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Apple II / Macintosh

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Business Management Tips

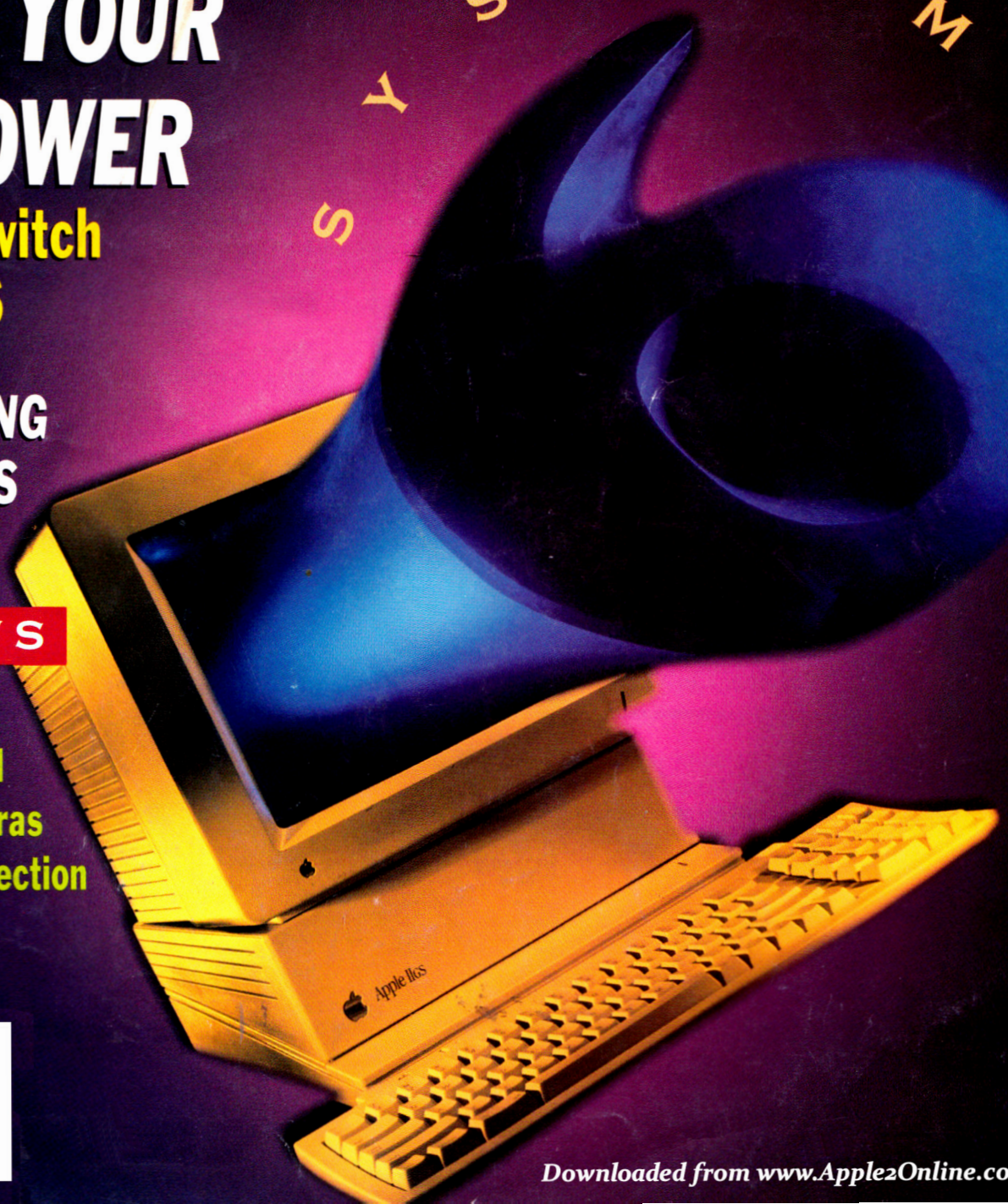
APPLEWORKS IN ACTION, P. 46

BOOST YOUR GS' POWER

Make the Switch To System 6

INVESTIGATING HARD DRIVES

SYSTEM



REVIEWS

- Pointless
- Macintosh LC II
- Secrets of Bharas
- HyperStuff Collection
- Bank Street Writer Mac

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System 6 is power. System 6 is speed. System 6 is a must for all Apple IIGS owners. It includes:

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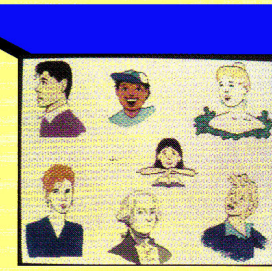
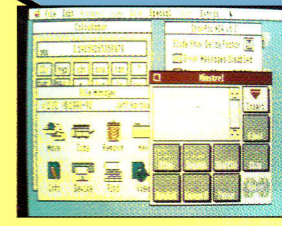
QC System 6 Bonus Pack

Leave it to Quality Computers to take something good like System 6 and make it great. We looked at the list of System 6 features and asked ourselves, "Self, what would make System 6 even better?" Here's the answer:

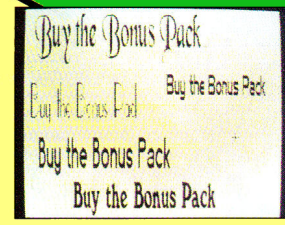


- Clip Art. We're throwing in over 100 beautiful clip art images, perfect for desktop publishing or hypermedia applications.
- Clip Sounds. Because the IIGS's sound capacity is so great, we're also including over 50 digitized sound files. Some are classics while some are the newest on the market. They 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.
- DA's. Just to give you more to choose from, we're giving you several handy desk accessories including: Calendar, enhanced Calculator, Scrapbook, Games, and more.



- Fonts. Using the same font for everything is very un-cool, so our Bonus Pack includes over 30 display and text fonts.
- 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.



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

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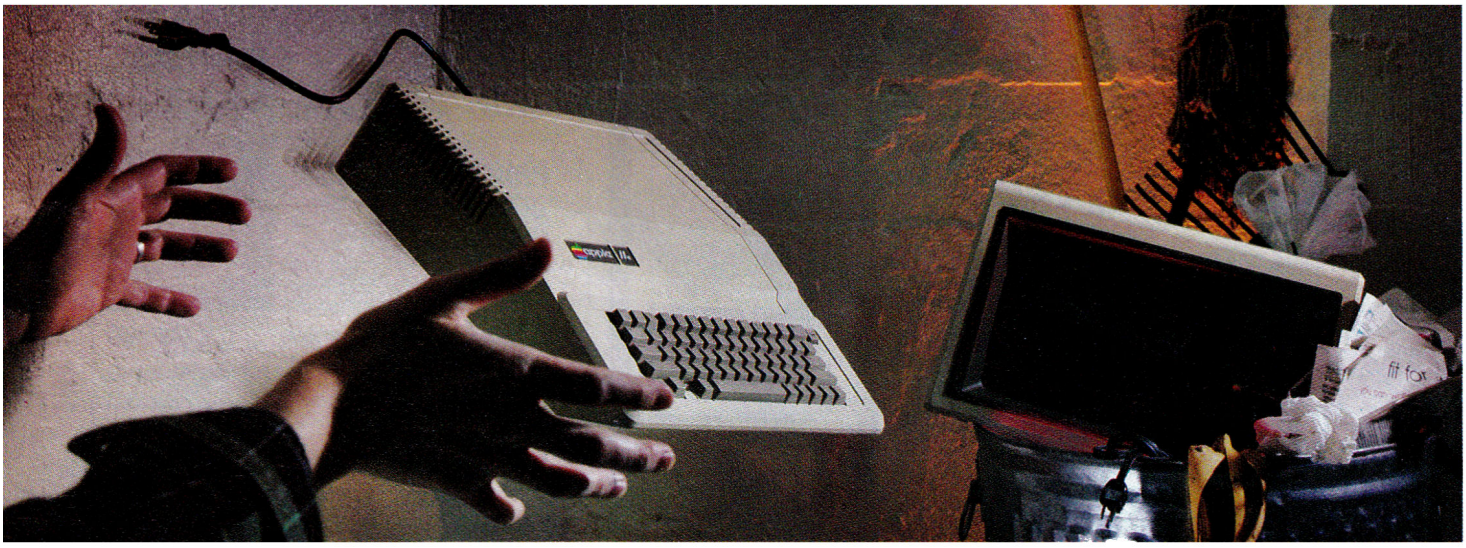

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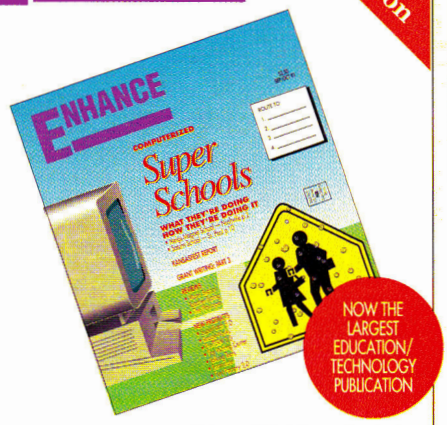

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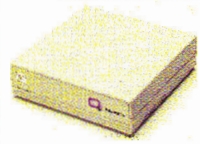

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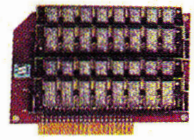
40 w/o SCSI card.....389.95

See page 4



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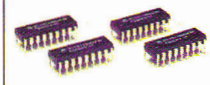

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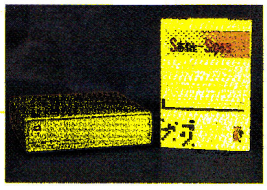

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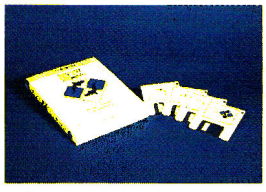

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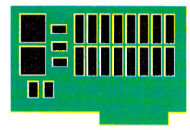

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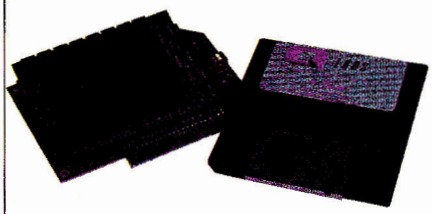

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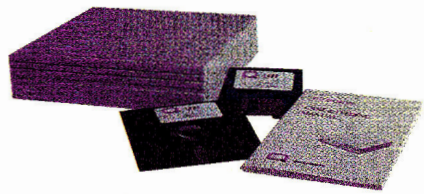

Thousands of drives later, experts still are praising the Q Drive for its performance and value. *inCider/A+* gave it a four-and-a-half-star rating. Our customers are using words like "amazing" and "fantastic" to describe the way the Q Drive has changed their computing.

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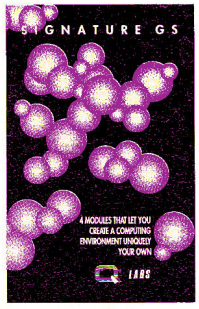

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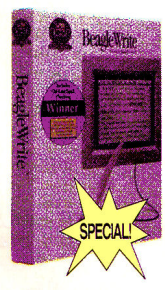

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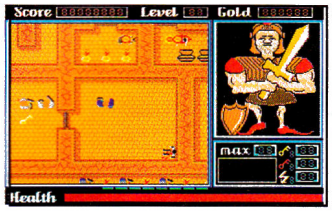
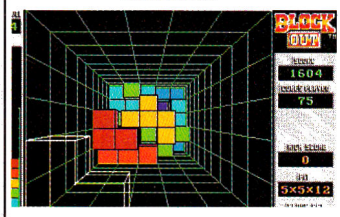


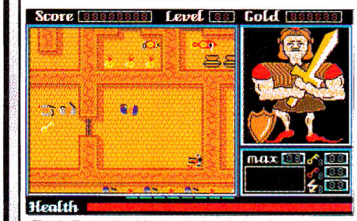
The Gate™: Fight your way through a castle riddled with mazes to save a bewitched kingdom. Battle against ghosts, magicians, snakes and other evil monsters. You'll need to use your head to solve the puzzles and your agility to conquer the action. Nintendo type action for the IIGS. It earned InCider's Editors' Choice award. **Order product number SV71 for only $30.**

Blockout™



Blockout™: It's like Tetris™ but it's 3-dimensional. Your job is to rotate and maneuver various 3-D blocks as they fall into a pit. The idea is to make the blocks fall into the proper positions to form complete layers. As each layer is completed, it vanishes, giving you more room to work with. **Order product number CD54 for only $20 for non-members or $15 for members.**

Task Force™



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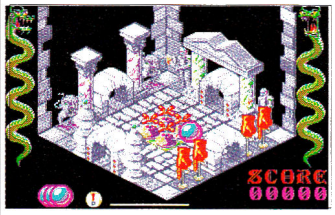

Airball™: Can you maneuver a balloon through a maze of spears, broken glass and other pointed objects without popping it? That's just part of the challenge of this game. The object is to bounce the balloon through a haunted castle. You must first find the spellbook and then other challenges await you. Just don't let your balloon pop! **Product number BR80 is $20.**

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Bubble Ghost	$10	$15
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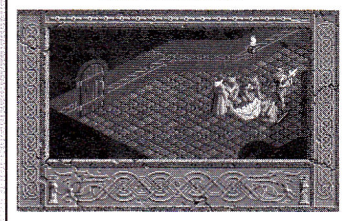

The Immortal™: The best adventure game ever written for the IIGS. Venture into the dungeon and unravel the mysteries of the levels below. Fight against animated trolls and goblins. See the blood spray off the edge of your sword and hear the last groan of your enemy. Can you get past the whirlpool? **Product number EA82 is only $30 for non-members or $24 for members.**

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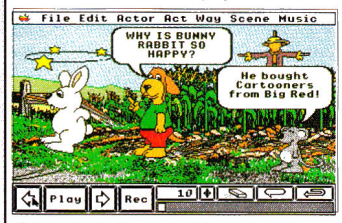

Cartooners™: Create your own animated cartoons with this program that both children and adults will find enjoyable. This fantastic creativity tool is great for educational settings. It includes 10 background scenes and 40 animated characters and props to get you started on the right foot. **Order product number EA62 for only $15 for non-members or $10 for members.**

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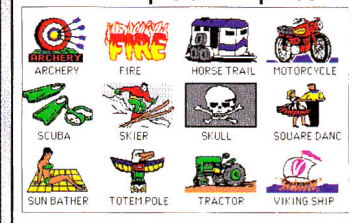

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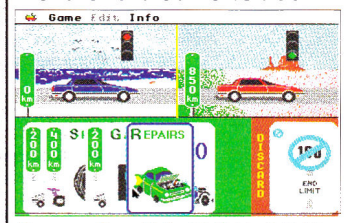

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JULY

1992 Vol. 10 No. 7

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Smooth Operator by Cynthia E. Field 34
inCider/A+ reviews a class act: The GS' System 6 hits the big time with a souped-up Finder, new media controllers and device drivers, simplified network access, performance-boosting desk accessories and control panels, and plenty of power tools for programmers and musicians.

Wanted: Hard Drives on the Run by Cameron Crotty 40
Calling all Apple IIGS owners: Be on the lookout for *inCider/A+*'s own Four Most Wanted. Sizes range from 40 to 100 megabytes. May excel at either inside or outside jobs. Specializing in plug-and-play hits, fast getaways. Heavyweight players in GS/OS rackets. Approach with caution: These drives are preformatted and considered dangerous.

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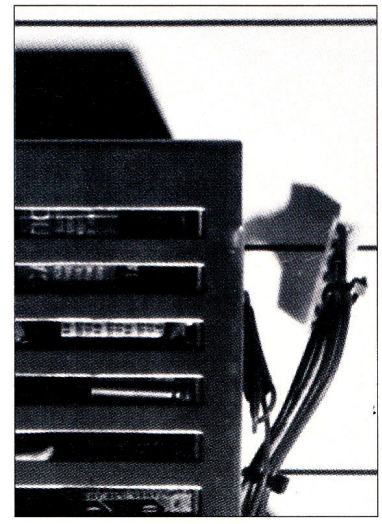

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Downloaded from www.Apple2Online.com

Cover Photo Illustration * Michael Llewelleyn/Onyx

LETTERS

WHATEVER PRINTS, WE FIT

I WAS SURPRISED TO READ IN "Words into Print" (April 1992, p. 32) that there are only three kinds of computer printers: dot-matrix, ink-jet, and laser. In fact, this letter was produced with another kind of printer that beats them all for type quality and economy — a daisywheel. I first learned about it from the article "Stalking the Low-Cost Daisywheel Printer" — which appeared in the June 1984 issue of *inCider*.

I bought a **Silver-Reed EXP 400** with tractor feed and have been using it with a parallel printer card as a dependable workhorse ever since, first with my Apple II Plus and now with my IIGS. I also have an ImageWriter II, but for letters and manuscripts I prefer the daisywheel.

Richard FitzHugh
3806 Everett Street
Kensington, MD 20895

I READ YOUR APRIL 1992 ARTICLE on printers and would like to add a few thoughts from personal experience. Like many IIGS owners, I have every slot filled and have been pursuing the illusory apex of perfection. My most recent and successful quest has been an attempt to get high-resolution, 300-dpi output for newsletters and brochures. I wanted the print to look like laser quality without the price.

I bought a Hewlett-Packard **LaserJet IIP+** and after much disappointed testing, took it back and got the cheaper **DeskJet 500**. I can't say enough about it. With Seven Hills' **Harmonie 2.0** driver and a **Grappler Plus** interface, I can use not only my GS' system fonts, but also the excellent kerned font CGTimes, resident in the DeskJet. **Independence**, from Vitesse, didn't allow access to resident printer fonts. The HP LaserJet didn't even have kerned resident fonts.

One final note: I bought and tested the WestCode product **Pointless** and was very disappointed. It uses gobs of memory, even when configured conservatively.

I have GS/OS 5.0.4, and WestCode's tech-support staff told me that Pointless works best with System 6, but I can't imagine how that would solve the memory problem. And the word "instantly" in the ad just doesn't fit. Even with a hard drive, an extra megabyte of RAM, and an accelerator card, it was *s-l-o-w*.

Just having Pointless installed fouled up other programs: I got "serious error" messages even when I wasn't using a Pointless font in a document. All problems were cured instantly when I removed the Pointless fonts and files and returned the program to the Apple dealer. Too bad — Pointless was a grand idea.

David Woods
129 Lake Street
Plympton, MA 02367

Our resident Apple II DTP expert, Cynthia Field, has her own "points" to make about WestCode's latest offering. Flip to p. 24 to hear what she has to say. — *eds.*

SPIN CONTROL

I WROTE TO APPLE COMPUTER recently and asked about **GS/OS 6.0**. They told me it should be out now and to contact my local "authorized Apple dealer." He says Sytem 6 doesn't exist, though — that it's a rumor started by "some magazine." What's the scoop?

Rebecca Ivanac
302 Magnolia
Fairborn, OH 45234

Let us say this about that: Go back to your dealer and tell him to call Apple and ask about the new system software for "that other computer." That'll probably ring a bell. Seriously, though, System 6 has been released, it's way cool, and inCider/A+ *gets up close and personal on p. 34 of this issue.* — *eds.*

THANKS FOR NOTHING

GEE, THANKS FOR THE APPLE Clinic tip about the ProDOS clock bug. Coming as it did in the April 1992 issue (p. 18), with a promise to print the patch in May, I found the information useless.

I was so frustrated by the bug I called Applied Engineering and tried to order a new clock. They kindly told me of some software dealer offering the patch for a mere $15. Guess who shelled out for it. Sure wish you had advised us of the problem and provided the freebie patch back in, say, December.

Excuse me for the gripe — your magazine is treasured reading in a time when my beloved IIe is slipping inexorably into dinosaurdom. Keep it going — you've got my subscription forever.

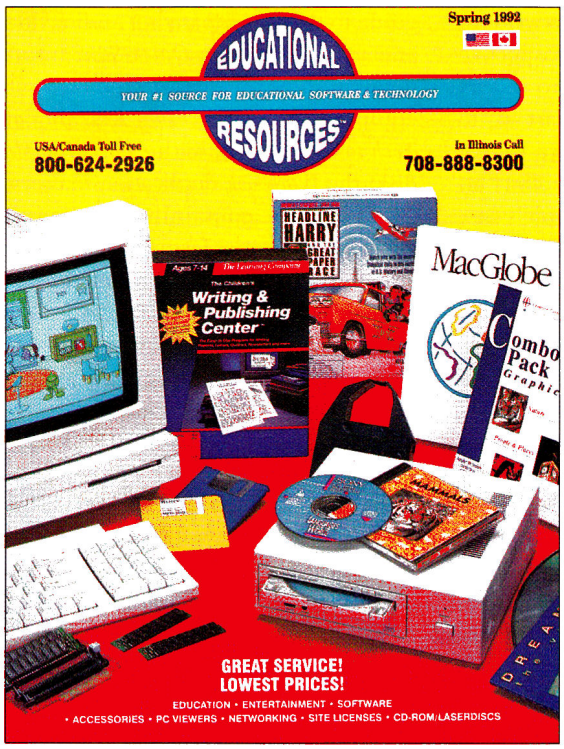
Christopher Glenn
96 Chestnut Hill Road
Norwalk, CT 06851

Yes, but if your ProDOS clock is bad, how will you know when you get there? — *eds.*

The Educational Times

International Edition | Summer 1992 | ★★★★ | Free

Catalog provides resource for parents and teachers



Educational Resources, North America's largest supplier of educational technology receives rave reviews on their latest catalog complete with:

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A New Group

The Morgan Davis Group has announced eight updated Apple II telecommunications products. "[They're] the result of years of development, and we're enormously excited about the power our new software will finally bring to customers," says Morgan Davis, company president.

- **ModemWorks 3.0** ($89.95, $30 upgrade), a communications toolbox for programmers, features support for 40 modems, emulation for 20 terminals, and new Xmodem, Ymodem, and Zmodem protocols.
- **ModemWorks Lite 3.0** ($39.95, $15 upgrade) is for shareware BBS owners who need only the basic software (no programming).
- **ModemWorks Technical Reference** ($14.95) is for developers interested in creating modules for use with ModemWorks.
- **Object Module Manager 1.3** ($39.95, $20 upgrade), a BASIC enhancement for creation of Applesoft extensions, includes AmperWorks, tools for BASIC programming.
- **ProLine 2.0** ($259.95, $50 upgrade) features high-speed modem support, X/Y/Zmodem protocols, more than 50 enhanced on-line utilities, and ANSI, VT-220, and VT-100 emulation.
- **ProLine Reference Manual** ($19.95) is a hands-on tutorial for getting the most from the program.
- **VirusMD 2.1** ($19.95, $10 upgrade) has been updated to take advantage of GS System 6's newest features. It disinfects disks plagued by all currently known viruses.
- **MD-BASIC 1.5 Interface Update** ($5.95) includes a complete set of interface files, required if you want to take advantage of new features of OMM, ModemWorks, and ProLine.

For more information on these products, contact the Morgan Davis Group, 10079 Nuerto Lane, Rancho San Diego, CA 91977-7132, (619) 670-0563, or circle number 350 on the Reader Service card. **— P.S.**

TALK TO THE SCHOOL BOARD

The best way to convince an editor that you know how to write is to write to him or her. You convince a prospective employer that you know how to sell by selling yourself. So what's the smart way to make your local school believe that it needs computers?

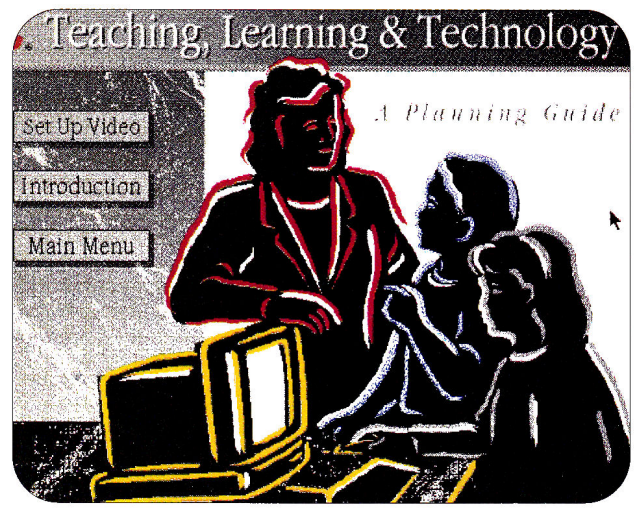
Why not use a computer? Apple's new **Teaching, Learning and Technology — A Planning Guide**, available in two editions — a print-based **Basic Kit** and a multimedia-based **Interactive Kit** — puts the power of the Macintosh behind your effort to convince your local school board or district to buy more Apple computers. Each version provides institutions, administrators, educators, and parents with a variety of flexible tools designed to help them plan curricula.

"With fewer dollars for education, educators need to be much more effective planners," says Sue Collins, Apple Computer's senior manager of strategic initiatives and education reform. "With this planning guide, Apple hopes to inspire administrators and educators and provide all the components needed to assess, plan, and achieve their education vision."

A key feature is the Guide's flexibility; educators can use the technology to create plans that meet their individual school or district needs. The Basic Kit includes a *Teaching, Learning and Technology Workbook*, a step-by-step planning tool that guides education professionals through the entire planning process, providing examples, case studies, and resource lists; a *Plan Template* disk of formatted MacWrite templates; *Workbook* duplication masters for collaborative activities; and Apple's *Learning* video, a series of educational dramatizations depicting a variety of possible classroom scenarios.

The Interactive Kit includes a handy guide to the accompanying audio, video, and text contents; a *Quick Start* tutorial detailing how to organize the computer equipment; the *Teaching, Learning and Technology Workbook*; the *Plan Template* disk; the *Workbook* duplication masters; a CD-ROM disc containing two hours of audio success stories featuring teachers and administrators discussing development of a viable plan for integrating technology into the curriculum; and an hour-long videodisc of success stories and planning tips from schools across the country examining the role of technology in education.

The Basic Kit costs $39 plus $3 shipping; the *Plan Template* disk requires a Mac with MacWrite II software and a LaserWriter printer. The Interactive Kit is $149 plus $7 shipping; it requires a Mac LC or Mac II color system (with at least 2 megabytes of RAM, a hard disk, and a monitor), a videodisc player, a video monitor, and an AppleCD SC CD-ROM drive. Quantity discounts are available by calling (805) 968-2291. Allow four to six weeks for delivery. For more information, call or write Intellimation Library for the Macintosh, Dept. XJ, P.O. Box 1922, Santa Barbara, CA 93116-1922, (800) 3IN-TELL, or circle number 351 on the Reader Service card. **— P.S.**



Featuring case studies and resource lists, Apple's planning kits help educators design computer-based curricula.

NEW SOFTWARE

NEW PRODUCT FOCUS • HARDWARE/SOFTWARE •

"Apple II" indicates an 8-bit product compatible with IIes, IIcs, IIc Pluses, and IIGses unless noted otherwise.

▲ SHADOWS AND SUN

The View from Earth is the first of Warner New Media's interactive CD-ROM science discs for the Macintosh based on Time-Life's acclaimed Voyage Through the Universe book series.

This interactive documentary shows how the sun, moon, and earth aligned to create the total solar eclipse of July 11, 1991. Color slide shows provide narrated tours of all three bodies.

From the tours, you can take a side trip to explore an animated slide show of the eclipse as seen from the top of Mauna Kea in Hawaii; or an eclipse tracker that displays a map of the world showing the paths of solar eclipses from 1940 to 2040; or the anatomy of an eclipse, including an explanation of why eclipses happen and why they don't happen every month.

The disc contains hundreds of color photographs, two hours of narration, and more than a thousand text screens, diagrams, and maps. Glossaries and indexes make The View from Earth a valuable reference work as well as an entertaining show.

The View from Earth requires a color Macintosh LC or Mac II with at least 4 megabytes of RAM and a 13-inch monitor, and an Apple-compatible CD-ROM player. The View from Earth is available at retail outlets for $79.95. For more information call or write Warner New Media, 3500 Olive Avenue, Burbank, CA 91505, (818) 955-9999, or circle number 352 on the Reader Service card.

◆ CARMEN'S BACK — IN TIME

Teachers and other detectives with Apple IIs will be happy to learn that Carmen Sandiego is back on the case — this time teaching the history of the United States. **Where in America's Past Is Carmen Sandiego?** works on all Apple IIs and on the Macintosh LC with IIe card. A Mac version is in the works.

Where in America's Past offers so much more than names, dates, and places. There's a major emphasis on American culture and regional history, plus the program includes What Happened When, Penguin Books' 1300-page encyclopedia of American history and culture, featuring fashion, folkways, philosophy, religion, science, arts, music, theater, and sports, in addition to the history and geography data you'd expect.

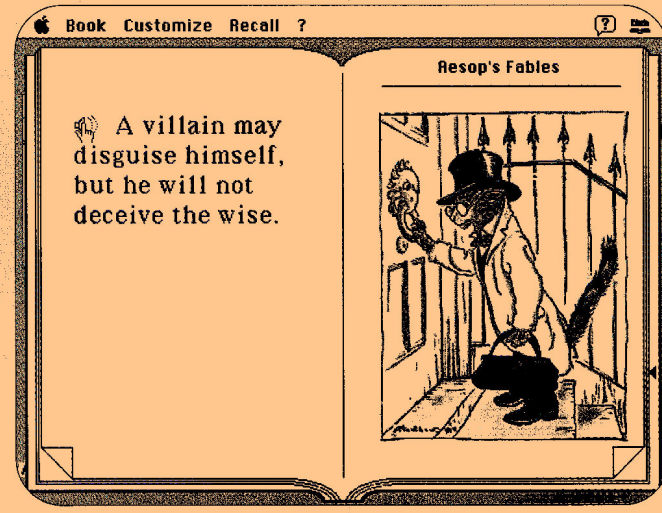
Where in America's Past is as challenging to play as all the other Carmen series games. You seek clues in 45 different destinations in nine different time periods; the program features 45 double-hi-res graphics representing some of the finest in American art and photography.

The suggested retail price for the Apple II consumer edition is $49.95; the school edition, with teacher's guide and back-up disks, is $59.95. A five-computer lab pack is priced at $129.95. For more information contact Broderbund Software, 500 Redwood Boulevard, Novato, CA 94948, (800) 521-6263, or circle 353 on the Reader Service card.

▲ FABULOUS READING

Some lessons are so old they seem new. The Greek slave Aesop, who lived more than 7000 years ago, told a number of tales that have endured through the millennia because of their keen insight into human values and behavior. Now ten of **Aesop's Fables** are available on a Macintosh CD-ROM of that name from Discis Books, designed for readers in grades 4 through 8.

The electronic collection includes the admirable illustrations of Arthur Rackham and tells the tales of "The Crab and His Mother," "The Fox and the Grapes," "The Ants and the Grasshopper," "The Travellers and the Plane Tree," "The Crow and the Pitcher," "The Dog and His Shadow," "The Town Mouse and the Country Mouse," "The Cat and the Birds," "The Quack Frog," and "The Fox and the Crow."



Like all Discis Electronic Books, Aesop's Fables offers dramatic readings, in-context explanations of every word, and Spanish-language audio. Aesop's Fables is the first Discis book with one feature teachers have been asking for: a printable vocabulary list for testing.

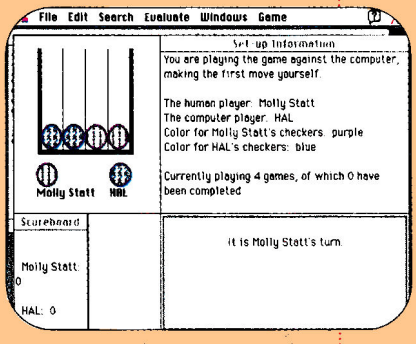
Whether you're teaching morals, values, and problem solving — some of the "newest" ideas in education — or just plain old-fashioned reading, Aesop's Fables will fascinate and instruct your pupils. It runs on any black-and-white or color Macintosh and requires a CD-ROM drive. It's priced at $79.95, from Discis Knowledge Research, NYCC P.O. Box 45099, 5150 Yonge Street, Toronto, Ontario M2N 6N2, Canada, (800) 567-4321. Circle number 354 on the Reader Service card for more information.

▲ MAC ◆ APPLE II ■ APPLE IIGS

▲ WHAT A SCHEME

You know that "structured programming" is the kind you should be teaching. Your students will create programs that are more reliable and easier to maintain and debug — and they'll be better prepared for professional programming than if they learned BASIC. But Pascal and C are just too dull, right?

Scheme is a relatively new language with a proud pedigree. Like Logo, it grew out of Lisp, the list-processing language that has become famous in artificial-intelligence research. Scheme and Lisp are both characterized by their ability to process any type of list — not only numbers — and by their great reliance on recursion.



EdScheme is a Scheme interpreter created especially for use at the secondary and university levels. It's ideal for beginning programming, as well as "Programming for Poets" courses. In the Scheme language you start writing interesting programs fast. EdScheme builds perfectly on the insights of Logo students — in fact, it even includes "turtle graphics." The EdScheme intrepreter for the Mac costs $49.95. A companion book, The Schemer's Guide, introduces a delightful language delightfully and is priced at $29 95, from Schemers Inc., 4250 Galt Ocean Mile, Suite 7-U, Fort Lauderdale, FL 33308, (305) 776-7376. Circle 355 on the Reader Service card for more information.

■ EXPRESS PRINTS

Seven Hills Software's new printer spooler, **Express**, gives you full control of your Apple IIgs while your printer's working. If you're looking to stop wasting valuable computer time, you need this program. Express is easy to use: Once it's installed, just choose Print from the File menu as always, and Express puts the print job on disk ("spools" it) automatically. You get back to computing in a fraction of the time it used to take. Once spooled, your documents are printed automatically in the background. You can quit your program and start another while documents are printing. In addition, you can spool multiple files, print more than once, and delete from the spool list. The longer and more complex the document, the more time you save.

Express works with AppleWorks GS, GraphicWriter III, Platinum Paint, and other GS/OS-compatible programs — but not with 8-bit software such as AppleWorks 3.0. It requires an Apple IIgs with a hard-disk drive, and works with all directly connected printers (not with networked printers).

Express is available for $39.95 from Seven Hills Software, 2310 Oxford Road, Tallahassee, FL 32304, (904) 575-0566. For more information circle number 356 on the Reader Service card.

◆ ■ SITE FOR SORE IIS

Broderbund Software announced recently that site licenses are available to schools for many of its popular Apple II programs. For a one-time fee of just $295 each, a school can use each of these programs on as many as 35 computers: **The Print Shop Companion IIgs**, **The Print Shop IIgs Graphics Library Collection**, **The New Print Shop Graphics Library Collection** (8-bit Apple II), and **Type!** (8-bit Apple II).

For a one-time fee of $395, a school can buy a 35-computer site license for **The Treehouse** (8-bit Apple II), **Where in America's Past Is Carmen Sandiego?** (II), **The New Print Shop** (II), **The Print Shop IIgs**, **Dazzle Draw** (II), **Where in the USA Is Carmen Sandiego?** (Apple II and IIgs versions), **Where in the World Is Carmen Sandiego?** (II and IIgs), **Where in Time Is Carmen Sandiego?** (II), and **Where in Europe Is Carmen Sandiego?** (II).

Site licenses are also available for 75 and 100 computers, and two or more schools purchasing site licenses at the same time can save as much as an additional 10 to 30 percent. For details and a site-license application, call or write Broderbund Software, 500 Redwood Boulevard, Novato, CA 94948, (800) 521-6263, or circle number 357 on the Reader Service card.

▲ ◆ SEND HELP SOON

Monarch Software's **Save Our Earth** is an interdisciplinary, thematic unit designed to encourage development of language skills for grades 4 through 9, and is easily adaptable to all levels. This flexible program lets you use your favorite word processor to modify your own unique science or writing curriculum.

Working alone, in groups, or as a class, students use their imaginations and their word processors to complete ecologically oriented writing projects. Through exploration, modeling, and imitation, pupils discover that solving problems, talking about them, and writing about them are engaging activities. They'll publish stories, poems, plays, journals, letters, and essays to share — and along the way will be integrating thematic-learning, process-writing, literature, video, word-processing, and life skills as they're exposed to cross-curricular experiences.

Save Our Earth, including disks, a free book, and a free videotape, is available only as a schoolwide site license: $299 for as many copies of the Mac software as you need to make, $199 for Apple II or MS-DOS. Save Our Earth also works on many networks. Color graphics and digitized sounds are offered for the Mac version.

For details, contact Monarch Software, P.O. Box 147, 112 Husum Street, Husum, WA 98623, (800) 647-7997, or circle 358 on the Reader Service card.

SUMMER FUN 1

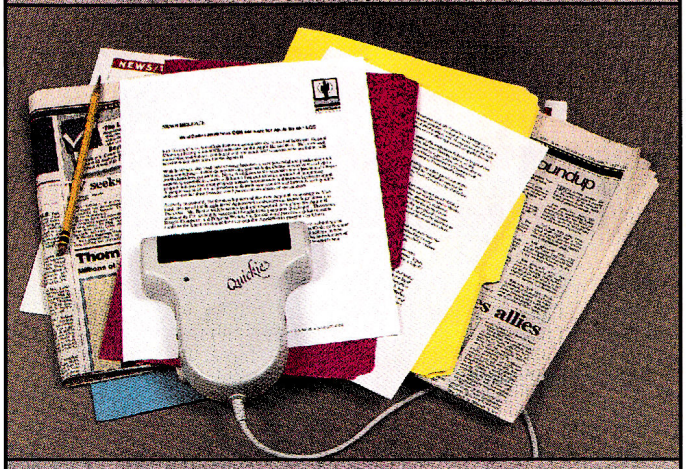
For some "real cool fun" on a hot summer day, check out your local user-group library — chances are it includes dozens of disks filled with high-quality entertainment. This month we'll look at games for ProDOS 8; next month we'll review some GS games. All games described below are freeware, except where noted, and will run on enhanced IIe, IIc, IIc Plus, and IIGS computers. (Set your GS system speed to Normal via the Control Panel.)

- **Balloon** is a colorful, fast-action keyboard or joystick arcade game. Hop on your trusty skateboard and try to catch those balloons on your head. Kick them, and they'll float back down to give you a second chance. Guaranteed to bring you hours of delightful frustration.
- **Car Dodger** is a real test of hand/eye coordination. Your Formula 1 racecar just happens to cruise faster than the others. Unless you switch lanes very quickly, you'll rear-end the car in front of you. Use the arrow keys — and you better be quick.
- **Death Maze 5000** is a huge, multilevel 3D game. Your goal is simply to find your way out. Along the way, you may be unlucky enough to run into invisible and fatal obstacles. Navigate via the arrow keys through five interconnected levels. Two-word commands let you pick up worthless objects or valuable weapons.
- **Hit or Miss** is similar to the classics Pong and Breakout. Images are ASCII letter graphics. But don't let the simplicity fool you: You'll be missing more than hitting, but practice makes perfect.
- **Las Vegas** is geared toward the gamblers among you and other assorted high rollers. Just as in Vegas casinos, the one-armed bandit is out to take all your money. This graphics-oriented slot-machine game accepts from one to five quarters. If you roll the same graphic in all three windows, the payoff is 50 to 1. At least here when you lose, you don't go home broke.
- **Paipec**'s a fast-action arcade game. Enemy invaders drop bombs, missiles, rocks, and other lethal devices. You'll try to stop them with your joystick-controlled squad of interceptors. How long can you save Paipec? When you lose, you get to watch the hi-res city being leveled, all from the comfort of your computer room.
- **Super Othello** is a computerized version of the classic board game. It's like Chinese checkers. Your computer opponent places a tile on the 8-by-8 grid; using keyboard, joystick, or mouse, you try to convert it to your color by jumping and outflanking it. It's a thinking person's game — strategy's paramount. It takes a lot of practice to outsmart an Apple II computer.
- **Sokoban**, a $5 shareware game, is a double-hi-res (128K required) keyboard-controlled maze — with a twist. Push objects out of your path into a storage receptacle. Unfortunately, they may become trapped against the walls and you'll need to start all over again. The author says he's never gotten past 22 of the 50 levels. Can you?

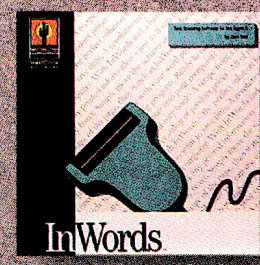
Hundreds of wonderful ProDOS-8 games are out there for the taking. Check with a user group, on-line information network, or public-domain mail-order house. If you haven't played any high-quality freeware or shareware games yet, what are you waiting for?

FOR A DISK CONTAINING THE GAMES DISCUSSED HERE, PLUS OTHER ENTERTAINMENT GOODIES, SEND $5 (U.S. FUNDS ONLY) TO JOE KOHN, 166 ALPINE ST., SAN RAFAEL, CA 94901. SPECIFY 3.5- OR 5.25-INCH DISK. COST COVERS SHIPPING ONLY; YOU'RE RESPONSIBLE FOR SHAREWARE FEES WHERE APPLICABLE.

WHY TYPE?
InWords!



InWords™ provides a revolutionary new way to enter text into your Apple II. Instead of slow tedious typing, InWords will input information at up to 500 words per minute. By simply passing your Quickie™ scanner over the page, you can create a word processor, data base, or spreadsheet file without typing a single word.



"I highly recommend InWords. It's easy, versatile and extremely useful."

Bruce Shanker
National AppleWorks Users Group

Think of the possibilities. Input lesson plans, contracts, reports, mailing lists, recipes, research materials, newspaper clippings, magazine articles, and books. All of these and more are just a scan away with InWords, a powerful tool to increase your productivity and save time at home, school and work.

InWords and Quickie are so easy to use, there's no reason to wait - stop typing and start scanning. Give your Apple II a powerful upgrade. Get InWords. To order or for more information see your dealer or call (619) 679-9200.

WestCode SOFTWARE

InWords *$129.00*

Requires Quickie or compatible scanner and IIGS or enhanced IIe with 512K

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RollerMouse ADB	89.95

Claris
AppleWorks 3.0	167.95
AppleWorks GS	195.95

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Chess Master 2100	29.95
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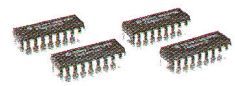

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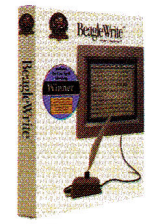

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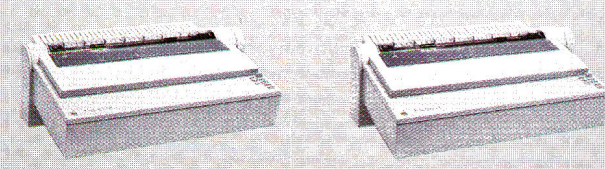

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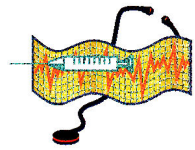

APPLE CLINIC

NOT EASY BEING GREEN

Who's KERMIT and what's he doing in my computer?

By CECIL FRETWELL

KERMIT? IS THAT YOU?

WHILE READING ABOUT THE world of telecommunications, bulletin boards, modems, and so on, I came across the term KERMIT. The only Kermit I know is the little green frog dreamed up by Jim Henson. Is KERMIT for real in the computer world?

Darrell Trimble
Franklin, TN

Yes, KERMIT is indeed alive and well in the computer world. KERMIT is a universal telecommunications package that lets you work with dissimilar computer systems without purchasing specialized software.

With KERMIT for the Apple II on my system at home and KERMIT for the Digital Equipment Corporation minicomputers at work, for example, I can transfer information back and forth.

KERMIT was born at the Center for Computing Activities, 612 West 115th Street, New York, NY 10025, (212) 280-5126. All program documentation states that the name KERMIT is used with permission of Jim Henson and Associates.

KERMIT isn't freeware, technically, but the software, sources, and documentation remain free of charge. You're encouraged to pass KERMIT on to others and may charge only a reproduction fee.

There's no one real version of KERMIT. For example, KERMIT for the Apple II line is now version 3.87. For DEC equipment it might be version 4.2. The point is, each computer system conforms to KERMIT specifications and uses version numbers in the standard fashion you expect.

Any number of telecommunications programs on the market can handle KERMIT protocol, including ***ProTerm 3.0****, $129.95 from InSync Software, P.O. Box 22141, Phoenix, AZ 85028, (602) 992-5515.*

CONTROL PANEL GETS SMASHED

I RUN OUR SCHOOL'S COMPUTER lab and often find students pressing keys without knowing what they're doing after getting into the Control Panel. Or they know how to get to the Control Panel and wreak all kinds of havoc there — like setting the display to black on black. Didn't you publish something that will combat this problem?

Rodrigo A. Dar
San Jose, CA

Rodrigo, welcome to the club. In the August 1989 Apple Clinic, p. 24, we published a short Applesoft BASIC program called ***Disable.CP****, which disengages access to the Apple IIGS Control Panel.*

We also published an update in the July 1990 Clinic (p. 24). Contact the inCider/A+ *editorial offices at (603) 924-0262 if you'd like reprints of these articles.*

For something more reliable yet still low-cost, I recommend ***LockOut 2.0****, $49.95 from SuperStuff, 3382 Sandra Drive, Kalamazoo, MI 49004. John Link, the owner, is widely known for his AppleWorks patches.*

The good news is I've tested the LockOut package and have yet to gain access to the GS Control Panel after installing it.

PAINTWORKS GOLD UNDER 5.0.4

I'D LIKE TO RUN PAINTWORKS Gold 1.5 from GS/OS 5.0.4. I made the change to the program suggested in the May 1990 Apple Clinic (p. 20). It still crashes at the Paintworks title screen 90 percent of the time. It runs only occasionally.

Allan Youberg
Bosque Farms, NM

As Mark Ruskin pointed out in that Clinic column, ***Paintworks Gold*** *needs a lot of "page 0" memory, and you can alter its program code to satisfy that requirement.*

At the time, Mark recommended using a block read/write utility such as ***ProSel-16****'s* Block Warden *module (Charlie's AppleSeeds, 9081 Hadley Place, San Diego, CA 92126, 619-566-1297, $89.95 for the package) to search for the hex sequence* C9 08 00 D0 CE. *Just replace the* 08 *with* 7F *to patch it.*

If you're using the Clinic fix instead, try disabling or copying the SYSTEM/DESK .ACCS *folder, then deleting all new desk accessories (NDAs) other than the Control Panel. For some people, this takes care of the problem. (Contact the* inCider/A+ *editorial offices at 603-924-0262 if you'd like a reprint of the modification.)*

This probably applies to Control Panel devices (CDEVs), large INITs, and so on, too. Also, don't use the 5.0.4 printer drivers — they won't work and you won't be able to print. Many people have used the 5.0.2 printer drivers without a problem.

Don't replace your 5.0.4 driver with the 5.0.2 driver, though — just copy the 5.0.2 driver with a different name. The Control Panel and friends won't know about the "duplication" and will let you select either driver at will.

If removing the NDAs and CDAs solves your problem, it may be only certain desk accessories that make Paintworks Gold unhappy. Try adding them back one at a time to see whether you can determine what's causing the problem.

Thanks to Paul Novak, Scott Gentry, and Lawrence Sitton for their help via America Online.

AILING SYSTEM

MY SYSTEM WAS WORKING FINE until recently. Now it often freezes so badly I can't reboot. This problem began after I installed a **TransWarp** card from Applied Engineering and the IIGS memory board from **CV Technologies**.

Tim Hildebrandt
Thompson, Manitoba
Canada

The key words here are "This problem began after I installed . . . ." But don't blame Applied Engineering or CV Technologies — it could happen with any piece of computer gear.

Try to trace the origin of the problem by pulling all but the essential cards from your system, then "starting over" — replacing one card at a time.

Start with the memory, back to the original Apple expansion. Then add the CV Technologies board and, finally, the TransWarp. If the system fails at any step, odds are the last board you inserted has problems.

This repair process doesn't cost a dime, providing you exercise the usual precautions: Avoid static-electricity damage by touching the power supply while removing and inserting cards, and turn off the computer before you attempt such operations.

Don't be surprised if the blasted computer starts working again. Some time ago, my GS was crashing regularly. I pulled all my cards and put them back in. (It's called reseating.*) The system began working flawlessly again. What probably happened was that a bit of corrosion on a connector was rubbed off during the removal/reinsertion process.*

I also talked to the technical-support staff at Quality Computers; they suggested you check the revision of your CV memory board. Revision A boards may cause problems; if it's a Revision B board, Quality suggests you talk directly to the CV Technologies folks, 1800 East Whipp Road #200, Dayton, OH 45440, (513) 435-5473, fax (513) 435-9554.

GS RAM LIMITS

I'VE READ IN VARIOUS COMPUTER-related books and magazines that the Apple IIGS can access 16 megabytes of RAM (random-access memory). Certain other sources, however, claim that it can access only 8 megabytes. Which is correct?

Bill Tricarico
Margate, FL

Bill, I went straight to the horse's mouth on this one — namely, the Apple IIGS Hardware Reference, *written by Apple Computer and published by Addison-Wesley (1 Jacob Way, Reading, MA 01867, 617-944-3700, $24.95).*

*According to this manual, the GS' design includes what's known as an FPI (*fast processor interface*) custom integrated circuit, which handles most memory organization and address decoding of RAM banks for the 65C816 microprocessor. The 65C816 can address up to 16 megabytes of memory, but the upper 8 megabytes in the GS are reserved for ROM (read-only memory) expansion. Thus, the maximum RAM expansion available in the GS is 8 megabytes, even though the microprocessor can access up to 16 megabytes of memory.*

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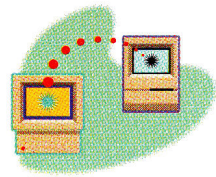

BRIDGING THE GAP

ROUND 6

Fancy footwork keeps the Apple II dancing: The latest version of the GS' operating system closes in on the Mac.

By GREGG KEIZER

WHILE NOBODY'S BETTING THE Apple II line will ever deliver a knockout blow to the Mac, the IIGS' new operating system, GS/OS 6.0, at least gives that machine the clout it needs to stay in the ring for a few more rounds. This upgrade (available free on line or from an authorized Apple user group, or for minimal cost from mail-order sources) not only makes the GS easier to use, but extends its reach, as well. Several new applications, a smarter and more efficient Finder, and slightly faster operation all mark System 6 as well worth the trouble and expense of installation. (For a complete rundown on System 6 and its major features, don't miss "Smooth Operator," p. 34 in this issue.)

But it's System 6's bridge building in particular that should excite everyone who's spanning the gap between Apple II and Mac. Though System 6 for the GS isn't nearly as dramatic a change as the Mac's System 7 a year ago, it resembles 7 in many respects, particularly in the connectivity doors it opens. If you're sharing and swapping data from GS to Mac and back, you need System 6.

THE MAIN EVENT

One of the best things about GS/OS has been its similarity to the Mac's operating system. When opening windows, copying files, and arranging folders are identical on both machines, shifting from one to the other is much easier. System 6 may not mimic the Mac's System 7 to the letter, but it does bring them closer. Several changes in the GS' Finder, for example, make the GS and the Mac more alike:

- You now can use a *Put Away* (Command-Y) command to eject a selected disk from the drive or to unmount an AppleShare volume, just as you can with the Mac. Putting a disk away is the same as dragging its icon to the *Trash*, but the key equivalent keeps your hands on the keyboard, not reaching for the mouse. System 6 also selects a disk automatically when you insert it into the drive, as on the Mac.
- GS/OS now lets you drag folders from an open volume onto the desktop, even lets you move Control Panel icons to the desktop for convenience when launching. Both operations have been available on the Mac, but their appearance on the GS is new.
- You can now use the up- and down-arrow keys to move through a list — of files in a folder, say. You can also select an item from such a list by pressing the first letter of its name.

But System 6's most significant improvement for Bridging the Gap fans is its new **HFS File System Translator** (FST). Once it's tucked away in the *System* folder, this FST reads 400K and 800K Mac disks inserted into the GS' 3.5-inch drive. The bridge is instant.

Let's say you've been using **MacWrite II** on a Classic to compose a report. You want to share the document with someone using a GS, but there's no LocalTalk network connecting the two machines. Maybe the Mac is at work, and the GS is at home, or perhaps the two computers are in separate classrooms. Before System 6, sharing demanded cumbersome transfers via an on-line service, or translations using programs like the freeware program **A2FX** on the Apple II and **Apple File Exchange** on the Mac. You could make the bridge

Illustration • Vala Kondo

two-way, but it wasn't easy. When you have System 6 on the GS, though, transfers and sharing are a snap. Put the Macintosh disk in the drive, and in a moment its icon appears on the GS' desktop (**Figure 1**). You can treat the disk as you would any other — copy files by dragging icons to it or from it, create folders, shuffle files.

If you've saved the work on the Mac under MacWrite II in *AppleWorks 2.0* format (available in the *Save As* dialog box), you can open the document from within AppleWorks GS. To save even more time, hold down the option key while you double-click on the file's icon; a list of your hard-drive contents appears, and you can pick an application (16-bit only — AppleWorks GS, for instance, and not 8-bit AppleWorks) to launch the file. When you've finished the file, save it back to the Macintosh disk in *AppleWorks GS* format.

To repeat, this works fine when you're using AppleWorks GS or another 16-bit word processor, but 8-bit AppleWorks won't recognize the Mac disk; to load the file into AppleWorks, you must first copy the file to a ProDOS disk — floppy or hard. Ditto for saving; because AppleWorks doesn't "see" the HFS disk, you must save the final version in *AppleWorks* format to a ProDOS volume. When you return to the Finder, you can copy the file from the ProDOS volume to the HFS disk by dragging its icon there. (Of the 8-bit ProDOS programs I tested, including AppleWorks and Publish It!, none recognized the HFS disk, though it was in the drive and on the GS desktop.)

Now, simply "sneakernet" the disk back to the Mac, insert it into the drive, and open it; the files you saved on the GS appear as icons on screen, ready to open with MacWrite II. The folders you created while the disk was in the GS' drive are still there, too, as is any folder organization you may have instituted.

The HFS FST eliminates the need to fool with Apple File Exchange on the Mac — you're not forced to run AFE to get the Mac to recognize Apple II files. You may still work with AFE on occasion, especially if you've invested in **MacLinkPlus Translators 6.0** for more-comprehensive translations of word-processor, database, and spreadsheet files from Mac to Apple II (the program includes an array of formatting translators compatible with a number of popular Apple II programs), but for most day-to-day transfers of word-processing documents, the FST is all you need.

A.K.A. . . .

Another welcome addition to System 6 for bridge builders is its **EasyMount** Finder extension, a fast-access network tool akin to alias building, one of System 7's most intriguing features. Simply put, System 7 lets you create an *alias* — a duplicate icon — of any disk, application, document, AppleShare volume, control panel, or desk accessory, which you can place anywhere. Double-click on the alias, and the appropriate volume or disk appears or is requested, the application or document launches, or the control panel or desk accessory opens. Aliases serve organizational duty for many Mac users, who typically place them on the desktop so that they don't have to dig through folders to find a file or application, log on manually to another AppleShare volume, or pull down the *Apple* menu to open a desk accessory or control panel.

Unfortunately, the Apple IIGS' System 6 doesn't offer such broad alias creation — but, for one specific activity, System 6 lets you produce and use an alias-like device.

Before System 6, anyone using an Apple IIGS connected to an AppleShare-managed network or linked to a single Mac taking advantage of System 7's file sharing had to log on manually to the network and select an AppleShare volume (which could be a shared folder on a System 7-equipped Mac). System 6 on the GS automates the process for faster access to network resources.

Say you work with a GS connected to a Mac LC II running System 7. Two folders on the LC II's hard-disk drive are shared folders named *AppleWorksGS* and *InBox*. To create a server alias on the GS, log on manually to a server by double-clicking on the *AppleShare* icon within the GS' Control Panel. Select the server, type in your password (earlier, the LC II owner created a *User* file with your name and password), and then choose the *AppleWorksGS* volume from the list. An AppleShare icon titled *AppleWorksGS* appears on your GS' desktop.

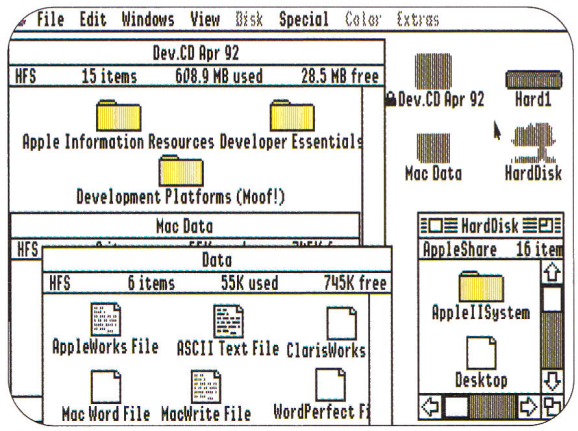

Figure 1. Your GS now recognizes Mac disks, thanks to System 6's new HFS File System Translator.

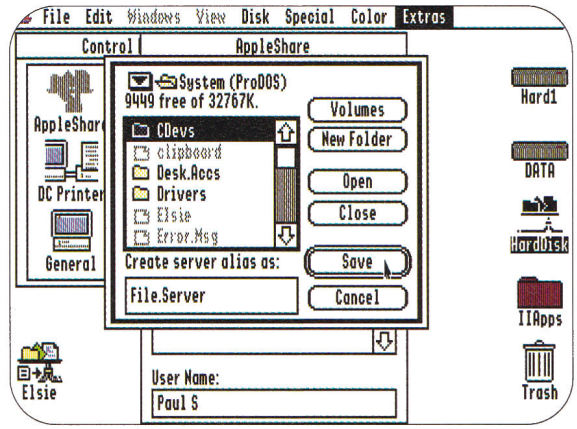

Figure 2. System 6's EasyMount Finder extension lets you create an alias of an AppleShare file server on your GS' desktop for easy network log-on.

Select the *AppleShare* icon, pull down the *Extras* menu at the far right of the GS' menu bar, and select its single item: *Create Server Alias*. Give the alias a name (same as the *AppleShare* volume if you want), and save it to a floppy disk or a hard-disk-drive volume on the GS. It's a good idea to move it onto the desktop, out in the open, for easy access (**Figure 2**). You're now ready for painless folder access.

To log onto the Mac LC II's *AppleWorksGS* shared folder, just double-click on the alias. A *Connect to . . .* dialog box appears, listing your name and asking for the proper password. Enter the password, hit Return, and in an instant the *AppleWorksGS* AppleShare icon appears on the GS' desktop; its window opens automatically.

You can trim still another moment from the process: Type your password into the *Connect to . . .* dialog, then click on the *Save* button before you press Return. The next time you

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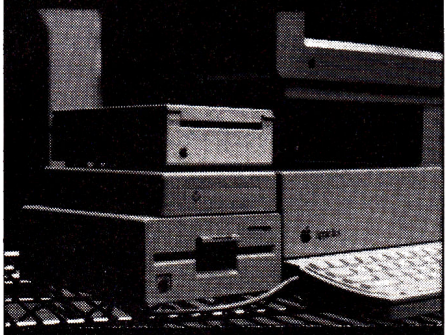

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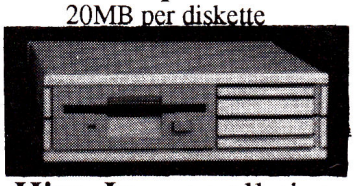

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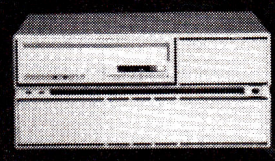

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BRIDGING THE GAP

double-click on the alias, it bypasses the dialog box and places the *AppleShare* icon immediately on the desktop.

Schools and teachers using GSes as network workstations will find server aliases especially useful. Create aliases for each AppleShare volume, then generate individual log-on disks for each child by copying only the aliases representing the volume(s) he or she may access. All the child needs to do to log on is stick the disk in the drive, click on the appropriate alias, and, if necessary, type in a password. Don't think of this as an additional level of security — folder privileges do that — but as a way to ease network access for school-aged kids.

STILL SWINGING

System 6 hands several new applications to GS users, as well, including a backup utility (**Archiver**), a sound maker (**SynthLab**), and a text tool (**Teach**). This last item is one that has sharing potential.

Like its older cousin, TeachText on the Mac, Teach is an always-available viewer for the ubiquitous *ReadMe* files developers post on their disks. It also has text-entry and editing tools of its own, though, and can serve as a minimal word processor.

Teach is special not only because it reads ASCII files, but because it imports **MacWrite 5.0** files. Combine this trait with the HFS FST, and you have a down-and-dirty way to read, alter, and print Mac text. Since Teach loads in just a fraction of the time it takes AppleWorks GS, say, to boot, you can read a Mac file fast — perfect for printing short Mac documents on the GS.

What's surprising is the selection of MacWrite 5.0, an obsolete word processor, as the single supported Mac format. MacWrite II (which can save files in 5.0 format) would have been a much better choice.

System 6 includes one other gem for GS users looking to share. Its **StyleWriter** driver lets you use the lowest-priced Apple printer, an ink-jet device that squirts characters on paper in near-laser quality. It's slow, but because it lists for only $400 and also connects to the Mac (though not at the same time, since it's not network compatible), it's a bargain-basement printer for anyone who has both a Macintosh and a GS at home or in a small office.

THE DECISION

With all that System 6 has to offer, you may think it's perfect. Not quite. Missing is support for TrueType, the outline-font technology and rasterizer found in the Mac's System 7. Although WestCode's **Pointless** puts TrueType on the GS (see Reviews, p. 24 in this issue), Apple should have integrated the technology into the machine's operating system so that everyone could share the benefits of sharper display fonts and better-quality printing on low-cost (non-PostScript) peripherals.

Across-the-board alias creation would have been appreciated, as would even limited folder sharing. Imagine the possibilities if the GS could set up shared folders, so that you could retrieve files on the GS from a Mac. You can, of course, send files from the GS to the Mac over LocalTalk, but that's a one-way street; by making it work both ways, the GS would fit more comfortably within a mixed Apple II/Mac network.

Still, who's complaining? Not me. Not when I can get a GS to digest a Mac disk. Not when I can connect to a shared folder on a Mac just by clicking on an icon. Not when I can get double duty out of an affordable printer. System 6 — warts and all — belongs on any GS that aspires to work in a world of Macs. Get it, install it, and come out swinging. ❑

WRITE TO CONTRIBUTING EDITOR GREGG KEIZER AT 4420 HILYARD ST., EUGENE, OR 97405. ENCLOSE AN SASE IF YOU'D LIKE A PERSONAL REPLY.

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WestCode Software
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MS-DOS APPLEWORKS

*inCider A+ Magazine, Aug

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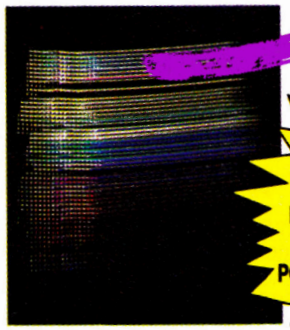

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★★★★ inCider Magazine, November 1991

Miami Herald/Craig Crossman 8/12/91

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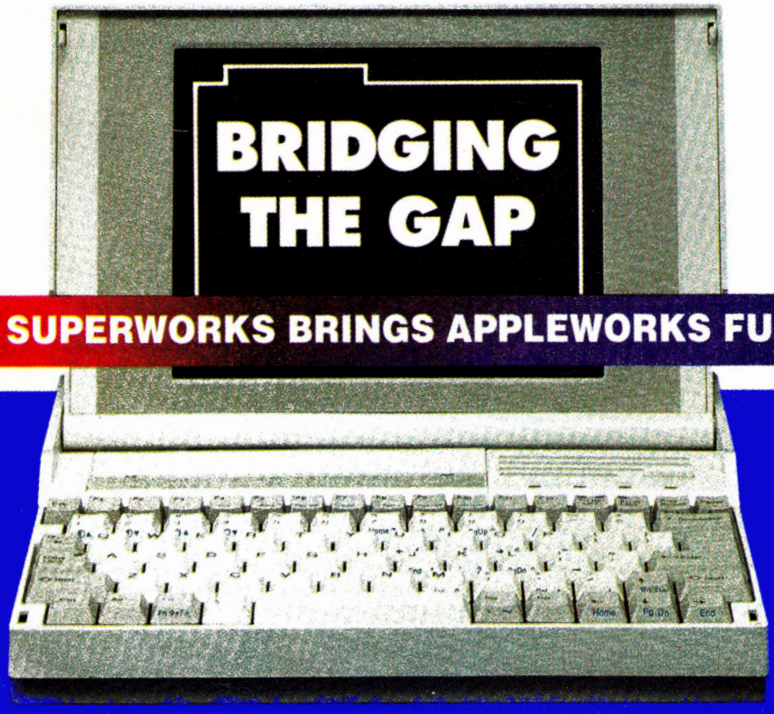

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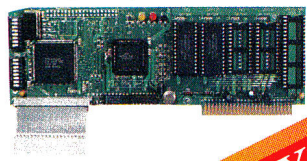

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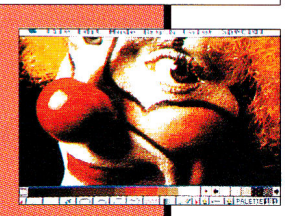

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POINTLESS

The eyes have it: Documents look better than ever as TrueType technology breathes new life into the IIGS.

You've got to give WestCode Software credit for a lot more than just a self-deprecating sense of humor. Sure, the name of the company's new TrueType font utility, Pointless, may provoke a snicker or two — but not for long. This unique GS control panel (*CDEV*, or *control-panel device*, in pre-System 6 parlance) is an indispensable addition to any Apple IIGS system equipped with an ImageWriter II or other non-PostScript printer. WestCode's latest accomplishment lets standard Apple IIGS programs, including AppleWorks GS and HyperCard IIGS, which ordinarily use bit-mapped GS fonts, use TrueType fonts, as well.

★ ★ ★ ★ ½

WestCode Software, Inc.
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Suite 112
San Diego, CA 92128
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(619) 487-9255 fax

- TrueType font utility
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Programs such as Broderbund's Print Shop IIGS that require proprietary fonts aren't compatible with Pointless. Neither are 8-bit programs such as AppleWorks 3.0 or Timeworks' Publish It! 4, although a bonus Pointless feature lets you save bit-mapped counterparts of TrueType fonts for use with programs like these. (AppleWorks 3.0 must have Beagle Bros' TimeOut SuperFonts installed.)

WHAT'S THE POINT?

Unlike fixed-size, "bit-mapped" fonts, TrueType fonts are drawn mathematically from outlines or character paths, "on the fly," in the typeface, size, and style you specify (thus the nickname "outline fonts"). That is, outline-font software such as TrueType includes *directions* for drawing outlines of characters (which are then filled in), instead of pictures of the characters themselves. Mathematical formulas describe the curves and lines of each character and the way each part relates proportionally to the other parts.

The outline advantage is particularly striking in large type sizes or when you compare outline characters with bit-mapped characters generated from the next nearest size installed in your system. Instead of performing more-or-less straight multiplication of pixels to reach the requested height and width, outline-font software interprets its own mathematical instructions for *proportion* as well as size (called "scaling"), adding and subtracting pixels here and there to eliminate "jaggies."

As a result, TrueType fonts are smoother than bit-mapped fonts both on screen and on paper, even in oddball-sized type such as 13- or 21-point. (A point equals one 72nd of an inch.) Printed results are especially dramatic, as the accompanying **Figure 1** demonstrates.

Photography • Larry Dunn

Here's where memory savings come in, too: To generate high-quality bit-mapped text with an ImageWriter II or another non-PostScript printer, you usually have to install (in the *Fonts* folder on your System disk) a font as much as four times larger than the desired print size. But because Pointless can create TrueType fonts of any size on demand, there's no need to store such gargantuan font files.

All but the most cramped hard drives should be able to provide the 32K of free space needed to install Pointless and its accompanying starter set of TrueType fonts. If you don't have a hard drive, you can still use Pointless — just remove nonessential files from your 3.5-inch System disk. The Pointless manual tells you how.

JUST YOUR TYPE

Pointless comes with a half-dozen commercial-quality TrueType fonts licensed from Apple Computer, including Chicago, Courier, Geneva, Monaco, New York, and Symbol.

Adding TrueType fonts to your on-line library is as easy as clicking on the *Add* button in the Pointless *Control Panel*. (When you add, remove, or configure a font for extended characters such as the copyright and trademark symbols and foreign-language accents, you must restart your GS for the change to take effect.)

You can store TrueType fonts in the *Fonts* folder of your *System* disk or on external floppy disks. Either way, Pointless includes them on the *Font* menu of standard Apple IIGS programs. TrueType fonts sport a characteristic icon, and the filenames are distinctive because they don't include a size suffix. (All theoretical sizes are governed by a single font file.)

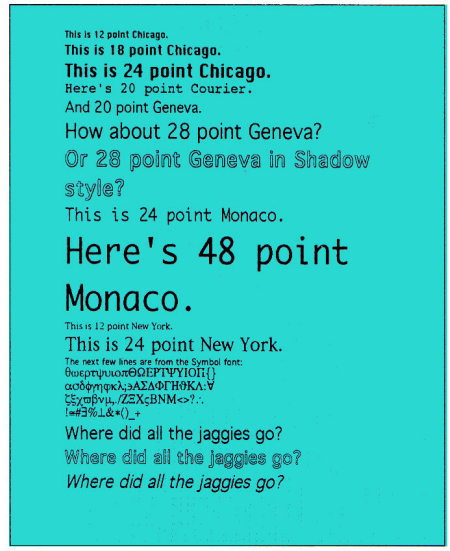

Figure 1. Pointless TrueType fonts printed on an ImageWriter II.

Although TrueType fonts can in theory be any size you desire, some limitations exist. According to the Pointless user's guide, the GS itself can generate characters as large as 255 points. By contrast, AppleWorks GS handles fonts of only up to 48 points, while GraphicWriter III can work with fonts that are twice as big.

Limitations like these may be more imagined than real, however. Large type sizes are real attention grabbers when used judiciously in headlines and titles, but the bulk of most printed reports, classroom handouts, and newsletters consists of smaller text — often 10- or 12-point size. But even at smaller type sizes, Pointless' influence is unmistakable.

For example, when you compare ImageWriter II printouts of the bit-mapped Geneva 12 font with the 12-point version of TrueType's Geneva font (see **Figure 2**), improvements à la Pointless are astounding. The distinctions are particularly apparent when you choose best-quality mode from the printer-dialog box.

How does Apple's TrueType stack up against PostScript, Adobe Systems' popular page-description language? Depending on your publishing needs, the differences in quality between TrueType fonts printed on an ImageWriter II (or other non-PostScript printer) and PostScript fonts printed on a 300-dpi (dots per inch) laser printer may seem insignificant, especially if you factor in the price differential between the two models. Again, take a look at **Figure 2**, which shows three versions of a portion of the same AppleWorks GS document. You be the judge.

POINT OF VIEW

Pointless isn't flawless. Like virtually all Apple II programs appearing in the past 15 years, Pointless has a down side. Make that plural. But even collectively, the drawbacks amount to only a half-point penalty in our rating.

It's a bit slow, for one thing — a brief delay ensues each time Pointless creates a font. In lieu of the GS/OS stopwatch icon, the Pointless "cursor" appears on screen; this circular icon fills with violet color segment by segment as each font is generated.

In my tests, this process took as long as a half minute, depending on the size and style of the font I chose. An accelerator card and additional memory beyond the minimum 1.25 megabytes required can lessen the down time. (I tested Pointless on an unaccelerated 4-megabyte GS with a hard disk drive, System 6, and an ImageWriter II printer.) If you're short on memory or processor speed, using the *Configure* option conservatively can help, too.

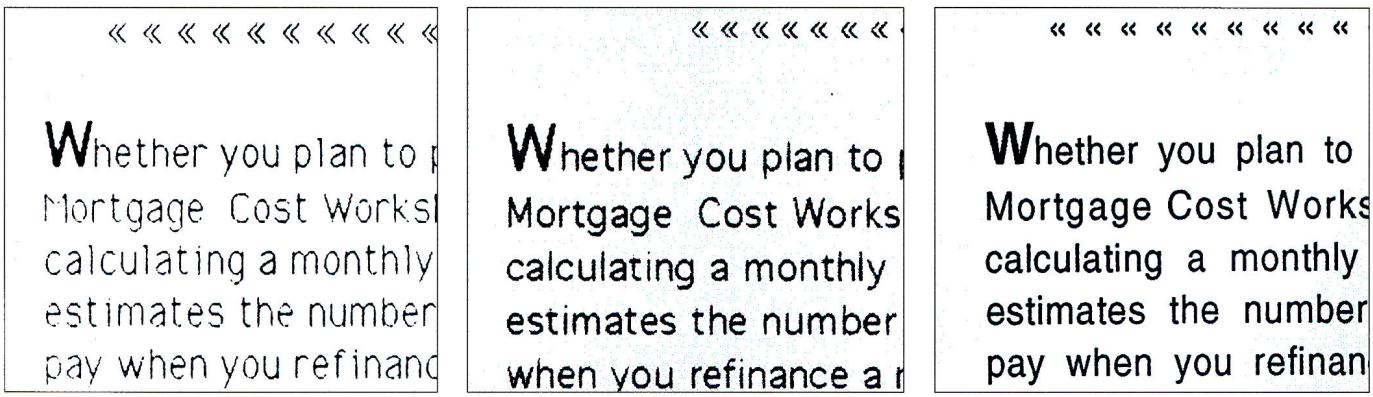

Figure 2. Left to right: Bit-mapped GS Geneva font on ImageWriter II (best-quality mode), Pointless TrueType Geneva on ImageWriter II (best-quality mode), PostScript Helvetica font on laser printer.

In addition, the manual won't win any awards for style or grammar. But despite the lack of professional fine-tuning, it communicates clearly, even though it doesn't tell the whole story sometimes. For instance, the guide claims that TrueType fonts are "the industry-standard font format used by the Apple Macintosh and Microsoft Windows 3.1." Considering PostScript's longstanding and arguably continuing dominance in professional desktop-publishing applications, it would have been fairer to refer to TrueType as "*an* industry standard." Come to think of it, I don't recall seeing the word *PostScript* mentioned in the Pointless manual — a curious absence that would be easy to double-check if the authors had included an index.

In the chapter describing Pointless' installation, one paragraph begins, "If the installation was successful . . . ." Unfortunately, there's no companion paragraph offering advice to people whose installations failed. Ironically, my initial attempts did. WestCode's Rob Renstrom told me that a small proportion of early disks — apparently my reviewer's copy was one of them — were defective. (He says this embarrassing breach of quality control has been corrected.) By the way, technical support is free for registered users, but most people will have to pick up the tab for the long-distance phone call.

I stumbled upon another TrueType limitation quite by accident. During three weeks of testing Pointless, I created ten document files, each exactly one page long. When my editor opened the document files on her GS, she discovered that virtually all of them exceeded the one-page limit agreed upon. In retrospect, this "discovery" makes sense. Close comparison of the same document printed first with bit-mapped fonts and then with TrueType fonts reveals that TrueType text is condensed both vertically and horizontally. More words fit on each line, so you can fit more text on a page.

Suffice it to say that if you plan to share formatted files with another GS user, his or her computer should also be enhanced with Pointless and the same TrueType fonts you use (or Pointless' bit-mapped versions of TrueType fonts). Otherwise, a GS/OS program such as AppleWorks GS will default to Shaston typeface in larger point sizes.

GOING TO THE WELL

The Pointless user's guide describes assorted ways to acquire additional True-

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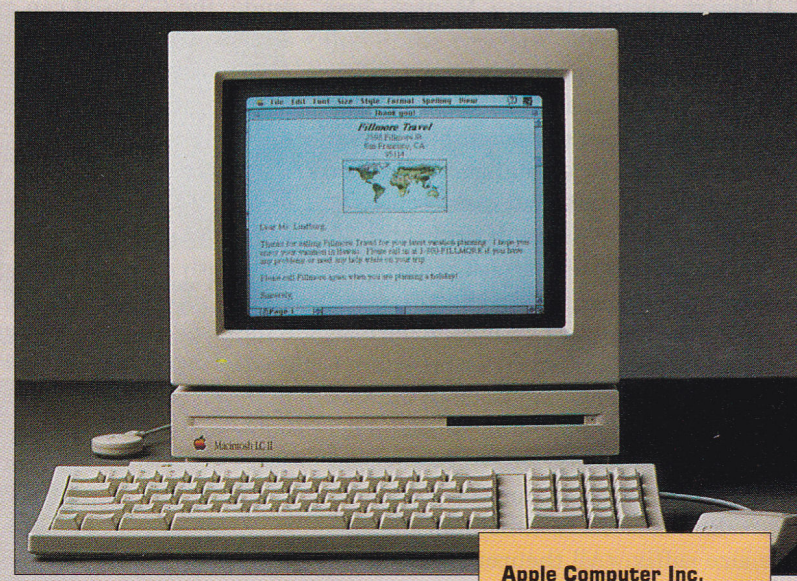
MACINTOSH LC II

LIKE A PLASTIC SURGEON WITH A BAD sense of direction, Apple spends more time reworking the insides of its patients than their outsides.

Gauging from the cloning of the Classic to the Classic II, no one should be surprised that Apple has added the II suffix to its Macintosh LC, the company's lowest-priced color system, without changing its exterior. What will surprise many Apple watchers, though, is that the LC II — improvement over its ancestor that it is — doesn't cost a dime more. In fact, in its more powerful configuration, the LC II actually runs $200 less than its predecessor. If you needed proof that Apple is serious about staying price competitive in today's DOS- and Windows-dominated consumer markets, this is it.



More for your money: The outside's the same, but inside the new Mac LC II is a 68030 chip, which lets you steal space from your hard drive and use it as RAM.

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HELLO 030

You'll need a sharp eye to spot the biggest difference between the now-departed LC and its replacement, the LC II. Tucked away on the LC II's motherboard is a 16-megahertz 68030 microprocessor, the same chip that drives the Classic II. By upping the LC to the 030, Apple's completed the shift of its entire desktop series — except for the top-of-the-line Quadras, which use the even more powerful 68040 — to this more-capable processor.

You won't notice much of a performance difference between the 68020-equipped LC and this new LC II (see the accompanying **Table**), but the 030 provides something the 020 found impossible — virtual memory. Part of System 7's suite of features, virtual memory sets aside space on the computer's hard-disk drive and treats it as random-access system memory, or RAM. Rather than add additional RAM to the computer, you can turn on virtual memory and trick the machine into thinking it's got more headroom than actually exists. Virtual memory is no substitute for the real thing — it's much slower, for one thing — but it comes in handy when

Type fonts: via AppleShare over an AppleTalk network, by modem from services such as America Online, or — thanks to the new GS operating system, System 6 — directly from Mac disks inserted into a 3.5-inch Apple II drive. (See "Smooth Operator," p. 34 in this issue, and "Round 6," this month's Bridging the Gap, p. 18, for details on System 6's HFS FST (*hierarchical file structure file-system translator*).

I experimented with these latter two methods, with mixed results. Some of the public-domain TrueType fonts I tested worked okay; others didn't. WestCode Software's John Oberrick explains that Pointless may be incapable of processing certain electronically coded instructions accompanying nonstandard public-domain TrueType fonts.

Although WestCode has graciously agreed to "take a look" at any public-domain TrueType fonts that give you trouble (send the company a copy of the font on a ProDOS disk), there are alternatives. At press time the company was in the process of assembling disks of commercial-quality TrueType fonts; each WestCode Type Collection is expected to include two text fonts and two or three display (fancy) fonts.

A second source of ready-to-use TrueType fonts is the National AppleWorks Users Group (NAUG). At press time, NAUG's Cathleen Merritt told us that her organization has collected and tested some 20 disks of Pointless-compatible TrueType fonts. To receive a sample printout, send $1 and a self-addressed, stamped (52¢), business-sized envelope to "Pointless Fonts," NAUG, Box 87453, Canton, MI 48187. Unless you enjoy playing hit-or-miss as you build your TrueType font library, pretested fonts are the only way to fly.

SCORING POINTS

For most GS enthusiasts, Pointless represents unparalleled value. Thanks to WestCode, your correspondence, reports, and newsletters can look better than ever before. Simply put, TrueType technology breathes new life into the GS. Why not give Pointless a whirl? You may conclude that when tried-and-true hardware can work this well, spending big bucks on a new system may simply be . . . pointless.

Cynthia E. Field, Ph.D.
Wakefield, RI

you want to launch and use more applications than the computer would normally permit. You turn on virtual memory by double-clicking on the Memory Control Panel, clicking on the On radio button beside Virtual Memory, then setting the amount of hard-disk space. Remember, though, that the hard-disk space you set aside as virtual memory is unavailable for storage.

FINALLY — ENOUGH RAM, ENOUGH ROOM

Unlike the original LC, the LC II comes with enough RAM and hard-disk room to work realistically under System 7 with today's megaprograms. You pick from two LC II configurations: the 4/40 (4 megabytes of RAM and a 40-megabyte hard-disk drive) or the 4/80 (4 megabytes of RAM and an 80-megabyte hard-disk drive). Both models are identical in memory and hard-disk-drive size to the most-recently available LCs.

The LC II packs its 4 megabytes of memory on the motherboard, leaving both SIMM (single in-line memory modules) slots empty for future expansion. Even so, the LC II's maximum memory is still 10 megabytes, the same as the LC's. Two 4-megabyte SIMMs — enough to boost the LC II to its 10-megabyte limit — will cost you around $250 (mail-order prices at press time).

The only other difference between the two LC II models is the amount of video memory (VRAM) each includes. The 4/40 has only 256K of VRAM, enough to display 8-bit color (256 colors) on the less-expensive Apple 12-inch RGB monitor, or 4-bit color (16 colors) on Apple's 13-inch screen. The 4/80 puts 512K of VRAM on the motherboard, so it can display 16-bit color (32,000 colors) on the 12-inch monitor or 8-bit color (256 colors) on the 13-inch screen.

A SLIGHT EDGE IS BETTER THAN NONE

If you already own an LC, you can upgrade to the LC II for approximately $800 (final price hadn't been set at press time), but you'd be smart to do something else with that money, such as add more memory to your LC, or apply it toward a low-priced laser printer perhaps.

The 68030 chip inside the Mac LC II may make virtual memory available, but it still doesn't boost the computer's speed beyond that of original LC model.

In real-world applications, it's pretty hard to tell the difference between the two machines. Still, even the smallest gains in the technology are better than none, especially when it doesn't cost you, the consumer, even a penny.

As the replacement for the LC, the LC II automatically becomes the best pick for anyone trying to bridge the gap between the Apple II and Macintosh worlds. Though the Classic II is less expensive, Apple IIe/c and IIGS owners may find its colorless complexion difficult to deal with. This new LC II, ready to roll under System 7 for file sharing and network connection, ready to put color to such home and classroom software as The Writing Center and KidPix, earns a good, long look by anyone thinking of moving to the Macintosh.

Gregg Keizer
Eugene, OR

	Mac LC	Mac LC II	Mac IIsi
Spreadsheet recalc	8.7	7.5	5.9
Search and replace	13	11.1	7
Launch ClarisWorks	6.4	6.1	4.5
Duplicate 563K file	8.5	8.5	8.5
Save 72K file	3.6	4.5	2.9
Launch to desktop	32.2	23.8	22.2

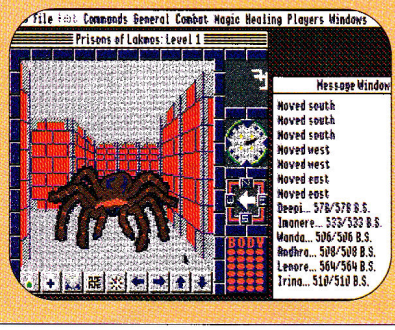
Table. Comparison speed tests (all times in seconds).

★ ★ ★ ½ ★

THE SECRETS OF BHARAS

Victory Software
P. O. Box 821381
Houston, TX, 77282-1381
(713) 493-3232

- Ultima-style adventure game
- 1.25MB Apple IIGS, one disk drive
- no copy protection
- $69.95



I was beachcombing last week when I saw a flask bobbing on the surface of the water. Fascinated, I drew closer. Retrieving the bottle, I pulled out the cork and found this message inside: "I fear we are lost. My starving band of adventurers were set upon by evil ones, who spilled from a crack in the earth like venomous serpents. It was they who murdered my mage, Wau Bulan, and gravely injured my comrade in arms, Rokkaku. And I? I am near done for. Beware the perils that await in the land of Bharas. At all costs, avoid the . . . ."

Here the note ended in an indecipherable scrawl. A hoax, I decided. And yet, when I returned home, I found Victory Software's The Secrets of Bharas in my mailbox. An odd coincidence, I told myself. Of course it was. The land of Bharas couldn't be real. Surely it was no more than an illusion born of chips and 1s and 0s. But it's *fun*. Another Dungeons and Dragons adventure, you say? You're right. And, like black olives and anchovies, you either like them or you don't. If you do, Bharas will give you many hours of entertainment.

To save yourself grief, skim through the manual first.Copy the game disks before you begin playing — if you don't, you'll find to your horror that the software writes to disk. Play Bharas with the original and when you're dead you're dead — no ifs, no ands, no maybes.

To begin the game, you enter the Guild Shop to assemble your Continued on p. 54

APPLE II REPORT

MUST BUY!
FORGET IT
WORTH A SECOND LOOK

APPLEWORKS DATA DISK 105/106 FEBRUARY 1992

Teachers' Idea & Information Exchange
P.O. Box 6229
Lincoln, NE 68506
(402) 483-6987

- new AppleWorks templates and tips
- 128K Apple II
- requires AppleWorks (3.0 recommended)
- $39.95 (6-disk subscription)

The February 1992 issue of TI&IE's AppleWorks Data Disk features its usual collection of informative class-oriented AppleWorks word-processor, database, and spreadsheet files. There's a StoryWorks stack for calendar-based hypertext activities, a "celebrities" database with names and addresses of famous personalities, plus a mystery database quiz called "The Whos." You'll also find Apple II news, tips for parents, a word-processor tutorial for beginners, and a fun-filled public-domain version of Wheel of Fortune. Good value for the money.

ASTRONOMER GS

Larry D. Bell
c/o Absoft Corp.
2537 Jefferson Street
Long Beach, CA 90810

- new astronomy-data program
- 1MB Apple IIGS
- hard disk recommended
- $19 shareware

Stargazers can learn to appreciate the night sky with Astronomer GS, an inexpensive shareware program. This seven-disk package offers an amazing amount of information, including data on sunrise/set, amount of light lost in the atmosphere, location of the sun at any time of night or day, length of twilight, and more. It isn't for beginners, and setup is complicated. If you skip the documentation you'll get error messages and crashes. While Astronomer can run from floppies, it's better on a hard disk with 3500K of free space.

EARTH WATCH: WEATHER FORECASTING

William K. Bradford Publishing Co.
310 School Street
Acton, MA 01720
(800) 421-2009, (508) 263-6996

- new meteorology-education program
- 128K Apple II
- $75

Become a successful amateur meteorologist with William K. Bradford's Earth Watch: Weather Forecasting. This highly interactive program features several science applications to equip children in grades 5 through 8 with the skills they need to understand TV and newspaper weather reports. A point-and-shoot graphics interface makes program operation a fair-weather breeze. Youngsters spend time with an on-line meteorologist; engaging activities explain forecast maps, symbols, vocabulary, and charts. By program's end, children are ready to make their own weather predictions.

ELEMENTARY LOGIC: LEVELS I AND II

William K. Bradford Publishing Co.
310 School Street
Acton, MA 01720
(800) 421-2009, (508) 263-6996

- new logic-skills builder
- 64K Apple II
- $60 each, $90 bundle

Elementary Logic consists of a sequenced set of tutorials and practice activities for students in middle school and beyond. Users should have completed an introductory algebra course. The program contains background information on the significance of logic for mathematical reasoning and everyday activities. It's organized like a textbook with lessons and problem exercises. On Level I, students learn concepts such as truth value, negations, quantified statements, conjunctions, and disjunctions. Level II focuses on conditionals, implications, biconditionals, logical equivalence, converse, and contrapositive statements. Students receive immediate feedback. While Elementary Logic is a solid skills builder, it would be more successful if it included additional sample problems.

Continued on p. 30

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QC Staff July '91.
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GOOD NEWS ABOUT THE APPLE II

Dear Apple II User,

With so much bad news going around about our faithful friend, the Apple II computer, I though it might be nice for you to hear some GOOD Apple II news.

Here at Quality Computers, we're excited about System 6, and even more excited about our System 6 Bonus Pack. See our ad on the inside front cover for details.

We are also about to release three new products for the Apple II: the Q-Modem, Q-RAM IIe, and TimeOut Grammar.

The Q-Modem is a Hayes compatible modem that is perfect for use on your favorite BBS or for uploading and dowloading the latest in free software, fonts, and more. It comes in 2400 baud speed or a super-fast 9600 baud with send-fax capability (IIGS only). It's ideal for schools who want to introduce their students to the world.

The Q-RAM IIe is a 1 MEG upgrade that will let you load and run all of AppleWorks, plus some TimeOut programs, without swapping disks. It makes all Apple IIe programs faster. And at $99.95, it's a great deal—perfect for any school's Apple IIe lab.

Since contracting to service and support the Beagle Bros Apple II product line, we have been working hard on the newest TimeOut program, TimeOut Grammar. TimeOut Grammar will give you a built-in proof reader for your AppleWorks documents, letting you catch embarrassing mistakes before someone else does. I know I could use it for my own writing. And speaking of AppleWorks, we are now authorized to sell AppleWorks and AppleWorks GS updates!

We have a lot of fun coming out with new products. We also have fun finding great software hidden in distributors' warehouses—like the Accolade games we found. They're all great arcade-style IIGS games with fantastic graphics, and they are priced to move at $14.95 each or any 3 for $36.95.

What's even more fun is publishing Enhance. The latest issue, including our catalog, is a whopping 72 pages (bigger than some magazines we know.) Call us for your free subscription.

With all of this activity happening just this year, you can understand why we are so excited about the Apple II. We plan to release more new Apple II products this year than any other time in our history. New products are being released from fine manufacturers like Broderbund, MECC, Westcode, Vitesse, Seven Hills, Sequential Systems, and others.

So, congratulations Apple II users. There's good news for you. I hope to be hearing from you soon.

Sincerely,

Joe Gleason
President

Circle 136 on Reader Service Card.

APPLE II REPORT Cont. from p. 28

EXPERIMENTS IN PHYSICAL SCIENCE

Wings for Learning
1600 Green Hills Road
Scotts Valley, CA 95067-0002
(800) 321-7511, (408) 438-5502

- new science-education package
- 128K Apple II
- does not run on Apple IIc or IIc Plus
- $390

Experiments in Physical Science is expensive, but well worth the price. This amazing science kit turns an Apple II into a microcomputer-based lab. The package includes step-by-step instructions for 32 experiments on time and motion, heat energy, light intensity, vibration and sound, plus much more. Students in grades 4 through 8 use special temperature, sound, and light sensors to gather information from the physical environment. Program software directs the computer to record, graph, and analyze incoming data. Follow-up questions make youngsters think about the data they've gathered. It's a great introduction to the practical application of science in everyday life.

THE GRAPHIC SPELLER

Marblesoft
12301 Central Avenue NE #205
Blaine, MN 55434
(612) 755-1402

- new coordinate-math skills builder
- 1MB Apple IIGs
- $50 standard, $75 special access

You'd be way off base to think The Graphic Speller uses pictures to improve spelling skills. Actually, it's a simple math package that teaches students about coordinate pairs. Youngsters plot positive and negative coordinates on nine graphs with one or two axes. If they answer correctly, they end up spelling a word. The program offers digitized voice, music, and sound effects to reinforce math concepts. Unfortunately, the activities are quite repetitive and may not hold a child's attention long. Teachers can create their own puzzle-word files, however, and track student performance. A special-access version of the program (suitable for developmentally challenged kids) works with the Echo speech synthesizer, Edmark's TouchWindow screen, or single-switch input devices.

LOGOWRITER FOR SPECIAL NEEDS

Logo Computer Systems Inc.
P.O. Box 162
Highgate Springs, VT 05460
(800) 321-LOGO

- new special-needs word processor with turtle graphics
- 128K Apple II
- $199, $59.95 LogoWriter update

LCSI's popular LogoWriter now has a companion disk for children with physical disabilities. Special software lets youngsters enter large-print text and create turtle graphics with input from a switch, paddle, or single key. The disk includes a set of stamp shapes and ten activity files with ready-made procedures for theme designs. Users determine the scanning speed at which the software highlights program commands. The package also comes with teacher's notes, reproducible activity cards, a quick-reference card, and standard LogoWriter reference materials. LogoWriter for Special Needs provides a great way to mainstream special-needs children into everyday class activities.

MR. MORTGAGE

Double Scorpio Software
6704 Van Haven Drive
Raleigh, NC 27615
(800) 826-7146, (919) 676-4227

- new mortgage-analysis AppleWorks templates
- 128K Apple II
- requires AppleWorks (3.0 recommended)
- $29.95 plus $1.50 shipping

Mr. Mortgage is a collection of 18 AppleWorks files designed to simplify house shopping and mortgage financing. Follow on-screen prompts to enter data, then issue an Open apple-K to calculate. One sheet compares interest rates from different institutions; another lets you compare six mortgage rates (with closing-cost estimates). You'll find loan schedules, a glossary of mortgage and real-estate terms, a points analysis, a selling sheet to estimate mortgage costs, an affordability analysis to determine how much you can spend on house payments (given your current rent), and several other personal-finance files. All modules contain sample calculations. An AppleWorks word-processor file provides on-line instructions.

SPACE JOURNEY: THE PLANETS AND STARS

Troll Associates
100 Corporate Drive
Mahwah, NJ 07430
(800) 526-5289, (201) 529-4000

- new astronomy-education program
- 48K Apple II
- $39.95

Three engaging activities teach children in grades 4 through 6 interesting facts about astronomy, constellations, the solar system, and Earth's moon. Youngsters journey through space as they conduct on-line research by reading and interpreting maps, graphs, and charts. They gaze at stars to learn the names of 12 constellations. Space explorers go on a moon walk for details about lunar phases, gravity, and surface. Tables provide data about known moons, planet distance from sun, rotation periods, revolution periods, and surface temperature. Game-like activities offer encouragement through animation, sound, and colorful graphics.

SUGAR SCIENCE: PHOTOSYNTHESIS TO FOOD

The Sugar Association, Inc.
1101 15th Street NW
Suite 600
Washington, DC 20005
(202) 785-1122

- new science-education program
- 128K Apple II
- $39.95

Six simulated lab experiments explore how a plant makes and uses food (photosynthesis), how grass produces steak (food chain), why bread is full of holes, why ice cream is smooth, and what makes the best preserves. On-screen background information is available. Before conducting an experiment, youngsters select variables and predict possible outcomes. Afterwards, they analyze the findings to compare expected with actual results. Menu-driven prompts and on-line help offer guidance throughout. This is a wonderful computer-based science-teaching kit for children in grades 5 through 8. A detailed teacher's guide provides lessons plans, review questions, a glossary, and more.

— Carol S. Holzberg, Ph.D.

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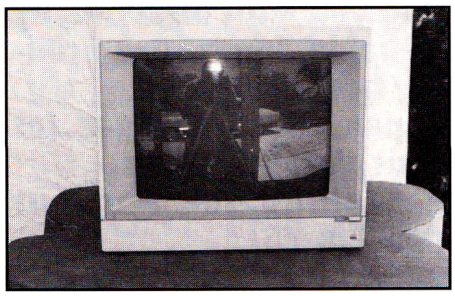
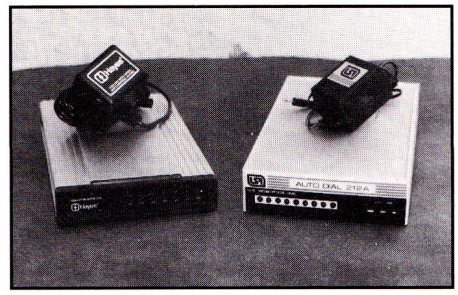


Monitors

AppleColor RGB (IIgs) .....$249.
AppleColor Monitor //e,//c (80 Col).....$225.
Apple Monitor /// (Refurb).....$49.
Apple Monitor][(Refurb).....$49.
Monitor //c w/exch $79.....$95.
Color Composite (Not for 80 Col).....$79.*
Comp. Green/Amber (Refurb) .....$35.*

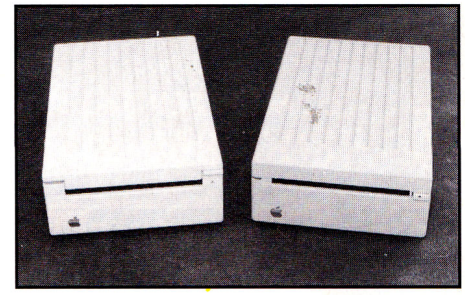


Modems

1200 Baud USR External 212A (NEW).....$19.
1200 Hayes External (Refurb).....$29.
2400 NEC 2430/HN (Refurb).....$59.

Modem Cables

IIgs, //e,//c,//c+ to 25 Pin Modem $9.95
][+, //e to Apple Personal Modem $9.95
//c or //c+ to Apple Personal Modem ..$9.25



Disk Drives

5.25" Apple Disk][(Refurb) .....$75.
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DB19 option for 5.25" drives add $10 to above
Disk][to DB19 Cable. (Converter).....$14.
DuoDisk Exchange $129. No Exchange.$169.
Apple 3.5" Drive (Refurb) .....$179.
Apple UniDisk, //c. (New).....$199.

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Replacement RAM Chips for your....
Apple //e **4164**.....50¢
Apple][+ **4116** .....Set of 8....$2.00
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41256.....**$1.50 ea.**
768K Expansion Set (24 41256).....**$31**
Expanding Your GS Juice +, Æ GS RAM +, CV Tech, Chinook 4000, S&S
41024 (1 Meg) $5.50 ea .....Bank of 8 .....$44.
Expanding Your Æ GS-RAM Ultra, RAMPak4 GS or GS RAM II
44256 (256x4) $5.50 ea.....Bank of 8.....$44.
Expanding Your OctoRAM, GS Sauce, Q-RAM GS, Pacemark RAM Card
1 Meg SIMM .....**$41.**
RAMFast Cache RAM 1Meg Upgrade Set
2 441024-80 .....**$40**

Closeouts & Specials

System Saver IIgs (Slight Blemish).....$45.
System Saver IIgs (NEW).....$59.
AST Vision Plus Enhanced.....$199.
Joystick or Paddles.....$9.95
Mountain CPS Card For the][+, with ProDOS
Clock Driver Software.....$29.
UPS 400-600 Watts .....$199.
//c Type Carry Case .....$19.

][+, //e & //c Memory Expansion

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Extended 80 Column Card .....$25.
Super Expander //e with 1024K .....$99.
Super Expander //c with 1024K .....$119.
Super Expander][+ with 1024K.....$119.

IIgs Memory Expansion

CV Tech 4 Meg with 1024K .....$99.
CV Tech 4 Meg with 2048K .....$139.
CT Tech 4 Meg with 4096K .....$199.

Accessories

Zip GS 7Mhz / 8K Cache .....**$149.**
Zip Chip 8 Mhz (//e, //c) .....**$139.**
No Slot Clock.....$23.
Super Serial Card .....$52.
Extended 80 Column Card (64K).....$25.
Apple //e Enhancement Kit.....**$49.**

Cables / Switch Boxes

SCSI Cable, 25-50 or 50-50.....$12.
Disk][to //c(19 Pin) Cable.....$14.
//e,//c,IIgs to ImageWriter I/II.....$9.95
//c to DB25 Pin Modem .....$12.
IIgs to DB25 Pin Modem (Standard) $9.95
Laser 128 Parallel Cable .....$15.
A/B Switch Box (Specify Type) .....$19.
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- 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 order.
- Educational P.O.s Accepted, Others on AOC only.
- Prices and availability subject to change at any time without any notification whatsoever.

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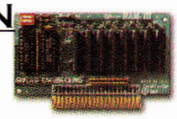
MEMORY & EXPANSION



APPLE IIGS EXPANSION

Applied Engineering

Æ GS-RAM III	1MB $139	2MB $189	4MB $285	
Æ GS-RAM Plus	1MB $179	2MB $229	4MB $309	6MB $389
Æ GS-RAM Ultra	1MB $120	2MB $165	3MB $215	4MB $260

Sequential Systems

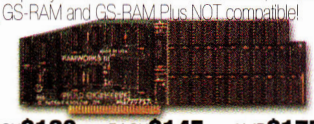
RAM GS 2MB $109 4MB $159

CV-Technologies

RAM GS Expander 1MB $89 2MB $133 3MB $177 4MB $219

CV-Tech/Sequential RAM GS Bundle
5MB $239 6MB $283 8MB $360

The CV-Tech memory expansion board allows you to piggy-back your existing 1 or 4 megabyte RAM card in addition to the capacity of the CV-Tech RAM card itself, for a total expansion up to 8 megabytes. NOTE: GS-RAM and GS-RAM Plus NOT compatible!



APPLE IIE/IIC/IIC+

Applied Engineering

Æ RAMWorks III	256K $129	512K $145	1MB $175
Æ Z-RAM Ultra III	256K $189	512K $205	1MB $235
Æ RAM Express II	256K $149	512K $169	1MB $199

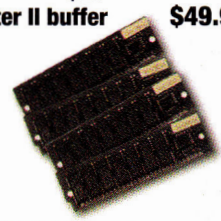
Sequential Systems

RAM IIe	256K $79	512K $95	1MB $109
RAM IIc	256K $95	512K $109	1MB $119

Apple IIe 80 column card $27
Imagebuffer 32/64K–Imagewriter II buffer $49.95

Memory Expansion Kits

1Meg 80ns for GS RAM III $59
1Meg 80/100ns set (8) $45
1Meg 80ns SIMMs $39
256Kx4 100ns set (2) $14
256K 100ns set (8) $15



Call for Applied Engineering, Daystar, Microtek and other Apple II and Macintosh Products

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Quickie Handscanner GS	$197
Quickie/Inwords OCR bundle	$269
Inwords OCR software	$77
SPECIAL!!! Æ Sonic Blaster Stereo card	$58.95!

Æ Conserver $69.95

SOFTWARE

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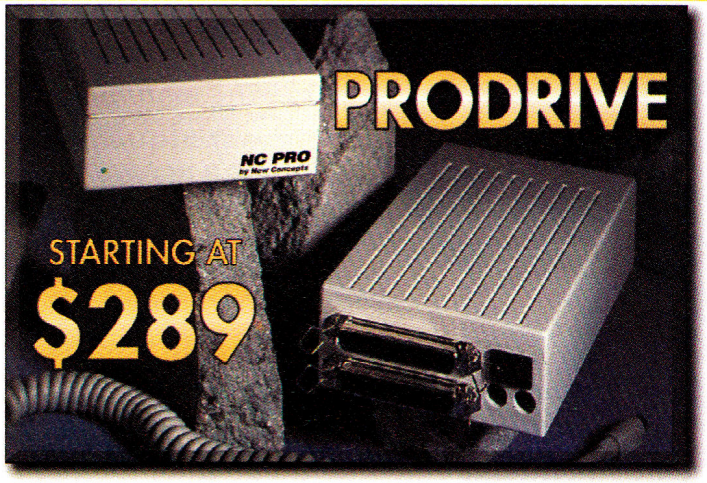

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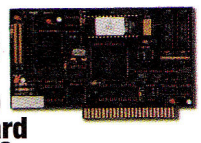

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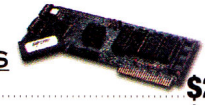

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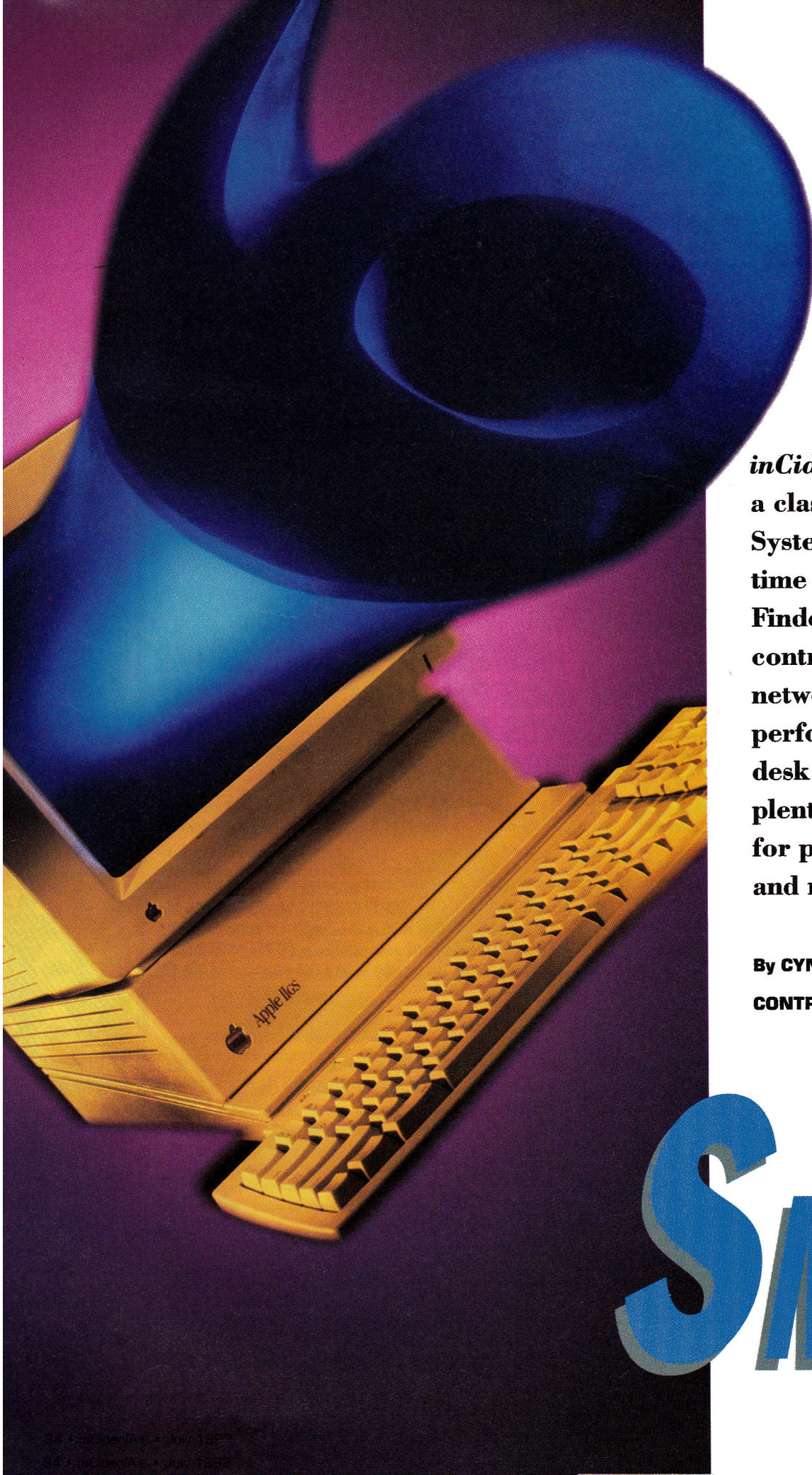

***inCider/A+* reviews a class act: The GS' System 6 hits the big time with a souped-up Finder, new media controllers, simplified network access, performance-boosting desk accessories, and plenty of power tools for programmers and musicians.**

By CYNTHIA E. FIELD, Ph.D. *
CONTRIBUTING EDITOR

SMOO

34 • inCider/A+ • July 1992

Sometimes, it's the little things that make all the difference — like that extra hour of sunshine after you turn the clocks ahead, heralding the end of a long New England winter. Or, if you're a computer buff, any new product that saves you a few keystrokes, or a few minutes of precious productivity time here and there, may catch your eye.

Take Apple's new IIGS operating system, **GS/OS 6.0**, with its unique brand of clock control, for example. The first weekend in April probably found you grumbling through the house adjusting all your timepieces to play catchup with Daylight Savings. This year, though, if you had System 6, you didn't have to bother booting up your machine and fiddling with your computer clock. All you had to do was remember to click on the *Auto daylight savings* check box in System 6's new **Time** control panel sometime during the previous few weeks. (See **Figure 1** for details.)

Okay, so dealing with Daylight Savings Time isn't a great dilemma. But this enhancement is just one of dozens of enticing new features that raise the level of convenience for GS users. Among other System 6 enhancements you'll enjoy are a performance-boosting Finder, restyled control panels, handy desk accessories, time- and money-saving applications, and powerful programmer's tools. Probably no other software for the GS offers so much value. (See the accompanying sidebar, "On the Horizon," for an in-depth look at System 6's developer's tools.)

So what's the catch? There is none. You can obtain a copy of System 6 for as little as $15 from authorized mail-order distributors such as those listed in the accompanying "Sources" box.

Faster delivery requires a modem and a subscription to a computerized information service such as **America Online**, from which you can download System 6 for the cost of a phone call and some connect time.

If you don't own a modem or you don't want to part with $15, any computer club that's authorized by Apple to distribute System 6 can give you a copy *gratis*. (You may have to supply the half-dozen 3.5-inch disks to hold the new system software and its copious extras.) Apple's own **User Group Connection** can put you in touch with organizations in your area.

JUST DO IT

Banish any misgivings you may have about installing System 6 — it couldn't be easier. The system software's essential

TH OPERATOR

components still fit on a single 3.5-inch disk, and you can use the new system on a GS with only 1 megabyte of random-access memory. If you have a hard-disk drive and additional RAM, though, the extra room pays off when you want to soup up your GS.

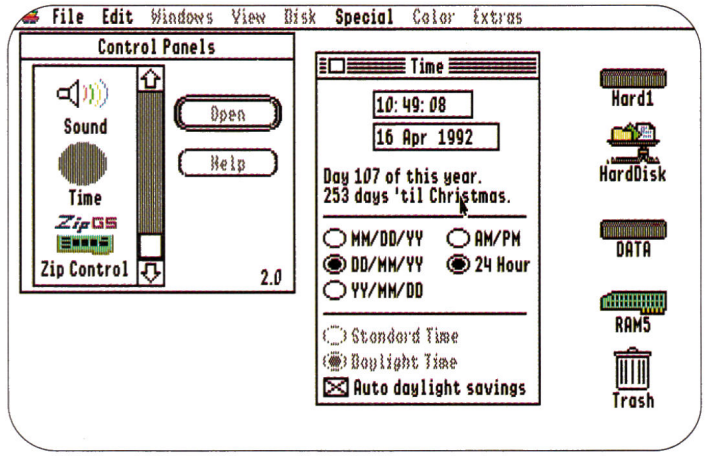

Figure 1. Time control panel adjusts your GS' clock automatically to accommodate Daylight Savings Time. An "Easter egg" also tells you how many days there are until Christmas — just click on the "days left in this year" area.

Whatever your hardware configuration, start up your GS with the System 6 **Install** disk. Next, launch the **Installer** utility that's included. Click on the *Easy Update* button. Then sit back while System 6 modernizes your start-up disk automatically.

Installer prompts you to insert other System 6 disks — including **System .Disk**, **SystemTools1**, and **SystemTools2** — as needed. Almost immediately, you'll be impressed by the software's smarts. For one thing, System 6 senses when you insert a requested 3.5-inch disk into a drive. No longer must you click on *OK* with the mouse or lift a finger to press the return key. And when you slip a blank disk into a drive while using a standard 16-bit GS program, System 6 responds by asking if you'd like to format the disk.

Looking for even more convenience? To activate an array of file-system translators (FSTs), control panels (formerly called *CDEVs*, or *Control Panel devices*), desk accessories (DAs), and applications, just install the appropriate "scripts" by clicking on Installer's *Customize* button. If you install the appropriate FSTs, for example, your GS will be able to read files stored on disks formatted with the Pascal operating system or with DOS 3.3, an original Apple II disk-operating system. Perhaps best of all, System 6 includes an **HFS (*hierarchical file structure*) FST**. Once installed, this capability lets your Apple IIGS read, write, and even format Macintosh disks.

ON THE HORIZON

SOFTWARE DEVELOPMENT UNDER SYSTEM 6

While some software developers may be taking immediate advantage of System 6, the good news is that many others won't have to. System 6 for the Apple IIGS, unlike the Macintosh's System 7, is a mostly transparent upgrade that won't cause compatibility problems or require vendors to rewrite software.

System 6's HFS FST (hierarchical file structure file-system translator) is probably the most obvious transparent improvement: All your GS applications will find and read Mac files without even trying.

Notes Roger Wagner, creator of the premier GS multimedia authoring system, "Both our **Graphics Exchange** and **HyperStudio** will benefit immediately from System 6. Apple IIGS users of Graphics Exchange will be able to interconvert all sorts of graphics between the GS and the Mac, even if they don't have Macs. In a classroom, students creating a stack with HyperStudio will be able to share text information with other students working on Macs."

"I'm especially pleased that the Macintosh and DOS 3.3 FSTs were included," comments Dave Hecker, vice president of research and development at Seven Hills Software, "so that we can import text, fonts, and graphics directly into **GraphicWriter III**, **Font Factory GS**, and **SuperConvert**."

In addition, System 6's improved file loading and saving menus work without modification in all your programs, as do the new control panels and the **Media Control** desk accessory. And System 6 opens up the GS to people with physical and visual disabilities, as well, thanks to its revamped **Universal Access** suite: **CloseView**, which magnifies the screen; **Sticky Keys**, which handles key combinations by letting you press Command, Shift, Option, and Control in sequence (instead of holding them down); **MouseKeys**, which duplicates mouse action via the numeric keypad; and **Video Keyboard**, which lets you use a mouse or an alternative input device to access a graphics depiction of a keyboard on screen.

The bad news is that we've heard of only a couple of brand-new applications that utilize some of the other enhanced powers of System 6. The application program that takes fullest advantage of System 6 immediately is Apple's own **HyperCard IIGS**. (See "Tools of the HyperTrade," May 1992, p. 34, for details.) Version 1.1 contains several features specific to the System 6 environment. (If you run it under System 5.0.4, these features won't be available.) For example, version 1.1 will now detect disk insertions and respond appropriately at idle time. If the disk is unreadable, a dialog box will ask you whether you want to format it. The application now won't drop out of the super-hi-res screen while launching, executing another GS/OS application, or quitting to the Finder.

This latest edition of HyperCard for the GS also includes Finder "info" resources containing icon, version, and copyright data as well as document types and paths. And, of course, HyperCard's partnership with System 6 lets you format data disks on the fly, compose self-scripting musical tunes with the mouse, and operate multimedia hardware devices, including the Apple II Video Overlay Card, CD-ROM drives, and laser-disc players.

Foundation, a resource editor from Lunar Productions, was

Among other files you'll want to add to your working system disk (space permitting) are the 23 large typefaces supplied on the fifth System 6 disk, **Fonts**. If big bitmapped GS fonts — such as Courier.30, Helvetica.42, and Times.96, to name just a few — are available, programs such as AppleWorks GS can generate improved-quality text on non-PostScript dot-matrix printers such as the ImageWriter II or inkjet models such as the Apple **StyleWriter**, the driver for which is now included in System 6. According to the literature, the StyleWriter can generate text at a resolution of 360 dpi (dots per inch). By contrast, mainstream laser printers support 300 dpi.

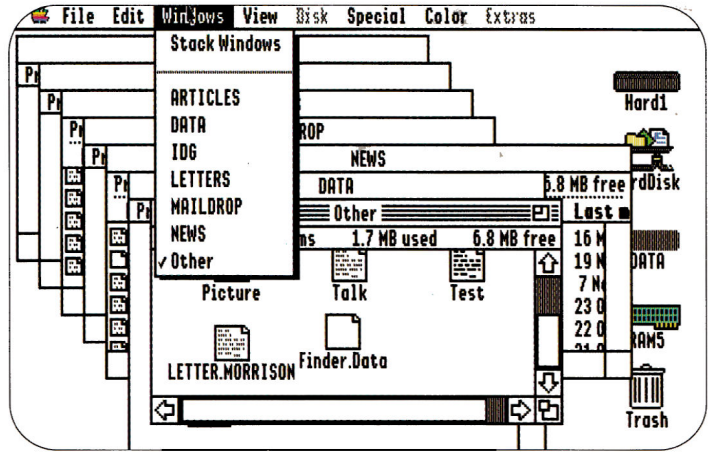

Figure 2. Windows menu helps you negotiate a cluttered desktop more easily. Stack Windows command keeps all windows accessible.

GETTING TO KNOW YOU

When you restart your computer after System 6 installation (and customization, if desired) you'll immediately notice some changes for the better in your GS' appearance and operation. For instance, the so-called "splash screen" (the cool-blue startup screen with thermometer) displays the system version — for the first time in GS history. An ***About the Finder*** option (*Apple* menu) tracks memory usage and availability. The Finder's new ***Windows*** menu lists the names of open volumes and folders (**Figure 2**). You can make a window active by choosing it from the menu in lieu of clicking on it the "old" way. In addition, a ***Stack Windows*** feature prevents some windows from hiding behind others.

Other window-dressing capabilities help neaten the crowded desktop. Choose a window, press the option key, pull down the *Special* menu, and select ***Clean Up***. The Finder alphabetizes the window's contents quickly as it aligns them along an invisible grid. A

also written specifically for System 6. (A resource editor is a utility that lets you alter various aspects of an application's resource fork, the area that defines the look and feel of icons, menus, windows, and so on.) Foundation should be of special interest to developers — but, like ResEdit for the Mac, it may also inspire a cult following among fanatic GS aficionados who want to make their machines unique. Foundation lets you edit as many as four resource files at a time, and features "intelligent" clipboard support for resources to simplify copying from one program to another. You can also write "scripts," as with ResEdit on the Mac, to create a number of similar resources.

Foundation's basic set of WYSIWYG (what you see is what you get) editors includes Window/Control, Icon, Bundle, Sound, and Strings. A programmer's toolkit lets you create your own custom editors, as well. Foundation works in both 640 and 320 video modes, and has hooks in place for future expansion — Mac resource importation, for example.

Other mini programs are also in the works. Adds Seven Hills' Hecker, "Initially we'll be revising some existing software to take better advantage of System 6, yet still function with earlier systems. But in the future we expect to produce software written specifically for System 6 that will require it to operate. Actually we've already written one program that requires System 6: **QuickLaunch**, a Finder extension we're giving away free to celebrate the release of GS/OS 6.0."

Not only Finder extensions, but control panels (formerly called Control Panel devices, or CDEVs) should also prove to be fertile ground for GS developers. Because the new **Control Panel 2.0** software in System 6 is more compact, and because it no longer limits the number of control panels open on the desktop or the width of a control panel, these utilities are no longer just for peripheral tasks. Look for larger, more powerful control panels that will do the kind of work that used to require a dedicated application. In fact, under System 6 each control panel is an application, which you run by double-clicking.

You probably used System 6's new **Installer 2.0** program to put the operating system into your GS — but you may not know that Apple has also published a **Developer Version** of Installer. It simplifies the rather complicated job of putting all resources, control panels, fonts, icons, and you-don't-need-to-know-what-all-else into the proper folders. A programmer who puts the Developer Version of Installer 2.0 to work guarantees that no user will be missing an icon or a font.

Another great time saver for developers should be the **Media Control** suite, combining software tools and drivers for external devices such as videodisc players, plus the aforementioned control panel and desk accessory that give users control over all kinds of multimedia. No longer will every developer of a multimedia product have to "re-invent the wheel" for media control. The similarity of the Media Control toolset to its Mac counterpart, and the functional similarity of the Mac and GS versions of HyperCard, should inspire many developers of Mac multimedia products to make the easy switch to the GS.

Perhaps System 6 offers the best of both worlds: It could keep the GS development community busy for months to come, but it's comforting to know that thanks to GS/OS' comprehensive enhancements, your current programs won't really need to change a thing to still stay up to date.

— Paul Statt, Senior Editor

Preferences dialog box (*Special* menu) lets you customize file information and icon coloring. A ***Preferences*** checkbox option tells the GS to ignore 5.25-inch disk drives upon startup.

And for the first time on the GS, two Macintosh System 7 features — "tunneling" and "reverse tunneling" — can also help reduce window clutter by letting you open and close folders along a path selectively. When it's time to shut down (or simply regroup), you can close all open windows by option-clicking on a close box.

The new Finder supports a host of other time-saving keyboard commands, as well. For speedy desktop management, for example, press the command (open apple) key while you click on the title bar of an active window. A pop-up menu appears listing the sequence of open folders that includes the currently active window.

At-your-service convenience is a preeminent feature of System 6 — and the **SetStart** control panel is just one more example that's especially valuable if you use a particular application extensively. When your GS boots, SetStart proceeds without hesitation to the desired program. To return to the Finder, quit the application as you usually do — pressing Command-Q or choosing *Quit* from the *File* menu.

Individual conveniences such as these can save a lot of time, but System 6 is also inherently faster than previous versions of the operating system. A quick look at *inCider/A+*'s benchmark test results is proof. (See the accompanying **Table**.) For example, the time elapsed between startup and the appearance of the Finder screen shows an eight-second difference between System 6 and System 5.0.4.

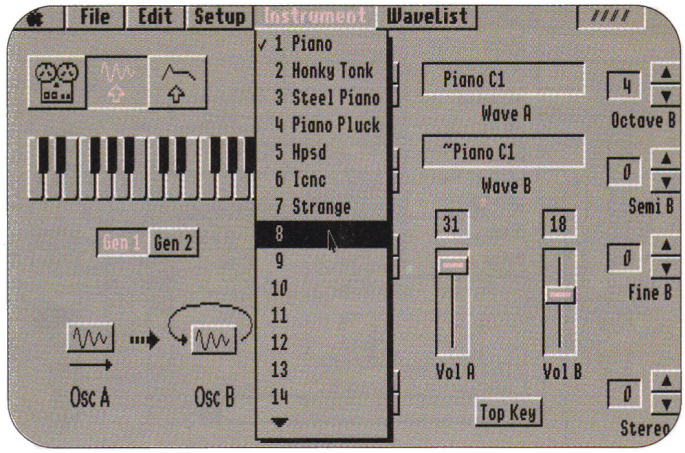

Figure 3. SynthLab music creation/editing application works with new MIDI control panel and MIDI Synth toolset. WaveList Edit page (click on middle button on first SynthLab screen after title) includes piano keyboard you can play with the mouse.

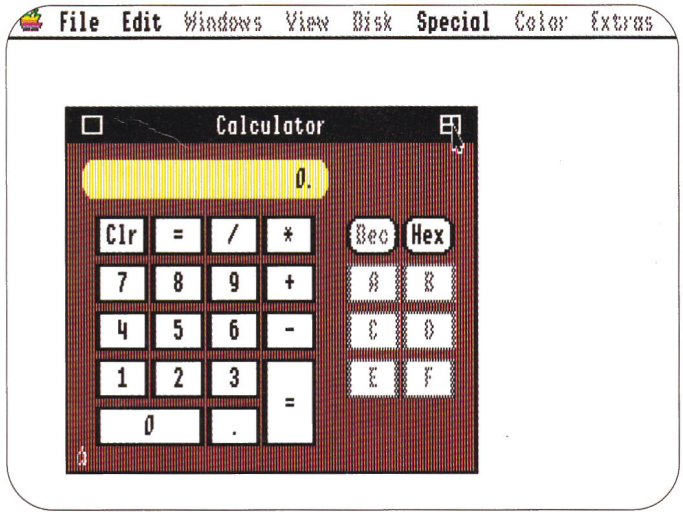

Figure 4. System 6 puts a colorful four-function calculator desk accessory at your fingertips. Click on zoom box for hexadecimal conversions.

THAT'S ENTERTAINMENT

Thanks to System 6's **Media Control** suite you can operate multimedia hardware devices such as laser-disc players and CD-ROM drives from the comfort of your GS. The Media Control DA (which works like a universal remote control), control panel, toolset, and stack (included with HyperCard IIGS 1.1) make for a powerful collection of tools for multimedia developers, computer hobbyists and gadgeteers, and classroom teachers alike.

Adding sound effects to your GS is easier than ever before with the new **Sound** control panel. This nifty System 6 enhancement lets you assign sound effects such as *Doorbell*, *Frog*, and *Sosumi* to the *System Beep* and 22 other "events." Start up the Finder with a trumpet voluntary. Make the *Whoosh* sound play when you insert a disk — and the *hsoohW* sound play when you eject one.

Clicking on a special check box in the Sound control panel makes the screen border flash whenever a sound effect plays. This visual indicator is handy not only for hearing-impaired users, but for those of us who like to fiddle with the GS in the wee hours or in quiet places such as the school library. Just reduce the GS' volume — a tug on the volume slider in the Sound control panel does the trick.

Still another System 6 control panel is the **MIDI** (*musical-instrument digital interface*) program that helps both amateur and professional musicians configure and use MIDI keyboards and other instruments with the GS. Team up the MIDI control panel with the **MIDI Synth** toolset and the impressive **SynthLab** application (provided on the sixth System 6 disk) and you can compose, record, edit, and play GS music to beat the band (**Figure 3**).

SynthLab supports eight audio channels and includes ready-made instrument sounds (some traditional, some electronic) as well as a handful of familiar musical selections for your listening pleasure. Just click on SynthLab's *Play* button — it looks a lot like a pushbutton on a stereo. Whether or not you plan to use SynthLab's music-editing and instrument-design features, you can have fun using the mouse to tickle the ivories on the program's graphics piano. The user's guide is stored in the *Reference* file on the SynthLab disk.

PRODUCTIVITY BOOSTERS

Printing the SynthLab manual — or similar *ReadMe* files that accompany other applications — is a snap thanks to **Teach**, a mini word-processing program included in your System 6 treasure trove. Besides reading, printing, and saving text files, Teach can import files from AppleWorks 3.0, AppleWorks GS, and MacWrite 5.0 if you have the Mac HFS FST installed. Although Teach supports GS fonts in the customary sizes and styles and offers find/replace options, this handy note

maker doesn't feature formatting rulers or a spell checker.

Archiver, a third application provided free with System 6, backs up and restores important files in compressed format on floppy disks or on Apple Tape Drive cassettes. If you have a hard-disk drive and you're not backing up your data regularly, you're playing with fire. Suffice it to say that Archiver is an economical alternative to costlier backup utilities.

System 6 also includes a special productivity booster, **EasyMount**, for AppleTalk users — still another feature borrowed from the Mac's System 7. EasyMount lets you create *aliases* — duplicate icons — of your network's file-server volumes on your GS' Finder, thus automating network access by eliminating several steps in the log-on process. (For details, see "Round 6," this month's Bridging the Gap, p. 18.)

Among System 6's handy new desk accessories is a colorful four-function calculator— just click on its keys with the mouse (**Figure 4**). Click on its zoom box, and the calculator widens to accommodate hexadecimal/decimal conversions.

The **Find File** DA, also included with System 6, is well named. It can locate a document, drawing, or database on a big, stuffed hard drive faster than you can say, "Where the heck . . . ?" Keeping DAs well organized is a System 6 talent, too. A new check-box option in the *General* control panel alphabetizes them for you.

A collection of **Universal Access** enhancements for the GS mimics a similar set of functions available on the Mac. Visually impaired users can install the **CloseView** DA to magnify the GS screen. **MouseKeys** lets disabled users duplicate mouse actions with the keys on the GS' numeric keypad. Invoke **Sticky Keys** and any GS user (earlier incarnations excluded ROM 01 users from this function) can press modifier keys such as Command, Control, and Option in sequence instead of simultaneously. The **Video Keyboard** DA lets you "type" characters without ever touching the physical keyboard. Instead, use the mouse or an alternative input device to press the keys on a graphics keyboard appearing on screen.

RUN, DON'T WALK

Want to learn more? The System 6 **Tips and Shortcuts** file (included on the SystemTools2 disk) provides additional information. In addition, the Finder offers on-line help describing eight important new functions, including "Pop-ups in Window Titles" and "Moving Inactive Windows." An "Odds & Ends, Hints & Tips" selection contains still more information. A second document file on the SystemTools2 disk lists dozens of people who helped bring System 6 to fruition. Among them is a programmer named Greg Branche, who updated **AppleBowl**, a hi-res-graphics bowling game included in a *Goodies* folder on the Fonts disk.

GS users who are comfortable with the "Columbus" approach to personal computing may find these electronic resources adequate for discovering System 6's innumerable new features — and Easter eggs (surprises). But if you're as manual dependent as I am, consider purchasing the ***System 6.0 User's Reference*** when you acquire the software. Resource Central sells the disk/manual package for $39; other sources may offer a similar bundle. For more information, be sure to call Apple's **Customer Assistance Center**.

	System 6.0	System 5.0.4
Start up GS to Finder	50	58
Start up GS, launch HyperCard IIgs 1.1 manually	79	84
Start up GS, launch HyperCard IIgs 1.1 automatically via SetStart	60	n/a
Open folder containing 59 items	3	5
Close three nested windows by clicking on each close box in sequence	7	7
Close three nested windows by option-clicking on close box	5	n/a

Table. Speed tests: System 6 versus System 5.0.4 (all times in seconds; n/a = not applicable). Unaccelerated 4MB ROM 01 Apple IIgs connected to SCSI hard drive with Apple II High-Speed SCSI Card. All tests repeated three times using stopwatch; results rounded to nearest second.

Whether adjusting the clocks twice a year messes with your biorhythm or gives you a head start on a brand-new season, you should run, not walk, to your phone and order (or download) GS/OS 6.0 today. An abundant assortment of new Finder tricks, pop-up DAs, fonts, control panels, device drivers, speedy processing enhancements, and freebie applications make System 6 a "best buy" for any GS user. You may not need that *Auto daylight savings* feature that gave me such a kick, but you'll have the time of your life customizing your GS the 6.0 way. ❑

WRITE TO CONTRIBUTING EDITOR CYNTHIA E. FIELD AT 60 BORDER DRIVE, WAKEFIELD, RI 02879. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

SOURCES

America Online
8619 Westwood Center Drive
Vienna, VA 22182
(800) 827-6364

Apple Computer, Inc.
20525 Mariani Ave.
Cupertino, CA 95014
(408) 996-1010
(800) 538-9696 x500
User Group Connection
(800) 776-2333
Customer Assistance

Big Red Computer Club
423 Norfolk Ave.
Norfolk, NE 68701
(402) 379-4680
$15 GS/OS 6.0

CompuServe
P.O. Box 20212
Columbus, OH 43220
(800) 848-8199

GEnie
GE Information Services
401 North Washington St.
Rockville, MD 20850
(800) 638-9636

LRO Computer Sales
665 West Jackson St.
Woodstock, IL 60098
(800) 869-9152
(815) 338-8746
tech support
(815) 338-8658
international
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National AppleWorks Users Group
Box 87453
Canton, MI 48187
(313) 454-1115
(313) 454-1965 fax
(615) 359-8238 BBS
$25 + $2 shipping GS/OS 6.0

Quality Computers
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(800) 443-6697
(313) 774-7200
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Resource Central
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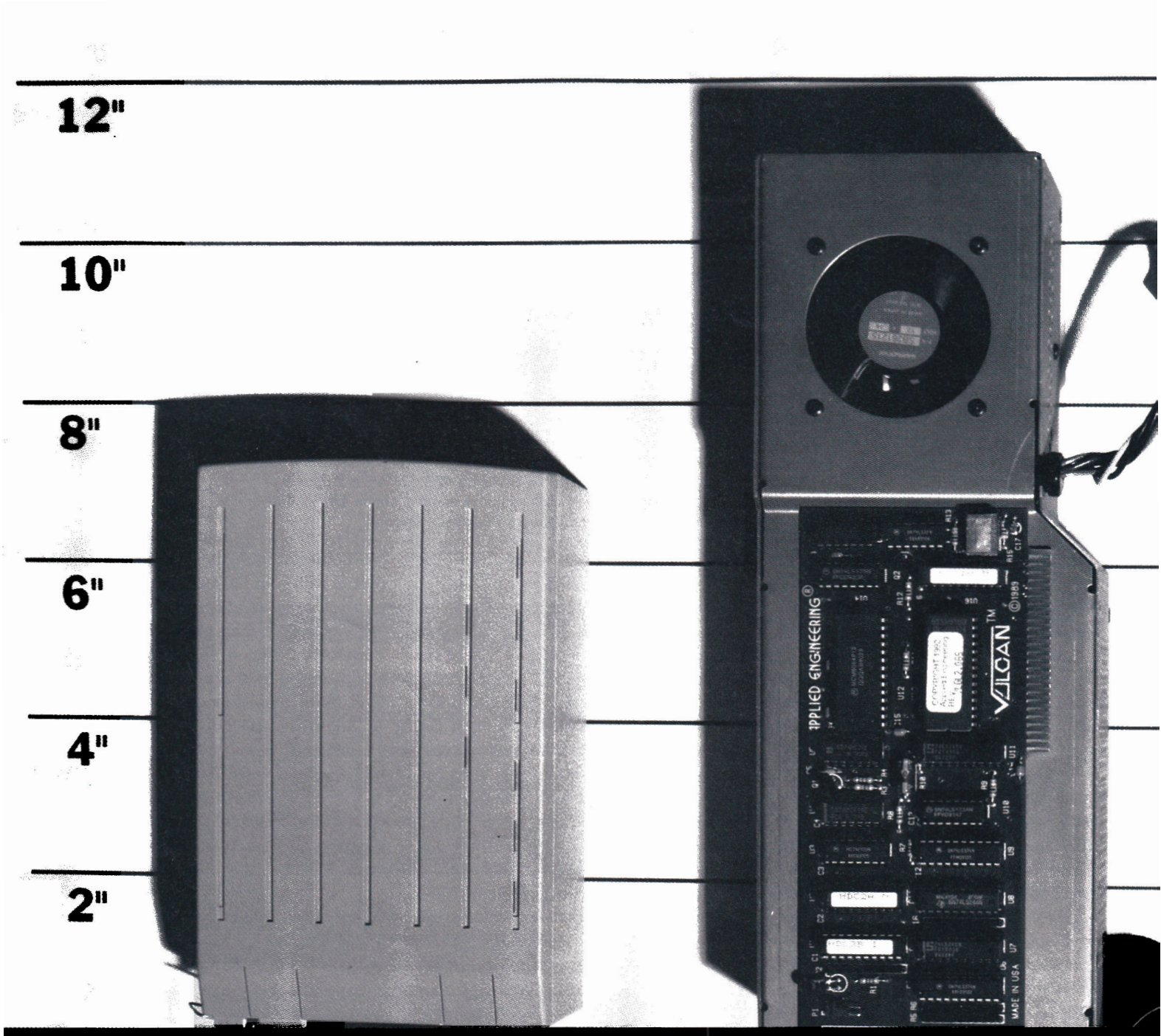
(913) 469-6507 fax
$24 GS/OS 6.0
with **Developer Release Notes** disk
$15 A2-Central disk subscriber price GS/OS 6.0, no DRN
$39 GS/OS 6.0
with **System 6.0 User's Reference** manual

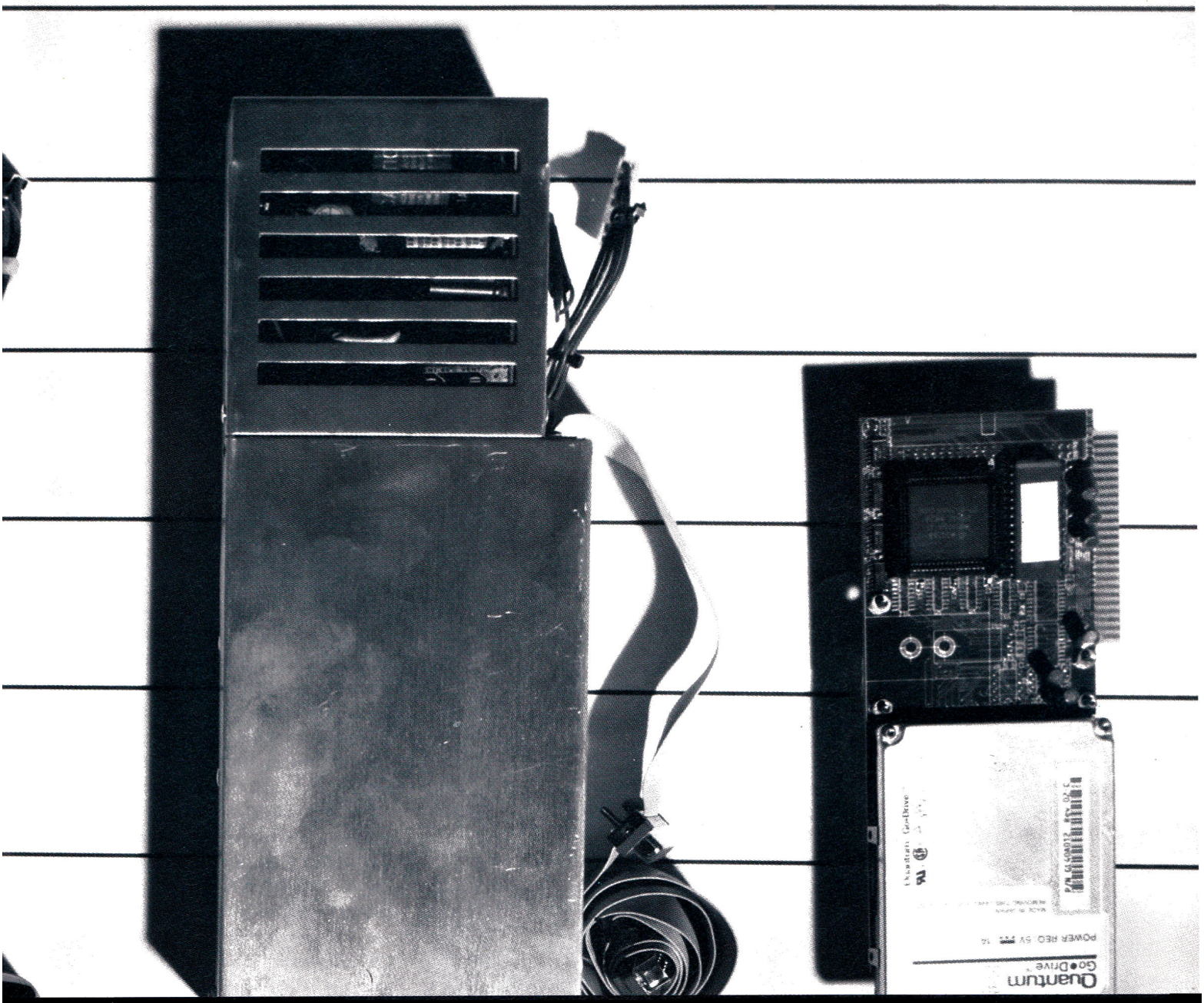


WANTED

Hard Drives on the Run

By CAMERON CROTTY

Photographs • Manuello Paganelli

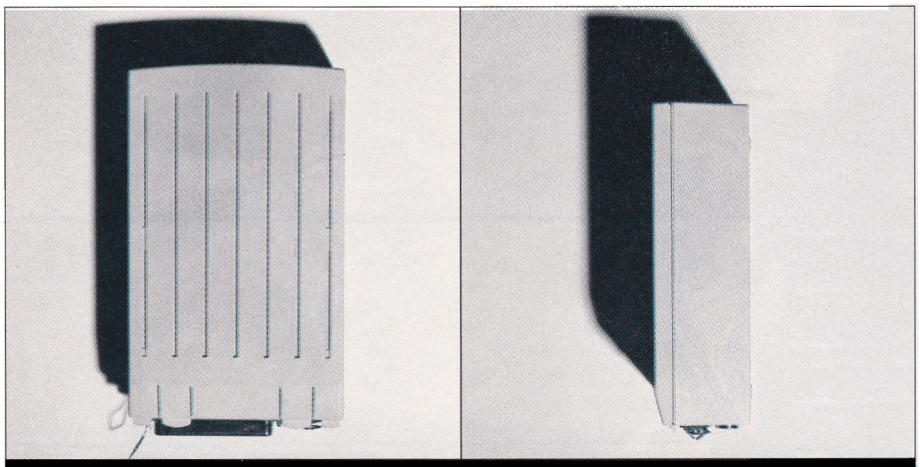


Hard drives are bad for you — they change ordinary, innocent people into slavering space hogs with bad archiving habits. In months you'll be reduced to a wild-eyed drooling monster. "Only 40 megs?" you'll say. "I must have more storage!" Don't laugh. We've seen it happen.

With these warnings in mind, let's turn to the current crop of hard-drive suspects and investigate their relative speeds, capacities, strengths, and shortcomings. Not that you should go out and actually buy one of these Agents of Chaos. This data is for informational purposes only.

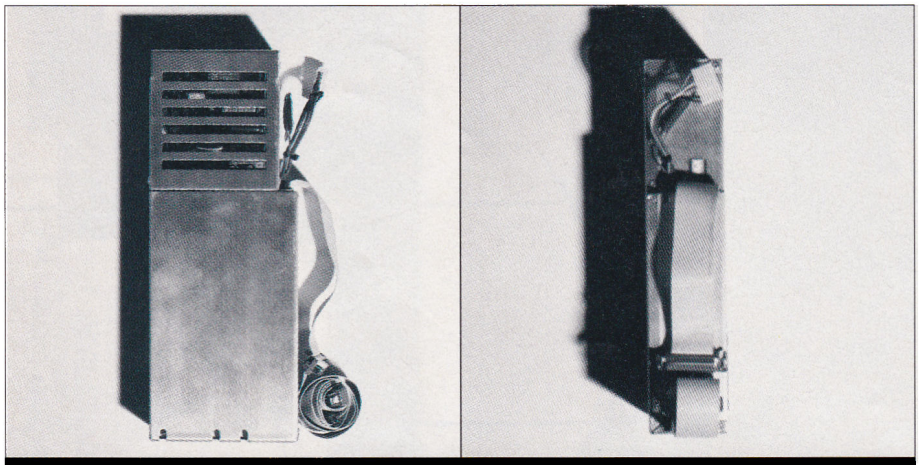
THE LINEUP

These days, you can practically buy a hard drive at the supermarket, right next to the cigarettes and skin magazines. These generic drives with loose morals can be connected to any computer with a SCSI (*small-computer-*



NAME: Shadow 105 LPS **ALIAS: The Paladin**
MAKER: TMS Peripherals **MECHANISM: Quantum ProDrive LPS**

REMARKS: Have SCSI, will travel. Available for hire for either Apple II or Macintosh jobs. Reasonable rates. Loner. Shareware included as part of the service. Top honors in the straight and narrow.



NAME: Pegasus 100i **ALIAS: Pale Rider**
MAKER: Econ Technologies **MECHANISM: Quantum ProDrive LPS**

REMARKS: Tops the Four Most Wanted list. Specializes in behind-the-scenes action. Sought in connection with RamFast SCSI job. Considered armed and dangerously powerful. Drives Apple II High-Speed getaway vehicle.

systems interface) port, be it Apple II or Mac. We've even heard reports of especially sleazy removable-drive owners sharing their drives between two computers.

Our investigation is more focused. We wanted to take down the hard-drive pushers targeting the Apple II market specifically. So we placed the four newest offenders under interrogation. Three of the four drives we tested — Zip Technology's **ZipDrive IIGS**, Applied Engineering's **Vulcan Gold 100**, and Econ Tech's **Pegasus 100i** — are internal drives intended exclusively for the GS. (Econ and Zip promise IIe versions in the near future.) The fourth drive, TMS' Shadow **105 LPS**, is an external SCSI drive; the company will preconfigure it for either Mac or Apple II. Join us as we shine the light of day on these purveyors of pulchritude.

YOU HAVE THE RIGHT TO AN ATTORNEY

We gave these "hardened" criminals no rights at all. We ripped 'em out of the packaging and slapped 'em down on the table, naked and quivering. Then we pulled on our black gloves and worked 'em over. It wasn't pretty, but you can see the results for yourself in the accompanying **Table**. All tests (except Test 1) were performed on a stock ROM 03 Apple IIGS with 1.25 megabytes of RAM, two 3.5-inch drives, and, where appropriate, an **Apple II High-Speed SCSI Card**. We formatted the drives with GS/OS System 5.0.4 and ProDOS 1.9. As a comparison benchmark, we subjected a hapless Apple 3.5-inch floppy drive to our rigorous testing, as well.

For **Test 1**, we simply turned on the computer and timed how long it took for the "Welcome to the Apple IIGS" message to appear. This figure represents how long it takes each drive come up to speed. Because CV Technologies' **RamFast SCSI** card waits for a hard drive to come on line before it continues booting the GS, we used it to test the warm-up speeds of the Pegasus and the Shadow. The Zip came out on top, with the rest of the field an almost uniform three seconds slower.

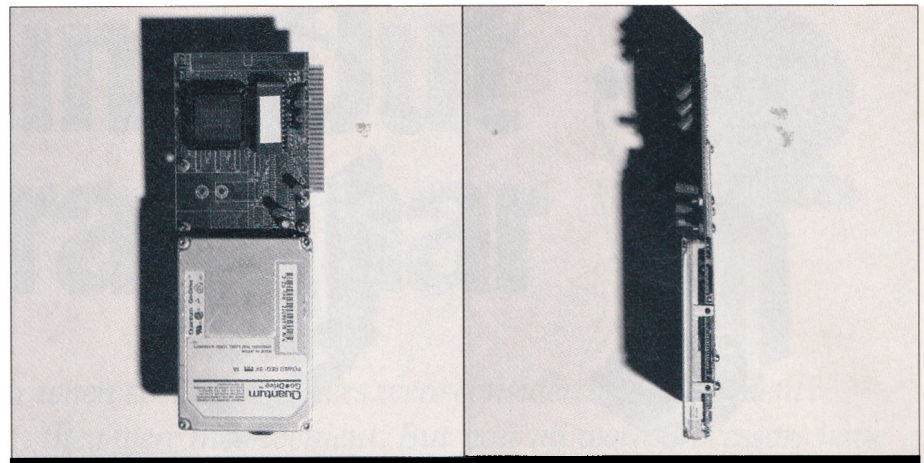
If you use GS/OS regularly, **Test 2** shows how much time you'll have to spend twiddling your thumbs before you can get to work. We started the clock when the "Welcome" screen appeared and stopped it when the arrow cursor appeared on the Desktop. Here the Vulcan Gold flew ahead of the pack, thanks to a proprietary interface and a freshly revamped GS/OS driver. It went from the "Welcome" screen to the Desktop in little more than 12 seconds — almost twice as fast as any other drive.

The elapsed times evened out in **Test 3**. To simulate real-world churn and burn, we launched AppleWorks GS from the Desktop. The Zip DriveGS was ahead by a nose.

Next, we tested the drives' linear-read speed by using the GS/OS *Verify* command on the boot volume. This test measured a drive's ability to read sequential blocks from the disk. Drives with proprietary interfaces suffered in **Test 4** owing to a lack of DMA (*direct memory access*) capacity. The Apple II High-Speed SCSI card uses DMA to stuff information directly into your Apple's RAM, greatly increasing the speed of certain operations. Riding this boost, the TMS Shadow took top honors, while the Pegasus ran a close second.

For the final three tests, we left our stopwatch behind in favor of a more accurate tool: the *Drive Statistics* module of Glen Bredon's **ProSel-16** utility package. This module measures linear-read speed, random-read speed, and speed of driver software and interface in milliseconds per block.

The linear-read results in **Test 5** mirror the times of the *Verify* test almost exactly. The random-read experiment, **Test 6**, reads blocks selected randomly from your drive, simulating the kind of work your hard drive has to do when its files are fragmented. Should you bother defragmenting your hard drive? Here's your answer. Again thanks to the interface and driver, the Vulcan Gold came out on top. Operating-system overhead, **Test 7**, separates the performance of the driver software and interface from the benefits or deficiencies of the drive hardware. Poor times turned in by the Pegasus and the Shadow show the price paid by the GS' generic *SCSI.HD* driver. Both the Zip and the Vulcan Gold come with their own more efficient GS/OS drivers.



NAME: ZipDrive IIgs
ALIAS: The Preacher
MAKER: Zip Technology
MECHANISM: Quantum GoDrive

REMARKS: Dapper, elegant appearance. Specializes in fast getaways, plug-and-play jobs. Power-user connections. Initiates beginners. Believed to suffer from religious delusions; goes around promising Salvation.

GETTING THE WHOLE STORY

All four drives are easy to install and come with ample documentation. The Vulcan Gold and Econ Pegasus require you to remove your old power supply, but the manuals for both drives are well illustrated. Likewise, the fit and finish on all drives is up to snuff, with the possible exception of the Zip drive; the card-and-mechanism-tacked-together-with-aluminum-crossbars look is just a bit cheesy. But when was the last time you stress-tested your Apple IIGS?

Our TMS Shadow unit came stuffed with nearly 26 megabytes of Apple II shareware. The Shadow is also potentially the most versatile drive of the bunch. It's a standard SCSI external, which means it's just as happy hooked up to a Mac as it is to an Apple II. If you want to take it on the road without worrying about extra power outlets, you can buy a cord that plugs into a DB-25 floppy-drive port, called the *SmartPort* on an Apple IIGS.

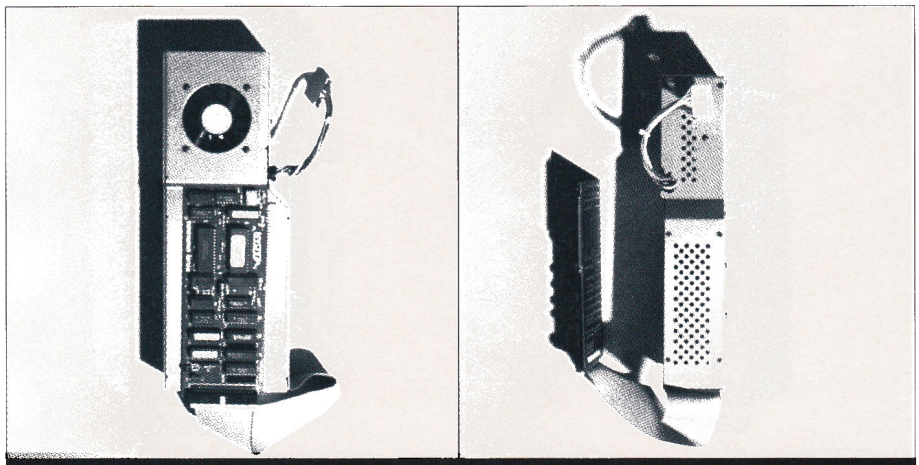
We qualified our statement with the word *potentially* because there's only one 50-pin SCSI connector on the back of the drive. To create a SCSI chain, you have to fiddle with special splitter cables. We also had one pet peeve: Why is it that when a company introduces a "compact external hard drive," chances are all it's done is remove the power supply?

The Econ Pegasus was like a steak dinner at Mom's house with ice cream for dessert. The Pegasus carries a power pack with a little extra oomph for those overloaded motherboards, and, because it plugs into a standard SCSI card, it doesn't make you buy an extra card to create an external chain. One feature that seems particularly well thought out is an easy-to-install jumper wire that delays startup until the drive mechanism is up to speed. This avoids the dreaded bouncing apple — the "Check Startup Device" message.

Frustrations include rocker DIP switches that look like sliding switches (we nearly got lead poisoning from stabbing ourselves with a pencil before we figured that one out) and no external-activity LED (light-emitting diode). The software includes a GS/OS "activity light," which blinks away in the upper right-hand corner of your desktop screen, but ProDOS aficionados will have to either listen carefully or bone up on their x-ray vision. To be fair, this problem is shared by all the internal drives we tested, but at least the Vulcan Gold offers a light on the interface card and a place to plug in your own LED.

	APPLE 3.5"	ECON PEGASUS	TMS SHADOW	VULCAN GOLD	ZIPDRIVE GS
Size	0.8MB	100MB	100MB	100MB	40MB
Price	$399	$599	$449	$1795	$579
Location	external	internal	external	internal	internal
Interface	SmartPort	SCSI	SCSI	proprietary	proprietary
Warmup to Welcome	8.2 sec	11.3 sec	11.1 sec	11 sec	8.6 sec
Welcome to Finder	31.5 sec	20.4 sec	19.4 sec	12.3 sec	18.4 sec
Launch AWGS	65.5 sec	20.4 sec	20.7 sec	19.1 sec	18.3 sec
GS/OS Verify	27K/sec	447K/sec	468K/sec	231K/sec	221K/sec
Linear read	16.5 ms/bk	1.1 ms/bk	1.1 ms/bk	2.2 ms/bk	2.2 ms/bk
Random read	148.9 ms/bk	28 ms/bk	28 ms/bk	18 ms/bk	20.5 ms/bk
OS overhead	5 ms/bk	12.7 ms/bk	12.8 ms/bk	1.1 ms/bk	1.1 ms/bk

Table. Speed tests. K/sec = kilobytes per second; ms/bk = milliseconds per block; AWGS = AppleWorks GS; OS = operating system; 40MB ZipDrive IIgs = largest ZipDrive model currently available for GS.



NAME: Vulcan Gold 100 **ALIAS:** The Godfather
MAKER: Applied Engineering **MECHANISM:** Connor CP 3000

REMARKS: Makes you a promise you may want to refuse. Specializes in big investments, random hits. Heavyweight player in GS/OS, DOS, CP/M, Pascal rackets. Approach with caution.

No matter how many times you've seen a ton of complicated electronics packed into a single custom integrated circuit, you'll still marvel at the microsimplicity of the Zip. The whole unit is less than 8 inches long, 3 inches high, and three-quarters of an inch thick. Installation? What installation? Open your case and plug it into an empty slot. As with the Vulcan Gold, if you want to add an external SCSI chain, you'll have to buy another card.

The ZipDrive IIGS ships with the Finder and Vitesse's Wingz pre-installed — you select which one you want to use via a HyperStudio front-end screen that appears when you first fire up the drive. Zip includes one of the most comprehensive manuals around, as well as an introductory HyperStudio stack that leads neophytes through the installation process. The stack offers experts the option to "test out" of the instructional sequence, but there's no "stop" key, except at the very start. If you blow one of the oddly worded questions you have to watch the whole presentation over again.

Zip includes the entire Vitesse Salvation package of hard-drive utilities, an eye-popping bonus for power users. Despite this, Zip representatives insist they're aiming their drive at the plug-and-play market. Their pitch promises confused computerists a hard drive that's as easy to install and use as another floppy.

Finally, the 600-pound gorilla of the internal drive market: the Vulcan God (oops, *Gold*) from AE. It's big, it's bad, it's fast, it costs a bloody fortune, and heaven help you if something goes wrong — tech support costs $1.50 a minute. Thanks to its proprietary interface, the Gold outperformed every other drive in nearly every area of our tests, except cost. Also, it's the only drive of the lot that can handle GS/OS, DOS 3.3, CP/M, *and* Pascal partitions — a weighty plus for Apple II veterans.

But if you say you want a piece of the Gold, ask yourself, "Do you feel lucky, punk?" You'd better, because if this is your first Vulcan, you're going to drop at least $950 (street price) for the 100-megabyte version. (If you already have a Vulcan, the Gold upgrade is $50.) If you buy a new Gold direct from AE, the list price for the 100-megabyte drive is $1795. It's an investment you need to consider carefully. You can't take it with you to another computer; you also have to buy another card if you want any external SCSI devices.

We loved the original Vulcan, expensive as it was, because it was the only reliable internal drive available. But with a RamFast/Pegasus combo ripping and snorting around our GS, the Vulcan Gold looks a little like George Foreman: great in its time, but now just overweight and overpaid.

FRUITS OF OUR LABOR

When the smoke blew off, the sweat dried, and the little pieces stopped twitching, certain facts became clear. If you purchase a TMS Shadow, you're hedging your bets against the future with an easily movable external SCSI drive. But if physical size isn't a factor, you could grab a larger TMS Pro series drive that picks up where the Shadow leaves off, for the same amount of money.

The ZipDrive IIGS comes out the hands-down winner for simplicity, but lack of an external SCSI port prevents us from awarding it the all-around medal. The Vulcan Gold's speed and versatility make it an impressive warrior, but its cost may leave you in the red for months. If you must buy an internal hard drive, pick up the best combination of speed and cost effectiveness available: a Pegasus 100i and a RamFast SCSI card.

The sales rep won't ask for proof of age if you go out and buy a hard drive, and Jerry Falwell won't threaten you with hellfire and damnation. But think of all the poor, abused floppy disks you'll be putting out of work, not to mention the lustful craving for bigger drives that will inevitably ensue. You'll be sorry if you buy a hard drive — just don't say we didn't warn you. ❑

PRODUCT INFORMATION

Apple II High-Speed SCSI Card
Apple Computer Inc.
20525 Mariani Ave.
Cupertino, CA 95014
(408) 996-1010
$129

Pegasus 100i
Econ Technologies
P.O Box 195356
Winter Springs, FL 32719
(407) 365-4209
$589

ProSel-16
Charlie's AppleSeeds
9081 Hadley Place
San Diego, CA 92126
(619) 566-1297
$89.95

RamFast SCSI Revision D
CV Technologies
1800 East Whipp Road
Dayton, OH 45440
(513) 435-5743
$199 256K, $279 1MB

Shadow 105 LPS
TMS Peripherals
1120 Holland Drive
Suite 16
Boca Raton, FL 33487-2729
(800) 275-4867
$449

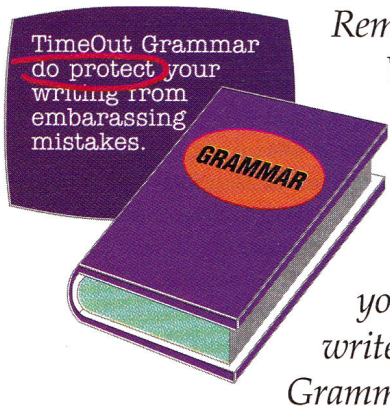
Vulcan Gold 100
Applied Engineering
P.O. Box 5100
Carrollton, TX 75011
(214) 241-6060
$1795, $49.95 upgrade

ZipDrive IIGS
Zip Technology
5601 West Slauson Ave.
Culver City, CA 90230
(310) 337-1313
(800) 937-9737
$579

INTRODUCING

TimeOut Grammar

NEW!



Remember when spelling checkers were considered inconvenient? Well... they were inconvenient. But now all word processors have built-in spell checking, and everyone uses them. It's the same with grammar checkers. Until now. New TimeOut Grammar adds built-in grammar checking to your AppleWorks word processing. With TimeOut Grammar, you have the power to guard your writing against embarrassing errors. No matter what you write, from a high-school paper to an annual report, TimeOut Grammar will make it stronger, clearer and more concise.

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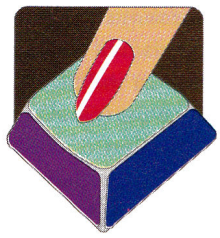
TimeOut SuperFonts

Now you can print out your AppleWorks files with fancy fonts and graphics. SuperFonts works with all the same formatting commands you normally use in AppleWorks. SuperFonts even adds some new commands, like right justify and absolute tab. *$42.95*



TimeOut Graph

Organize your spreadsheet figures into clear, informative graphs, Just choose the type of graph you want and it appears instantly—all ready to print—with titles, subtitles, legends, borders, and more. *$52.95*

TimeOut Thesaurus

Choose any word in the word processor and select Thesaurus from the TimeOut menu. You'll see a list of words with similar meanings—synonyms—displayed on the screen. Choose the new word you want and Thesaurus does the rest. *$32.95*

TimeOut TextTools

These word processor enhancements take the drudgery out of producing complicated documents—term papers, proposals, newsletters, even your Great American Novel. *$32.95*

TimeOut SideSpread

Print your spreadsheets and data base files sideways— inside AppleWorks! SideSpread can print all or part of your file in a wide variety of sizes and print qualities. *$32.95*

TimeOut ReportWriter

ReportWriter's flexible report generator makes AppleWorks a powerful administrative tool. Generate report cards, attendance records, lesson plans, forms and more. *$48.95*

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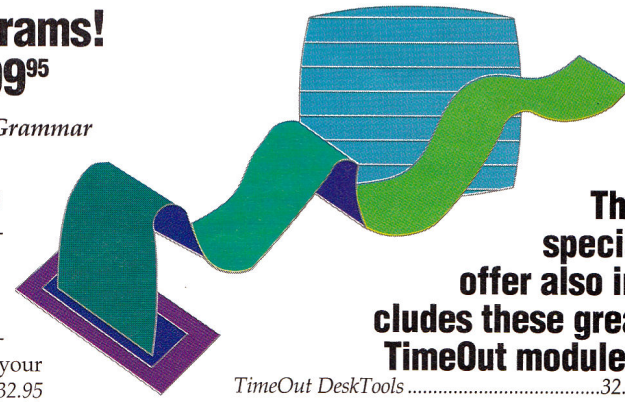
Automate AppleWorks with this ultra-powerful program. Never retype repetitive information again. Record your keystrokes as you go, and then play them back—up to 4,000 keystrokes with one command! $40.95



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TimeOut QuickSpell	*40.95*
TimeOut SuperForms	*42.95*
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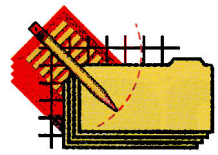


APPLEWORKS IN ACTION

ON YOUR OWN

Minding your own business requires accurate financial projections, courtesy of AppleWorks.

By RUTH K. WITKIN

TIRED OF WORKING FOR SOMEONE else? Got a sizzling new idea that'll make you rich? Ready for some risk, a bit of adventure, and plenty of hard work? Maybe you're ready to start your own business.

If you're thinking along those lines, the prime consideration is *money*. How much will it take before you even open the doors, and what will you need for ongoing operations? Many new businesses fail because of an unrealistic assessment of cash requirements. Your only chance to succeed is replacing guesswork with facts.

This month's spreadsheet, shown in **Figure 1**, will help you plan what you need to start and run a small business. When you enter your startup funds and expenses, then project your ongoing sales income and operating expenses for three months, the formulas will calculate cash flow before and during those first critical months of operation.

As a bonus, you get to convert this startup plan to a semiannual budget that outlines ongoing operations for six months.

A SPREADSHEET FROM SCRATCH

Load AppleWorks and create a new spreadsheet file named **NEWSTART**. Referring to **Figure 2**, set up the spreadsheet as follows:

Long horizontal lines. The spreadsheet will contain five columns, A through E. Move the cursor to cell A2, type quotation marks (they won't show), and hold down the equal-sign key long enough to fill E2. Move the cursor to A4, type quotation marks, hold down the minus-sign key long enough to fill E4, and press Return. Now copy both lines to the clipboard: Leave the cursor on A4 and press Open apple-C (OA-C, the *Copy* command). Type **T** (for *To clipboard*) and hit Return to confirm *Rows*. Move the cursor up twice to highlight through row 2, and hit Return again. Now place the cursor on A26 and press OA-C. This time, type **F** (for *From clipboard*).

	A	B	C	D	E
1		BUSINESS STARTUP BUDGET			
2					
3	INITIAL OPERATIONS				
4					
5	Cash Funds Available				
6	Owner's Funds		$35,000		
7	Bank Loan		$65,000		
8					
9	Total Cash Available for Startup			$100,000	
10					
11	One-Time Expenses				
12	Advertising for Opening		$1,250		
13	Deposits on Phone and Utilities		$1,167		
14	Decorating and Remodeling		$4,500		
15	Fixtures and Equipment		$2,500		
16	Licenses and Permits		$275		
17	Beginning Inventory		$5,500		
18	Professional Fees		$1,800		
19	Rent (2 months security+1 month rent)		$3,825		
20	Other Expenses		$1,500		
21					
22	Total One-Time Expenses			$22,317	
23					
24	Cash Available for Ongoing Operations			$77,683	
25					
26					
27	ONGOING OPERATIONS	January	February	March	Totals
28					
29	Projected Cash Available				
30	Beginning Cash	$77,683	$52,280	$40,837	
31	Cash Sales	$5,000	$8,000	$14,000	$27,000
32					
33	Total Cash Available	$82,683	$60,280	$54,837	
34					
35	Operating Expenses				
36	Owner's Draw	$2,000	$2,000	$2,000	$6,000
37	Employee Salaries	$1,500	$2,200	$3,000	$6,700
38	Payroll Taxes	$300	$440	$600	$1,340
39	Medical Insurance	$530	$530	$530	$1,590
40	Advertising and Promotion	$750	$550	$350	$1,650
41	Insurance	$1,600	$0	$0	$1,600
42	Inventory	$20,000	$10,000	$10,000	$40,000
43	Loan Repayment	$1,438	$1,438	$1,438	$4,314
44	Materials and Supplies	$35	$35	$35	$105
45	Professional Fees	$250	$250	$0	$500
46	Rent	$1,275	$1,275	$1,275	$3,825
47	Repairs and Maintenance	$50	$50	$50	$150
48	Telephone	$125	$125	$125	$375
49	Utilities	$200	$200	$200	$600
50	Other Expenses	$350	$350	$350	$1,050
51					
52	Total Cash Outlay	$30,403	$19,443	$19,953	$69,799
53					
54	Cash Balance	$52,280	$40,837	$34,884	
55					

Figure 1. Completed business-startup spreadsheet with sample figures.

Column width. All columns must be wider than their current nine characters. Leave the cursor in column A and press OA-L (the *Layout* command). Type **C** (for *Columns*) and press Return. Type **C** (for *Column width*), press OA-Right Arrow 17 times (to increase column A to 26 characters), and hit Return again. Now widen the other columns: Move the cursor to column B and press OA-L. Type **C**, press Right Arrow three times to highlight through column E, and hit Return. Type **C** and press OA-Right Arrow three times to increase columns B through E to 12 characters; hit Return again.

Entries. Referring to **Figure 2**, enter labels and numbers (but not the short lines yet). Note that you can save keystrokes by just moving to the next location after typing an entry, instead of pressing Return. Here's how to create the indentions:

- **Indented labels.** In keeping with standard accounting practice, indent one space for labels under a general heading (such as *Owner's Funds* in A6, under the general heading *Cash Funds Available* in A5); indent two spaces for totals (such as *Total Cash Available for Startup* in A9). To indent, type quotation marks and press the spacebar the proper number of times before typing.
- **"Outdented" labels.** Type a space after the month labels in B27, C27, and D27, and the *Totals* label in E27. When you right-justify these labels next, the spaces will shift them a tad to the left, aligning them better with the numbers below. To right-justify, press OA-L, **B** (for *Block*), three Right Arrows (to highlight all four labels), and Return. Then type **L** (for *Label* format) and **R** (for *Right-justify*).

Short lines. The single and double lines

under certain numbers (for instance, in C8 and D10) also follow accepted accounting practice. In C8, type quotation marks, press the spacebar twice, type nine minus signs, and move the cursor to D10. In D10, type quotation marks, press the spacebar twice, type nine equal signs, and move to C21. Create the short lines in C21, D23, and D25 with the same procedure. In the *Ongoing Operations* part of the spreadsheet, you can save work by copying lines into neighboring cells. Enter the line in B32 with a Return, so the cursor stays in that cell. Then press OA-C and hit Return twice. Move the cursor to C32 and type a period. Move to D32 and hit Return. Next, create the lines in B51, B53, and B55 individually, then copy them to the right as a group: Place the cursor in B51, press OA-C and then Return. Move down four times to highlight through B55, and press Return. Move to column C and type a period, then to column E and press the return key again. Finally, blank out cell E55 by pressing OA-B.

Formats. Press OA-V (the *Value* command) and hit Return (to confirm *Value* format). Type **D** (for *Dollars*) and hit Return again.

When you finish these setup steps, press OA-S to store the spreadsheet on disk.

ENTERING FORMULAS

Now enter the formulas that occupy the highlighted areas of **Figure 1**. Place the cursor on the cell receiving a formula, type the formula, and press Return.

Note that the SUM formulas in D22 and B52 include the cells directly above and below the list to be added. If you insert any rows between these points, AppleWorks will adjust the cell references in the formulas to include the new rows.

FORMULA 1: Total Cash Available for Startup. Formula 1 adds the owner's funds (C6) and the bank loan (C7) to produce the total initial cash available in D9.

Cell location: D9

Formula: +C7+C6

Enter the formula by pressing Return, so the cursor stays in D9. Then protect the formula: Press OA-L, hit Return to confirm *Entry*, and type **PN** (for *Protection Nothing*). Be sure to protect every other formula as soon as you create it, as well.

FORMULA 2: Total One-Time Expenses. Formula 2 adds the list of one-time expenses (C20 to C12) to produce the total amount in D22.

Cell location: D22

Formula: @SUM(C21.C11)

Remember, protect Formula 2 and all the remaining formulas.

FORMULA 3: Cash Available for Ongoing Operations. Formula 3 subtracts the total one-time expenses (D22) from the total cash available for startup (D9) and enters the cash available for ongoing operations in D24.

Cell location: D24

Formula: +D9–D22

FORMULA 4: Beginning Cash (January). Formula 4 copies the cash available for ongoing operations (D24) into B30.

Cell location: B30

Formula: +D24

FORMULA 5: Total Cash Available. Formula 5 adds the beginning cash (B30) and cash sales in January (B31) to produce the total projected cash available before expenses in B33.

Cell location: B33

Formula: +B31+B30

Protect Formula 5 as you did the others. Now copy the formula into C33 and D33, where it will perform the same calculation: Leave the cursor on B33 and press OA-C. Hit Return twice and move the cursor to C33. Type a period, move to D33, and hit Return again. Press OA-R to tell AppleWorks that all cell references are relative. Copying this formula also transfers its protection, so there's no need to protect the copies now. You should have *$8,000* in C33 and *$14,000* in D33.

FORMULA 6: Payroll Taxes. Formula 6 multiplies employee salaries (B37) by 20 percent and enters the result in B38. This rate approximates the amount an employer pays for mandated employee benefits, such as Social Security, federal and state unemployment insurance, and disability insurance.

Cell location: B38

Formula: +B37*.2

	A	B	C	D	E
1		BUSINESS STARTUP BUDGET			
2					
3	INITIAL OPERATIONS				
4					
5	Cash Funds Available				
6	Owner's Funds		35000		
7	Bank Loan		65000		
8					
9	Total Cash Available for Startup				
10					
11	One-Time Expenses				
12	Advertising for Opening		1250		
13	Deposits on Phone and Utilities		1167		
14	Decorating and Remodeling		4500		
15	Fixtures and Equipment		2500		
16	Licenses and Permits		275		
17	Beginning Inventory		5500		
18	Professional Fees		1800		
19	Rent (2 months security+1 month rent)		3825		
20	Other Expenses		1500		
21					
22	Total One-Time Expenses				
23					
24	Cash Available for Ongoing Operations				
25					
26					
27	ONGOING OPERATIONS	January	February	March	Totals
28					
29	Projected Cash Available				
30	Beginning Cash				
31	Cash Sales	5000	8000	14000	
32					
33	Total Cash Available				
34					
35	Operating Expenses				
36	Owner's Draw	2000	2000	2000	
37	Employee Salaries	1500	2200	3000	
38	Payroll Taxes				
39	Medical Insurance	530	530	530	
40	Advertising and Promotion	750	550	350	
41	Insurance	1600	0	0	
42	Inventory	20000	10000	10000	
43	Loan Repayment	1438	1438	1438	
44	Materials and Supplies	35	35	35	
45	Professional Fees	250	250	0	
46	Rent	1275	1275	1275	
47	Repairs and Maintenance	50	50	50	
48	Telephone	125	125	125	
49	Utilities	200	200	200	
50	Other Expenses	350	350	350	
51					
52	Total Cash Outlay				
53					
54	Cash Balance				
55					

Figure 2. Labels and sample numbers.

	A	B	C	D	E	F	G	H
1		SEMIANNUAL BUDGET						
2								
3	ONGOING OPERATIONS	January	February	March	April	May	June	Totals
4								
5	Projected Cash Available							
6	Beginning Cash	$77,683	$52,280	$40,837	$34,884	$28,931	$22,978	
7	Cash Sales	$5,000	$8,000	$14,000	$14,000	$14,000	$14,000	$69,000
8								
9	Total Cash Available	$82,683	$60,280	$54,837	$48,884	$42,931	$36,978	
10								
11	Operating Expenses							
12	Owner's Draw	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$12,000
13	Employee Salaries	$1,500	$2,200	$3,000	$3,000	$3,000	$3,000	$15,700
14	Payroll Taxes	$300	$440	$600	$600	$600	$600	$3,140
15	Medical Insurance	$530	$530	$530	$530	$530	$530	$3,180
16	Advertising and Promotion	$750	$550	$350	$350	$350	$350	$2,700
17	Insurance	$1,600	$0	$0	$0	$0	$0	$1,600
18	Inventory	$20,000	$10,000	$10,000	$10,000	$10,000	$10,000	$70,000
19	Loan Repayment	$1,438	$1,438	$1,438	$1,438	$1,438	$1,438	$8,628
20	Materials and Supplies	$35	$35	$35	$35	$35	$35	$210
21	Professional Fees	$250	$250	$0	$0	$0	$0	$500
22	Rent	$1,275	$1,275	$1,275	$1,275	$1,275	$1,275	$7,650
23	Repairs and Maintenance	$50	$50	$50	$50	$50	$50	$300
24	Telephone	$125	$125	$125	$125	$125	$125	$750
25	Utilities	$200	$200	$200	$200	$200	$200	$1,200
26	Other Expenses	$350	$350	$350	$350	$350	$350	$2,100
27								
28	Total Cash Outlay	$30,403	$19,443	$19,953	$19,953	$19,953	$19,953	$129,658
29								
30	Cash Balance	$52,280	$40,837	$34,884	$28,931	$22,978	$17,025	
31								

Figure 3. Business-startup spreadsheet converted to semiannual budget.

Protect Formula 6. Now copy it into C38 and D38: With the cursor on B38, press OA-C, hit Return twice, and move to C38. Type a period, move to D38, and hit Return again. Press OA-R.

FORMULA 7: Total Cash Outlay. Formula 7 adds January's operating expenses (B36 through B50) and enters the total cash outlay in B52.

Cell location: B52

Formula: @SUM(B51.B35)

Protect Formula 7. Now copy it into C52 through E52: Leave the cursor on B52 and press OA-C. Hit Return twice and move to C52. Type a period, move to E52, and hit Return again. Press OA-R.

FORMULA 8: Cash Balance. Formula 8 subtracts the total cash outlay (B52) from the total cash available (B33) and enters January's cash balance in B54.

Cell location: B54

Formula: +B33–B52

Protect Formula 8, then copy it into C54 and D54. Again, all cell references are relative. The negative amounts in C54 and D54 (*$11,443* and *$5,953*) will disappear after you enter the next formula.

FORMULA 9: Beginning Cash (February). Formula 9 copies the cash balance from January (B54) to produce the beginning cash for February (C30).

Cell location: C30

Formula: +B54

Protect Formula 9, then copy it to D30 and press R to indicate that the single cell reference is relative.

FORMULA 10: Total Cash Sales. Formula 10 adds the sales in January, February, and March (B31 through D31) to produce the total cash sales for the quarter in E31.

Cell location: E31

Formula: @SUM(D31.B31)

Protect Formula 10. Now copy it into the other cells in column E: Leave the cursor on E31, press OA-C, and hit Return twice. Move to E36, type a period, move to E50, and hit Return again. Press OA-R. This completes the formulas, so press OA-S to store everything on disk.

PRINTING THE SPREADSHEET

The next step is printing, and you need to set some print options. Press OA-O to bring up the *Printer Options* screen. Type **LM** (for *Left Margin*) and press Return, then type **.3** and hit Return again. Now type **RM** (for *Right Margin*), hit Return, type **.3**, and hit Return again. NEWSTART is 74 characters wide, so it will print on one sheet at the standard 10 characters per inch; there's no need to change that setting.

Now press OA-S to store the new settings on disk and return the spreadsheet to the screen.

Now turn on your printer. Press OA-P and confirm *All*. Confirm the printer (or type a printer number, then Return). Type today's date (or, if you have a computer clock, type @ — the "at" sign) and hit Return twice. The printer whirs away, and there's the business-startup spreadsheet, ready for your projections.

INSERTING AND DELETING ROWS

Later, on your own, you can customize this spreadsheet to suit your operations by adding and deleting rows. For example, you may have more sources of cash funds or fewer operating expenses.

To insert a row (or rows), place the cursor on the row below the point where you want the insertion and press OA-I. Then confirm *Rows*, type the number of rows, and hit Return. To delete a row, place the cursor on the doomed row and press OA-D. Confirm *Rows*, highlight any contiguous rows destined for deletion, and hit Return.

When you insert or delete rows, AppleWorks adjusts the cell references in formulas accordingly. If you insert rows into groups that contain only two entries (*Cash Funds Available* in the *Initial Operations* section and *Projected Cash Available* in the *Ongoing Operations* section), be sure to replace the addition formulas in D9 and row 33 with SUM formulas. Unprotect the cells first, and protect them again afterward.

A SEMIANNUAL BUDGET

Now we'll turn the startup budget into the semiannual budget shown in **Figure 3**. Here's how.

Copy NEWSTART under another name: Press OA-N, and press OA-Y to erase the old filename. Type **SEMISTART** and hit Return. Press OA-S to store the spreadsheet on disk under the new filename.

Now unprotect the starting-amount cell (B30) and replace the formula there with a value: Place the cursor on B30, press OA-L, confirm *Entry*, and type **PA** (for *Protection Anything*). Type **77683** (the amount in D24, which you'll soon be deleting) and hit Return.

Next, delete the entire *Initial Operations* section: Press OA-1 to jump the cursor to row 1, then move to row 3. Press OA-D to start the *Delete* command. Confirm *Rows*, press OA-4 to highlight through row 21, press Down Arrow five times to reach row 26, and hit Return. Type **Y** to confirm the removal of protected cells.

Now insert three columns for the new months. You don't have to start from scratch; just copy a column, with its numbers, formats, and formulas, to the clipboard, then copy it from the clipboard: Place the cursor on D2 and press OA-C. Type **T** (for *To clipboard*), type **C** (for *Columns*), and hit Return. The entire column of cells is now on the clipboard. Copy it back into the spreadsheet: Leave the cursor on D2 and press OA-C. Type **F** (for *From clipboard*) and confirm *Formulas and values*. Keep the cursor where it is and copy two more columns from the clipboard the same way.

Next, copy the formula in D6 into the new cells to the right: Place the cursor on D6, press OA-C, and press Return twice. Move the cursor to E6, type a period,

STOCK UPDATE

Thanks to Stuart Horowitz of Huntington Station, New York, for showing me the error of my ways. In my April 1992 column ("Taking Stock 2," p. 46), I said that AppleWorks can't read dates in the spreadsheet, so you can't rearrange stocks automatically by purchase date. With dates in month/day/year format, that's true. But Stuart came up with a way that works: Enter dates as labels in year.month.day format — Aug 23 92, for instance, as 92.08.23.

"Entering dates in this fashion," Stuart notes, "is the only way I've found to conquer AppleWorks' reluctance to work with the 21st century. This becomes important because it allows me to enter maturity dates beyond the end of 1999." **— R.W.**

move to G6, and hit Return. Type **Y** (to clear protected cells), and press **R** to tell AppleWorks the cell reference is *relative*.

Now correct the month labels to show April through June: Place the cursor on E3, press OA-E to switch to the overtype cursor (a flashing rectangle), type **April** followed by a space, and hit Return. As noted above, the space shifts a right-justified label a bit to the left. In F3 type **May** and a space, and in G3 type **June** and a space.

Finally, change the spreadsheet's title to reflect its new purpose: Place the cursor on B1, type **SEMIANNUAL BUDGET**, and hit Return.

TINKERING WITH THE TYPE

You can print this expanded spreadsheet on one page by using a smaller printed character: Press OA-O to bring up the *Printer Options* screen. Now type **CI** (for *Characters per Inch*), press Return, type **15**, and hit Return again. Press OA-S to save this new spreadsheet.

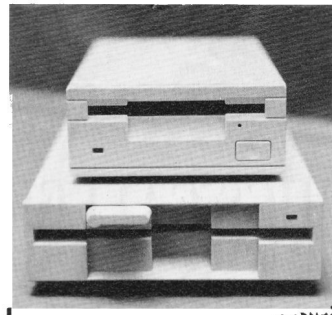
Ready for printing? Be sure your printer is still on, and press OA-P, confirm *All*, confirm the printer, and hit Return twice. And there's a spanking new spreadsheet ready for your projections.

You now have two spreadsheets — one to plan the grand opening of your business and another to budget six months of ongoing operation. Here's to success in your new business venture!

COMING UP

Next time we'll create a bevy of eye-catching posters that will get your message across with pizzazz. Whether you're a home, school, or small-business AppleWorks user, "DTP" — desktop publishing — is all the rage these days, so stay tuned. ❑

CONTRIBUTING EDITOR RUTH K. WITKIN IS THE CREATOR OF THE *SUCCESS WITH APPLEWORKS* TEMPLATE SERIES (A+ PUBLISHING/IDG COMMUNICATIONS), *RUTH WITKIN'S BEST NEW APPLEWORKS TEMPLATES* (QUALITY COMPUTERS), AND *RUTH WITKIN'S MONEY MANAGER* (A+ PUBLISHING/IDG COMMUNICATIONS). SHE'S ALSO THE AUTHOR OF *THE BEST BOOK OF APPLEWORKS* AND *PERSONAL MONEY MANAGEMENT WITH APPLEWORKS*. WRITE TO HER AT 5 PATRICIA STREET, PLAINVIEW, NY 11803. ENCLOSE A STAMPED, SELF-ADDRESSED ENVELOPE IF YOU'D LIKE A REPLY.



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ROUGH EDGES

The right combination of brushes and paint modes can soften stark boundaries.

By ROGER GOODE

PAINTERS, START YOUR PROGRAMS.... Now draw some shapes and fill them with color; draw some shadow patterns within those shapes and fill *them* with color. What do you have? About the same thing you'd have if you were working with scissors and construction paper — a design composed of hard-edged, cut-out shapes. And that's fine if that's what you want in a finished piece. But if you want something more involved, more realistic, then you'll need to address the issue of edges.

In previous columns we looked at using light and shadow to give a picture weight and depth ("Made in the Shade," December 1991, p. 66, and "Worth Its Weight," March 1992, p. 44). But that's just the beginning of the story: The proper treatment of edges is one of the most critical elements in the artist's ability to transform a simple cut-paper design into a finished painting with depth and texture.

Remember, too, that soft edges tend to recede; hard edges seem to come forward. You can use that illusion to bend the truth a little when you want certain parts of your picture to stand out or others to fall into the background.

In nature there are no lines around objects to define them. Objects appear to have hard or soft edges depending on lighting conditions, distance from the viewer, surface texture, and similarities or differences in color and value as you compare them with surrounding objects.

For example, if you look at a dark, leafless tree silhouetted against a bright sky, its edges appear crisp and hard. That same tree in full foliage, surrounded by other trees of similar color, will appear to have very soft edges.

We're talking here about the *bounding* (outline) edges of a shape, but the same holds true for edges within the boundaries of an object: edges where two colors meet, where elements overlap, where a shadow pattern falls as light moves across the object.

The size and surface texture of a painted object are defined as much by its edgework as by anything else. Shadows on a large object, for example, will show softer edges than a smaller object's as light passes across it. A highlight will show a hard, crisp edge on glass or metal, but an indistinct one on a softer texture such as fabric or wood.

Painting a hard edge on the computer is easy: Just draw a shape and fill it. But how do you go about creating a soft edge — making a smooth transition from one color or value to another, from dark to light, or from red to green — especially when the number of colors you have to work with may be limited to 16 or fewer?

In other media, you'd simply rub across the edge of a line until the charcoal or paint began to mix and smear; the more you'd rub, the softer the edge would become. On the computer, you'll need at least one intermediate step in your palette between each pair of colors or values (preferably set up in some logical order). The more intermediate steps between colors, the easier it is to create a smooth, soft edge.

Of course, when you're dealing with a 16-color palette, you'll hit a brick wall in terms of space very quickly. The solution is simple: Work with a monochrome palette — 16 shades of the same color arranged from light to dark. If you have some experience in computer art and prefer a mixed palette, be sure you do your preparatory work and arrange your palette

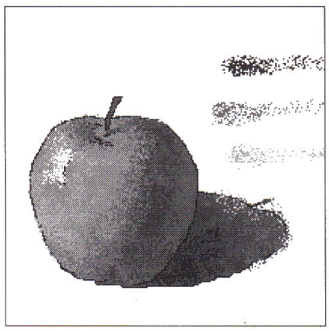

Figure 1. The airbrush sprays a random pattern of tone across a boundary.

Figure 2. Airbrush technique in color. Note boundaries between hues and light/dark.

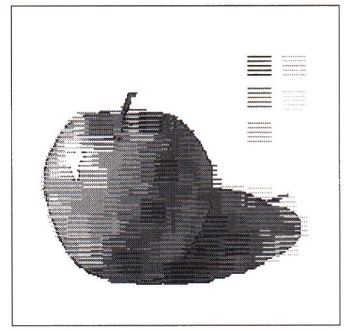

Figure 3. A custom hash-mark brush creates a softening effect.

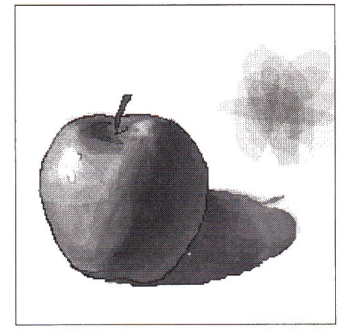

Figure 4. Charcoal mode softens edges by playing with layers of color.

to maximum advantage. (For details, see "Palette Primer," October 1991, p. 56.)

A soft edge from black to white can be as simple as a band of medium grey between the two, or several overlapping bands of grey, each lighter than the one before. But that's still only a step away from the cut-paper approach. Here's where your paint program's toolbox — and your own ingenuity — come in.

Most paint programs come with an assortment of tools that let you emulate more-traditional styles of painting and drawing. Apple IIGS programs all include pencil, paintbrush, and airbrush. Mac programs offer additional items such as the watercolor brush, the smudge tool, and Color MacCheese's *transmogrifier*, which breaks up a solid color into varying shades for a more textured appearance. You can use any or all of these tools to mix up your edgework and make it more interesting.

Pay attention to your paint program's modes, as well. Some, such as *smear*, *slide*, and *rake*, simply drag bits of one color area over into another, creating a rougher, more natural edge. Others, such as *charcoal*, *shade*, *wash*, or *smooth*, require some palette organization, but yield more-promising results.

Some of my favorite techniques for working edges are also pretty "low-tech," and carry the added benefit of making the most economical use of palette space.

Figure 1 demonstrates the most common edge-rendering tool, the *airbrush*. After blocking in a set of basic shapes and shadow patterns, use the airbrush to "spray" a loose, random pattern of tone from one section of a painting over into another. The trick is to drag color from adjacent areas, or intermediate tones that would fall naturally between them, across the hard edge separating them.

This method maximizes the number of shades you use; much like the pointillist method of painting used by the French Impressionists, it mixes two colors together visually, creating, in effect, a third color in the viewer's eye. **Figure 1** uses five or six shades of grey, leaving plenty of room on the palette to add color.

In **Figure 2** I've employed the same technique, with the addition of color to not only soften the edges between light and dark, but the boundary between two complementary colors, as well. Again, this technique used only part of the palette's capacity.

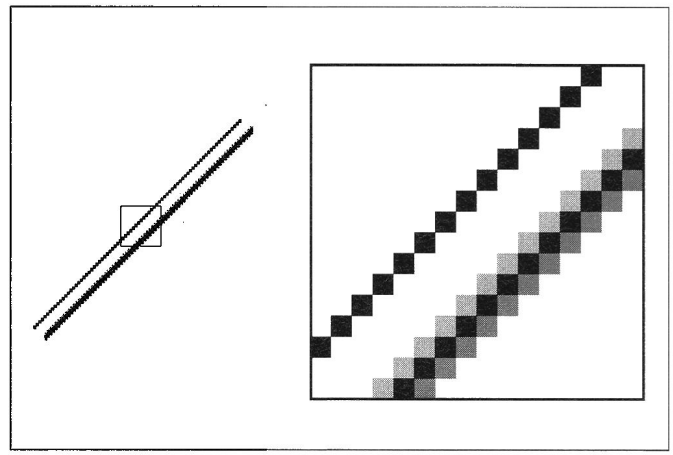

Figure 5. Automatic anti-aliasing softens the "jaggies."

Another method that can produce interesting, stylized results involves using the brush-grabbing tool, or editing your program's existing collection of brushes, to create custom brushes. You can design an unlimited array of special-purpose brushes for softening edges or creating entire paintings.

In **Figure 3** I created a simple hash-mark brush of four short horizontal lines and used it in combination with a limited number of colors to soften edges and produce a kind of venetian-blind effect. As in the airbrush method, you use this brush to edit flat, filled shapes and to drag tone from one area into another. By designing the brush with a two-pixel space in between each pair of one-pixel lines, I could overlap the hash marks to create a variety of effects. Working carefully, you can produce a wealth of texture with a single brush.

The number of effects you can generate with simple custom brushes is boundless: vertical, horizontal, and diagonal lines with varied spacing; random dot patterns; irregular squiggles or crosshatches; even herringbone patterns. Resist the temptation to use too many different brush shapes in one picture, though. One judiciously applied brush can create an interesting, unified look; two complementary shapes will break up a pattern nicely if it starts to look overdone. But more than that can easily result in an overwhelming mishmash of textures and patterns that will, at best, distract the viewer from the subject of the picture or, at worst, render the picture incomprehensible.

Closest to traditional watercolor painting, my favorite method of softening edges on the computer is *charcoal* or *transparency* mode. If you've arranged your palette properly, all you have to do is turn the mode on and then draw shapes over each other (**Figure 4**). It's like laying one transparent sheet of color over another: Wherever the new layer touches the old one, it shifts up or down a shade.

This method lets you create some subtle shading and modeling effects. To soften an edge, you simply draw a shape that straddles the existing edge, and the computer generates an intermediate shade between the two bordering areas. Or you can use this mode to build up a slow tonal progression — from one shade to another, layer by layer.

Lastly, for those of you using one of the more-sophisticated paint programs on the market, your software's *anti-aliasing* feature (accessed via the toolbox or from one of your pull-down menus, depending on the program you're using) is still another method for softening edges — removing the ubiquitous "jaggies" from computer-generated art. The computer looks for hard-edged or sharply contrasting lines and places pixels of intermediate value next to them to soften the line visually.

Take a look at **Figure 5**, showing a black diagonal line on a white background. The computer places a middle-value grey pixel in the "notch" of each step on the line to help make the visual transition from black to white. Remember, though, that if your palette is limited and there are no intermediate values between the two colors, you're no better off with automatic anti-aliasing than you would be doing it yourself.

Some paint programs include an anti-aliasing option and others don't. If you have it, great. If not, don't despair. With a little patience and careful work, it's something you can do yourself — possibly even better than the computer. ❑

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Continued from p. 28

party of six. Each adventurer is characterized by the familiar attributes of strength, agility, stamina, psyche, and ego. Struck by the whimsy of the cryptic message in the bottle, I named my mage Wau Bulan, and my strongest warrior Rokkaku. I led the party, and rounded out my band with Edo, Malay, and Conyne.

On foot, pockets empty, and armed only with daggers, we set off for the town of Vashi. Bring pencil and paper to jot down notes about what's said and who says what. Even though some townspeople may snub you, others make up for it with valuable hints. You may ask for objects as well, but before they turn them over, they'll quiz you about Bharas history. To answer, you'll need the game manual.

Animated maps and compasses make navigation easy. Although Bharas runs smoothly with good graphics and animation, you may be disappointed with the sound. In town you'll encounter the familiar GS beep. Battles are livelier with appropriate, if limited, sound effects.

The Bharas countryside is more hazardous than town. At nightfall undesirables may ambush you. Combat plans are complex; you can control them either manually or by computer. A handy choice at times in this hostile land is the *flee* command — provided you have coins to fling at your enemies, and provided they take the bribe.

Don't expect the documentation to spoon-feed you. You may be confused for a time, but you'll soon learn the ropes. With a little exploration, you'll even find the ingredients for various spells. Don't be in too big a hurry — you may learn that you don't have the knowledge to use them.

Wise adventurers will avoid caves and dungeons until they grow in strength and amass the means and matériel to stay alive. Sooner or later you'll have to buy a ship and sail for foreign lands. We did, and now I fear we're lost. My starving band of adventurers were set upon by evil ones, who spilled from a crack in the earth like venomous serpents. It was they who murdered my mage, Wau Bulan, and gravely injured my comrade in arms, Rokkaku. And I? I am near done for. Beware the perils that await in the land of Bharas. At all costs, avoid the . . . .

Sharon Webb
Blairsville, GA (Last Confirmed Sighting)

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And the voice spoke, and it declared, "Not All Word Processors Are Created Equal." How true. Most word processors are designed for business or a home office, loaded with tricky mail-merge tools and cryptic interfaces. All too often, these applications are just too difficult for youngsters to learn. The original Apple II Bank Street Writer distinguished itself as a productivity tool designed specifically for students and teachers. Field-tested in classrooms before release, the program had an easy-to-use feature set approved by educators and appreciated by youngsters.

Times change, though, and while people began learning new phrases such as "clip art" and "desktop publish," Bank Street Writer couldn't keep up — its text-based interface made it difficult to work with graphics. But now in a new version, Bank Street Writer (BSW) for the Mac, released by Scholastic in the fall of 1991, the program has at last come of age.

BRAND-NEW BANK

No longer a meek, mild-mannered text editor, BSW Mac doubles as a low-end desktop publisher. The program offers support for on-screen color (if you're using a color Macintosh), multicolumn formatting, plus several fonts, type styles, and type sizes. A custom driver lets you print in color using an ImageWriter II equipped with a color ribbon, or in gray scale with a black ribbon on an ImageWriter I or II. In addition, a new graphics interface follows standard Mac conventions, providing icons, dialog boxes, and scroll bars to keep program operation relatively simple.

Another change is that page layout for the most part has gone WYSIWYG (what you see is what you get). The ability to see how a page will look before it prints takes the guesswork out of paragraph and document formatting. The package offers several layout templates — newsletters, book reports, special-event fliers, and posters — but it's also easy to create your own. And, with BSW's *Stationery* option, writers can prepare time-saving documents complete with special formatting and boilerplate contents. Files saved as BSW *Stationery* templates open as *Untitled*, leaving original content and formatting unchanged. According to standard Mac convention, saving an *Untitled* file requires that you enter a new name, making it impossible to write over the original in the process.

GIMME A SHOT

BSW accepts images from the program's *Graphics Gallery* and *Picture* files. It also accepts images in a backhanded fashion from other applications. All graphics transfer into BSW via the clipboard, because the program lacks an "import" command to bring in paint-format, TIFF, PICT, or EPS graphics files. You can move or resize pasted images, but not flip, rotate, or edit them. Like high-end desktop-publishing packages, BSW gives you control over the amount of white space separating picture from text as well as three text-wrap options. Curiously, however, the program doesn't paste pictures directly at the cursor. Instead, it positions an image at the beginning or end of the paragraph closest to the cursor.

BSW includes some nifty hypermedia features in addition to its DTP abilities. An *Insert Button* command on the *Format* menu lets writers add a level of interaction to a BSW document. *Sound* buttons, for instance, direct the program to play a special sound effect from BSW's library, or a recorded voice clip. *Note* buttons direct the program to open a Post-It-like text file stored as part of the document. *File* buttons link the open document to another file containing text, pictures, or

other buttons. A program update scheduled for release at the end of the summer will reportedly also allow the inclusion of QuickTime movies in BSW documents.

QUIPS, QUIRKS, AND QUANDARIES

Compared with its Apple II cousin, BSW Mac shows major improvement. For example, a *Menus Preferences* option lets you reduce the number of menus and commands for new users and young children. Several features need work, however.

For one thing, Scholastic provides a toll-free technical-support line (800-548-1604), but the number isn't listed anywhere in the manual. The manual also lacks a "quick reference" printout of all graphics and picture files included on disk.

Also missing are import filters and a provision for real graphics manipulation. You can bring in ASCII text files, but the formatting information is stripped out. Handling graphics requires the use of the clipboard and the scrapbook — awkward at best, and frustratingly convoluted.

For any layout (other than *Empty Page*), you must "pour" in text and graphics files before printing. There's no way to link columns, so text doesn't flow automatically from one column to the next. Because you can't edit a document in *Preview* mode, you must reflow a layout's associated files if you make any content changes.

BSW Mac limits documents to approximately 30 pages. While that may not affect student files, it could prove inconvenient for educators using the word processor to write book chapters or papers for presentation at professional conferences.

Bank Street Writer for the Mac fulfills its promise to deliver a powerful, friendly word processor designed for classroom use. The program's ability to mix text and graphics on a single page increases its versatility. Sound and hypertext button options add an element of fun to the writing process. But just as you wouldn't buy a suit of clothes for its attractive accessories, spiffy buttons don't make a desktop publisher. BSW's lack of import file filters, plus the numerous steps required to lay out a multicolumn document, limit the program's overall effectiveness. I'd wait for the upgrade before purchasing.

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

★ ★ ★ ★ ★

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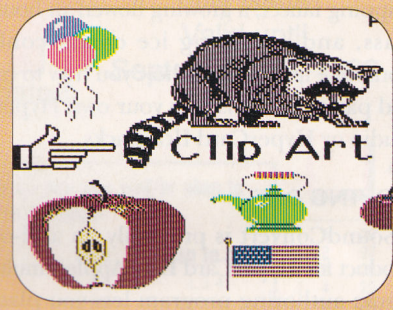

A really good tool should have a little "toy" built in: It gets the job done, but it's fun to play with, too. If you create hypermedia stacks or desktop publish, or if you like great music or just want to have fun with System 6, Triad Venture's HyperStuff Collection is a good tool. It's bound to increase your creative output while adding to your enjoyment of the GS.

The HyperStuff Collection — ClipArt Plus, ClipTunes, SoundConvert, and Animated Icons — is primarily directed at HyperCard IIGS and HyperStudio stack designers, but three of the four products offer other resources as well. Anyone who likes good music will appreciate ClipTunes; you can use ClipArt Plus with any GS/OS desktop-publishing or paint program; and you can use SoundConvert to create digitized sounds for use with System 6.

SOUNDS

ClipTunes is a two-disk set containing more than 30 diverse MidiSynth songs,

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including marches, children's tunes, and classical airs, plus special-effects passages you can use as background stack music. MidiSynth songs are created using System 6's SynthLab music program; you can use SynthLab or any compatible program to play them back. All ClipTunes songs were arranged and performed by a professional musician and teacher of electronic music; the mastery is evident.

Included with ClipTunes is an external command (XCMD) for HyperCard IIGS, and a new button action (NBA) for HyperStudio, making it possible for anyone to incorporate MidiSynth music into a hypermedia project. Using the ClipTunes tools couldn't be easier. With HyperCard, you can invoke the XCMD directly from the message box, or with a few lines of HyperTalk script. With HyperStudio, just designate a new button action and use MiniScript to enter two-word commands to play back any tune. If you can type, you can use ClipTunes to add beautiful music to your projects. Even if you have no interest in hypermedia, ClipTunes supplies a large library of music that will intrigue anyone using System 6's SynthLab.

SIGHTS

ClipArt Plus does for graphics what ClipTunes does for music. Twenty attractive clip-art screens are provided on disk. Developed with the GS' super-hi-res 640 mode, they include more than 200 individual images you can cut and paste into virtually any GS graphics-oriented program, including AppleWorks GS, HyperStudio, and HyperCard. This is top-flight, professional clip art for business, household, and classroom use.

ClipArt Plus comes with four HyperCard XCMDs. (You won't need any for HyperStudio, as that program already provides for seamless integration of clip art.) The XCMDs offer a way to view or print the contents of the GS clipboard, an easy method of copying HyperCard icons from one stack to another, and a simple way to import super-hi-res clip art or Print Shop GS graphics into HyperCard stacks.

You'll also find four new desk accessories (NDAs), which you can use to enhance any standard GS/OS application. One captures images from any super-hi-res screen to the GS clipboard; from there you can paste it into any standard GS/OS application. Others provide a convenient way to print the screen, capture a portion of it, and save it as a Finder icon. One NDA lets you save any portion of a GS screen as a HyperCard icon, and there's even a program that converts GS Finder icons to HyperCard icons.

Speaking of those tiny graphics, Animated Icons is a three-disk package that'll liven up all your hypermedia projects. It contains 30 creative animations — including a flying bird, a hearth with a crackling fire, a waving flag, an exploding bomb, a dripping faucet, a growing flower, an hourglass, and a melting ice cream cone. Complete instructions show you how to cut and paste the icons into your own HyperStudio or HyperCard IIGS stacks.

MOVING DAY

SoundConvert is primarily an add-on product for HyperCard IIGS. Apple's multimedia authoring program lets you place digitized sounds within stacks and provides a way to play them back, but it doesn't offer a facility for creating or digitizing sounds. SoundConvert provides the means to record sounds directly from within HyperCard IIGS, and also lets you import existing sounds into stacks. You'll dazzle your audience.

This utility contains two especially useful tools. First, a special NDA works with all existing Apple IIGS sound-digitization hardware and lets you digitize sounds from within any standard GS/OS application. An added benefit is that it can save in *rSound*, the new format used by System 6's Sound control-panel device.

Second, a special stack lets you transform existing digitized sounds into rSound format. As a bonus, you can even convert SynthLab instrument files to HyperCard IIGS format. If you program in HyperTalk, you also get instructions on using SoundConvert's custom XCMDs and XFCNs (external functions) in your own scripts.

Triad Venture has coupled the GS' great strengths — graphics, music, sound, and animation — with some powerful tools to make stack design easier. In the HyperStuff Collection, the company is offering an entire library of wonderfully creative resources for users and programmers alike. ❑

Joe Kohn
San Rafael, CA

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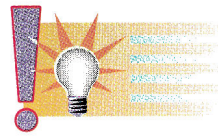

HINTS

RECORDING . . .

A definition here, a shortcut there — our information swap can help you stay one step ahead of frustration.

By WILL NELKEN

GET IT ON TAPE

Recording keystrokes is a common feature of macro programs — you "turn on" the recorder and "remember" the subsequent keystrokes (up to a certain limit — 60 in Beagle Bros' **TimeOut UltraMacros**), including text and commands. You can then "play back" all these keystrokes by pressing just one key combination.

Let's say you want to create a letterhead. The first step is to think through the design; get the look you want without recording it, to make sure you know the right steps. Remember, your macro program will faithfully repeat extra (unwanted) keystrokes and typos if you're not careful.

To turn on the UltraMacros recorder, press the Open apple-X key combination. (AppleWorks 2.x users do the same.) At the bottom left of the screen a prompt appears, asking you to select the macro's "call" key. Choose something mnemonic, say *L* for *Letterhead*. As long as that key isn't already defined as another macro, the prompt will disappear when you press Return, and the notation *Recording L* will pop up in the bottom right corner. If the key was previously defined, the program asks you whether you want to redefine it. Because this new definition is only temporary, answer yes.

You can save recorded macros in various ways for permanent availability, but that's not an automatic part of the process. As a result, you may freely redefine temporary macros for immediate use, without losing your old favorites. You can save those you want to keep, like the *Letterhead* macro, after testing.

From the moment the message *Recording L* appears, the software will record every keypress until you turn the recorder off. To do that, simply press Open apple-X again. (AppleWorks 2.x users should press Control-2 to stop recording.) You can "play back" your recorded macro immediately by pressing the selected key while holding down the solid-apple (option) key. Now each time you press Solid apple-L AppleWorks will prepare a new letterhead — at lightning speed.

If you discover that the recorder shuts itself off part way through the recording session (and you swear you didn't touch Open apple-X), you probably ran out of "tape." UltraMacros has a built-in limit of 4009 bytes of macro code. That's a lot of code (the *Letterhead* macro in the accompanying **Figure** takes up only 188 bytes), but a large collection of useful macros can fill it up. When UltraMacros hits that ceiling, the recorder just shuts off. What's the solution? Eliminate some of your larger macros (temporarily) by turning on the recorder, selecting their "call" keys, entering just one keypress, and turning the recorder off again. This effectively "erases" segments of your "tape" to give you more space for recording.

The macro shown in the accompanying **Figure** is an example of a recorded macro that creates a new word-processor file, sets margins, and enters a letterhead and a greeting — all at a single keystroke. We've touched it up with some explanatory annotations. You can do the same:

- **Open** a new word-processor document.
- **Press Open apple-Escape** to call the *TimeOut* menu.
- **Choose** *Macro Compiler*.
- **Choose** *2. Display current macro set.*
- **Default macros** and recorded macros are displayed to the new AWP file.
- **Press Open apple-9** to find the recorded macros at the bottom of the file. ❑

```
start
==========================================================
<ctrl-W>:<all><                                  { works from anywhere in AppleWorks }
oa-Q esc :                                       { get right to the Main Menu }
rtn>3<rtn rtn>LTR<rtn :                          { create a new AWP called "LTR" }
oa-O>LM<rtn>.5<rtn>RM<rtn>.5<rtn esc :           { set margins for the letterhead }
ctrl-R ctrl-B :                                  { right justify and boldface }
                                                 { the following prints the letterhead }
print "William C. Nelken" : ctrl-B rtn :
print "1675 Grand Avenue" : rtn :
print "San Rafael, CA 94901" : rtn :
print "(415) 456-1795" : rtn rtn

oa-O>LM<rtn>1<rtn>RM<rtn>1<rtn esc :             { set margins for the letter body }
ctrl-C date rtn rtn rtn :                        { center today's date }
ctrl-N first :                                   { restore left justification }
print "Dear ," :                                 { print greeting }
left insert>!                                    [ prepare to enter the addressee's name ]
==========================================================
```

Figure. Letterhead macro for AppleWorks created with TimeOut UltraMacros.

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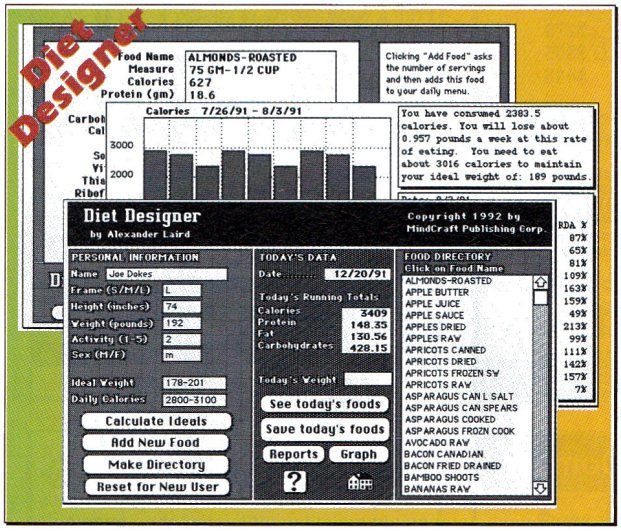

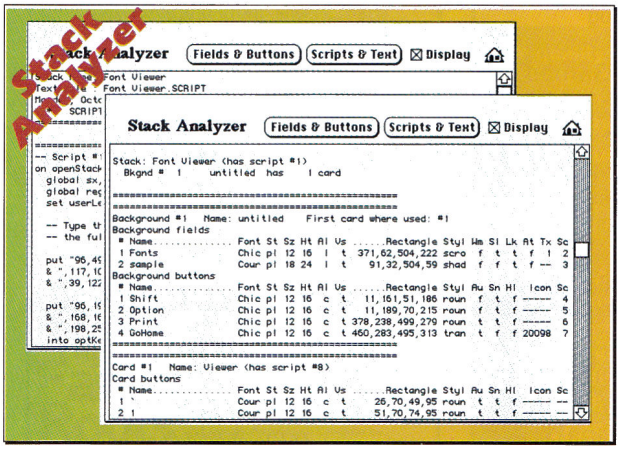

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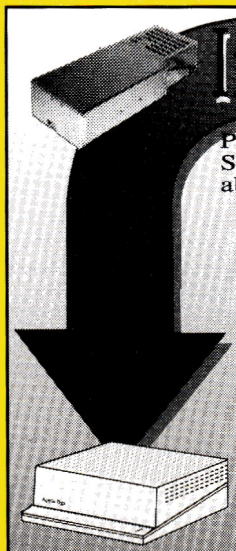

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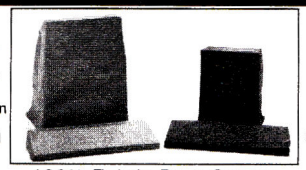

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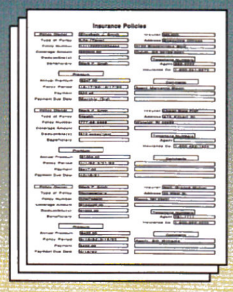

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LEARNING CURVE

Continued from p. 64

what's happened in the past ten years, and the ten years before that. The cheaper/smaller/faster/more-powerful trend has been in gear for more than two decades, and it shows no sign of letting up. Sharp, Casio, Sony, and others are wildly interested in creating tools for kids, and they'll be reasonably priced.

Consider those blister-packaged calculators at Walgreen's for less than $2, then Hewlett Packard's HP-35, which cost $495 when it came out 20 years ago. Products with the capacity of the Sharp Wizard will break the $20 barrier in five years — maybe less. This forecast doesn't require a crystal ball, just a plotting calculator (or, for those still avoiding high tech, graph paper and a ruler).

Wistful glances at the past make for fine conversation among adults, but convey a completely different message to children — that school has no bearing on reality. No, ignoring the trend won't work. In fact, computer companies can now forget selling into the classroom — they're going after kids directly.

Look at the new **Super Nintendo System** — a game machine that's really a Trojan horse. It looks and acts like a game machine, but watch out: Sometime this year Nintendo will roll out an adapter, complete with more than 8 megabytes of RAM and a CD-ROM drive, for about $200. At a price well under $400, kids will have a complete multimedia workstation. And you can be sure that keyboards, mice, and modems won't be far behind. Apple and IBM will be just blips on the personal-computing screen — unless they respond strongly and fast.

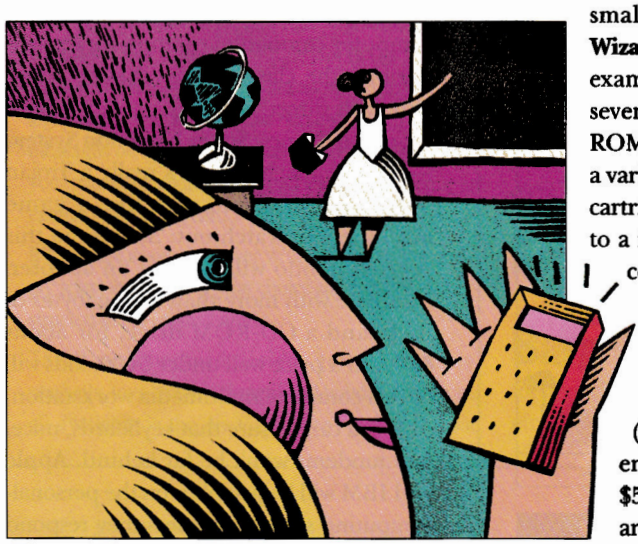
It might be more comfortable if technology didn't move so quickly, but that just isn't the case. We live in a world of unprecedented change, and the rate is accelerating dramatically. As an educator, you must ride the trends, you must participate in the revolution. Get into the fray and work with the technology yourself. To fail is to risk making school irrelevant to your students' lives.

As the author and philosopher Eric Hoffer once wrote, "In times of change, learners inherit the earth, while the learned find themselves beautifully equipped to deal with a world that no longer exists." Where do you fit in? ❑

SMALL WORLD

Join the revolution: Pocket-sized information devices are changing the way kids learn.

Downsizing's here to stay — at the corporate level and in the computer lab. At last January's Consumer Electronics Show in Las Vegas, John Sculley announced that Apple would enter the consumer marketplace with a line of "personal assistants" — portable information tools designed to facilitate information retrieval and communication. With this development, Apple is entering a field well known to Casio, Sharp, Sony, and others who design for pockets, not just briefcases. In one small package, Sharp's $250 **Wizard OZ-8000** computer, for example, sports 32K of RAM, several built-in applications in ROM, and the ability to accept a variety of external application cartridges, ranging from games to a fax module. On the same compact scale, Sony's **Data Discman** is a complete CD-ROM information-retrieval system that retails, with three discs (including an illustrated encyclopedia), for less than $500. Pocket information tools are showing up like ants at a picnic, and there's no end in sight.



By DAVID D. THORNBURG, Ph.D.

These products reflect an established trend: Computer technology gets smaller, faster, more powerful — and cheaper — with time. Compare a pocket-sized computer like the Wizard with your first Apple II; you get twice the capacity at one third the cost and (including the monitor) one 20th the weight. The Atari **Lynx**, a pocket video game with color liquid-crystal display, sells for under $100 — less than one-tenth the price of the old Atari 800.

And pocket-sized technology has gotten designers thinking about what they can fit into even smaller packages. The result is a new string of "palmtop" entries. With the pocket market exploding, we can expect this handheld category to grow like wildfire, too.

All of which brings me to the classroom. Yes, change is hard, but it's inevitable. All educators, at all grade levels, must insist on access to technology, and must become fluent users of the tools of the Information Age. Technology-resistant teachers might be able to keep computers from coming through the front door, but they can't keep them out of kids' backpacks.

For example, students with the Sony Data Discman are already looking up factual information on the Compton's Encyclopedia disc and seeing all the material they want on a private viewing screen. Students with pocket word processors are taking notes that, when uploaded to a desktop word-processing system at home, will be turned into a finely crafted report in a fraction of the time it takes to create a first draft by hand. Teachers who believe in the primacy of "lecturing" are completely outgunned by these tools.

How are educators responding to the challenge of personal information appliances? One approach is to forbid their use. One friend told me that his son's teacher was upset because the child alphabetized a spelling list with the sort feature of a word processor, rather than doing it by hand. When asked why the child needed to know how to alphabetize words (without a context), the teacher cited the card catalogue in a library. The parent pointed out that none of the libraries in his town has a card catalogue anymore — all searches are done by computer.

Some technology-resistant educators think that if they look the other way the tools of the Information Age will dry up and blow away. This approach will meet with the same success as ill-fated attempts to ban books in the Middle Ages and television in this century. Other teachers just deny that the tools of our age relate to their task, or watch the clock tick toward retirement, hoping they won't have to learn anything new.

Of course, you might argue that the technologies I describe are a bit pricey, but that won't be true a year from now. Just look at

Continued on p. 63

Illustration • Darrel Kolosta

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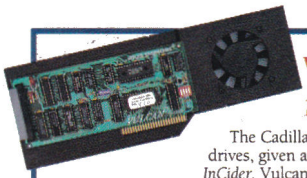

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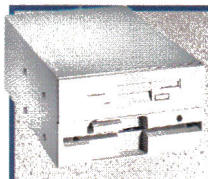

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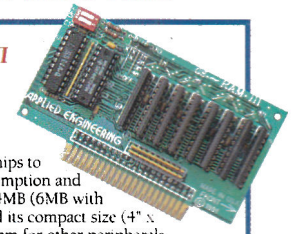

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