cancel the function or go ahead with it, if that was your intent.

Folder Jump (IIGS)

by Joseph Schober, shareware–what you think it's worth

Folder Jump makes it easy to open files that are nested Somewhere Out There. Once installed in the FinderExtras folder, pull the Folder Jump icon to an inconspicuous spot on your desktop. Double-click on it to view a dialog box inviting you to open a folder. Find the needed file, double-click on it and Finder will open it. No need to go through any intermediate folders. A real time-saver.

Finder-Sounder v1.0 (IIGS)

by Mike Fleming, freeware

If you're like me, you've found more rsounds for the new Sound Control Panel than you know what to do with. The sounds that you use regularly will be stored in the System:Sounds folder and used by the Sound Control Panel. Finder-Sounder lets you listen to rsounds, stored anywhere, by double-clicking the file's icon.

THE SHAREWARE SPY LIBRARY

Programs mentioned in Shareware Spy are available from most online services and user groups. As a convenience to those without access to a local user group or a modem, we also offer the programs on disk. Send check or money order (in US funds) for $5 per disk to: Shareware Spy, PO Box 886511, Plano, TX 75086-6511. (If you live outside North America, include an additional $5 per order for airmail shipping.) Make checks payable to "Shareware Spy." Allow 2-4 weeks for delivery.

Important Note: When you buy a Shareware Spy disk, you are paying for the blank disk, postage, and labor involved in compiling the disk, not the software itself. You are still legally and morally obligated to pay the shareware fee for any shareware programs you decide to keep. (Remember, public-domain and freeware prgrams can be freely copied and distributed, but shareware must be paid for if you use it past the trial period.)

Programs do not include necessary System Software (ProDOS & Basic.System or IIgs System 5.04 or later.)

March/April 1993

1A	3.5 GS	Keyboard Extender, BRAM Checker, Scrapbook NDA, X-10 GS, GUIMaster, rSounder
1B	3.5	AppleWriter II, Electric Duet, GraForth
1C	5.25	AppleWriter II
1D	5.25	Electric Duet
1E	5.25	GraFORTH

May/June 1993

2A	3.5 GS	DuelTris, Spy Hunter GS, FloorTiles, Ant Wars
2B	3.5	SoftDAC, Magic File Cabinet
2C	5.25	SoftDAC, Magic File Cabinet

July/August 1993

3A	3.5 GS	ProBoot, SANE Fix, Quadronome, ShadowWrite, SoniqTracker
3B	3.5 GS	Bulla (FTA)
3C	3.5 GS	Bille Art (Brutal Deluxe)

September/October 1993

4A	3.5 GS	FixFontMgr, JumboDesk, Winflate, Mac Sound Grabber
4B	3.5	Sound Editor
4C	5.25	Sound Editor

November/December 1993

5A	3.5 GS	Plunder, One-Arm Battle
5B	3.5 GS	Milestones 2000

January/February 1994

6A	3.5	All Except Front, Cleaner Cleaner Up, Columnist, DeskTracker, DOS 3.3 Launcher, FinderSounder, FinderView, FolderJump, IR, IRnda, Double Solitaire
6B	3.5	MODZap, NoiseTracker, OverSampler, PowerPlay, Universal Sound Edit (USE)
6C	5.25	Columnist, DOS 3.3 Launcher

Finder-View 3.0 (IIGS)
Jupiter Systems, shareware–$10.00

Copy this program to the System.Setup folder in your System folder, restart your machine and you'll be able to view 7 types of picture files, including PaintWorks Animations, without ever leaving the Finder! You can view one picture at a time or you can view multiple pictures through a slide show option. You can even control aspects of the slide show through keyboard commands.

IR version 2.0.1 (IIGS)
by Matt Deatherage

IR bills itself as "the all-purpose doohickey installer." And a nifty little doohickey installer it is. Get this: It not only installs doohickeys; it installs inits, classic desk accessories, new desk accessories, GS/OS drivers and Finder Extensions on the fly. Without leaving the Finder. In other words, after you copy one of the doohickeys already mentioned to the proper place in your system, all you have to do to try it out is double-click it. You don't have to reboot. Matt Deatherage. What a guy.

IRnda (IIGS)
by Jay Krell, freeware

IRnda takes IR a step further. With this new desk accessory installed, you don't necessarily have to be in the Finder to install all those neat dohickeys. If you can access the Apple menu, you can access IRnda. This way, you can try out a new desk accessory, init, finder extension, etc. while in a desktop application. Naturally, IRnda requires IR.

DeskTracker (IIGS)
by Richard Witfal

Once installed in either the FinderExtra or System.Setup folder, this extension will play Soundsmith songs. If it's been installed in the System.Setup folder, you have the option to continue playing songs after you've left the Finder. The documentation includes a warning concerning the execution of ProDOS 8 applications if this option is selected.

Columnist
(All Apple II's; II Plus requires 80 column display)
by Karl Bunker, freeware

Columnist's on disk documentation calls it a text file post-processor. It will take any ASCII text or AppleWorks file and convert it into two or three column pages. The converted file can then be loaded back into your word processor for further fiddling. Columnist can also print the file directly. Aside from the obvious use of doing simple newsletter-type projects, it can be used to print 2- or 3- across mailing labels or columnized database reports. The disk-based docs are quite extensive and should provide even the novice user an adequate base.

DOS 3.3 Launcher (Apple IIe/IIc, IIgs)
by John MacLean, shareware–$10.00

This utility allows you to install all those great, unprotected but neglected DOS 3.3 programs on your on your hard disk or a 3.5 disk, and execute them from your launcher of choice. It's an invaluable utility and a real shot in the arm for a whole class of software that would otherwise be forgotten. Doc files are included for all systems.

Double Solitaire (Apple IIGS)
by Bill Hamshire, shareware–$10.00

This game is good. Too good. Too addicting. Don't get started with this game unless you have a lot of expendable time on your hands. I won't tell you how many times I played "just one more." It would be too embarrassing.

Double Solitaire is played against the computer with a number of variable options including regular or Vegas style dealing, time delay and the ability to show or compress stacks. An option of playing the traditional one-player game of Klondike is available as well. ■

Complete Color System

$599

Brand New • Never Used
Never Opened • Never Lower!

ADD SPEED, VERSATILITY, AND EXTRA FEATURES TO YOUR NEW SYSTEM—AND SAVE!

Apple IIGS Software Value Pack

- ✓ System 6.0.1
- ✓ System 6 Bonus Pack complete with clip art, fonts, sounds, icons, and more!
- ✓ BeagleWrite GS
- ✓ Six Pack
- ✓ Signature GS
- ✓ Platinum Paint
- ✓ BeagleDraw
- ✓ World GeoGraph

a $500 value for just $199.95

IIGS SUPER SYSTEM $949.95

INCLUDES COLOR SYSTEM PLUS Q DRIVE & Q-RAM GS2

Q Drive 42 MB

Stop waiting for you disk drive! Get to work faster with a Q Drive. Permanently load software onto the Q Drive for instant access. It's all right there, just a mouse click away.

- ✓ Included all cables
- ✓ Pre-formatted
- ✓ Includes System 5.04 and 6.01
- ✓ 15 MB of free software
- ✓ 2 year warranty
- ✓ 30 day money back guarantee
- ✓ Free video
- ✓ Requires SCSI Card

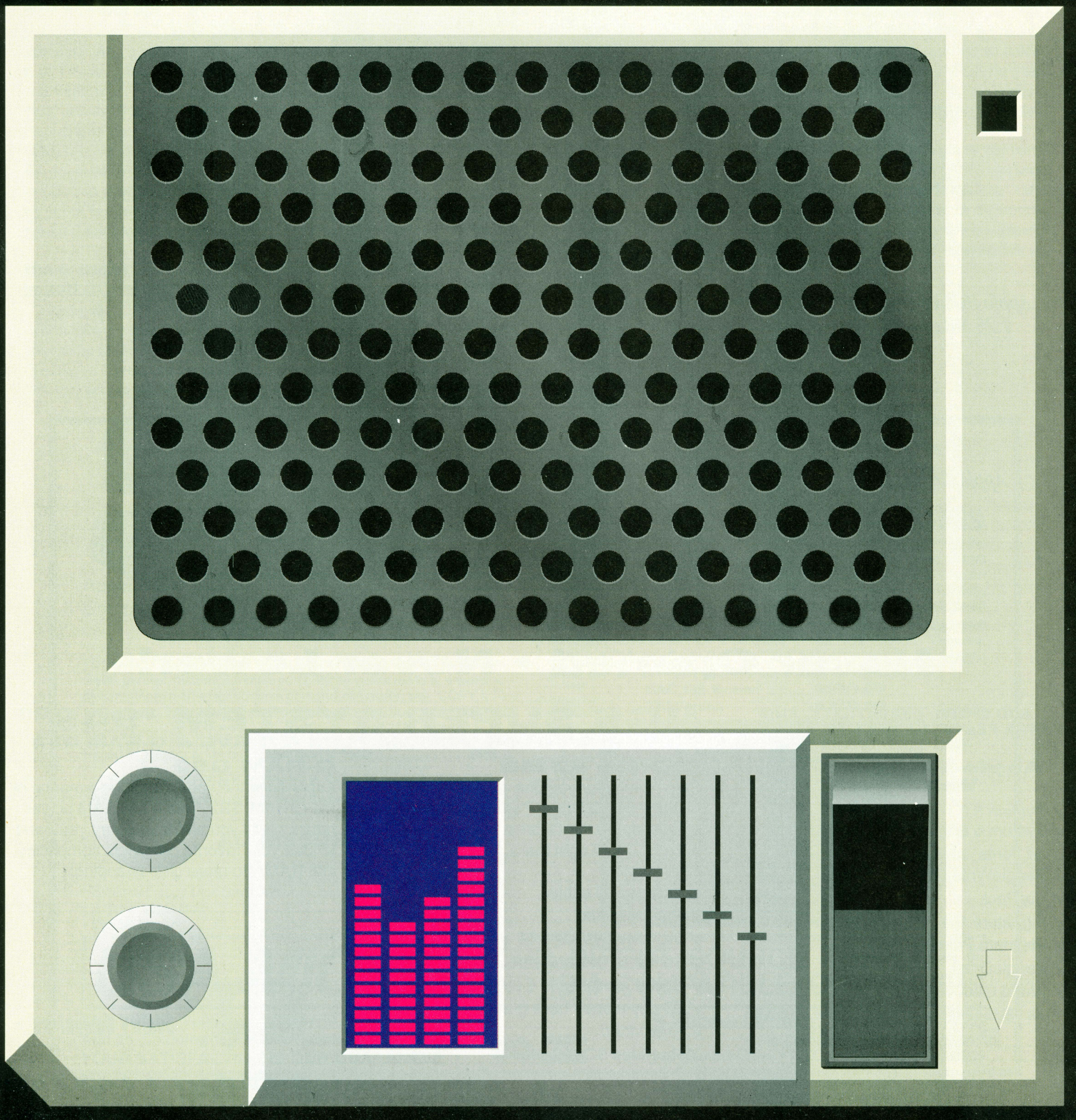
Q-RAM GS2

Experience the speed and performance of the Q-RAM GS2. This 4 MB RAM powerhouse gives you all the memory you need to load your favorite programs completely into RAM. No more disk swapping!

Quality Computers™

1-800-777-3642

SOUND LOGIC:



PART II

A Look & Listen at the World of Apple IIGS Sound

by Nate Trost

In our last installment, we took a look at the Apple IIGS as a powerful audio performer and explored a variety of hardware add-ons that enhance its sound capabilities. Without software to take advantage of it, though, incredible sound hardware would be useless. Fortunately, there are dozens of freeware, shareware and commercial sound programs for the IIGS. In this issue, we'll take a look at sound editing programs, special sound players and music programs. Next time, in our third and final installment, we'll cover music conversion utilities, sound-based system extensions, and sources for neat music and sound files.

Sound Editing

Any sound can be digitized and turned into a sound file with the right tools. There is a whole class of sound editing programs that let you play, record, edit and save digitized sound files. But first, another use for sound editors.

One problem you'll encounter when working with sound files is the number of different file formats used to store digitized sounds. The IIGS has several formats, and the Macintosh, IBM PC, Amiga, and other computers have their own sound formats as well. While the primary function of a sound editor involves editing sounds, many such programs load and save sound files in more than one format. You can load a sound in one format and save it in another, thereby converting the sound to the desired format. This allows you to use sounds that might not be useful in their original format, since not every application program can read every type of sound. Table 1 lists some of the common sound file formats on the Apple II and other computers.

All sound editors can load and play sounds—but the editing part means that they can also change the sound. Typically, the waveform of the sound file is displayed on the screen, and you can modify it using several tools and commands. Most sound editors let you work on just part of a sound, allowing you to remove background noise or long pauses between words. Nearly every program also lets you perform special effects, such as reversing the sound to make it play backward, amplifying it to make it louder, fading the sound in or out, giving the sound an echo or reverb, removing noise, and mixing sounds. Most programs let you apply effects to part of the sound.

There are several sound editors available for the IIGS; most are either shareware or commercial programs. A feature comparison of sound editors is presented in Table 2.

One popular editor is Sound Shop, which is included with HyperStudio (Roger Wagner Publishing). Sound Shop can record, save, load, and edit sounds (naturally, the sounds you save can be used directly in HyperStudio). Sound Shop also includes a variety of special effects functions. The program is limited to editing one sound at a time and supports only a few different file formats, but it's useful in conjunction with the sound digitizer board included with HyperStudio.

DigitalSession is a new commercial sound editor from Econ Technologies. DigitalSession has several interesting features, including the ability to edit several sound files at once, the ability to edit stereo sounds (working on the left and right channels individually or together), and a sound effect preview feature that lets you hear what the effect will sound like before performing it. DigitalSession also supports plug-ins, small add-on programs which can give DigitalSession additional import/export and effect capabilities. Sounds great... except that not all the features work right now. Econ is shipping a pre-release version of DigitalSession at this writing; the software is still buggy, and the number of supported file formats and included sound effects is limited. Future releases of DigitalSession should correct these problems and provide the power to back up the promise.

AudioZap is a shareware program written by Ian Schmidt, featuring a large number of effects and support for many different formats, including formats not found in other sound editors. If you have an MDIdeas SuperSonic, AE Sonic Blaster, AE Audio Animator, or HyperStudio digitizer, you can record sounds right inside AudioZap. AudioZap 1.2s (the most widely available version at this writing) suffers from some bugs and can't edit more that one sound file at a time. In its favor, the shareware fee is only $20.

Without software to take advantage of it, incredible sound hardware would be useless. Fortunately, there are dozens of freeware, shareware and commercial sound programs for the IIGS.

A lesser-known sound editor with some interesting features is Universal Sound Edit (USE), a shareware program by Gary Osborn. The program has most of the same features as AudioZap, though the user interface is somewhat different from other sound editors, and the program does handle several formats not supported by other programs. USE doesn't support several important IIGS sound formats, though, and it can't deal with compressed sounds.

Sound Conversion

Besides sound editors, programs that allow sound playback and conversion are also available. One such program is MacSoundGrabber, a freeware program written by Steve Stephenson of Seven Hills Software. MacSoundGrabber is simple but useful; it allows conversion of Macintosh sound resources to Apple IIGS sound resources. It is limited to converting sounds smaller than 64K, but it works well for those sounds.

Another sound converter is Sound Wizard, written by Bryan Pietrzak and published on Softdisk G-S #36. Sound Wizard can load and convert several different sound formats and has a powerful batch convert feature that makes converting multiple sounds from one format to another much easier. Sound Wizard has an excellent interface and online help system. Unfortunately, Sound Wizard is still somewhat limited in export formats—it currently only supports sound resources and HyperStudio sounds. A new version of Sound Wizard is planned, though—so there's still time to get your subscription in! (You can also order "back issues," so if you can't wait for the new Sound Wizard, you can get issue #36 now.)

SoundConvert, a commercial product published by Triad Venture, is another option for sound conversion. SoundConvert is actually a pair of utilities: a HyperCard IIGS stack and a New Desk Accessory (NDA). The two utilities support a wide range of native Apple IIGS formats, but they lack support for formats common on other computers. Although the program has no editing capability, it can record sounds using virtually any Apple IIGS digitizer.

Sound Playback

Although sound editors allow you to playback sounds, there are a pair of "specialty" sound playback programs that provide special features that most editors don't. Unlike the sound editors, these programs are limited to playing raw binary sound files, but they can play them directly from disk—you can play a sound file that's too large to fit into memory. One of these playback programs, a simple freeware program written by a person using the pseudonym of Keypounder, is called PowerPlay.

A better program is Oversampler, a freeware program by André Horstmann. Oversampler lets you play sounds in stereo and add echoing effects while playing the sound. As its name implies, Oversampler uses "oversampling" to enhance the sound quality by increasing the sample rate.

Music

Playing back digitized sounds is only one use for the IIGS sound hardware. Music, ranging in complexity from a simple tune to a symphony, is also possible. Although music can be digitized (that is, a complete song could be sampled), digitizing an entire song usually takes a tremendous amount of storage space. Music programs store sequences of notes and then play those notes back using instrument files (which are usually short samples). Let's take a look at music composition programs, 'hybrid' music programs, and music playback programs.

Table 1 — Common Sound File Formats

AIFF	Audio Interchange File Format, a common sound interchange file format used on the IIGS, Amiga, Macintosh and IBM PC.
AIFF-C	Audio Interchange File Format Compressed, an enhanced version of AIFF with compression options.
ASIF	Apple Sampled Instrument Format, a format designed for storing sampled instrument sounds—used by the SoundSmith music program.
HyperStudio	Native sound format of the HyperStudio and Sound Shop programs from Roger Wagner Publishing.
Raw Binary	A file containing only the raw sound waveform data, no other information (such as stereo parameters, compression, etc.) is included in the file
Sound Resource	rSampledSound resource, the standard system sound type used with HyperCard IIGS and the Sound Control Panel.

Music Composition

One of the first IIGS-specific music programs to arrive on the scene was Music Construction Set, published by Electronic Arts. Music Construction Set allows you to create a piece of music by clicking and dragging notes onto a staff—exactly the sort of thing most people are thinking of when they say they want a music program. However, it doesn't use the Apple Desktop user interface, nor does it support GS/OS. It's a fun toy, but unsuitable for serious music work. It's no longer published, but you might be able to find a copy at a swap meet or user group.

Another early IIGS music program is Music Studio, by Activision. It offers better sound quality than Music Construction Set, more editing features, and a better user interface. Music Studio also supports limited MIDI (Musical Instrument Digital Interface) input

Table 2 — Sound Editor Features

NAME	AudioZap	DigitalSession	Mac Sound Grabber	SoundConvert	Sound Shop	Sound Wizard	Universal Sound Edi
tor							
STATUS	Shareware	Commercial	Freeware	Commercial	Commerical	Commercial	Shareware
PUBLISHER	Ian Schmidt	ECON Technologies	Steve Stephenson	Triad Venture	Roger Wagner	Softdisk G-S Issue #36	Gary Osborn
PRICE	$20	$49.95	Free	$49.95	$149.95 w/HyperStudio	$14.95	$20
EDITING	Y	Y	N	N	Y	N	Y
MULTIPLE DOCUMENTS	N	Y	N	N	N	Y	N
RECORDING	Y	Y	N	Y	Y	N	Y
STEREO SUPPORT	N	Y	N	N	N	N	N
# OF FIMPORT FORMATS	10	4	1	6	5	5	7
# OF EXPORT FORMATS	5	4	1	4	5	2	7
RAW BINARY	I/E	I/E	N	I/E	I/E	I	I/E
ACER	I/E	N	N	N	N	I	N
AE	I/E	N	N	I	N	N	I/E
AIFF	N	N	N	N	I/E	N	N
AIFF-C	N	N	N	N	I/E	N	N
ASIF/SOUNDSMITH	I/E	N	N	E	N	N	N
ADUDIO MASTER II	N	N	N	N	N	N	I/E
DIGITAL SESSION	N	I/E	N	N	N	N	N
FUTURE SOUND	N	N	N	I	N	N	N
HYPERSTUDIO	I/E	I/E	N	I/E	I/E	I/E	I/E
MACINTOSH FSSD	N	N	N	N	N	N	I/E
MAC SOUND RESOURCE	N	N	I	N	N	N	N
MUSIC STUDIO WBNK	I	N	N	N	N	N	N
NEXT	N	N	N	N	N	N	I/E
SMUS INSTRUMENT	I	N	N	N	N	N	N
SOUND EDIT	N	N	N	N	N	I	N
SOUND RESOURCE	I	I/E	E	I/E	I/E	I/E	N
SOUNDSMITH WBNK	I	N	N	N	N	N	N
SYNTHLAB .WAV	I	N	N	I	N	N	N
.VOC	N	N	N	N	N	N	I/E
EFFECT PREVIEW	N	Y	N	N	N	N	N
AMPLIFY	Y	Y	N	N	N	N	Y
ECHO	N	Y	N	N	N	N	Y
FADE	N	Y	N	N	Y	N	Y
FLIP	Y	Y	N	N	Y	N	Y
FREQ. UP	Y	N	N	N	N	N	N
DUB	Y	N	N	N	Y	N	Y
MIRROR	N	Y	N	N	N	N	N
MUTE	N	Y	N	N	N	N	N
NORMALIZE	Y	N	N	N	N	N	Y
SILENCE	Y	Y	N	N	Y	N	Y
SMOOTH	N	Y	N	N	N	N	N
STUTTER	N	N	N	N	Y	N	N
SWEEP	N	Y	N	N	N	N	N

and output, meaning you can use it with a MIDI interface and instruments to record and play back musical sequences—though the MIDI features of Music Studio are no match for a dedicated sequencing program. For those who want to compose music on their screen, Music Studio is a good choice.

SoundSmith, by Hubert Aalbers, takes a different approach. Instead of representing notes graphically on a musical staff, SoundSmith displays the notes in "text" form (for example, C#5 meaning C-sharp in the fifth octave) in a window that looks a lot like a spreadsheet. Although SoundSmith does have a music keyboard window for testing notes with different instruments, all note entry is done by typing. For simple tunes and rhythm sections, this works quite well, and SoundSmith lets you compose up to fourteen individual tracks of music (the other programs let you compose only four).

The freeware program NoiseTracker, originally developed by Oliver Goguel of the late FTA, is a lot like SoundSmith. It uses a similar spreadsheet-style data entry system and allows fourteen tracks to be played simultaneously. NoiseTracker even loads SoundSmith and Amiga MOD files (but it can't save in either of these formats). Unlike SoundSmith, NoiseTracker doesn't use a standard Desktop user interface, nor does it run under GS/OS. Its editing features are crude at best. However, it's an interesting program, and the price (free) is definitely right.

Hybrid Music Programs

In between the music composition programs and the music playback programs lie an interesting hybrid form—the "jamming" programs. These programs do not allow original composition, only playback of precomposed songs—but the playback is interactive; you can join in and play along with the song.

One such program is Instant Music by Electronic Arts. With Instant Music, you can select different instruments being used in the song and play along by moving the mouse around, a feature known as "mouse jamming." While you "mouse jam," the program tries to omit notes that wouldn't sound good with the rest of the music. In short, you can be creative without having to worry about jamming something that

sounds positively atrocious. Instant Music's main limitation is that it cannot be used to compose original music—you can't even save your jams. A pair of companion song disks are available.

A similar program is Jam Session by Broderbund. Jam Session is also limited to playing back pre-recorded songs. Like Instant Music, Jam Session lets you join in and play along—this time using the IIGS keyboard. Pressing different keys will play different notes or "riffs" (quick sequences of notes). Like Instant Music, Jam Session tries to ensure that what you "play" sounds "good" and prevent you from hitting any real clinkers. Best of all is the on-screen animation: when you play a classical piece, for instance, you see a crowded concert hall with a piano and player onstage. The pianist appears to play along under your control as you type. (The rest of the scene is animated, too; the members of the audience yawn, doze off, and wake up.) Jam Session comes with a variety of songs ranging from classical to country to heavy metal, all with instruments and animation to match.

Music Playback

Naturally, the programs for music creation we mentioned earlier can also play back their own music files. The three programs we'll discuss now have only one purpose in life, though—to play MOD (short for "module") music files. MOD files are a format popular on the Amiga and IBM PC. MOD files are both sound and music files: each file contains a suite of sampled instruments and the information needed to assemble these short snippets of sound into a song. There aren't any IIGS programs available for creating MOD files yet, but there are thousands of entertaining MOD files floating around, so a IIGS player is good to have on hand.

Although MODZap, soniqTracker, and ShellPlay all play the same kind of music file, the programs have different strengths. The MOD format is extremely complex, and not very well-defined or standardized. There are many different musical "effects" which can be used in a MOD, and not every effect is supported by every MOD player. In fact, it seems likely that not all of the effects are known! This makes it extremely difficult for any one MOD player to play every MOD perfectly. Fortunately, all three IIGS MOD players programs are freeware, so you can have them all for the price of none—and better yet, all are revised frequently and keep getting better and better.

MODZap, by Ian Schmidt, is, in many respects, the strongest of the three MOD players. MODZap offers the most effects and has very clean sound output. MODZap features a standard Desktop interface and has a jukebox feature that lets you select multiple songs to be played in sequence. MODZap also has "graphic players" which give a lively onscreen representation of the notes being played. There's a player with simulated VU meters and lasers and one with simulated oscilloscopes. MODZap has a few bugs that can cause it to crash, but it's still an excellent program for freeware.

Tim Meekins' soniqTracker is solid program, but it hasn't been updated in some time and is beginning to lose ground in the feature department. Both MODZap and ShellPlay support more effects and have cleaner sound output than soniqTracker. Like MODZap, soniqTracker has a Desktop user interface, a jukebox, and a graphic player (only one type, though). soniqTracker's unique feature is an "alarm clock" that lets you select a song to be played at a certain time—in case you want to wake up to the dulcet tones of IIGS music.

ShellPlay, by Brian Benning, doesn't have a pretty user interface—it's a command-line utility. This means you need a shell program (such as ORCA or GNO/ME) to use it. Since such shells are popular mainly among programmers, ShellPlay is the MOD player of choice for hackers—especially since it can play MODs in the background while you continue to work. In terms of features and sound quality, it's midway between soniqTracker and ModZap..

Next on the Sound Stage

Next issue, we'll wrap up our look at Apple IIGS sound with a look at music with conversion utilities. We'll also explore all the fascinating sound "extensions" available for the IIGS in the form of desk accessories, INITs, and more. We'll also have some tips on where to find great sound and music files. Be sure to tune in next issue for more Sound Logic! ■

About the products in this article

AudioZap
Shareware*, $20
Ian Schmidt
2207 E. Locust
Davenport, IA 52083

DigitalSession $49.95
SoundMeister $89.95
ECON Technologies
99 North Central Avenue
Suite B
Oviedo, FL 32765
(407) 365-4209

Mac Sound Grabber
Freeware*
Steve Stephenson/Seven Hills Software

SoundConvert
$49.95
Triad Venture
P.O. Box 12201
Hauppauge, NY 11788
(516) 732-3771 (516) 360-0797

Sound Shop
$149.95 w/HyperStudio
Roger Wagner Publishing
1050 Pioneer Way, Suite P
El Cajon, California 92020
(619) 442-0522

Sound Wizard
(Softdisk G-S Issue 36)
$14.95
Softdisk Publishing
P.O. Box 30008
Shreveport, LA 71130-0008
(800) 831-2694

Universal Sound Editor
Shareware*, $20
Gary Osborn
823 Lewis Road
Watsonville, CA 95076

PowerPlay
Freeware*
Keypounder

Oversampler
Freeware*
André Horstmann

Music Construction Set
(out of print)
Electronic Arts

Music Studio $34
Instant Music $15
Jam Session $20
Big Red Computer Club
423 Norfolk Avenue
Norfolk, NE 68701-5234
(402) 379-4680

SoundSmith
Shareware*, $20
Hubert Aalbers

MODZap 0.9b3
Freeware*
Ian Schmidt

NoiseTracker
Freeware*
Oliver Goguel
(modified versions by Ian Schmidt and One World Software Wizards also available)

soniqTracker 0.63
Freeware*
Tim Meekins

ShellPlay 0.71
Freeware*
Brian Benning

* Shareware and freeware programs are available from the II Alive Shareware Spy. See the Shareware Spy column in this issue for details.

Apple II Peripherals - Upgrades - Service Parts - Hard Disks
School & University P.O.s Accepted! - School Qty. Discounts Available*

RAM Chips

Apple //e or][+ **4164/4116**..50¢
Expanding your... Apple IIgs Memory Card, Æ GS-RAM, Æ RAMWorks, Super Expander & Compatibles
768K Exp. Set (24 41256) $24.00
41256.....$1.25
Expanding Your GS Juice+, S&S ÆGS RAM + / II , CV Tech or Chinook 4000
41024 (1 Meg) $3.00
Bank of 8 .....$24.00
Expanding Your Æ GS-RAM Ultra or RAMPak4 GS
44256 (256x4) $3.00
Bank of 8 .....$24.00
Expanding Your OctoRAM, GS Sauce, Q-RAM GS, Pacemark 4 Meg RAM Card
1 Meg SIMM $24.00
4 Meg SIMM $135.00
NCS/Æ GS RAM III (4x1)....$20.00
RAMFast / CV Tech RAM 1Meg
Upgrade Set 2 441024-80.....$40.00

Motherboards/Service Parts

//e or //c M/B W/Exch $89.00
//e or //c Motherboard $129.00
//e Keyboard Exch $45.00
II+ MThrbd. / Kybd $49.00/ .$29.00
//e, //c , / IIgs Case $25./...$35.00
IIgs Battery (ROM 03).....$4.95
//c+ Parts available.....Call

Power Supplies

II+,//e Exch/No Exch. $35/$45.00
IIgs Exch / New ..... $59 /$79.00
//e High Power add $10.00
//c Replacement Ext P/S.....$29.00
//c External Power Supply ...$39.00

Modems

USR 1200 Modem (NEW) $19.00
Hayes SM1200 (Refurb).....$29.00
NEC 2400 Refurb External....$59.00

Refurbished Printers

ImageWriter I.....$129.00
ImageWriter I (Wide) $139.00
ImageWriter II $199.00
IW-I/II Ribbons.....6 for ...$12.00
IWII Color Ribbon.....$5.45

Print Heads

IW-I (Exch Only) $35.00
IW-II (Exch. Only) $79.00
IW-LQ (Exch) $95.00
We rebuilt print heads

Accessories

16 Pin Joystick][+,//e.....$9.95
9 Pin Joystick , IIgs $12.95
Apple ADB Mouse II (New).....$69.00
Cordless ADB Mouse.....$59.00
ADB Mouse Exch $39.00 .Refurb $49.00
Mouse Pad (Static Free) $2.95
//e Enhancement Kit $49.00
IIgs Internal Fan $14.95

PC Transporter

101 Keyboard for PCT $29.00
PCT IBM Keyboard Cable.....$7.00
3.5" 720K Ad-on Drive.....$49.00
4464 Zip /PCT Mem. Exp. .....$2. ea
8087-2 (M ath Co.) $39.00

Peripheral Cards

Zip GS 7Mhz / 32K Cache ..$159.00
71256 -45ns (SRAM) $9.95
Zip Chip 8 Mhz (//e, //c) $139.00
Super Serial Card $52.00
IW-II 32K Buffer.....$30.00
20 Pin 5.25" Disk Cont $39.00
19 Pin 5.25" Disk Cont. $45.00
][+ 80 Column Card $45.00
GrafStar II Graphic Parallel..$35.00
Graphic Parallel (Grappler) $45.00
AEC SCSI Card.....$59.00
16K Language Card (][+) $17.00
Mountain Clock (][+,//e) $24.00
VisionPlus Ehanced $209.00

Cables & Switch Boxes

METAL, GBBS Sysops. HST/v.32bis hardware hndshk cables! (Specify).....$14.95
DuoDisk Replacement Cable...$19.00
19 Pin Drive Converter $14.00
IIgs,e,c to ImageWriter I/II.....$7.95
Laser 128 Parallel Cable.....$14.95
//c Serial –> Parallel Converter..$35.00
Fullnet Connector $14.95
Switch Boxes..... $19.00 - $29.00
ADB Replacement cable.....$6.95
SCSI Cable, 25-50 or 50-50 .....$9.95

Apple IIgs System

$599.00

System includes AppleColor RGB Monitor
External Apple 3.5" Drive • Keyboard
Mouse • 1024K • ROM 03

Ask for our Mac & IBM Product Lists

Apple CD 150 $199.00

Hard Disk Acessories

ProAPP //c External 20 Meg. Limited Supply
Requires Unidisk ROM.....$259.00

Drives for //e & IIgs available

Cables

25/25, 25/50 or 50/50 SCSI Cable.....$9.95
SCSI Passthrough 50 pin terminator $12.95

External Drive Cases

SCSI Case & P/S for 3.5" or 5.25" HH $49.00
SCSI Case & P/S for Full Hight 5.25".....$69.00

Sequential Systems

Q:Talk LTO (AppleTalk & 32K for IW-II)...$69.00
RAM //c with 1024K (//c or //c+) $129.00
bit Mouse card $49.00 ....with mouse $65.00
SuperCOMM $54.00.....SuperCOMM /c.$45.00

RAM Cards

Extended 80 Column Card.....$19.00
Super Expander //c (Older //c's, 1024K).....$119.00
RAM Cards available for //e, //c & IIgs

Monitors

IIGS Compatible (Atari) RGB Monitor.....$129.00
AppleColor RGB, IIGS (Refurb) $169.00
AppleColor RGB IIGS (New).....$225.00
Apple Monitor][, /// (Refurb)..$49.00/ ..$39.00
Apple Monitor //c (Refurb).....$59.00
Apple Color 100 RGB .....$109 / $199.00
Apple Color Composite (Refurb) .$159 / $199.00
//c RGB Monitor (CGA Conversion) $129.00
Composite Green (Refurb).....$29.00
9" Composite Green "Box" monitor $35.00
Color Composite (Not for 80 Col Txt).....$69.00

With Allison™ Digitzing software Instantly 'grab's from any video source. Upgrades available. Call .

VisionPlusEnhanced IIgs $209.00

Apple FDHD Ext. $199

Disk Drives

5.25" Generic Full Height (Refurb).....$59.00
5.25" Generic Full Height w/19 Pin.....$69.00
5.25" Apple Disk II (Refurb) add $10.00 for above.
Apple DuoDisk 5.25" Exch $129.00
Apple DuoDisk 5.25" (Refurb).....$159.00
Apple Disk //c Assy Exch ..$75.00.....$85.00
AppleDisk 3.5" (Refurb).....$165.00
Apple FDHD External (1.44) (NEW) $199.00
AppleDisk 5.25" (Refurb).....$165.00
Apple 3.5" 800K Drive Service Exchange:
UniDisk, AppleDisk(Platinum), Mac.....$85.00

Apple IIgs & ROMs

Call for Chips Not Listed!
//e & //c Related
IOU/MMU 344-0020/0010 ..$19.00
ROM 342-0303 or 0304.....$19.00
ROM 322-0134 or 0135.....$9.00
ROM 342-0133 or 0265.....$9.00
Keyboard ROM 342-0132.....$9.00
HAL 342-0170 .....$15.00
KYBD Encoder AY3600PRO.$29.00
6502.....$3.00
65C02.....$7.00
//c Specific
IOU/MMU 344-0021/0011 ..$19.00
ROM 344-0272.....$9.00
ROM (3.5" Drive) 344-0033 ...$29.00
TMG or GLU.....$15.00
6551.....$3.00
IWM 344-0041 .....$24.00
IIgs Related
65C816 (Dip) $19.00
VGC 344S0046-C (Upgrade) .$29.00
344-0077-B (ROM 01) $39.00
Other IIgs Chips Available
II+ Related
ROM Set (C0-F8).....$29.00
Other II+Chips..$3.00 to $7.00Call

Manuals & Software

MouseWrite 1.5.7 .....$9.95
ProDOS Users Disk & Man. $9.95
Apple IIgs System 6.0.1 .....$35.00
PartyQuiz (4 Player).....$19.95
AppleWorks Reference Card ..$1.00
Misc. Software. Games, Utils, More. $5.95 to $19.95. Ask For List.
Apple Manuals Avail. Ask For List

Bulk Disks

5.25" DSDD Disks 100 for $12.00
3.5" DSDD Disks 50 for $14.50
3.5" DSHD Disks 10 for $3.90
5.25" Disk Sleeves 100 for $3.00

Alltech Electronics Co.

602 Garrison St. Oceanside, CA 92054
9-6 PM Mon.-Fri. - 9-5 PM Sat.

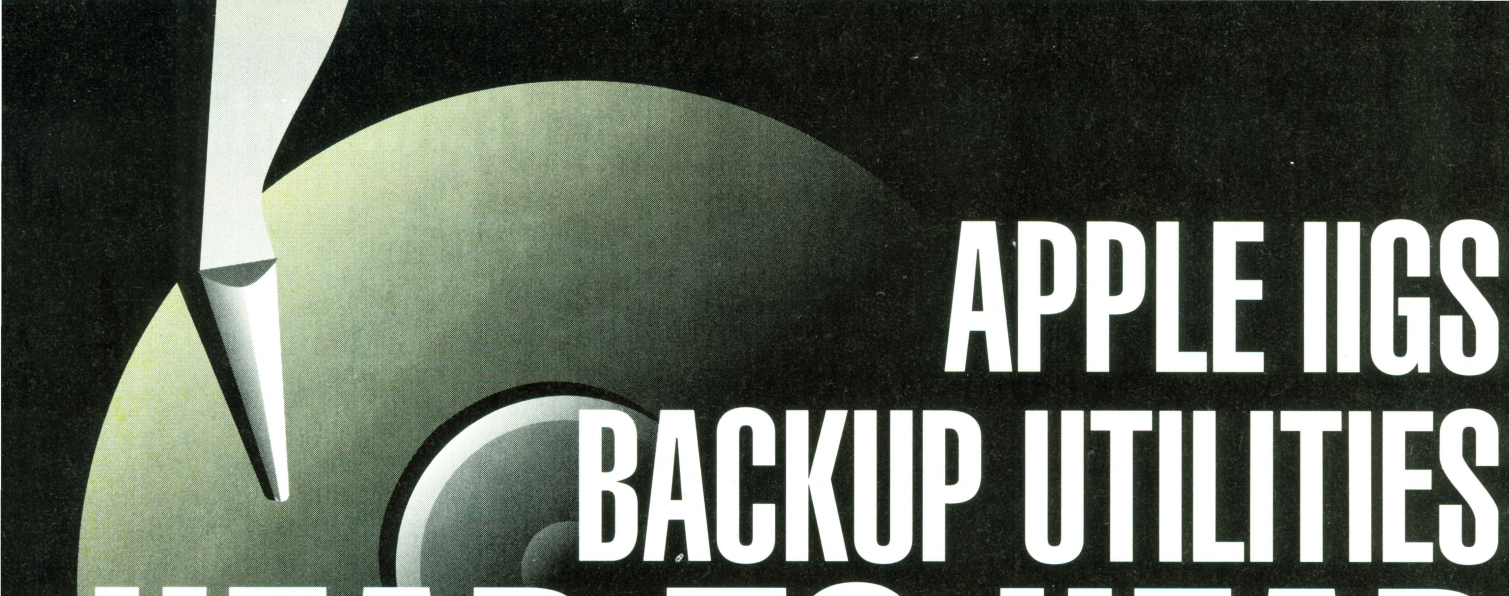
Orders Only:

VISA MasterCard

800/995-7773

All other Inquiries: & Tech Support: 619/721-7733
Fax (School PO's, Quotes, Info.): 619/721-2823
BBS (FutureNet #30) 300-14.4 v.32: 619/721-0705

CA Residents please add 7.75% Sales Tax • COD Orders, Cash/Certified Funds Only • Minimum Shipping & Handling Charge $5.00 (This covers most orders) • Some products are refurbished products and carry a 120 day warranty. • New products are covered by a one year warranty. All Repairs are warranted for 120 days. • Some RAM Chips may be new but pulled, all RAM has a one year warranty. • NO Returns without an RMA number, please call before shipping anything back to us. • A 20% Restocking Fee is applied to all returns due to incompatibility or unneeded product or Products purchased in error. Please be sure what computer you have before placing an order. • Educational P.O.s Accepted, Others on AOC only. • Prices and availability subject to change at any time without any notification whatsoever. *Discounts on certain merchandise only and min. Qty Applies.



APPLE IIGS BACKUP UTILITIES HEAD TO HEAD

BY PHIL ALBRO AND STEVEN KIEFER

Do you have a hard drive? Do you keep it backed up? If the answers are "Yes" and "No"—in that order—then impending disaster is not a question of if but of when. Sooner or later that hard drive is going to have problems you can't easily fix.

There are too many backup programs available to consider all their fine points in a single review. This article will focus on the backup and restore functions of five programs that require an Apple IIgs, namely: Archiver v.1.0 from Apple, UtilityWorks.GS v.2.01 by George R. Wilde, Prosel-16 v.8.83 by Glen Bredon, Salvation Bakkup v.2.0 from Vitesse, and Universe Master v.1.0.2 from Econ Technologies.

It's important to know the difference between making backup of your hard drive and making backup copies of the files it contains. The latter procedure can be performed simply by dragging files from your hard drive to a backup disk in the Finder. This is fine for a few files, but if you want to back up all the files on your hard drive, it quickly becomes a burden.

Suppose your hard drive contains 3,000 files. To make a set of 3.5" disks containing these files with the Finder, you would first initialize a big stack of disks. Each disk needs a subdirectory into which the files will be copied, so you won't find yourself trying to put more than 51 files in the main directory (an error condition). As you copy each file, the operating system has to check to see if that file name is already in the directory, create a directory entry, copy the file, finish the directory entry, and update the volume bitmap. (Repeat 2,999 times.) The process on a given disk will generally end with a "disk full" error, and since a copy program can not split a file over two disks, the partial file that wouldn't fit will have to be deleted. This will leave some unused blocks on each disk. The original subdirectory "tree" structure will be lost, and you will use many more disks than strictly necessary. Worse, the process will take many hours.

In contrast, a true backup of the hard drive will use every block on each backup disk, and split long files across multiple disks if necessary. Each disk will be written only once. Most backup programs will automatically format blank disks, so you don't have to do it in advance, and can verify the integrity of each backup disk after it's written for peace of mind. The original subdirectory structure of the hard drive can be preserved, and, by means of an "incremental backup" feature, you can optionally back up only those files that have changed since the previous backup.

Test conditions

Backups were performed on a unaccelerated ROM 01 Apple IIgs with 1.75 MB RAM. The drive being backed up was a single-partition Apple 20 MB HD20SC hard drive connected to an Apple Revision C SCSI Card, containing approximately 9.6 MB of a variety of file types. Backups were always to 3.5" 800K floppies using a pair of Apple 3.5" drives (standard), except in the case of Universe Master, where backup had to be to another hard drive partition. Formatting a disk takes the same amount of time no matter which program does it, so we used preformatted disks with a 2:1 interleave to eliminate this overhead and better determine the actual performance differences between programs. In most cases, backup was

by file, although a by volume backup was also done using Archiver in order to test its compression capability.

The backup programs were, with the exceptions of Universe Master and UtilityWorks, cold-booted on 3.5" disks containing whatever version of the System Software was the latest available at the time the program was released. In several cases the programs were also tested for compatibility with System Software 6.0.1. There were no non-Apple DAs (desk accessories) or INITs installed; the only NDA was the Control Panel. We could not create a bootable GS/OS disk containing Universe Master or UtilityWorks, since these programs are over 1000 blocks in size and will not fit on a disk with the System Software. These two programs were launched from separate disks.

While each program has its own set of options, we always tested the program using whatever combination of settings was claimed to produce the most bomb-proof, reliable backup. Timings were by stopwatch and included the time required to clear backup bits. (The directory entry for any file contains a "status byte" that indicates, among other things, whether or not this file has changed since it was last backed up. If the "backup bit" in that byte is "set," the file has been changed and needs to be backed up. If the bit is "clear," the file has not been changed since being backed up. After performing a backup, then, the backup bits must be cleared so that the next backup operation will find the correct files.)

We restored the backups to a 16 or a 32 MB partition on an Apple HD80SC hard drive. These partitions did not have the same volume name as the drive originally backed up. The restored volumes were tested by using Mr.Fixit (Prosel-16) to check for bad blocks and directory errors, then using the Finder to confirm both validation and verification. (Verifying a disk checks it for bad (unreadable) blocks; validating the disk confirms that the individual files on the disk are stored in the proper format.)

Archiver

Archiver requires System Software 6.0 or later. The System 6 manual recommends that a backup by volume not be performed if the drive will be re-partitioned, or if a different drive will be used for the restoration. But Archiver's compression capability (which reduces the number of disks required) only works in volume mode, so we tried it anyway. With the program instructed to back up only blocks in use, to use compresion, and to verify each disk writing it, the process took 28 minutes, 42 seconds and used 11 disks. Archiver refused to even try to restore this backup to a 16 MB volume. It did restore the backup to a 32 MB partition, but converted it to a 20 MB partition—making 12 MB of the drive unusable. Although the manual warns that this will happen, there is no such warning in the program itself.

Archiver's backup by file took 25 minutes, 43 seconds and used 13 disks. It might have been faster if Archiver had the ability to use two 3.5" drives; with the one-drive arrangement, the program has to stop and wait for disks to be swapped.

This backup was restored to the 16 MB volume with no complaints and no problems. The resulting restored volume was both validated and verified. However, since the name of the volume was different from the original disk, Archiver insisted on putting the whole 9.6 MB of files into a separate folder. If the volume had already contained more than 6.4 MB of data, Archiver would not have been able to restore the backup into this folder (it wouldn't fit). Archiver does not have the ability to rename volumes or delete files within the program, so the only way around this problem is to perform the rename or delete operations using a separate utility.

Archiver can back up to a tape drive as well as to floppies, and it can back up HFS (Macintosh) disks or any other volumes for which there is a suitable GS/OS FST. (DOS 3.3 and Pascal-format disks would have to be backed up by volume; those FSTs are read-only, so a file-by-file backup would not be restorable.)

UtilityWorks.GS

UtilitiyWorks, a $20 shareware package, runs under System 6.0 and includes backup and restore capabilities with a verification option (but no compression). You can choose whether or not to "expand" sparse files—this may cause some files to become larger. UtilityWorks took 32 minutes, 50 seconds to back up the test volume with verification (it required 28 minutes 24 seconds without verification)—significantly slower than Archiver, even though the program automatically uses both drives to eliminate delays from disk swapping. The backup filled 12 disks.

Besides the slow backup operation, UtilitiyWorks seemed to take significantly longer than the other programs tested to clear the backup bits at the end of the process. Restoration to the 16 MB volume was straightforward, with no errors and, at 22 minutes, much faster than the backup.

Since UtilityWorks is a full set of disk utilities, not just a backup program, it could have renamed or erased the target volume, or erased some files, if necessary, to make room on the restoration volume. The backup module can back up any GS/OS-compatible device (including HFS volumes and AppleShare file servers), but the backup must be written to 3.5" disks. (The manual recommends you perform a volume copy if your target is a tape drive.)

Although UtilitiyWorks can restore backups it created, there is also a separate Restore program that will fit on a System 6 bootable disk (for use when your hard drive isn't in a bootable condition or when you are restoring files to your startup partition). We used the Restore module built into UtilityWorks.

Prosel-16

ProSel-16, like UtilityWorks, is a complete set of disk utilities—the backup module is only one part of the program. Performing a backup with verification, error correction, and an "abbreviated extra directory" required 27 minutes, and 12 disks. (Turning off the error correction and verification reduced this to 18 minutes 24 seconds and 11 disks.) Both sets restored to the 16 MB volume with no errors. ProSel-16 supports compression, but you can't turn it off. ProSel-16's compression appears to be just as effective as Archiver's, and faster, too.

Since it features a full suite of utilities, Prosel-16 also has the ability to rename volumes or delete files, if necessary, without exiting to a separate program.

Bakkup

Bakkup is claimed to be compatible with System 6.0, but we had several crashes under System 6.0.1 (probably due to having insufficient memory with this operating system installed), so we stuck with 5.0.4.

Backup of the test volume with verification took 23 minutes, 28 seconds and filled 14 disks. We saved a whopping 20 seconds by turning verification off (still 14 disks). Bakkup performs verification as each block is written; the disk as a whole is not verified at the end.

We could not restore any of the backup sets on our test system. The computer would always "lock up" around disk 4, requiring a reboot. The program requires 2 MB of memory for the restore module, even though the backup module ran fine in 1.75 MB.

We were able to restore the backup when we tried it on a different IIgs with more memory; as with Archiver, restored files went into a folder if the volume names were different. Bakkup has no built-in utilities for renaming or erase volumes or deleting files.

We erased the hard drive (using a different utility), then tried to restore Bakkup's backup to the blank volume. The "erased" volume had its main directory resurrected during the process of the backup. (That is, files that we had deleted re-appeared in the main directory.) This may have been a fluke resulting some kind of directory cache, but it was certainly disconcerting.

We also tried Bakkup with compression activated. This operation required 99 minutes, 17 seconds and used 11 disks—three times longer than ProSel-16 for a similar operation! Since the manual suggested that restoring a compressed backup set would take even longer than making one, we didn't bother to test it.

To see if we could work around the problems, we tried a different setup: a ROM 03 IIgs with 5 MB RAM, an Apple HD80SC drive, and an Apple High-Speed SCSI Card. We ran the program under System 6 on this machine. Backing up the same 9.6 MB of files from a 32 MB partition (with verification but no compression) took 20 minutes, 10 seconds and filled 14 disks. Restoration proceeded without a hitch when we told the program to use "less safe" mode.

Universe Master

The Backup function in Universe Master was designed with different philosophy and purpose than a program like Archiver or ProSel-16. This program is designed to make backups easy. While it certainly is easy, it's unlikely that anyone would really want to use this program to back up their entire hard drive. The backup must be to a single volume, not multiple disks—so backing up a whole hard drive requires the availability of a second hard drive (or a second available partition on the same hard drive). A removable-cartridge drive (such as a SyQuest) would be a good choice for this type of operation.

Backups can be maid with or without compression, with or without password encryption, to a second volume, one file at a time.

It took us two minutes to write the required backup "script," which tells the program exactly which files you want to copy. The actual copying required 30 minutes without compression (60 minutes with compression). The program did not clear the backup bits, but did spend another three minutes "flushing buffers," whatever that means. Restoring took the same amount of time as backing up for the uncompressed backup, but required 78 minutes with the compressed backup. (The compressed files occupied 74% as much space as the originals—much more effective than the compression in Archiver or ProSel-16, but with a corresponding time crunch.) Backups are not verified unless you do so separately.

Advertisements suggest that the next version of Universe Master will permit backing up to floppy disks, but that capability was not available in the version we tested (v.1.0.2).

Partial Backup/Restore

All of the program we tested can perform partial (or incremental) backups. You can make one full backup, then on subsequent backups only back up the files which were changed (or which are new). This will obviously speed up backups, but it will slow down the restore procedure, since you must first restore the full backup and at least one partial backup. Since backups are usually more frequent than restores, though, you still save time.

The programs tested generally use two different methods to determine which files should be included in a partial backup: the backup bits, or the file modification dates.

Archiver lets you select files from a standard GS/OS dialog. You can also set a combination of selection criteria (wildcard file name, modification date, file type) for automatic selection, using AND/OR logic. Since designating files to be backed up with Archiver is a multi-step process (first you select them, then you mark them), it can take a very long time.

UtilityWorks' partial backup backs up all files whose backup bits are set. ProDOS and GS/OS automatically set this bit any time you change a file (or create a new one). Conveniently, the program lets you choose whether or not to clear the backup bits as the backup is made. If you do, each new partial backup will only back up files changed since the last partial backup. (When restoring, you will have to restore from all incremental disk sets, in the order they were made, to ensure that everything is in place). If you do not clear backup bits, each partial backup will require more disks than the last (since more files have changed since the last full backup), but only the latest set will be needed in the restoration.

Prosel-16 lets you base a partial backup on backup bits or the modification date, or on a script containing the pathnames of the specific files (or folders) you want to include. You can also do a "compound incremental backup" which, in effect, lets you re-use the same set of disks for all the partial backups of a given directory, overwriting files that have changed since the last partial backup (and adding any completely new ones). This way, you don't accumulate sets of backup disks that need to be kept in order. Backing up a particular volume or folder can be made a menu item on a ProSel screen, so your regular backups can be initiated with a single keystroke. You can restore files singly or in batches, and you only need the backup disks containing the specific files you want to restore. Prosel-16 is the only one of these programs that puts a full directory on each disk in the set. You can choose to restore only files that are already present (in an earlier form) on the destination disk, or only those files that are not already there, and you can further choose to restore only application files or only document files.

Salvation Bakkup lets you make an incremental backup either by hand or using a macro. The file selection can be based on all files, only application files, or only document files, with attributes of wildcard file name, file type and/or auxtype, creation date and modification date. You can choose whether or not to clear backup bits. Partial restoration normally requires that you deselect the files you don't want to restore, or (faster) deselect them all and select the ones to restore from a dialog. Bakkup writes a partial directory on each backup disk, so you can restore those files that do not extend over more than one disk without needing the separate directory disk.

The script-based options for partial backup in Universe Master are so extensive that we have room for only limited coverage here. You can base file selection on the amount of time since a previous backup, how much a file has grown in size since a previous backup, or the file type. Backup scripts can be chained (performed in a predetermined sequence), and scripts can be written that, in effect, nest a set of selection criteria. This approach could be used to maintain a running backup set in which backups are made daily, automatically retaining only the last three days' sets only and automatically. As with ProSel-16, you can choose to restore only files present, or only those not present, on the destination disk.

Another point worth considering—if you do a partial restore to an empty volume, Archiver and Prosel-16 will recreate the original subdirectory structure (partial file paths) for all files restored. UtilityWorks.GS and Salvation

And the winners are...

Full Backup

Fastest with no validation	Prosel-16
Fastest with all safety features	Bakkup
Most Simple and Straightforward	UtilityWorks
Least expensive (including manual)	UtilityWorks
Best Overall Documentation	Bakkup
Safest	Prosel-16
Fewest disks in reasonable time	Prosel-16
Most Dangerous	Archiver
Supports Most Disk Formats	Archiver
Least Applicable for this Purpose	Universe Master

Partial Backup

Most likely to be used frequently	Universe Master
Most File Selection Options	Archiver
Best Tutorial	Universe Master
Simplest Activation	Prosel-16
Most Versatile Scripting	Universe Master

Other Considerations

Best On-Line Help	Bakkup
Best Error Recovery	Prosel-16
Fastest Writes to Unformatted Disks	Bakkup
Entire Backup in a Single File	Archiver
Backup of Boot Volume	Prosel-16
Saves Separate Directory	Prosel-16
Highest Memory Requirement	Bakkup

Bakkup will not; these programs require that you create the needed subdirectories in advance. Universe Master expects the subdirectory structure to be as it was when you made your original backup.

Memory Considerations

Archiver's manual gives no information about the amount of computer memory needed to perform backup or restoration. All we can say is that both backup and restoration, by volume and by file, were successful under System 6.0.1 with 1.75 MB of total RAM. UtilityWorks.GS may be unique in that backup works, albeit very slowly, with a little as 64K of free memory. If you lack sufficient memory to include the verify option (which needs a little extra), you can bulk verify later using another of the UWGS utilities.

Both Prosel-16 and Salvation Bakkup need at least 400K of free memory, although under identical conditions (booting from System 5.0.4 for example), Prosel-16 will have more free memory to work with due to the relative sizes of the program modules. Backup will be significantly faster for both programs (and for UWGS) if there is at least 800K of free memory (one disk write vs. two.) Universe Master requires 1.5 MB of memory under System 6. Since its backing up is a file-by-file copy operation, free memory beyond the size of the largest file will not have much effect on speed.

Reliability Considerations

Do you store your disks in a magnetic field-shielded, radio-shielded, constant temperature, constant humidity room? You do? Good. Your disks can be relied on to last for years. You don't? Then you can expect disks to go bad from time to time—even after they have been written and verified. This is a simple fact of life which we can confirm it from our own experience. It's a scary thought, but what if your hard drive does get messed up and you actually find it necessary to use your set of backup disks to do a restoration?

Archiver stores the only directory for a set of backup disks on the first disk in the set. If anything happens to that disk, you literally lose everything, since the program doesn't know where your files are without it. If any disk in the backup set acquires a bad block, restoration comes to a screeching halt. During a backup, Archiver will skip files it can't read (and report having done so) during a backup by file. You can make a note of the problem files and try to repair them later with some other utility.

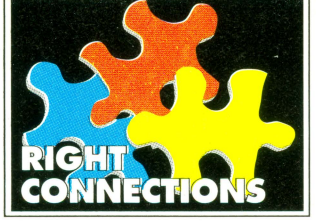
UtilityWorks.GS has a special feature that allows you to restore all the files backed up prior to an interruption or disruption of the backup process. But in such circumstances, we would almost certainly prefer to make a new, complete backup.

Salvation Bakkup writes a complete directory on the last disk in a set, and a partial directory on each individual disk. If one disk (not the last) goes bad, you lose only the files that were on that disk. If the last disk goes bad, you lose all the files that were spread across more than one disk.

ProSel-16 is unique in writing not only a full directory on each disk (as we mentioned earlier) but also offering the option to include error correction data on each disk. This means your backups will require more disks, but will be more reliable. If such disks acquire bad blocks during storage, there is a high probability that ProSel will be able to recover all your data anyway. (The probability depends on exactly how many blocks are bad.) We've had occasion to need this feature and it hasn't failed us yet (knock wood). No other backup program has this capability.

Universe Master will refuse to restore files if the original script used in their backup has been lost. The program offers the option of storing a duplicate of the script file on the backup disk itself (the original will be on the Universe Master disk). However, since the backup is simply a copy operation, you should be able to restore files using any copy utility. Copying compressed files with another utility requires that you have AutoArc (another Econ program) installed.

(Continued on Page 38)



Apple II Graphics Conversion

by Ron Evry

Some people collect stamps or coins; others collect comic books, plates, or bottle caps. I collect Apple II graphics. I also collect Apple II graphic horror stories. (Some of these stories are indeed as "graphic" as anything Stephen King has envisioned.) The most common one I've heard is about somebody trying to put an incompatible graphic into a desktop publishing program. Another frequent complaint concerns not having enough space on a disk to store all of the pictures needed to complete a hypermedia project.

If you have an Apple II, you can do miraculous things with graphics. Images abound in an assortment of formats. They can generally be converted from one format to another without too much trouble, if you understand the differences between the formats and the appropriate uses of each.

PRINT SHOP GRAPHICS

The first time I ever tried to create a graphic on an Apple II, I got out a sheet of graph paper, drew a picture, and oh-so-carefully plotted each and every dot from that sheet with a BASIC program. It took me hours, and the program seemed to take forever to actually draw the picture on the screen. The process was unsatisfying, and so, in the years since then, I've instead explored the various painting and drawing programs available. Perhaps the simplest drawing program available is Print Shop. Of course, just to make life confusing, there are three different Apple II Print Shop graphics formats to work with.

The oldest is the original (DOS 3.3-based) Print Shop program. These days it is referred to as "Old Print Shop" format, or just "Print Shop" graphics. While Broderbund no longer publishes this program, there are over a million copies of it floating around out there, and the number of graphics available for it is staggering. The program came with a built-in Graphic Editor, which let people produce their own pictures. The DOS 3.3 version of the Print Shop Companion, which was compatible with the DOS 3.3 Print Shop, had an improved Graphic Editor.

A few years ago, Broderbund released the New Print Shop, which was basically a ProDOS version of the old program. This version is still available, although there is no ProDOS Print Shop Companion to go with it. Graphics made for the old program are incompatible with the new version, but the new version does have a utility to convert old Print Shop graphics to the new format. Since the ProDOS-format graphics take up a bit more space on a disk, you may have trouble fitting all of the graphics from a really loaded DOS 3.3 disk onto a 5 1/4" ProDOS disk. Unfortunately, there is no built-in utility for converting New Print Shop format pictures into the old format. (Why would anyone want to do that? We'll get to that in a bit and then show you how.)

The third format available is Print Shop GS, which actually came out some time before the New Print Shop and will only work on the Apple IIgs. There is a Print Shop GS Companion, which is an excellent program in its own right. Both IIgs programs have graphic editors, but the Companion is, as before, more capable in that department—it can import pictures from many other Apple II formats.

The GS graphic editors are the only ones that work in multiple colors, and the graphics they produce are capable of more detail than both the old and new 8-bit programs. You can create full color New Print Shop graphics with the GS Companion—although they will only show up in black and white in the New Print Shop graphic editor, they will print in full color.

Virtually every 8-bit desktop publishing program can import old Print Shop graphics, and Publish It! 4 can also directly use New Print Shop graphics. Most other Apple II publishing programs will only recognize the old Print Shop format. The same goes for the popular Scholastic hypermedia programs, such as Hyperscreen, Slide Shop, and Super Story Tree.

If you really want to use those great New Print Shop Graphics you downloaded off of GEnie in Slide Shop or Children's Writing and Publishing Center, you can do it if you have a IIgs and Roger Wagner's Graphics Exchange.

1) Use the Graphic Editor in the Print Shop GS Companion to import a New Print Shop graphic.
2) Save the graphic in Print Shop GS format.
3) From the Print Shop GS program, load the picture into its Graphic Editor and save it again (this step is necessary to enable The Graphics Exchange to recognize it).
4) Using The Graphics Exchange, load the IIgs Print Shop graphic.
5) Convert it (full-screen) to Print Shop format. You may need to exchange back and white, as well.
6) Save your old Print Shop graphic to a DOS 3.3 formatted disk.

This elaborate procedure is not necessary if your New Print Shop graphic was originally converted from an old Print Shop graphic. All you need to do is use the Apple System Utilities or Copy II Plus to copy the file from a ProDOS disk to a DOS 3.3 disk. Then run the picture through a graphic editor (either Print Shop or the Companion) to clean up the "framing" line at the bottom of the graphic.

If you use GraphicWriter III for your desktop publishing, be aware that it only accepts the IIgs variety of Print Shop graphics. The GS Print Shop Companion comes in handy for making 8-bit Print Shop graphics into IIgs ones. The Graphics Exchange will do the same with old Print Shop graphics.

DESKTOP PUBLISHING FORMATS

While GraphicWriter III can import double and standard hi-res (double hi-res and hi-res)

graphics, such graphics only print in black and white. Using the Graphics Exchange to convert them to Super hi-res enables you to put them into your documents in full color.

AppleWorks GS only imports super hi-res pictures into its desktop publishing module, making a program like Graphics Exchange, SuperConvert or GAP (more about that one in a moment) essential in pulling in other formats.

The Graphics Exchange comes in handy in all sorts of situations. Unlike SuperConvert, which will turn 8-bit graphics into 16-bit but not the other way around, The Graphics Exchange works in any direction. If you want to see how a 640-mode super hi-res picture looks in lo-res, go ahead and try it. (The answer, in a word, is "awful.")

Many IIgs programs will only save or load 640-mode pictures and others, such as Print Shop GS Companion, will only recognize 320-mode GS graphics. You will need a program like the Graphics Exchange if you want to move your pictures from one of these formats to another. HyperStudio will import both 320 and 640, but 640-mode pictures look better. HyperCard only imports 640-mode pictures. Convert 320-mode pictures to 640-mode first and you will lose only minimal picture quality.

Publish It! will import super hi-res graphics on any Apple IIe or IIc with enough extra RAM. However, the quality of the output is no better than double hi-res and the pictures may become murky. It may be to your advantage to convert the super hi-res graphic to double hi-res first, then clean up the image with Dazzle Draw before importing it into Publish It!

CLEANING UP YOUR ACT

Frequently, pictures moved from one format to another need cleaning up. Among the most useful "pixel-removers" are Platinum Paint, Cheap Paint, Art & Film Director (Art Module), Paintworks Plus and Deluxe Paint for the IIgs; Dazzle Draw for 8-bit double hi-res pictures and any of the above mentioned Scholastic hypermedia programs (using the export background feature) for ordinary hi-res. In fact, just for ease of use, I frequently will draw a picture in hi-res using Slide Shop and convert it upwards to another format. 8/16 Paint is also a good program, especially since it includes paint programs for every Apple II graphics mode (hi-res, double hi-res, 320, and 640)—and all the programs work exactly alike.

Scanned pictures and downloaded GIFs often need touch-ups before they are usable. Thunderware's Lightning Scan turns out highly detailed 640 or 320-mode IIgs graphics, which can be colorized from within the program, saved, then converted to other formats, if need be. GIFs can be brought into the Apple realm with SuperConvert or the shareware program GIF3200 on a IIgs, or Jason Harper's freeware program IIGIF on an 8-bit machine. IIGIF will output the GIFs in hi-res or double-hi-res format and is capable of enlarging small sections of the graphic to capture more detail.

In any event, rarely will scanned pictures or converted GIFs be suitable for use without putting them through a paint program and touching them up. Often, this simply involves blocking off part of the picture and whiting-out the rest. Sometimes it could mean extensively redrawing the graphic, especially in the case of super hi-res pictures that have been converted down to hi-res. (One of the reasons I like hi-res so much is that by using my ProDOS Graphic Packer, I can fit dozens of full-screen pictures on a single 5 1/4" disk.)

Some IIgs paint programs (such as the shareware Cheap Paint) will load in a 320-mode super hi-res picture and save it in 640-mode without letting you know that it's doing that. Then if you try to load it into GS Print Shop Companion, you simply can't. So make sure you save your super-hi-res graphics in the proper mode for what you plan to do.

NEWSROOM AND OTHER FORMATS

There are a lot more formats available, and I'm going to try to touch on most of them here. Newsroom was once one of the most popular Apple II publishing programs, and many schools still use it. Whether you use the program anymore or not, you will find that there are hundreds of cute cartoons in Newsroom format that would look great in other formats.

To convert these pictures, I use Big Red Computer Club's GAP program. In fact, even if you don't use Newsroom graphics, this 8-bit program belongs in your arsenal. Using GAP, you can convert these pages of cartoons to hi-res, double hi-res and (if you are running GAP on a IIgs) super hi-res.

Another program which will convert Newsroom images to Print Shop or hi-res is William Miller's 1986 ClipCapture. Unfortunately, it no longer seems to be available, either commercially or as shareware or freeware. You may be able to find it on the used market. There are other programs available that will capture Newsroom art, but be careful—if you have the very earliest version of Newsroom, the graphics disks use a copy protection scheme that some programs won't recognize (GAP does).

Big Red also produces a DOS 3.3 disk called PS Graphic Maker (disk volume SP01), which takes regular hi-res pictures and converts parts or all of them into Print Shop graphics. The hi-res pictures must be put onto a DOS 3.3 disk before you can load them into the program, and you must remember that a lot of detail will be lost if you try to shrink a full screen picture down to the size of a Print Shop graphic. Coupled with programs that will convert other format pictures to hi-res, though, this disk lets you turn almost anything into a Print Shop graphic.

If you work with any of the Apple II GEOS programs, you can put virtually any kind of graphic into your "photo albums." The Graphic Grabber imports old Print Shop graphics, and now that you know how to convert New Print Shop and GS Print Shop pictures to the old format, you can pull them in, too. By converting your super hi-res and hi-res graphics to double hi-res, you can import them with the help of Dazzle Draw. First, load the double hi-res picture into Dazzle Draw, then save as much of the screen as you want as a "section." Geos' Graphic Grabber will import the section, but black and white will be reversed. To take care of that, load the picture into GeoPaint, enclose it with the edit box, and select Invert. You can then save the picture in your album, in crisp Geos format.

Another popular graphic format is the Pelican/Toucan graphic, used in programs like SuperPrint, Pow! Zap! Kerplunk!, and Big Book Maker. The commercial program Pelican Graphics Converter, available from Toucan, will convert hi-res pictures (called "Standard Screen" in the program), change Slide Shop slides into Pelican backgrounds, transmogrify Print Shop pictures into Pelican clip art, and even turn Pelican graphics into Slide Shop Slides (which then have to be brought into Slide Shop and exported to make them regular hi-res). When converting to Pelican/Toucan format, remember that some Pelican clip art disks use specific filenames and need to have the files Zinfoz or Disk.info on them.

Another handy program (which is, unfortunately, unavailable commercially) is called Prince. Using Prince, you can capture any hi-res picture displayed on your screen, even if the program it comes from is copy-protected. To use it, exit from whatever program you are running when the picture you want to save is on the screen by holding down Control and Reset. At the prompt, run Prince with a PR#6 command. The program will capture and save the picture, which is still tucked away in your Apple's memory. This works well on old Softdisk issues that have great graphics hidden inside programs. (Be sure to get permission before using any of these graphics for other than personal use.)

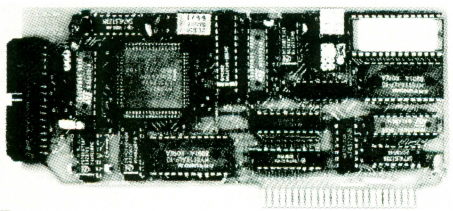
One last program that deserves a mention is Jason Harper's MacDown. This freeware program will convert a MacPaint image to double hi-res or standard hi-res. Since there is a huge difference in MacPaint and Apple II graphic resolution, MacDown lets you to capture small chunks of the Mac graphic with amazing fidelity to the original. This is handy for Mac pictures that have groups of images on them.

IN CONCLUSION

I'm sure there are other types of graphic formats that I haven't touched on, but it should be possible to convert almost anything to anything else within the Apple II world. Just look for a link to any one Apple II format and the rest of them will open up to you! ■

Keeping our head in the clouds and our feet on the ground, we print only the freshest gossip. If there's not enough gossip, we make some up! This column is provided for entertainment value only, much like Star Trek: Deep Space Nine (except that DS9 has better special effects).

NEW GERMAN HARDWARE



Joachim Lange of SHH Systeme (the German manufacturer of the Turbo IDE hard drive controller) has been tantalizing members of GEnie's A2 RoundTable with hints of a new hardware product the company has under development. He has even uploaded a picture of the card to the A2 library (see picture on this page). But he's not telling what it is. The best guess so far is that it's a controller for IBM-style disk drives (based on the 36-pin connector visible in the picture). At least two GEnie members are known to have a prototype of this card, but are forbidden to announce what it is! But at least it is not vaporware—said Lange, "Now you can see how much vapor we have produced. Even better, the vapor never disappears! Kind of a high-quality, solid-state vapor."

TEXAS FOLLIES

County commissioners Williamson County, Texas (near Austin—though Austin itself is in Travis county) decided recently that the jobs created by a new Apple service center HQ in their county were worth more than their objections to Apple's policy of extending benefits to domestic partners of its gay employees. Originally, the commissioners had planned to turn down Apple's offer because of the company's policy, but when they found out that 50% of their constituents approved of the policy (with 30% undecided and only 20% disapproving), they changed their tune. Apple has historically based its acceptance of employees on their talents and contributions to the company, not on irrelevant characteristics such as age, gender, or sexual orientation.

AN ERA ENDS

On November 15, Apple quietly dropped the Apple IIe, the last Apple II model in production, from its price list. An announcement was carried in MacWeek the following week under the headline "The Apple II is dead." MacWeek's editorial stance appears to be one of condecension and gloating—they began an article on page 78 of the December 13 issue with "Ignoring, for the moment, the final burial of the Apple II..." despite the fact that the article had nothing to do with the Apple II. The Mac users on CompuServe exhibited a similar attitude in a thread titled "Apple II dead"—a strange sentiment considering that the Macintosh wouldn't exist today if it weren't for the Apple II, sales of which financed the massive marketing campaigns that finally allowed the Macintosh to begin earning its own keep.

Apple itself, in response to inquiries about the status of the Apple IIe, sent an "Apple IIe Position Statement" to user groups in the December User Group Connection mailing. The statement notes that although the IIe was one of the most popular computers with K-12 educators, 93% of Apple computers sold to schools in 1993 were Macintoshes, with the LC line becoming the best-selling line of educational computers. "Apple can no longer justify the manufacturing expense given our current business model and has removed the Apple IIe computer system from our Education Price List."

On the other hand, Walter Mossberg's "Personal Technology" column in the December 16 Wall Street Journal had much kinder things to say. Mossberg himself bought an Apple II in 1983, and says that it "opened whole new vistas" for him. He also correctly points out that "Even the companies that made the hardware and software that eclipsed it... owed something to the Apple II." Microsoft wrote Applesoft BASIC, published Apple II software (including the classic Olympic Decathlon), and sold a CP/M card for the Apple II. And the IBM PC development team used Apple IIs to prepare budgets and presentations even while the Apple II was being dissed by the management. Other newspapers across the country, including the Washington Post and the Cleveland Plain-Dealer, also carried accurate and complimentary stories about the computer that, in Mossberg's words, "helped change the world."

SYSTEM 6.02?

A rumor spotted on GEnie hinted that Apple was readying a System Software 6.0.2 which would fix some of the last bugs in 6.01 and also add write capability to the MS-DOS FST (which is currently read-only). This upgrade was supposedly scheduled to make its appearance around Christmas. That date has passed, but not by much. The Rumormonger really doesn't hold much hope for this, but would be happy to be wrong.

BILLIONS AND BILLIONS OF CODE NAMES

Astronomer Carl Sagan reportedly discovered that Apple Computer Inc. was using the name "Carl Sagan" as an internal code name for a new product, and complained to Apple Computer. Subsequently, the internal code name for the product was changed to "BHA," which insiders tell us stands for "Butt-Head Astronomer."

APPLEWORKS 4.0 EASTER EGG

A secret message can reportedly be found in AppleWorks 4.0 by pressing OA-? at the Main Menu, pressing the Down Arrow repeatedly until you reach the bottom of the help text, and then pressing OA-A. The message contains "thank-yous" from Randy Brandt and Dan Verkade, the developers of AppleWorks 4. Randy Brandt mentions his children, but this information is already out of date—shortly after this Easter Egg was discovered, Brandt discovered that he was going to be a father once again—not once, but twice. Yes, that's right, twins! Congratulations, Randy—and be glad it's not Quadrigalets.

INSERT GRATUITOUS PSYCHEDELIC ROCK MUSIC LYRIC HERE

Joe Kohn, publisher of Shareware Solutions, is offering a "reward" to anyone who develops a way to print Print Shop GS graphics on Hewlett-Packard printers. The catch—the product must be released as shareware or freeware. So far, Kohn has managed to get interested parties (including both individual users and companies) to pledge several hundred dollars. Kohn is also considering simply contracting a well-known IIgs programmer and hamburger addict (who programmed Vitesse's Harmonie drivers) to do the job. ■

ADVERTISER INDEX

Please send me information from the following II Alive advertisers

CIRCLE YOUR CHOICES

All Tech	GEnie	Intrec Software
LRO	Memory Plus	Perfect Solutions
Resource Central	Sequential Systems	SoftSpoken
USA Micro		

Name _____

Address _____

City _____ State _____ Zip _____

Phone (_____) _____

Clip and mail to II Alive Reader Service • P.O. Box 349 • St. Clair Shores, MI 48080

Continued from page 33

Archiver, UtilityWorks.GS and Prosel-16 will verify (test the readability) of each backup disk after writing it. If they detect a problem, they will give you the opportunity to replace that disk and try again. Salvation Bakkup, instead, tests each block as it is written. The block test method is much faster, but in the course of our comparison Bakkup twice made backup sets that contained bad blocks—and the program did not catch these bad blocks while doing the backup. The files containing those bad blocks were, of course, unrestorable. Although there's a way to restore files from the remaining good disks, it was a bit disconcerting that Bakkup locked up completely when it encountered the unreadable disk. We retried several times; eventually Bakkup felt it had successfully read the damaged disk and finished the restoration, but left the "restored" volume with a damaged directory. Therefore we recommend that disk sets made with Bakkup be verified by a separate utility (such as the Finder) before being considered fully reliable.

Documentation

The Archiver documentation is very clear and understandable, but it is inadequate in that it does not explain every facet of the program's operation. Moreover, since the System Software is available at no cost from user groups and online services like America Online and GEnie, many legal owners of System 6 don't even have a manual. There is no mention of memory requirements, and the manual does not say what will happen if a read error occurs on a disk from a backup-by-file set. Following a numbered, step by step process through the manual sometimes requires that you go back to an earlier section, like a repeat symbol in sheet music. The program itself does not warn the user about the possible disasters that can be caused by a given selection, so it can be dangerous to use without the manual.

The UtilityWorks documentation is fairly extensive, well written, and adequate for the needs of the situation, since the program offers a simple, relatively idiot-proof backup and restoration process with limited opportunities for you to create disasters. However, the documentation is written partially for the beginner and partially for the experienced user, so the more you know, the more you will learn from it.

In order to keep up with ProSel-16's documentation, you need to keep up with the frequent upgrades of the program. Each update and upgrade includes a file describing the new features and changes (this file is also available separately). The program is relatively self-explanatory in use; still, we recommend that users keep the documentation for any program that offers as many options as this one close at hand.

Salvation Bakkup's documentation is excellent—probably the best of the lot—and this program is the only one of those tested that has anything resembling adequate on-line help. The on-line help can't cover everything in the manual, however, so keep the manual handy!

Universe Master came with a nicely printed manual, but the documentation for the backup and restore operations were split over several sections. You have to read pieces of the User Interface, Tutorial, Command Buttons Reference, and Menu Bar Reference sections to get the whole picture. The process is definitely not self explanatory; frequent reference to the manual will be essential until you are thoroughly familiar with the program.

Miscellaneous

To some extent, backup disks are not "normal" disks. Files are continued from one disk to another; there may or may not be a directory; and the volume bitmap (if any) may contain data incompatible with the volume directory (if any). Therefore, disk repair utilities generally cannot be used to fix a damaged backup disk. One partial exception to this is UtilityWorks, which suggests you at least try a ProDOS file recovery utility before giving up. (Universe Master backups are ordinary ProDOS volumes, and so can be repaired by Universe Master.)

As backup programs are updated and upgraded, they often become incompatible with earlier versions. Always restore a backup with the same version of the program that was used to make it.

Archiver can back up an AppleShare volume (by files) and can store its backups on any kind of GS/OS block device. It can also back up an entire volume into a single file with compression (e.g. onto a different hard drive partition). There's a danger in this is not mentioned in the manual: the file cannot be longer than 16 MB in size. (This is a limiation of ProDOS.)

ProSel-16 is the only one of the programs tested that can readily back up the boot volume. (There are always a few files open on the boot volume, and most programs are unable to copy an open file.) ProSel-16 also provides the option to write a special directory of the backup set to a different volume. This directory can be pulled into a data base for convenient record-keeping.

ProSel-16 and UtilityWorks will only back up onto 3.5" floppy disks. ProSel-16 and Bakkup support 1.6 MB high density disks, but ProSel doesn't recommend them. Archiver and Salvation Bakkup can use a SCSI tape drive. Universe Master works with any type of block device.

All of the programs will format new disks automatically. Since disk formatting is a function of the operating system and not the program itself, we did not time the programs using unformatted disks. However, since Salvation Bakkup can write on unformatted disks directly (without formatting them first), Bakkup is much faster than the other programs in using such disks. All of these programs are much faster on partial backups if you have a previously-written script or macro to define what should be backed up.

Bottom line

The best hard drive backup utility depends on your values. What is most important to you? Convenience? Speed? Reliability? Versatility? No one backup utility is clearly better than all others, and there is room for improvement in all available programs.

You should definitely own a hard drive management utility of some sort, and you should definitely use it frequently. All other paths lead to madness or lost data! ■

About the products in this article

Bakkup 2.0
(available exclusively from
Quality Computers)
$44.95
Vitesse, Inc.
P.O. Box 929
La Puente, CA 91747-0929

Universe Master
$79.95
Econ Technologies, Inc.
P.O. Box 195356
Winter Springs, FL 32719

Archiver (in System 6.0.1)
$39.00
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014

UtilityWorks GS
$20.00
George R. Wilde
24402 broadwell Ave.
Harbor City, CA 90710-1812

Prosel-16
$89.95
Glen E. Bredon
521 State Road
Princeton, NJ 08540

Many of the products mentioned in this article are available at discount prices from Quality Computers.

The Q Drive

PERFECT FOR APPLE IIe AND IIGS COMPUTERS

The Q Drive forever ends tedious disk swapping and slow-opening programs. All your programs can be stored on your Q Drive—all you do is select one and open it. You will be amazed at how much faster your programs open, and how much easier it is to run them. For example, you can run all of AppleWorks, plus the dictionaries, without ever having to access your disk drive.

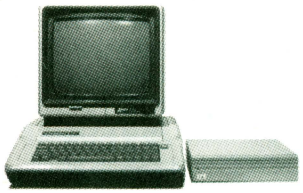
Not only can you store programs in one central location, but also documents. With a Q Drive, you can keep your precious work on the drive and make disk backups as needed. No more mountains of floppy disks to search for and load. You will have your work at your fingertips from the moment you start your computer.

USES THE LATEST QUANTUM MECHANISMS

The Q Drive features a fast, reliable Quantum mechanism using the latest technology, including auto-parking heads, a voice-coil actuator, and a track buffer.

EASIEST TO USE

The Q Drive's plain-English manual covers more than installation and setup. It even tells you how to manage your mass storage effectively. From GS/OS and ProDOS to backups and maintenance, it's all there, including a glossary of hard drive jargon. And no hard drive is easier to set up and use—install a card, connect two cables, and turn on the power. The Q Drive automatically configures itself to match your computer, and the latest system software is already installed.



LETS YOU SWITCH BETWEEN SYSTEM 5 AND SYSTEM 6!

Are you interested in upgrading to Apple IIGS System 6 but afraid of compatibility problems? Switch Hitter is your solution, allowing you to keep System 5 on your hard drive when you add System 6! A simple keyboard command selects the desired System version at boot time. Additionally, Switch Hitter lets you change your IIGS's System Speed and Startup Slot at boot time and start up a 3.5" or 5.25" disk, all without having to wait for your hard drive to boot into the Finder.

15 MEG. OF FREE SOFTWARE

The Q Drive comes with 15 MEG. of fantastic, ready-to-run software. A whole collection of games, utilities and graphic programs await you on your Q Drive!

THE ADVANTAGE OF SCSI

The Q Drive uses industry wide SCSI interface. Why is this important? Because SCSI Drives are compatible with both Macintosh and IBM computers. **If you change systems, you can take the Q Drive with you.**

FREE VIDEO!

The Q Drive comes with Quality Computers' exclusive *Q Drive Care and Feeding Video*. This video gives your easy, step-by-step instructions on everything from installation to the Finder. You will learn how easy it is to install your Q Drive and SCSI card and hook up the cables. You will see how the Q Drive automatically sets itself up for an Apple IIe or IIGS. Plus, you will get an in-depth tutorial on using the Apple IIGS Finder.

The Q Drive Care and Feeding Video is perfect for the new hard drive owner who wants to get started quickly.

If you're not sold on a Q Drive yet, but want to know more, you can order the Care and Feeding Video separately and watch it in the comfort of your own home.

Another way to learn more about the Q Drive is to ask for the *Q Drive Demo Disk*. The *Q Drive Demo Disk* runs on any Apple IIGS with 1.25 MEG of RAM. It is a self-running, animated tutorial on the Q Drive and how it can change your computing.

TWO YEAR WARRANTY

And remember, you're dealing with Quality Computers, the hard drive leader. The Q Drive comes with a 30-day money-back guarantee and a two-year limited warranty. If you run into a snag, our technical support staff is available for the cost of a phone call. A great drive and great support, at a great price—that's the Q Drive. Find out why it's the best Apple hard drive value—test drive one today!

AND NOW IT'S EVEN BETTER

We've spent the last three months gathering information and making improvements to the Q Drive that you wanted. The Q Drive GS is now optimized for performance. This makes the Q Drive 20% faster then it was. Also, if you get in a bind, System 5.04, System 6 and our Switch hitter utility are included on the drive. You can restore these in only five minutes of work. The Q Drive IIe software now sports a friendlier, more powerful interface, better software, and easier management. We've also added a sound player program that will copy files from an MS Dos disk to your Q Drive if you have the Apple 3.5" high density drive and controller.

THE Q DRIVE

$179.95

42 MEG .....
127 MEG 299.95
170 MEG 349.95
240 MEG 399.95

SCSI card not included!

Apple II High Speed SCSI Card

109.95

1-800-777-3642

Quality Computers™

20200 Nine Mile Rd.
St. Clair Shores, MI 48080

AN INTERVIEW WITH DAVE HECKER

Seven Hills Software

by Tara Dillinger

Dave Hecker is Vice President of Research and Development at Seven Hills Software

II ALIVE: How did old is Seven Hills? How did it get started?

HECKER: Earl Childers started Seven Hills more than ten years ago under a generic name, something like "Micro Software Publishing." It turned into Seven Hills Software about ten years ago. In the beginning, the company focused on software for educators. The first product was a program to make tests. Earl and I had a mutual friend who introduced us. Earl explained that he had this test generating program that had bugs, and the programmer was having some problems getting everything working. I told him I'd be interested in looking at it, so Earl gave me source code and a list of things he wanted fixed. "I'd like the first two things before a show that's coming up two days from now." Two days later I gave him a disk that had his entire list taken care of. We eventually decided to become partners in Seven Hills Software.

II ALIVE: What's your position at Seven Hills?

HECKER: I am officially "Vice President of Research and Development."

II ALIVE: What came next?

HECKER: The first order of business was to create a brand new program to generate tests (bigger, better, faster). We published several programs for educators that ran on all Apple II models, then eventually started publishing strictly for the IIGS.

II ALIVE: What was your first IIGS-specific program?

HECKER: Our first IIGS-specific program was GraphicWriter. DataPak, the original publisher, wanted to move out of publishing and become strictly a development company, and we were interested only in publishing, so it seemed like a perfect match. DataPak stayed behind the scenes, programming a major improvement to the original GraphicWriter, which became GraphicWriter III. We talked them into fixing the bugs in v1.0 so we'd have a very solid program in v.1.1 to run with for a while.

II ALIVE: What happened to DataPak?

HECKER: After they did version 1.1 of GraphicWriter III for us, they gave us the source code so we could continue the development ourselves. They're now a Mac-only programming shop that produces Mac development tools.

II ALIVE: Does Seven Hills have any plans for upgrading GraphicWriter III?

HECKER: We knew it would take a while to find the right person to take over the GraphicWriter III source code, and then even more time for that person to learn the code well enough to modify it without all heck breaking loose! But we have, in fact, found the right person for the job: Richard Bennett in Australia. He wrote Express (our print spooler) for us, and he's really a genius: a great programmer and a really nice guy. Version 1.2 should be much more System 6-friendly, using Apple's Resource Manager and having a "real" Font menu, movable modal windows, keyboard navigation in dialogs, and support for the System Clipboard. That last one is the biggest job; everything else is pretty much finished. I'm confident Richard will be able to pull it off!

II ALIVE: Didn't DataPak also have a program called Notes 'n' Files? What ever happened to that?

HECKER: Yes, DataPak did have "Notes 'n' Files." It was a simple database program with "file cabinets" (literally, a picture of 2 or 3 file cabinets were on the screen). You'd open the drawers of these cabinets, and inside were file folders with people's names, and inside each folder was a record for that person's name and address. If you wrote a letter, the letter would also appear in that person's file folder. Everything was very visual; lots of icons, even some animation. If you wanted to make a copy, for example, you'd drag something on top of a copier.

We looked at publishing that. It had some really innovative design features, but it also had its share of bugs. At that time, we didn't feel that we could take on two programs that needed significant work to meet our standards. We've considered publishing the program now, but the big thing is that Notes 'n' Files is pretty limiting in its record format, and that would be a lot of work to change. We're almost convinced that it would be way too much effort to bring it up to using System 6 and make it more flexible.

II ALIVE: What other programs did Seven Hills release in the early days?

HECKER: I'm not sure of the chronology anymore, but I think we came out with Font Factory GS after GraphicWriter III, then Disk Access. Font Factory GS is a program that lets you edit standard IIGS bitmap fonts. It was a big deal before Westcode's Pointless came out, because it let people create large sizes of existing fonts to get the best printed output. It's still useful for creating new, special-use fonts. Disk Access is an NDA that does all sorts of file functions (copy, rename, delete). It's really nice to be able to copy a file without having to go back to the Finder! We've been working on a major update to Disk Access II, and hope to finally get it shipping by the end of February.

II ALIVE: What are some of your more recent projects?

HECKER: Independence (printer drivers for Hewlett-Packard printers), Kangaroo (utility for navigating the standard "open" and "save" dialog boxes), TransProg III (program launcher that appears in the menu bar of IIGS applications), Express (a printer spooler for direct-connect printers). And, of course, The Manager, which lets you use several applications at the same time, like MultiFinder on the Macintosh.

II ALIVE: Does it work with any programs, or do you need to use special Manager-compatible software?

HECKER: Most existing IIGS software works beautifully, as long as it's GS/OS. You only need to do special programming if you want to take full advantage of the multitasking aspect of The Manager. This is especially important in when the program is going to do something that takes a long time. Most existing programs just start some long task and never give control back to the operating system. With a few simple modifications, the program could run the long task in the background.

II ALIVE: Is there going to be an update to The Manager?

HECKER: We're working hard to get The Manager v1.1 out the door. When it is available, it will be an inexpensive update because we'll want everyone to have it. Among other things, it fixes some problems people have been having with System 6.0.1, and it now uses IPC (Inter-process Communications) to tell programs when other programs are being "switched out" and so forth.

II ALIVE: I know you have some other products. What are they?

HECKER: Our other programs include ShoeBox (home information organizer based on HyperCard), SuperConvert (graphics conversion program), GATE and Space Fox (two neat games), and Super Menu Pack (a really neat utility). Our most recent release is Spectrum, a IIGS-specific telecommunications program. We started shipping Spectrum shortly before I left for Christmas vacation.

II ALIVE: What are some of Spectrum's unique features?

HECKER: Spectrum is IIGS-specific. It supports "drop-in emulations" (we include several standard online displays, such as color ANSI, ProTERM Special, and so forth, and new displays can simply be "dropped into" a folder to make them available in Spectrum). Each "online display" (as we call them) can operate on any screen display it desires. The color ANSI display works on the 640-mode super hi-res screen; ProTERM Special operates on the 80-column text screen (so it looks just like ProTERM).

II ALIVE: Tell us more about Spectrum's scripting capabilities.

HECKER: Spectrum has full scripting facilities. You can write almost anything, from simple macros to scripts that log in, read mail, etc. The script language is English-based. If you can guess what PLAY SOUND "Welcome" does, then you can write scripts in Spectrum. Spectrum has its own script commands, but it also recognizes "Talk Is Cheap" script commands, so you can run most TIC scripts.

II ALIVE: Sounds like it has everything!

HECKER: We knew that a lot of people are "entrenched" with their existing telecom software, so we tried to make people feel like they weren't "giving up" something to switch to Spectrum.

II ALIVE: I understand that Seven Hills gets most of its programs from other countries! How did this happen?

HECKER: Yes, we do! Our games came from Switzerland (Bright Software), Express came from Australia (Richard Bennett); Kangaroo, TransProg III, The Manager, and Super Menu Pack came from France (BrainStorm Software); and Spectrum came from England (Ewen Wannop)! Of course, we also have programmers here in the U.S.

I think we started with BrainStorm (the French guys) after we put out a message that said we were interested in publishing IIGS software in the U.S. I think we met Richard Bennett the same way, or through a mutual friend (I don't have such a great memory about these things). And Ewen Wannop, the author of Spectrum, got in touch with us because a mutual friend, Beth Willig, was aware of the program, thought the IIGS world needed a good telecom program, and told him to call us.

II ALIVE: What are some of the advantages to working with programmers in other countries? What are some of the obstacles? Are language barriers ever a problem?

HECKER: So far the only real disadvantage has been the time differences. When we got close to finishing The Manager, I was working super-strange hours so that I could test a version and post comments all day and we could work back and forth. We sometimes have a language program, but BrainStorm understands English far, far better than I understand French. We deal with it. Believe it or not, the language problem even exists with Richard and Ewen—those guys are always arguing with me about how to spell "color!"

It's been interesting to see the approaches that different people have to solving a problem. Not so much with Richard or Ewen , but definitely with BrainStorm. I'm not sure whether it's them, or if it's just the French way, but BrainStorm's approaches are visual and colorful, and technically very ingenious. At times I get frustrated, because I don't think like that.

II ALIVE: Any closing comments?

HECKER: I just want to say "Thanks!" to everyone who's been supportive of our efforts by actually buying the software. Oh, and look forward to a nifty new technology from Seven Hills in the first half of this year! ■

Seeing in Three Dimensions

by Mike Westerfield

It's been a long day. You're wired—but a little drained—as you unlock the front door and head into your apartment. The note on the counter explains the absence of your Significant Other. You're in for an evening alone.

After nuking a frozen dinner, you pop a CD in the player and slip the TV over your head. Picking up where you left off a couple of nights ago, you look out of the submarine window at some puffy white worms squirming under the beam of your light. You glance to the right as your tour guide explains that the worms ultimately live from the energy of the volcanic vents in the area, making them one of the very few organisms on Earth that don't depend on sunlight. You're so close you can see the pores in his skin. You reach out to the sub's controls to pan to the right, but nothing happens... Darn. Forgot the gloves. Slipping them on, you reach out again, this time gripping the sub's controls to move through the undersea world.

Far fetched? Not really. This is just one of the hundreds of things you'll soon be able to do with virtual reality. In fact, it's here today in the form of some fairly expensive video games.

This month, we're going to take a look at the key technology behind virtual reality: realistic 3D displays.

SEEING DISTANCE

Your brain is a very powerful pattern matching system that can function adequately with limited information. Here's an example. Draw a circle, put a couple of dots near the top and a curved line at the bottom, and you have this:

Would you expect a computer program to identify this scribble as a face? Of course not. But almost any child would. The power of your brain to process visual information has yet to be matched by any computer. In interpreting 3D reality (a.k.a. "life"), your brain knows:

- If one object overlaps another, the one that covers the other object is in front.
- Lighting and shading an object can make it look curved.
- Shadows give clues about where objects are in relation to the objects they cast shadows on.
- Closer objects are bigger. (Or: bigger objects are closer.)
- When objects are moving, the ones closest to you appear to move faster.
- If something is within a few feet of your head, your eyes will see two slightly different views of it.
- If you focus on something close to you, far-away objects are blurry, and vice versa.
- Moving your head (or your whole body) has the effect of moving everything around you.

And that's just the visual clues. Sound, smell, and touch also give you clues about how far away something is.

3D DISPLAY SYSTEMS

Surprisingly, most these cues work just fine on a normal flat computer screen or television set. The only ones that don't work on a computer screen are stereo vision, focus, and head motion. And, just as surprisingly, money is the only thing you need to add even those last three effects.

You've probably seen pictures of people wearing helmets or glasses that completely cover the eyes. These helmets have motion sensors that let the computer sense when you move your head, so that what you see changes just as if you were looking at real objects.

Focus is the toughest problem to solve. One focus-handling system uses a flexible vibrating mirror that reflects a monitor. Objects are displayed on the monitor at certain times, coordinated with the vibration of the mirror, to cause them to appear at different depths of focus.

The easiest problem to solve, though, is stereo vision.

STEREO VISION

Let's stop for a moment and make sure we understand just what stereo vision is. Hold up a finger a foot or two in front of your face, then cover one eye. Look at where your finger is against the background. Now, without moving your head or finger, cover the other eye, instead. You'll see your finger jump against the background. In a nutshell, stereo vision depends on seeing two slightly different pictures of the same thing, one with each eye. Your brain takes over from there, telling you how far away the objects are based on how much they shift from one view to the other.

There are a lot of ways to get this effect. With the helmets and wrap-around glasses that handle head motion, each eye sees a completely separate video display. At theme parks and with some expensive computer displays, two views are created, and a shuttering system or polarizing glasses sort out the images. These solutions work great but cost hundreds or thousands of dollars. Fortunately, there is a cheaper way to see stereo 3D. If you're in your 30s or older, you've probably already seen it. It's the glasses with two different colored lenses—the ones that make you look really cool (or, if you prefer, like a complete geek).

Taking a look at the cube picture, you can see just how this works. The computer draws two pictures, one in red and one in blue. It looks like a bit of a mess. The colored glasses have a red lens and a blue lens. The red lens lets you see the red picture but blocks the blue one, while the blue lens only lets the blue part of the picture through. Your brain sees two views of the object, which makes it happy. It sounds a little goofy, but after a few minutes, your eyes begin to adjust to the weird colors they're seeing and a three-dimensional picture emerges. The effect is good enough that some second grade kids I tried this with were reaching out to grab the cubes!

COLORED GLASSES

You're going to see a lot of excitement about this kind of 3D stereo display system

over the next few months. The reasons are simple: it's fun and it's cheap.

There are already three programming products out that use 3D glasses. 3D Logo for the Apple IIgs comes with 3D glasses. You can create still pictures and movies in 3D. The cube picture is one of the very first sample programs in the tutorial for 3D Logo. HyperStudio for the Macintosh uses HyperLogo, a very close cousin of 3D Logo, as its scripting language. (The picture of the molecule is from HyperStudio Mac.) HyperLogo is also available as a separate scripting language for HyperStudio on the Apple IIgs. By the time this article is in your hands, 3D Logo will be out for the Macintosh. All four of these languages also support a 3D turtle, which lets you draw standard 3D pictures and stereoscopic 3D pictures with ease.

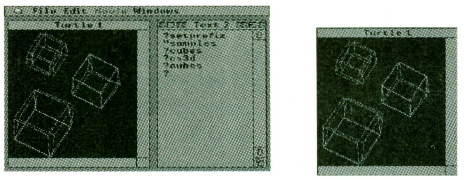


FIGURE 1

These programs give you a great introduction to 3D stereoscopic displays, but you don't have to buy one to experiment. You can get a pair of 3D glasses for $2 ($4 outside the U.S.) directly from the publisher:

Byte Works, Inc.
4700 Irving Blvd N.W. Suite 207
Albuquerque, NM 87114
(505) 898-8183

With the 3D glasses, you'll be able to see the 3D pictures in this article. If you're a programmer, you can create your own 3D displays and programs, too.

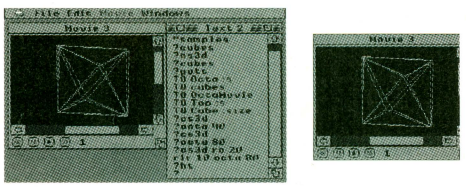


FIGURE 2

3D TURTLE GRAPHICS

Back when graphics displays first started to get pretty good on desktop computers (but before the painting and drawing programs were worth the money you'd have to spend to buy one), "turtle graphics" and the Logo language were one of the most popular ways to play with graphics on your computer. Logo is still a great choice as a graphics language, although it's good for a lot of other things, too. We'll spend the rest of this article playing with 3D turtle graphics using Logo. By the end, I think you'll start to see why Logo and turtle graphics are better for 3D graphics than, say, Pascal.

Most of us are pretty familiar with Cartesian coordinate systems but not with turtle graphics, so let's start with some quick fundamentals. Turtle graphics are based on movement, rather than the positions of Cartesian coordinates. You "drive" the turtle around the screen, pretty much like you'd drive a car, and the turtle draws lines as it moves. The basic commands are to move forward or back, and to turn left or right. When you're moving, you use a single parameter to tell how far to move. When you turn, you tell how far to turn in degrees.

Here's how you would draw a square that's 30 pixels on a side:

```
Forward 30
Right 90
Forward 30
Right 90
Forward 30
Right 90
Forward 30
Right 90
```

Adding a little Logo, we can draw the square with a lot less code using a repeat loop.

```
Repeat 4 [Forward 30 Right 90]
```

There are a lot of bells and whistles, like changing the color or size of the pen, but these simple commands are really what turtle graphics are all about. Compared to Cartesian coordinates, most people find that it's easier to visualize and draw shapes with turtle graphics. Turtle graphics also makes it easier to draw the same object in several places or in different orientations. For example, to tip the square 45°, you start by tipping the turtle, then draw the same object you drew before:

```
Left 45
Repeat 4 [Forward 30 Right 90]
```

Let's slow down and think about what we just did, or rather, what we didn't do. If you have a square in Cartesian coordinates and need to rotate it by 45°, you need to know enough trigonometry and linear algebra to rotate points in a coordinate system. We didn't do that. If you want to rotate an object with four points, you have to solve a pair of simultaneous trigonometric functions four times. If the object has 20 points, you have to solve those equations 20 times. We didn't do that, either—and with turtle graphics, we don't care how complex the shape is. When we turn the turtle, we turn the whole shape. That's a kind of flexibility that's hard to match in Cartesian coordinates.

The new multimedia Logos add to traditional turtle graphics in a simple but powerful way. Instead of just being able to turn left or right, you can also RotateOut, which turns the turtle "up"; RotateIn, which turns the turtle "down"; and RollLeft and RollRight, which doesn't change the direction the turtle is pointed, but does spin it around that "axis." With these simple additions, the turtle can take to the air.

To see how this works, let's create a line drawing of the house in Figure 4. Concentrating just on the front face of the house, all we really have is a square with a pointy top. With a quick check back to the Pythagorean Theorem to figure out the length of the lines that form the roof, we get

```
Make "roof Sqrt 2 * sqr :width / 2
Forward :height
Right 45
Forward :roof
Right 90
Forward :roof
Right 45
Forward :height
Right 90
Forward :width
Right 90
```

That last turn isn't really needed to draw the picture, but it's a handy trick in turtle graphics. When you draw something, it's a good idea to leave the turtle where it was when you started.

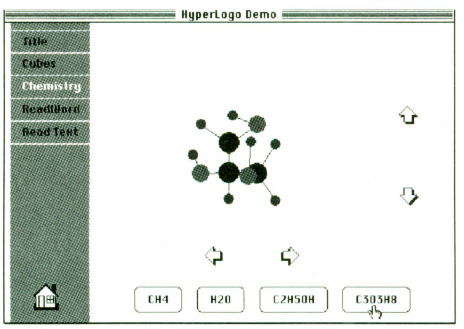


FIGURE 3

Now that we have the front side of the house, adding the walls and back side is pretty easy. Instead of just drawing a line on the front of the house, we'll write a procedure to draw both the front and back side, and connect them with a third line. Then, as we draw the front of the house, the sides and back get drawn as a side effect. Figure 5 shows the house being drawn step by step, so you can see how it works. Here's the two Logo procedures that drew the house.

```
TO House :height :width :depth
Local "roof
Make "roof Sqrt 2 * sqr :width / 2
Make "width Round ( 2 * :roof * sin 45 )
Frame :height :depth
Right 45
Frame :roof :depth
```

```
Right 90
Frame :roof :depth
Right 45
Frame :height :depth
Right 90
Frame :width :depth
Right 90
END

TO Frame :height :depth
RotateIn 90
Forward :depth
RotateOut 90
Forward :height
PenUp
Back :height
RotateIn 90
Back :depth
RotateOut 90
PenDown
Forward :height
END
```

Even if you don't know Logo, the commands are easy enough to follow that you can see how it works.

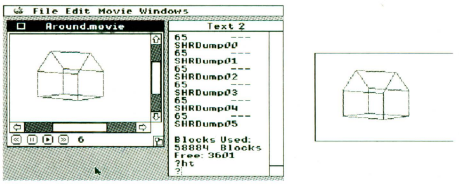


FIGURE 4

Now go back and take a closer look at that house. The sides in the back of the house are shorter, just like they should be, since they are farther away. Now look back at the code that created the house. Close inspection of our code reveals that we didn't do that. The 3D turtle did it for us. True, it's not all that hard to add perspective using Cartesian coordinates, but you have to do all the math yourself. With 3D turtle graphics, on the other hand, we can worry about the object—and let the language itself take care of the coordinates and the perspective.

MAKING IT MOVE

Adding motion really helps when you're looking at a 3D object on the computer screen. Turning our house into a movie is pretty easy. (A movie is simply a series of still pictures which are stored in a format that can be played back very quickly, leading to the illusion of motion.) The idea is to draw the house, then rotate the turtle slightly, add a new frame to a movie, and draw the house again. It's so simple in 3D Logo that you can create a movie of a rotating house with just two lines of code:

```
Repeat 36 [House 30 45 60 AddFrame
RollLeft 10]
DeleteFrame
```

AddFrame adds a new frame to a movie, so each house is drawn on a different frame. At the end, we delete the last frame. Why? Because it's the same as the first frame—the house has been rotated 360 degrees by this time. If we repeat this animation over and over, the house would seem to stop for an instant when it comes back to its starting point due to the repeated frame. (We could have just repeated the loop 35 times, in case you're wondering.) Once the movie is completed, we can play it back with 3D Logo, HyperStudio, or even Platinum Paint.

This is the same way that the 3D graphics in TV shows like seaQuest and Babylon 5 are created. The software is somewhat more sophisticated, but everything is generated one frame at a time, just like we're doing. An individual frame for one of these TV shows can take an hour or more to draw! Only when the finished "movie" is played back does the motion appear smooth and lifelike.

FIGURE 5

The program that created the movie is a little more complicated. Most of the mess comes from trying to make the house rotate around its center, instead of a corner. Here's the program that created the movie.

```
TO FlyAround
HideTurtle
ClearScreen
SetPC 4
PenUp
SetPos [0 -25 -60]
RotateOut 5
Repeat 36 [AroundFrame]
DeleteFrame
END

TO AroundFrame
! [Move to the middle of the
house]
PenUp
RotateIn 90
Back 30
Right 90
Back 22
Left 90
RotateOut 90
PenDown
! [Draw the house]
House 30 45 60
! [Move back to the corner]
PenUp
RotateIn 90
Forward 30
Right 90
Forward 22
Left 90
RotateOut 90
PenDown
! [Rotate and add a frame]
RollLeft 10
AddFrame
END
```

TRUE 3D

All of the stuff we've done so far creates flat pictures. Sure, we've got perspective, but what about the true 3D you see in some of those pictures? Surely that must be harder to do—not!

All we have to do is tell 3D Logo to use true 3D, and everything else is the same. To turn our flat movie into a house that rotates in front of the computer screen, all we have to do is change ClearScreen to ClearScreen3D, like this:

```
TO FlyAround
HideTurtle
ClearScreen3D
PenUp
SetPos [0 -25 -60]
RotateOut 5
Repeat 36 [AroundFrame]
DeleteFrame
END
```

If you look closely, you'll see that the SetPC command was also removed. Since 3D pictures use color to separate the images, you can't use color in your drawings. SetPC still works, but you get 3 shades of gray and black instead of 16 colors.

FURTHER READING

There are a lot of popular books and magazine articles that talk about virtual reality. In fact, there are so many new books published each year that I'm not going to list any specific ones here. A trip to your favorite bookstore or library will turn up quite a few good choices.

If you want to create your own 3D programs from a language that doesn't have a 3D turtle, like Pascal, it's easier than you think. All you really do is draw two pictures from slightly different viewpoints on the same screen. Use OR mode for drawing. Draw one picture with about 75% intensity on the red gun, and the other with 100% blue and about 30% green. In fact, the hard part is drawing a perspective picture. There's a lot of good books that cover the principals 3D drawing you need to handle perspective. The one I recommend is:

Computer Graphics, Principles and Practice
Foley, van Dam, Feiner, Hughes
Addison-Wesley, 1990

If you want to play around with 3D pictures quickly, or you don't want to put the time into developing your own 3D routines, try 3D Logo. Its simple 3D turtle graphics system makes it the perfect place to start. In fact, I like to play around with graphics a lot, and I've switched almost completely from Pascal to Logo for both graphics and artificial intelligence. ■

Hyper Solutions

by Sheane Meikle

Creating the perfect multimedia presentation can be fun and enjoyable when you have the proper tools to work with. In this article, I will briefly describe the various tools available for creating your hypermedia works of art.

First, though, it's important to understand what hypermedia is. The concept of hypermedia is based on two principles: the linking of information in a myriad of ways, and interactive access to that information. In other words, a hypermedia presentation contains information can be accessed in virtually any way the way the user desires.

A hypermedia presentation of one of Shakespeare's plays might include pop-up notes on "period" vocabulary, maps of the area in which the play is purported to take place, and details from Shakespeare's own life which might further illuminate the play.

Hyper-pioneer Ted Nelson conceived the basic concept of hypermedia, but his original vision was of a linked and interactive body of text, which he called hypertext. His hypertext system would be globally based and globally accessible—anyone could explore any avenue in the global knowledge base, and jump from one topic to related topics at will. While today's hypermedia implementations are not quite as far-reaching as Nelson's vision, the power of the linking concept, combined with the involvement of multimedia (presentation of information in several formats—text, graphics, video, audio) gives us plenty of creative power.

GETTING STARTED

The first thing you'll need to create that masterpiece is a good hypermedia authoring package. Whether you have an Apple IIe, IIc, Laser 128, or an Apple IIGS, there's a package that will meet your needs.

There are three hypermedia packages for the 8-bit Apple. Tutor-Tech (from Techware) is the most widely used, and, in fact, it predates Apple's own HyperCard, which is generally considered to be the "father" of this genre. With its standard Apple user interface and its support for a wide variety of media devices, including laserdisc players and industrial VCRs, it is both versatile and easy to use.

Hyperscreen (from Scholastic) is another 8-bit hypermedia package, and features built-in support for Pioneer laserdisc players and the Apple Video Overlay Card. While it isn't as feature-rich as TutorTech, it's significantly less expensive. If you're on a budget, Hyperscreen may be what you're looking for.

Media Magic (from Toucan) was designed with children in mind. It lacks support for laserdisc players, so it may not be the best choice for adults, but it is by far the easiest program for young children to use in creating their own multimedia works of art. Since half the fun of multimedia is in creating your own, teachers may want to check this one out.

Although all of these programs will work on an Apple IIGS as well as the IIe or IIc, none of them take advantage of the superior graphics and sound of the IIGS. The IIGS has two multimedia authoring packages available that do allow you to use all the power of your IIGS to full advantage.

HyperStudio is currently the hypermedia program of choice among IIGS users. It's easy to use, and has a formidable user support network (HyperStudio users seem exceptionally eager to share their work with others). The program itself has built-in support for laserdisc players and digitized sounds, both of which are indispensable for IIGS multimedia authors.

HyperCard GS is a very powerful and well-written hypermedia presentation tool; however, as it's not as easy to use as HyperStudio, and has no built-in support for media devices such as laserdisc players. Its primary advantage is that it's nearly identical to the Macintosh version of HyperCard, which may be useful if you have access to Mac HyperCard

stacks and want to use them on the IIGS. (A conversion tool, called HyperMover, is available, but converted stacks still require some touch-up.) I would not recommend it for first-time multimedia authors, although it does offer plenty of power for veteran hyper-heads. If you have any kind of programming experience you should have no problem with HyperCard GS.

ADD-ONS

Once you have decided which authoring software to use, take a look at what additional hardware, if any, your system needs to spice up your presentations. There are products useful for every budget.

Laserdisc players may seem expensive at first glance, but in the long run they're well worth the investment, because they open your presentations to a world of information stored on laserdiscs. Each laserdisc is capable of storing up to one hour worth of video, or more than 50,000 still images, any of which can be displayed under computer control. Most Apple II multimedia authoring programs support the Pioneer line, although some programs also support Sony players. Not all laserdisc players are computer controllable; make sure you get one intended for "educational" or "multimedia" use.

Scanners are to multimedia what a calligraphy pen is to writing: you can live without it, but after you've seen what can be done with one, you'll wonder how you ever did without it. Scanners allow you to bring "real-world" graphics into your presentations. Several scanners are available for the Apple II. The ThunderScan turns your ImageWriter into a full-page scanner; you roll your printed document into the printer and replace the ribbon cartridge with a scanning head. More popular are hand-held scanners, such as the LightningScan (from ThunderWare, the same company that produces the ThunderScan) and the Quickie (from Vitesse). The Quickie scanner comes with both ProDOS and GS/OS software, so you can use it on an Apple IIe or IIGS. Vitesse is planning an upgrade for the Quickie to enable it to scan in full color. If you own an Apple IIGS and like the idea of adding a full-page scanner, you may consider adding the Apple Flatbed Scanner, although its price is high, and the IIGS software available for scanning images is somewhat crude.

Video digitizers are another way to add graphics to your presentations. Video digitizers take video pictures (from any video source, including VCRs, video paint tablets like VTech's Video Painter, and still video cameras like the Canon Xap 250) and create an Apple II graphic file. Computer Eyes makes two video digitizers for the Apple II line of computers—one for the IIe, which supports only black and white digitizing, and one for the IIGS, which supports full color. IIGS users have a second choice; the Enhanced Vision Plus Card, which is the only digitizer that supports single-frame capture (that is, the image can be moving rather than still) and aa "movie" mode which allows capturing video clips in addition to single frames.

If you get a laserdisc, Apple's Video Overlay Card is almost a necessity, as it's the only way to display computer graphics and external video on one monitor. Normally, the retail price of the card has kept it out of most users' systems, but these days, used and surplus Video Overlay Cards are very affordable.

Stereo cards and voice synthesizers, although not a necessity, can add the spark you've been looking for to your presentations. Imagine your Beethoven stack playing his 5th symphony in full stereo while the screen displays the score, or being able to hear to a book being read aloud as you follow along on-screen. The IIGS has superb built-in sound capabilities and thus doesn't require a voice synthesizer card, but adding a stereo card (such as the Sound Meister) and external speakers can greatly improve the realism of sounds. Adding speech capabilities to 8-bit Apples is as simple as adding an Echo speech card, which will bring your text to life.

GET BUSY

With a little imagination, the right software, and some assistance from special hardware, you can make your own multimedia magic! ■

Sources: Many of the products mentioned in this article are available at discount prices from Quality Computers.

Tutor-Tech $195
Techware Corp.
P.O. Box 151085
Altamonte Springs, FL 32715-1085
1-800-34-REACH
407-695-9000

Media Magic $99.
Toucan/Queue
338 Commerce Dr.
Fairfield, CT 06430
800-232-2224
203-335-0906
203-336-2481 Fax

HyperCard GS $69
Apple Video Overlay Card $429
Apple Flatbed Scanner $949
Apple Computer Inc.
20525 Mariani Ave.
Cupertino, CA 95014
408-996-1010
800-538-9696

Quickie $299
Vitesse Inc.
3909 Amar Rd,Suite 2A
La Puente, CA 91746
818-813-1270
818-813-1273 Fax

Vision Plus Enhanced $209
Alltech Electronics Co
602 Garrison St.
Oceanside, CA 92054
800-995-7773
619-721-7733
619-721-2823 Fax

Video Painter $100
VTech Computers
800 North Church St.
Lake Zurich, IL 60047
708-540-8911

HyperScreen $99.95
Scholastic Software
730 Broadway
New York, NY 10003
212-505-3000

HyperStudio $179.95
Roger Wagner Publishing
1050 Pioneer Way, Suite. P
El Cajon, CA 92020
800-421-6526
619-442-0522
619-442-0525 Fax

LightningScan $295
ThunderScan $219
Thunderware Inc.
21 Orinda Way
Orinda, CA 94563
415-254-6581

ComputerEyes GS $249.95
ComputerEyes/2 $129.95
Digital Vision
270 Bridge St.
Dedham, MA 02026
617-329-5400

SoundMeister
SoundMeister Pro
Econ Technologies
P.O. Box 195356
Winter Springs, FL 32719
407-365-4209

XapShot RC 250 $795 (discontinued)
XapShot RC 360 $1295
Canon USA
100 Jamesburg Rd
Jamesburg, NJ 08831
908-521-7000

Using the Freeware Comm.System Program

by Phil Shapiro

With the price of modems continuing to drop, and the pricing of online information services falling to remarkably affordable levels, more and more Apple II users are taking the plunge into the wide world of telecommunication. However, many first-time modem users are justifiably reluctant to make an investment in a commercial Apple II communications program until they've "got their feet wet" exploring the online world. After all, ProTERM 3.1, the program I use, costs $80 from mail-order retailers.

Thankfully, Jim Ferr, a top-notch Apple II programmer from Toronto, Canada, has created a free Apple II communications program, Comm.System, that offers a lot of basic functionality. Comm.System runs on almost every Apple II ever made. You can even use it in 40-column mode on an old 64K Apple II+ computer, if that's what you have.

GETTING STARTED

After you boot the software, you'll see a simple menu screen with several choices (Figure 1). Commands are issued by pressing the Open-Apple key along with the corresponding first letter of that command. You can re-display the menu by pressing Open-Apple ?.

```
B)aud rate (skip to next)
C)lear recording buffer
D)ial
E)cho
H)angup
L)ist current directory
N)ew Prodos prefix
P)rodos text file lister
Q)uit Comm.System
R)ecording buffer on/off
T)ransfer a file via XMODEM
V)olume online display
W)rite recording buffer
Z)ap (delete) a file
?) For this menu
```

Figure 1: Comm.System Opening Screen

Let's walk through a sample telecommunications session to see how you might use Comm.System. We'll assume that you've connected your modem to your Apple's serial port (or card), that your modem is correctly hooked up to your phone jack, and that your teenager is not using the phone.

SETTING THE BAUD RATE

The first thing to do is to check Comm.System's baud rate—it should be set to the same speed as the maximum baud rate of your modem. The default baud setting is 2400 baud. You can change this setting to a higher or lower setting by pressing the Open-Apple key and the letter B at the same time. Doing chooses the next higher baud rate setting (the highest rate supported by Comm.System is 19,200).

In other words, if you have a 1200 baud modem, you'll need to press Open-Apple B five times. The first press will select 4800 baud, the second 9600 baud, the third 19,200 baud. The fourth keypress will "wrap around" to 300 baud, and the final keypress will select 1200 baud, the desired rate. (It takes far longer to describe this step than to actually do it.) The current baud rate is shown at all times at the left side of the status bar at the top of the screen.

MAKING THE CONNECTION

Once the baud rate is correctly set, you're ready to dial the electronic bulletin board system (BBS) or information service you want to connect to. To dial, press the Open-Apple key and the letter D at the same time. Comm.System will display a dial prompt (Figure 2) at the bottom of the screen.

```
CS: Enter the phone number to
dial, or Return to exit.
```

Figure 2: Comm.System Dial Prompt

The dial prompt is typical of the way Comm.System communicates with you during your online sesion. The letters CS signify that Comm.System is the originator of the message, to distinguish it from messages sent by the other computer you're connected to.

At the dial prompt, type the digits of the phone number you'd like to dial. There's no need to separate the digits in the phone number by dashes. If you're dialing a long-distance phone number, don't forget to include the digit "1" before the area code. Press the Return key after typing the phone number.

Your modem will go "off hook" (similar to picking up the handset on a phone) and begin dialing out. If your modem has a speaker (most do) and you haven't specifically turned it off using a modem command, you'll hear the familiar dial tone followed by the touch-tones of the modem. A few seconds later, you'll hear either a ringing tone or a busy signal. In the latter case, your modem may automatically hang up the phone shortly and display the message "BUSY" on your screen. If your modem doesn't automatically detect the busy signal, press Return to hang up the phone.

If the number isn't busy, you'll hear one or two rings, and the other modem will pick up the line. (If the phone keeps ringing, or if a person answers, double-check the number and try again. If the system still doesn't answer, contact the system operator to see if there's some sort of problem at his end.) After the other modem answers, you'll hear a high-pitched tone followed by some static, which will stop abruptly as the message CONNECT 2400 appears on your screen (the number will depend on the actual baud rate you're using).

You are now connected to the BBS or information service. Usually, you'll see a short message telling you the name of the system you've reached, and you'll be prompted for a user ID and password. On public BBSs, you usually have to type "new" or "register" to sign up for an account the first time you call. You might also be able to log on without an account by typing "guest" or "visitor." Instructions for first-time users should be included in the BBS's welcoming message. In the case of a commercial information service, you'll find sign-on instructions in the information packet the service mailed to you.

After you have connected and logged in, you can navigate through the menus of the BBS or information service. Every BBS has its own commands, but online help information is often available by pressing the question mark key or by typing the word "Help" and pressing Return.

CAPTURING TEXT

One of the most important features of any communication program is a "recording buffer." The recording buffer is a temporary storage area the program uses to store text that is scrolling off your screen. This allows you to save the information you receive so that you can later review it or print it with your word procesing program. With Comm.System, you activate the recording buffer by pressing Open-Apple R. (Turn it off by pressing Open-Apple R again.)

When the recording buffer is turned on, the letter "R" appears immediately to the right of the baud rate indicator in Comm.System's status line. As the recording buffer fills up with text, the numbers next to the letters "Buf" will change, indicating that the buffer is filling up with data.

Comm.System can store up to 20 K (10-20 full screens) of text in the recording buffer. (It usually takes me 4-5 minutes to fill the buffer.) Once the buffer is full, it is automatically turned off, and additional text is not placed in the capture buffer. This might cause you to lose important information as it scrolls off the top of your screen. To avoid this, keep a watchful eye on the recording buffer indicator. When the indicator hits 80 or 90 percent, stop what you're doing and write the recording buffer to disk.

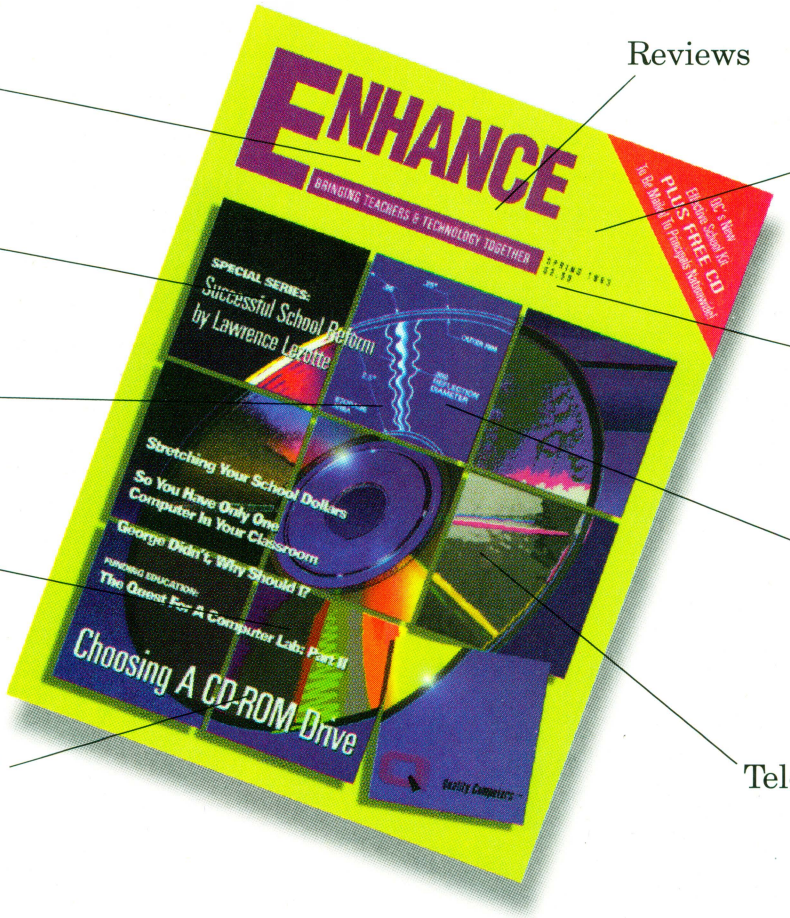
To write the recording buffer to disk, press Open-Apple W. Comm.System will prompt you for a file name. You can use any legitimate ProDOS file name; the file is saved as a TXT (text or ASCII) file, which can be loaded into any word processor or even sent back out through your modem to another BBS or modem user. After Comm.System writes your recording buffer to disk, it automatically clears the buffer, thereby allowing you to capture more text. If you decide not to save the buffer, press Open-Apple C instead of Open-Apple W to clear it without saving it.

FILE TRANSFERS

In the next installment, I'll discuss transferring files using Comm.System's Xmodem features. Until then, I'll see you online!

Readers of "II Alive" may obtain a copy of Comm.System by sending six first class stamps to: Balloons Software, 5201 Chevy Chase Parkway, NW, Washington, DC 20015. Please specify disk size. ■

Free help for teachers



Grant writing tips

Multimedia

Technical Tips

New Products

Complete catalog of educational hardware and software

Reviews

Competitive Grants

Success Stories

Fund raising ideas

Telecommunications

Only Quality Computers gives you *Enhance*—our free publication designed to give computer-using teachers the kind of information they need to make an impact in their classrooms. Four times a year, *Enhance* gives you the kind of information you need to make your Apple the effective work/educational tool it was designed to be, like Product Reviews, information about Funding Your Classroom, Multimedia, Technical Tips, New Product Announcements, and more. You also get our complete catalog—full of all the hardware and software you need for Apple II, Mac and IBM computers. Quality Computers has been publishing *Enhance* for over 6 years. It's free to all QC customers, or you can call for your free subscription today!

Quality Computers™

1•800-777-3642

20200 Nine Mile Rd. St. Clair Shores, MI 48080

computer clubs

To get more information about the Apple User Group nearest you

If you want your computer club to be mentioned in II Alive, send a letter describing your club to:

Quality Computers
c/o Bob DeMaggio
P.O. Box 349
St. Clair Shores, MI
48080

ALASKA

Anchorage Apple Users Group
P.O. Box 110753
Anchorage, AK 99511-0753
Contact: Timothy Odell 373-7459

Apple Mousse User Group
P.O. Box 80176
Fairbanks, AK 99708
Contact: Jesse Atencio (907) 456-1333
$15 per year

ARIZONA

Tucson Apple Core
P.O. Box 43176
Tucson, AZ 85733-3176
Contact: Clay Evitts (602) 296-5491 days
$20 per year
BBS: (602) 882-2945

ARKANSAS

Apple Tree of the Ozarks
HC 62 Box 540
Flippen, AR 76234
$20 per yr; $15 initiation

CALIFORNIA

Apple Corps of San Diego
P.O. Box 87964
San Diego, CA 92138-7964
Contact: Tom Kasner (619) 484-0695

Appleholics Anonymous Apple II User Group
3875 Telegraph Rd. Suite A202
Ventura, CA 93003
Contact: Tony Pizza (805) 482-3453
$12 per year

AppleJacks of Inland Empire
Contact: Larry (909) 864-2309
BBS: (909) 369-6637

Apple Sac
P.O. Box 254645
Sacramento, CA 95825
Contact: Heidi Bylsma (916) 486-8326
New $30, Renewal $25
BBS: Future Vision (Metal) 481-1096

Fresno Apple II Computer Users Group
P.O. Box 1682
Clovis, CA 93613

GravenStein Apple IIGS Users Group
P.O. Box 964
Petaluma, CA 94953-0964
$25 per year per family
BBS: (707) 585-0865

Newton's Fruit Users Group
14639 Cashew St.
Hesperia, CA 92345-2702
BBS: (619) 956-2631

Orange Apple Computer Club
25422 Trabuco Rd., Bldg 105, Ste-251
El Toro, CA 92630
(714) 770-1865
$25 per yr

Original Apple Corps
P.O. Box 90065
Los Angeles, CA 90009
Contact: Fred Duffy (310) 475-8400
BBS: (310) 454-4660

Peninsula Apple User Group
Redwood City, CA
Contact: Roger Lakner 367-8657

P.I.E. (Programming & Interfacing Enthusiasts, Inc.)
P.O. Box 2185
Santa Clara, CA 95055
BBS: (408) 733-46701

Tri-City Apple User Group
P.O. Box 93123
Pasadena, CA 91109
(213) 258-0281
$20 per year
BBS: (818) 288-5640

Tri Valley Apple II User Group (TVAIIUG)
P.O. Box 2096
Dublin, CA 94568
Contact: Jerry Carleton (510) 828-0959

Valley Apple Computer Club
12978 Crowley St.
Arleta, CA 91331
Contact: William Trent (818) 988-1752
$24
BBS: (818) 504-9750

COLORADO

Computer C.A.C.H.E. (Colorado Apple & Compatable Home Enthusiasts)
P.O. Box 37313
Denver, CO 80237-7313
$18 per year
BBS: (303) 280-9453

Denver Apple Pi
P.O. Box 280668
Lakewood, CO 80228-0668
$18 plus $7 new member application fee
BBS: (303) 421-8605

CONNECTICUT

Applelist Computer Club
P.O. Box 6053
Hamden, CT 06517

Appleshare
P.O. Box 200
Greens Farms, CT 06436
Contact: Joan Hoffman (203) 259-8513
$20 per year family membership

Hartford User Group Exchange (H.U.G.E.)
P.O. Box 380027
East Hartford, CT 06138-0027
Contact: Edward Sposito (203) 635-0557
$24
BBS: Bit Bucket (203) 257-9588

SMALL User Group
119 Red Stone Hill
Plainville, CT 06062-2608
Contact: Linda Frechette (203) 747-2036

DELAWARE

Delaware Valley
Apple IIGS Computer Club
P.O. Box 5956
Wilmington, DE 19808-0956
$20

FLORIDA

Apple Computer Enjoyment Society (A.C.E.S.)
P.O. Box 291557
Fort Lauderdale, FL 33329-1557
1-800-924-4709 & (305) 584-5923
$30 1st year; $25 renewal

Fort Lauderdale Chapter (A.C.E.S.)
see above
BBS: (305) 431-5189

South Broward Chapter (A.C.E.S.)
see above
BBS: (305) 431-5189

West Palm Beach Chapter (A.C.E.S.)
see above
BBS: (407) 483-8426

Apple Tree of Central Florida
2810 Nela Ave.
Orlando, FL 32809
$35 annually
BBS: 366-0156

Spring Hill Apple Computer Enthusiasts (SPACE)
11418 Long Hill Court
Spring Hill, FL 34609
$20
(904) 686-7069

SunCoast Apple Tree
P.O. Box 7488
Clearwater, FL 34618
$25 per year
BBS: (813) 347-5104

SWACKS Apple Computer Club
c/o L.E. McLaughlin
384 Lancaster Ave.
Port Charlotte, FL 33952
$20 per year; $12 for Newsletter only

GEORGIA

Computer User Group (Any Type)
110 Peachtree Rd.
Rockmart, GA 30153
Contact: Donald Sullivan
(404) 684-5909
$15 per year

HAWAII

Hawaii Macintosh & Apple Users' Society
P.O. Box 29554
Honolulu, HI 96820-1954
Contact: Eugene Villaluz (808) 735-3750
$24 per year

IDAHO

Apple Boise User Group (ABUG)
934 River Park Lane
Boise, ID 83706
Contact: George Nummy (208) 344-9506
$12 per year

ILLINOIS

Apple Tree Computer Club
P.O. Box 823
Homewood, IL 60430-0823
Contact: Mary Ann Trzyna
(815) 469-1961
$28 family, $14 auxiliary per year
BBS: (708) 481-2211

Aurora Area Apple Core
P.O. Box 2901
Aurora, IL 60507-2901
Contact: George Murphy (708) 357-0759
$20

DAUG (Dupage Apple Users Group)
P.O. Box 294
Downers Grove, IL 60515

Lincolnwood Apple Users Group
2926 Leanne Court
Northbrook, IL 60062
(708) 480-8812

Northern Illinois Computer Society
P.O. Box 547
Arlington Heights, IL 60006
New $30, Renewal $24,
includes entire family
BBS: (312) 351-4374

Northshore Apple Users Group
c/o Babette Simon
5331 Carol
Skokie, IL 60077
Contact: Babette Simon (708) 967-7483
Family $20 per year

INDIANA

Apple Pickers
P.O. Box 20136
Indianapolis, IN 46220
Contact: Vincent Roth (317) 357-6207 after 5
New $25, $30 per family per yr;
Renewal $20
BBS: (317) 897-1989

Apple Users Group of Michiana
P.O. Box 11398
South Bend, IN 46634-1398
$15 per year

Fort Wayne
Apple Computer Users' Group
P.O. Box 10004
Ft. Wayne, IN 46850-0004
$15 per yr

Northwest Indiana Apple Users Group
7526 Independence St.
Merrillville, IN 46410
Contact: Nate Gaglilardi 762-6818
$14 per yr

IOWA

Applebyter Computer Club
P.O. Box 2092
Davenport, IA 52809
Contact: Shawn Beattie
BBS: 788-0314

Green Apple User Group
P.O. Box 171
Waterloo, IA 50701
Contact: Virgil Berg (319) 232-1842
$15 per year

Metro Apple Computer Hobbyists
P.O. Box 176
Crescent, IA 51526-0176
$20/yr

Roland Story Apple User's Group
P.O. Box 407
Roland, IA 50236-0407
Contact: Dave Graham (515) 388-4700
$10 per year

KANSAS

Apple Bits Users Group (ABUG)
P.O. Box 368
Shawnee Mission, KS 66201
Contact: Sandy Brockman
(816) 523-1007
$30 first year; $25 renewal

Apple Tree User Group, Inc.
306 West 5th Street
Larned, KS 67550
Contact: Shane Blanchett
$15 Initiation Fee; $20 Individual, $25 Family

Parsons Apple Users Group
P.O. Box 1081
Parsons, KS 67357

Plane Apple User's Group
P.O. Box 47396
Wichita, KS 67201
Contact: Duston James (316) 685-2174;
Steve Specht (316) 265-5539
$24 per yr
OMEGA PRO (316) 721-7735

Topeka Area Apple Group
5419 SW 28th St.
Topeka, KS 66614-1713
Contact: Ron Hurd (913) 272-5033
$15 family

KENTUCKY

Louisville Computer Society
P.O. Box 9021
Louisville, KY 40209-9021
$26

MAINE

Northwoods IIGS User Group
P.O. Box 550
Milford, ME 04461-0550
$15 per year

MARYLAND

Maryland Apple Corp.
Contact: Dave Smythe (410) 882-9234

Washington Apple Pi, Ltd.
7910 Woodmont Ave., Suite 910
Bethesda, MD 20814
(301) 654-8060

MASSACHUSETTS

Cape Cod Apple Users Group
P.O. Box 48
South Dennis, MA 02660
Contact: Ron Church (508) 540-2517
$20 per yr

MICHIGAN

Apple P.I.E.
P.O. Box 5055
Warren, MI 48090-5055
$25/yr

Apples for the Teachers
161 Cass Ave.
Mt. Clemens, MI 48043
Contact: Jim Wenzloff (313) 469-7206

Flint Apple Club
P.O. Box 460
Flint MI 48501
$20 per year
BBS: (313) 230-7754

Grand Rapids Apple II Users Group
P.O. Box 1811
Grand Rapids, MI 49501

groups specializing in a certain subject, or how to start a new group, call Apple Computer 1-800-538-9696, ext. 500. or write to: The Apple User Group Connection • Apple Computer, Inc. • 20525 Mariani Ave., M/S 36AA • Cupertino, CA 95014

Lansing Users Group
P.O. Box 27144
Lansing, MI 48909-7144
$18

Michigan Apple Computer User Group
P.O. Box 567
Warren, MI 48090-0567
$25 to start, $20 renewal per year

Midland Apple Club
1710 West St. Andrews
Midland, MI 48640

MINNESOTA

Lake Superior Apple Users Group
Duluth, MN
Contact: Don Jacobson (218) 723-4349

Minnesota Apple Computer Users Group
P.O. Box 796
Hopkins, MN 55343
Contact: Rand Sibet (612) 566-8571
$25 per year, $15 student

MISSOURI

American Public Domain Club
5821 Kerth Rd.
St. Louis, MO 63128
Contact: Michael Young
$12

Apple Squires of the Ozarks
P.O. Box 3986
Springfield, MO 65808-3986
Contact: Doug Kahler 833-4362
$15 initiation fee; $20 individual,

Monsanto Apple Users Group
2 Pem Road
St. Louis, MO 63146-5407
Contact: John B. Wilson (314) 694-2447
(Leave voice mail)
GEnie E-Mail Address: JBWILSON
$10/yr–Monthly Newsletter

MONTANA

Billings Apple Users Group
P.O. Box 23005
Billings, MT 59104-3005
Students $15, Individual $20,
Family $25, Corp $50
BBS: 256-3454

NEBRASKA

Apple-Link
5509 South 31st, #8
Lincoln, NE 68516
$10 per year

NEVADA

Southern Nevada Apple Family User Group
P.O. Box 12715
Las Vegas, NV 89112-1715
Contact: George Lewis (702) 364-9093
BBS: Apples Only (702) 646-7007

NEW JERSEY

Bergen Apple Special Interest Club (B.A.S.I.C.)
The BASIC FACTS; 8-11 Creek Ct.
Fair Lawn, NJ 07410
Contact: Philip Smallen 791-3355
$15 per year
SSA-BBS: 472-8312

North Jersey Mac Apple User Group
P.O. Box 215 (WOB)
West Orange, NJ 07052-0215
Contact: Pete Crosta (201) 667-6369
$25 per year

Ocean County Apple Users Group
25 Long Road
Freehold, NJ 07728
Contact: Matt Weiss (908) 431-2339
$15 per year

Ocean/Monmouth Apple Users Group
55 Meadowbrook Road
Brick, NJ 08723-7848
Contact: Bill Scratchley (908) 920-3833
$15 per year

Princeton Apple II Users Group
100 Sixth Ave.
Trenton, NJ 08619-3223
$12/yr

South Jersey Apple User's Group
P.O. Box 4273
Cherry Hill, NJ 08003-4273
Contact: Jack Bullion 767-4913
$20 single/family, $10 student
SJAUG APPLELINE 424-1382

NEW MEXICO

Applequerque Computer Club
P.O. Box 35508
Albuquerque, NM 87176-5508

NEW YORK

SACC Apple Computer Club
147 Deforest Rd.
Dix Hills, NY 11746
Contact: Gregory Dib (516) 499-7681
$10 per yr.

BAUG (Big Apple Users Group)
P.O. Box 1822
Old Chelsea Station
New York, NY 10113-0945
(212) 603-9007

CRAB-Apple (County of Rockland Apple Branch)
P.O. Box 268
W. Nyack, NY 10994-0268
$10 per year,
free 1/2 yr membership for new members

GAB'er (Guilderland Apple Byters)
Roger C. Mazula, Editor
28 Hay Path
Watervliet, NY 12189
Contact: John Buckley (518) 371-3624
$10 per year, $5 initiation fee
BBS: Pro Vanilla (518) 462-5953

Mixed Burnt Hills Apple Group
171 Birch Lane
Scotia, NY 12302
$8 per year
BBS: Plain Vanilla 462-5953

Putnam Valley
Educators Apple Users Group
142 Peekskill Hollow Rd.
Putnam Valley, NY 10579
Contact: Frank Reale (914) 528-8101

NORTH CAROLINA

Carolina Apple Core
P.O. Box 31424
Raleigh, NC 27622
$18/yr
CAC 783-9010; NIEHS 541-0041

Charlotte Apple Computer Club
P.O. Box 221913
Charlotte, NC 28222
BBS: 563-6233

Eamon Adventurer's Guild
7625 Hawkhaven Dr.
Clemmons, NC 27012
Contact: Tom Zuchowski (919) 766-7490
$7 per year
T.ZUCHOWSKI on GEnie

Triad Apple Core
c/o GTCC Small Business ASST. Center
2007 Yancyville St., Suite 220
Greensboro, NC 27405

OHIO

Apple-Dayton, Inc.
P.O. Box 3240
Dayton, OH 45401-3240
$25/year

Apple GS Columbus
P.O. Box 27072
Columbus, OH 43227-0072
Contact: John Ledford (614) 855-0937
BBS: (614) 475-9791

AppleSiders of Cincinnati
P.O. Box 14277
Cincinnati, OH 45250-0277
Contact: Ralph Kitts (513) 829-1161
$25 per year
BBS: (606) 572-5375 or (606) 572-5685

COACH (Central Ohio Apple Computer Hobbyists)
P.O. Box 09028
Bexley, OH 43209
Contact: Mike Goodrich (614) 866-4860
BBS: (614) 262-4946

NEO Apple Corps
c/o Nancy Abbott
1935 Mattingly Rd.
Hinckley, OH 44233

OREGON

Appleeugene
907 River Road #289
Eugene, OR 97404
Contact: Larry Badten 895-2605
$15 per yr

Portland Apple II User Group
P.O. Box 1608
Beaverton, OR 97075-1608
$20 1st Yr; $15 thereafter

Willamette Apple Connection
P.O. Box 7252
Salem, OR 97303-0053
$15 per yr
WAC BBS (503) 363-0861

PENNSYLVANIA

Apple Butler Users Group
P.O. Box 39 Meridian Station
Butler, PA 16001-0039
$20 Single, $25 family

Columbia Apple Pi
c/o L.A. Winski, M.D.
P.O. Box 710
Millville, PA 17846
$6 per yr

Delaware Valley Apple Branch
132 Eaton Dr.
Wayne, PA 19087
Contact: Sam Lieberman

Erie Apple Crunchers, Inc.
P.O. Box 1575
Erie, PA 16507
$5 Initiation fee; $25 per yr
E.A.C. Express (814) 838-8510

Hershey Apple Core
P.O. Box 634
Hershey, PA 17033
HAC Hotline: (717) 531-1300
The Library BBS: (717) 566-1699

Keystone Apple Core
c/o William C. Miller, President
1789 Braggtown Road
East Berlin, PA 17316
$10 annually

RHODE ISLAND

Rhode Island Apple Group
P.O. Box 4726
Rumford, RI 02916-4726
$10 initiation; $20 annual dues

SOUTH CAROLINA

CSRA Apple Users Group
1342 Moultrie Drive
Aiken, SC 29803
$15 year

TENNESSEE

AppleCore of Memphis
P.O. Box 241002
Memphis, TN 38124-1002
$20 per year

Music City Apple Core
c/o Gerald Dooley
1085 Woodcock Hollow Road
Kingston Springs, TN 37082
Contact: Gerald Dooley 952-2367; George Erge 833-1508; Everett Hertenstein 262-4778

TEXAS

Apple Valley Computer Club
Tony Rodriguez, Pres. 5900 N. 28th Lane
McAllen, TX 78504
Contact: Tony Rodriguez 682-9625
$10/yr

Coastal Bend Users Group (CBUG)
P.O. Box 8391
Corpus Christi, TX 78468-8391
$12 per year per household
STIX (512) 992-4855

San Antonio Appleseed
P.O. Box 290028
San Antonio, TX 78280-1428
New Membership $15, Renewal $10

Tarrant Apple Group (TAG)
912 West Broadway Ave.
Fort Worth, TX 76104
Contact: Bob Baggott (817) 332-3341
$15 per year

VIRGINIA

Northern Virginia Apple Users Group
P.O. Box 8211
Falls Church, VA 22041
PRO-NOVA BBS: (703) 671-0416

TideWater AppleWorms
P.O. Box 68097
Virginia Beach, VA 23455
Contact: Kevin Mitchell (804) 468-9914

WEST VIRGINIA

Apple Users Group of Charleston
2105 Weberwood Drive
South Charleston, WV 25303
Contact: John Howell 343-6422, or
Chas. Szasz 965-6965
$10 per yr

Club Apple User Group
125 North Pinch Rd.
Elkview, WV 25071
$10

WISCONSIN

Milwaukee Apple Users Symposium
9818 W. Sheridan Ave.
Milwaukee, WI 53225
Contact: Helmut Wittbecker

Racine Area Users Group
P.O. Box 085152
Racine, WI 53408
$10/Family/yr.

Wisconsin Apple Users Club, Inc.
P.O. Box 20998
Milwaukee, WI 53220-0998
Contact: Bruce Kosbab (414) 771-6086

AUSTRALIA

Apple Users Society of Melbourne
(A.U.S.O.M.) Inc.
P.O. Box 1071 Narre Warren MDA
Narre Warren, VIC 3805
Ph: (613) 796-7553

Tazmanian Apple User Group
P.O. Box 188
N. Hubart, Tasmania 7002 AUSTRALIA
10021 485200
Contact: Jim Fraser

CANADA

Apples Victoria Users Group
9184 Cresswell Rd.
RR 2, Sidney, B.C. V8L 3S1
Contact: Shirley Demeriez
(604) 656-2845 6-9PM
$24/yr, $30 family

Apples B.C. Computing Society
P.O. Box 80569
Burnaby, B.C. V5H 3X9
$35 per year, $30 renewal

Kelowna Apple Users Group
1622 West Kelowna Rd.
Kelowna, B.C., Canada V1Z3B7
Contact: Robert Ashton
(604) 769-3140 6 to 9 pm
$2 per month

Apple SAUCE
Box 480 RPO, University
Saskatoon, Sask., Canada S7N 4J8
Contact: Brock Chatson (306) 374-0095
$20 per year
BBS: SAUCE (306) 955-8828

Winnipeg Apple Users' Group
P.O. Box 1798
Winnipeg, MB R3C 3R1
Contact: Don Soutter 256-0095
$20 indiv, $25 family; $5 initiation fee
Applebox BBS: 224-0683

ENGLAND

Cambridge Apple User Group
22 High Street
Cambridge CB4 1NG
England (U.K.)
Contact: Ian Archibald

The British IIGS Club
41 High Street
Great Shelford
Cambridge CB2 5EH
England (U.K.)
Contact: Peter Stark
(Produces bimonthly "members' disks)

FRANCE

GS Club
6, impasse La Croix-Pommier,
94120 Fontenay-sous-Bois.
Téléphone: (1) 48.77.11.32
AppleLink: GS.CLUB

GERMANY

Kaiserslautern Apple Users Group
PSC 1 Box 8851
APO AE 09012

Ramstein Apple Club
PSC 2 Box 18
APO AE 09012

Rhein-Neckar Apple Users Group (RNAUG)
P.O. Box 525,
APO New York, NY 09063
Contact: James Clark
$10/yr

ITALY

Apple II Survivor Club Italy
Vis Dal Fabbro 4
37122 Verona Italy
Contact: Manuel Turtula

EXPLORING SYSTEM SOFTWARE 6.0 AND 6.0.1

BY NATHANIEL SLOAN

System Software 6.0 (System 6.0) introduced many new features to the Apple IIGS world. Among them are interprocess communication (which allows programs to interact with each other more smoothly), separate control panels to control the actions of your computer, a Finder more user-friendly and customizable than previously thought possible, and a plethora of new options available to application programmers. System Software 6.0.1 (System 6.0.1) built on these foundations by adding, among other things, keyboard navigation for Finder, and by cleaning up many bugs that had been found after System 6.0's release.

The current system software consists of five disks each: Install, SystemTools1, SystemTools2, Fonts, and synthLAB. Many distributors offer a sixth System.Disk, which contains the basic setup for a 3.5" drive and can be used "as-is" for floppy-based systems. To create a custom installation, insert the Install disk, boot the computer from the 3.5" drive, and run the Installer. You'll arrive at a screen whose default option is the Easy Update. Selecting this default button will allow you to update an

existing startup disk from a previous version; it updates all previously existing files and adds any new files necessary to run the system. It will also allow you to install the minimum system software necessary to make a stand-alone boot disk (generally referred to as a System Disk).

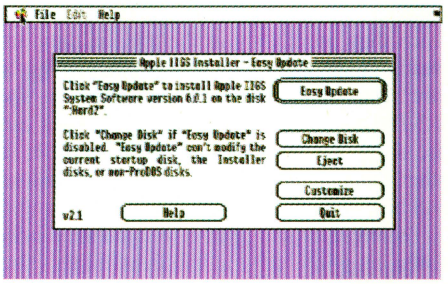


Figure 1

If you want or need more control over what is installed in your system, select the Customize button. You'll be offered a wide range of custom installation options. These choices include Applications (like Archiver or synthLAB), the Sound Control Panel, Desk Accessories, numerous Driver Selections (like scanners and tape drives), various File Systems (such as Macintosh HFS and MS-DOS), Fonts, Media Control (Apple CD SC and Pioneer Laser Discs), Networking, Printer and Special Aids options. Simply choose the one(s) you want to install and click the Install button. To see a brief description of an update, highlight it and click the Help button.

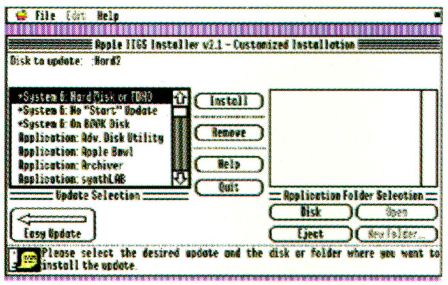


Figure 2

The IIGS System Software can be customized by adding additional software "modules." Available types of modules include:

CDAs: Classic Desk Accessories, which appear on the Apple-Control-Escape menu and are available in any program

NDAs: New Desk Accessories, which appear under the Apple pull-down menu in Desktop programs)

INITs: System Initialization files, which perform some function at startup or modify the IIGS environment in some way

FSTs: File System Translators, which allow your IIGS to read High Sierra, DOS 3.3, Pascal, and MS-DOS disks, and to read and write AppleShare and HFS (Macintosh) disks

Control Panels: a new name for CDevs, the Control Panel Devices of previous System Software releases

Drivers: modules which "teach" your computer how to speak to various peripheral devices

Finder Extensions: a new type of module which adds features to the IIGS Finder

Desk Accessories

Classic Desk Accessories (CDAs) have been around since the introduction of the Apple IIGS. They are accessed by pressing Apple-Control-Escape and choosing from the menu which appears. The most familiar CDA, the Control Panel CDA, is built into the ROM every Apple IIGS. This CDA hasn't changed much since its first implementation and can still be used to control many important system variables; such as system speed, slots and speaker volume. The Alternate Display Mode and Visit Monitor options which appear on some IIGS machines are also built-in CDAs.

While CDAs aren't new, they remain important because they can be used from nearly any program, be it GS/OS or ProDOS 8. All you have to do is put the CDA into the Desk.Accs folder (which is inside the System folder on your hard drive or System Disk) and restart the computer.

For instance, Karl Bunker's freeware File-A-Trix CDA is great for doing file manipulation (copying, deleting, and renaming) and because it's a CDA, it can be used almost anytime. Bunker's Quit-To CDA lets you launch applications to another without having to return to Finder.

New Desk Accessories (NDAs) appear under the Apple menu in Desktop applications. (Generally, a Desktop application is any IIGS-specific program which displays a menu bar at the top of the screen.) NDAs are invoked by choosing their menu item from the Apple menu in many desktop applications.

The most familiar NDA, Control Panels, offers a gateway to the Control Panels provided with System 6.0 and 6.0.1, as well as those available from third parties. (The included Control Panels mainly duplicate the CDA Control Panel, but third party Control Panels offer more—see the section on Control Panels later in this article.) System 6 also includes a Calculator NDA and a Find File NDA.

One of my favorite third-party NDAs is ShadowWrite, a freeware word processor by Andre Horstmann. Since it's a NDA, it works from any IIGS Desktop application.

System Initialization Files

INITs are loaded along with the System Software when the computer is booted. There are two kinds of INITs: Temporary Init Files (TIFs) and Permanent Init Files (PIFs). TIFs load at startup, do their thing, and are gone; PIFs also load at startup but "stick around" while you use your computer. Both kinds of INITs go inside the System.Setup folder, which is inside the System folder on your boot disk.

Many INITs utilize inter-process communication to work interactively with other software. For example, the Hierarchical INIT from Seven Hills Software (included with several Seven Hills products, including Kangaroo and The Manager) provides Macintosh-style "submenus" for the Apple IIGS. Since this is a PIF, it stays in memory once it has been loaded. Any application program which wants to provide hierarchical submenus can call upon this INIT to do the dirty work.

INITs can be used to do anything from providing a custom startup screen to changing the operation of the most basic IIGS functions. Fix Font Manager 2.0, from Softdisk Publishing, is an example. It fixes a bug in System 6.0.1 which caused your system to crash if you select a font for which there are no installed sizes. (Users of Westcode's Pointless ran up against this bug, since Truetype fonts don't have any installed sizes until Pointless makes one by scaling the font.)

Interprocess communication under Systems 6.0 and 6.0.1 has brought a whole new capability to the INIT: the ability to get control in response to certain events. Because an INIT is normally only "called" at boot time , it was previously difficult for INIT programmers to give their software control later. The latest system software solves this problem delightfully and improves the possibilities available to programmers. For example, Finder "broadcasts" several IPC messages (for example, upon launching an application); programmers can create INITs that watch for these messages and grab control in response to specific user actions.

Communication, Computer Style

Interprocess communication (IPC) is, perhaps, the most important innovation in System 6. It opens a whole new range of possibilities for programmers. For example, the implementation of IPC led to the introduction of an entirely new class of system extension, the Finder Extension. Since programs can talk to each other, programmers no longer have to work so hard to get the computer to do what they want. If someone else has already written a program to do part of the job, it's possible (if both programs support IPC) for them to share the work, thus making the second programmer's job much easier.

An example? Why, certainly. There's a Finder Extension called IR (pronounced "ear"), which allows you to double-click on an INIT, Control Panel, NDA, CDA, or driver and install it instantly. This lets you install these system elements only when you need them, saving valuable memory for more important purposes. However, since it's a Finder Extension, it only works in the Finder. Jay Krell's IRNDA is an NDA which talks to IR and allows you to install INITs, NDAs, CDAs, etc. from inside any Desktop program.

With IPC, programs don't need to duplicate the functions of another; instead, IPC calls can

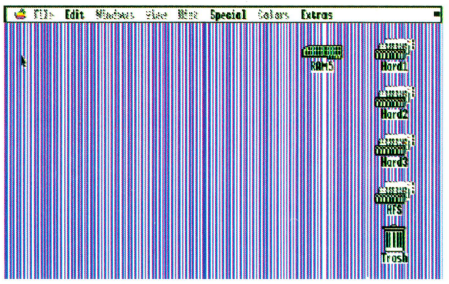
be made to ask the other program to perform the function. In the future, Apple IIGS programs supporting IPC will work closer together, providing integrated support for the user, making the computer more user-friendly and keeping it viable for many years to come. IPC is "behind the scenes" (you don't have to worry about how it works) but that doesn't make it less important.

Controlling your Apple IIGS

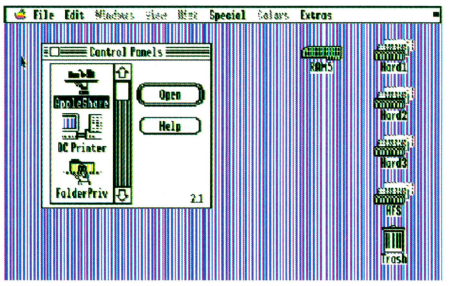
The Control Panel NDA of System 5 has been transformed into the System 6 Control Panels NDA. Only one letter has been added to the name, but the way things work has changed drastically. Under System 5, there was only one window for all the types of settings you can select. (Each "module" was called a CDev, or Control Panel Device.) Under System 6, each module is called a Control Panel, and appears in its own window. You select Control Panels to be opened from the Control Panels NDA. (You can also double-click a Control Panel icon in the Finder—in another example of IPC, the Finder tells the Control Panels NDA to open it.)

Control Panels go inside the Control Panels folder, which is inside the System folder on your boot disk.

There are many differences between Control Panel CDA and Control Panels NDA. Most obviously, the Control Panel CDA is available in all programs (whether they run under ProDOS 8 or GS/OS) while the Control Panels NDA is available only in Desktop programs. Also notable is the fact that Control Panels (for use with the Control Panels NDA) may be added to the system, whereas the Control Panel CDA is static; it's built into the computer's ROM. Some popular third-party Control Panels include Twilight II and Signature.



Figures 3



Figures 4

One of the best things about Control Panels under System 6 is that they can be opened at any by double-clicking them. (You don't need IR as you do for INITs, DAs, etc.) This can free up a lot of room in your System folder by allowing you to keep infrequently used Control Panels on other disks.

Extending Yourself with Finder 6.0

With new software known as Finder Extensions, you can add new features and customize Finder's operations to suit your needs and preferences. Finder alerts the installed extensions whenever the user does something, such as a double-click an icon initiate a copying operation. Newly-written software can respond to these actions to replace, extend, or modify the standard Finder response.

Most Finder Extensions add one or more items to Finder's Extras menu. (For this reason, they are also often called Finder Extras.) For example, IR adds an "IR Preferences..." option; the EasyMount Finder Extension provided with System 6.0.1 provides a "Make Alias..." option.

Third-party Finder extensions also abound. MoreInfo (part of Bill Tudor's excellent Six Pack, which contains several handy Finder Extensions) adds options to the Extras menu to lock, unlock, activate, deactivate, hide, and unhide files. (You click the icon or icons you want to perform the operation on, then select the appropriate choice from the Extras menu.) QuickLaunch, a freeware program from Seven Hills Software, lets you add your most frequently used application programs to the Extras menu, so you don't have to hunt through the folders on your hard drive to find them.

Most Finder Extensions are PIFs (Permanent Init Files; see the discussion of INITs earlier in this article). As such, they can go inside your System.Setup folder (which is inside the System folder on your boot disk). However, since they work only in the Finder, they are wasting memory if they stay in memory while you're using other programs. (If you use IRNDA or Six Pack's OpenSesame, you can use some Finder Extensions, such as IR, in other Desktop programs, but these extensions will be rare.)

Therefore, System 6 also lets you put Finder Extensions into the FinderExtras folder (also inside the System folder). Finder Extensions in the FinderExtras folder are only loaded into memory when the Finder is active, and are removed from memory when you run another program. This might cause a slight delay every time you return to the Finder, since these Finder Extensions must be loaded from disk each time. It's a tradeoff between speed and memory usage. Luckily, the Finder lets you place some Finder Extensions in System.Setup, and some in FinderExtras, if you want.

Not all Finder Extensions are PIFs. The ShadowWrite NDA, which we mentioned in our discussion of desk accessories earlier, also acts as a Finder Extension. The Finder Extension component lets you set up ShadowWrite to open text, Teach, and AppleWorks files when you double-click them in Finder.

Did I Hear Something?

System 6.0 and 6.0.1 provide many extensions, ready to install. One of the most fun is the Sound Control Panel, which allows you to attach sounds to certain actions—such as a bad keypress, the trash being emptied, a window being opened, or restarting the system. The built-in collection of sounds includes many great ones, such as the "Whoosh" and "hsoohW" combo for disk ejection and insertion (or window opening and closing).

It's also easy to add your own sounds! Online services, local bulletin boards and user groups have vast libraries of sounds to accommodate just about every taste imaginable. Find the sound files that appeal to you and copy them to the Sounds folder inside the System folder on your system disk. The next time the Sound Control Panel is opened, you'll be able to assign the new sounds to the various actions.

It is important to note that sounds are memory hogs, both on disk and in memory. Sounds assigned to an action are loaded into memory at startup and remain until there until shutdown. If you're running into memory problems, disabling sounds is a good place to start.

"But it's not on an Apple disk!"

System 6.0 and 6.0.1 add the capability to access disks not formatted on an Apple II com-

FOnt

puter! This is accomplished by the use of the Pascal, DOS 3.3, HFS, and MS-DOS File System Translators (FSTs). Though FSTs existed under System 5.0, the only options were ISO 9600/High Sierra (a common format for CD-ROM discs), AppleShare (for use on systems with a Macintosh acting as a server) and ProDOS, (for Apple II disks). ProDOS is definitely the most popular, since nearly all Apple II disks you make use ProDOS format. The new FSTs allow you access data stored on disks formatted by several popular file systems and are more apt to be utilized.

The Pascal FST and the DOS 3.3 FST were both designed to allow you to use older-style Apple II files with Finder and other GS/OS programs. Therefore, they are read-only; that is, you can read from DOS 3.3 and Pascal disks, but not write to them. This is hardly a real limitation—these file systems are no longer in general use.

The HFS FST is a read-and-write FST designed to allow you to access HFS disks. HFS stands for Hierarchical File System and is better known as the Macintosh disk format. This FST works on all Macintosh disks your disk drive can physically read, including 800K floppies, 1.44 MB floppies (requires Apple SuperDrive and controller), and hard disk drive partitions.

Even if you don't need to exchange data with Macs, you might find a use for the HFS disk format. HFS file names can be up to 31 characters long and may contain any character except the colon (:). (ProDOS, on the other hand, allows only 15 letters, numbers and periods.) An additional advantage of the HFS FST is that it imposes no restrictions on the maximum size of a disk partition. ProDOS will only allow 32MB on a single disk or partition. Properly written GS/OS software will use these disks with no problems!

System Software 6.0.1 adds the MS-DOS FST. MS-DOS, which stands for Microsoft Disk Operating System, is the standard on IBM and IBM-compatible computers. Unfortunately, because the IBM computer's disks are not physically compatible with the standard Apple drive, you need a SuperDrive or a Floptical drive to take advantage of the FST. The MS-DOS FST is also a read-only FST; while you can read MS-DOS disks, you can't write them.

While these new FSTs are great, they're not miracle workers. The Apple IIGS cannot run IBM or Macintosh programs, even with the new FSTs. It can, however, read most "generic" data files, such as word processor and database documents written for the other computer.

Let Your Fingers do the Finding

Finder 6.0.1 offers a new service to Apple IIGS users, keyboard navigation. This allows the Apple IIGS Finder some of the same easy-to-use shortcuts the Macintosh MultiFinder has. These shortcuts include:

- Typing in the first few letters of a file's name to move to and select its icon
- Moving to and selecting the next icon in alphabetical order by pressing TAB
- Moving the highlighter up, down, left, or right with the arrow keys

These shortcuts let you select any file on the desktop using only your fingers. Do you have a folder chock-full of files? Under System 6.0.1, just type in the first few letters of the name and it's selected for you!

Under an Assumed Name

The concept of aliases is not new; criminals have been using them ever since humans have been using names. However, the adaptation of the alias concept to the Apple IIGS is new. EasyMount, a Finder extension previously only useful with AppleShare networks, can be used on local disks under System 6.0.1.

To show you how aliases work, let's use AppleWorks as an example. Ever thought that AplWorks.System was a lousy name for an application? Using Easy Mount, you can create an alias for it. If the alias happens to reside on a disk formatted by the HFS FST, you can name this alias anything HFS will allow. Maybe something predictable like "AppleWorks 4.0 with all TimeOuts." Whenever you double-click the alias icon, Finder launches the original file instead.

Using Easy Mount, you can make one folder of aliases of all of your applications. Drag this folder out onto the desktop and you can instantly access anything! No more going deep into nests of folders—just double-click on the alias' icon and away you go!

The Magical Mystery.. Folder

In another effort to make Finder 6.0.1 more like the Macintosh MultiFinder, "magic routing" was added. If you drag an extension or a sound onto the System folder in your System disk, it is magically put in the correct folder! No more trying to remember which folder the file belongs in; simply move it onto the System folder and let Finder do the work. This only works when dragging onto the System folder icon; dragging an item into the System window will not activate magic routing. (This lets you put something into the System folder proper if you really want to.)

The innovations added to the Apple IIGS by System 6.0 and System 6.0.1 are as numerous as they are powerful. The new opportunities offered to programmers are likewise nearly endless. Even if this turns out to be the last system update for our favorite computer, we owe the small but outspoken group of loyal Apple II supporters within Apple, Inc. who made it happen a standing ovation .

System Software 6.0.1 is now available from many mail-order distributors, a number of online services, as well as user groups and many local Apple dealers. Get yours today! ■

All Apple II

No Compromise

The Rumors

The Apple II is dead. The Apple II is outdated. The Apple II is not supported.

The Facts

Hundreds of new software titles are published for the Apple II every year—from shareware to major commercial products. AppleWorks is the biggest selling, most widely used program of all time. More than 50% of computers used in American schools are Apple IIs. The Apple II can do everything that comparable computers can do. There is now a magazine dedicated to this marvelous machine.

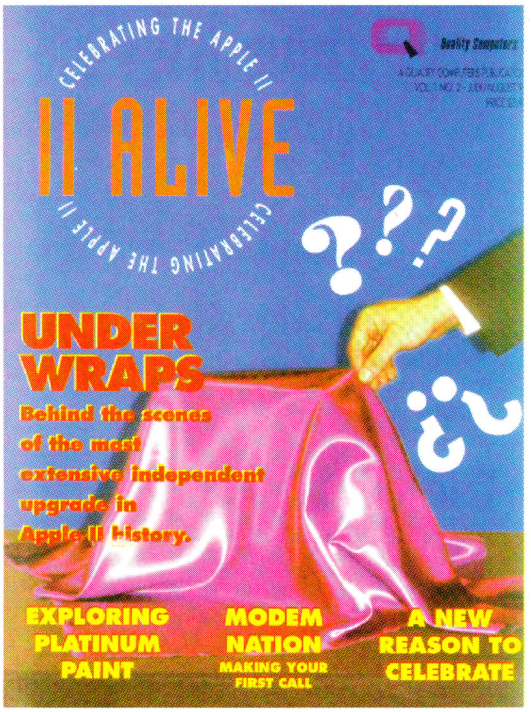
II Alive

II Alive covers the world of the Apple II. AppleWorks, Shareware, Technical Tips, Multimedia, System 6, Education, New Products, Desktop Publishing, Programming, Reviews, and more. It's all there. All Apple II. No compromise. It's the kind of support you'll only find in II Alive.

How To Get II Alive ▶

One year of II Alive (6 issues) is only $19.95, satisfaction guaranteed. You can cancel any time for a full refund.

Order yours today.



Featuring everything for your Apple II:

- ▶ **Scanners**
- ▶ **Memory**
- ▶ **Printers**
- ▶ **Desktop Publishing**
- ▶ **Accelerators**
- ▶ **Utilities**
- ▶ **Entertainment**
- ▶ **and More!**

☑ I WANT II ALIVE TODAY!

GET 1 YEAR (6 ISSUES) FOR $19.95

Name _____ ❑ IIe

Address _____ ❑ IIc

City _____ State _____ Zip _____ ❑ IIc+

Occupation _____ Phone _____ ❑ IIGS

❑ Payment Is Enclosed

❑ Discover ❑ Visa ❑ MasterCard ❑ American Express ❑ Check or Money Order Enclosed

❑ Credit Card # _____ Exp. Date _____

Clip and mail to: Quality Computers • II Alive Subscription • P.O. Box 349 • St. Clair Shores, MI 48080

OR CALL 1-800-777-3642

Q-MODEMS

Fast, affordable, and designed to save schools money!

FIND IT ON-LINE!

With a Q-Modem, you can access bulletin boards and computers close to home, across the country, and around the world. You'll find airline schedules, business news, free software, gardening tips, technical help, plus everything in-between! Name any topic—you can find it on-line.

IT'S COMPATIBLE!

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

IT'S EASY TO USE!

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

You also get:

- Compatibility with U.S. and international protocols.
- Nonvolatile memory to store your configurations and frequently called numbers
- Auto-Answer AutoDial (tone or pulse)
- Two phone jacks for telephone line and phone
- Adjustable-volume speaker
- Introductory packages for on-line services
- One year warranty

All you'll need to use a Q-Modem is your computer, software, and a cable to connect the modem to your computer.

MODEM BUNDLES

Q-Modem, MicroPhone LT, and cable
MicroPhone Personal LT is the perfect low-cost solution for Mac telecommunications. It offers fast and reliable data transfer between Macs and other computers. **$99.95**

Q-Modem, ProTERM 3.1, and cable
ProTERM's intuitive operation, on-line help, test editor, Scrollback buffer and Autolearn macros. **$139.95**

Q-Modem and ProComm Plus
ProComm Plus 2.0 is a popular, powerful, easy-to-use communications software package. It includes 33 popular terminal emulations with keyboard remapping. **$139.95**

Q-MODEM

$74.95

Q FAX MODEM V.32 BIS

The Q FAX Modem V.32bis features 14,400 bps fax and data communications with up to 57,600 bps data throughput using V.42bis data compression. You also get the special advantages of Silent Answer™. optional Caller ID, and the unique alpha-numeric display panel that shows up to 26 different status messages. Comes with Fax STF, MicroPhone LT, and handshake cable.

$299.95

"Going from my old 1200 Modem to the Q-Modem 14,400 baud has saved me more time & money than any other computer peripheral I've purchased."

—Kevin Weiss—

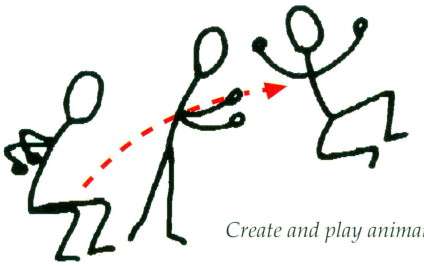
Quality Computers™

20200 Nine Mile Rd.
St. Clair Shores, MI 48080

1•800-777-3642

Look what's new with Platinum Paint

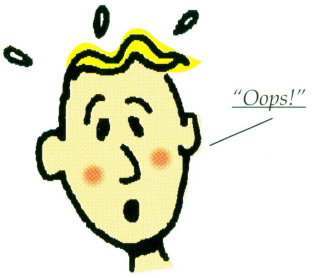
Create and print masterpieces of any size



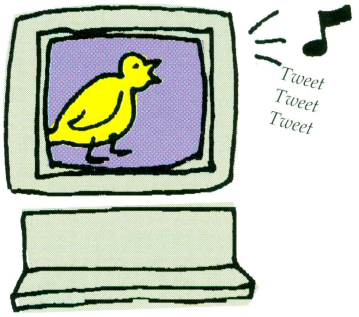
Create and play animations

Junior User Option

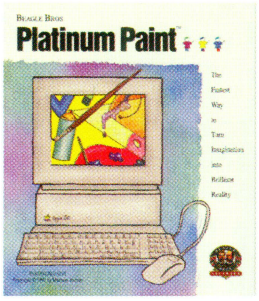
Multiple fatbits magnification



Full-size Undo



Add sounds



Platinum Paint 2.0 is the powerful, award-winning paint program that has given Apple IIGS users the ability to turn imagination into brilliant reality. New Platinum Paint 2.0 gives you even more power and ability:

- Create and print masterpieces of any size.
- Create and play animations.
- Add sounds.
- Hierarchical menus—easier to work with!
- Full-size Undo for fixing any size booboo.
- Fatbits magnification—up to 8x!
- Work in inches, as well as pixels.
- Junior Version—makes Platinum Paint easier for kids.

Platinum Paint has always been the premier IIGS paint program. Now it's even better.

QC's Price (Retail price $99.95) *$59.95*

Upgrade for registered users *$30.00*

Alphabet Coloring Disk *$19.95*

Quality Computers™

20200 Nine Mile Rd. • St. Clair Shores, MI 48080
313-774-7200 • Fax 313-774-2698
1-800-777-3642

Bulk Rate
U.S. Postage
PAID
Quality Computers Inc.

Quality Computers
20200 E. Nine Mile Rd.
St. Clair Shores, MI 48080