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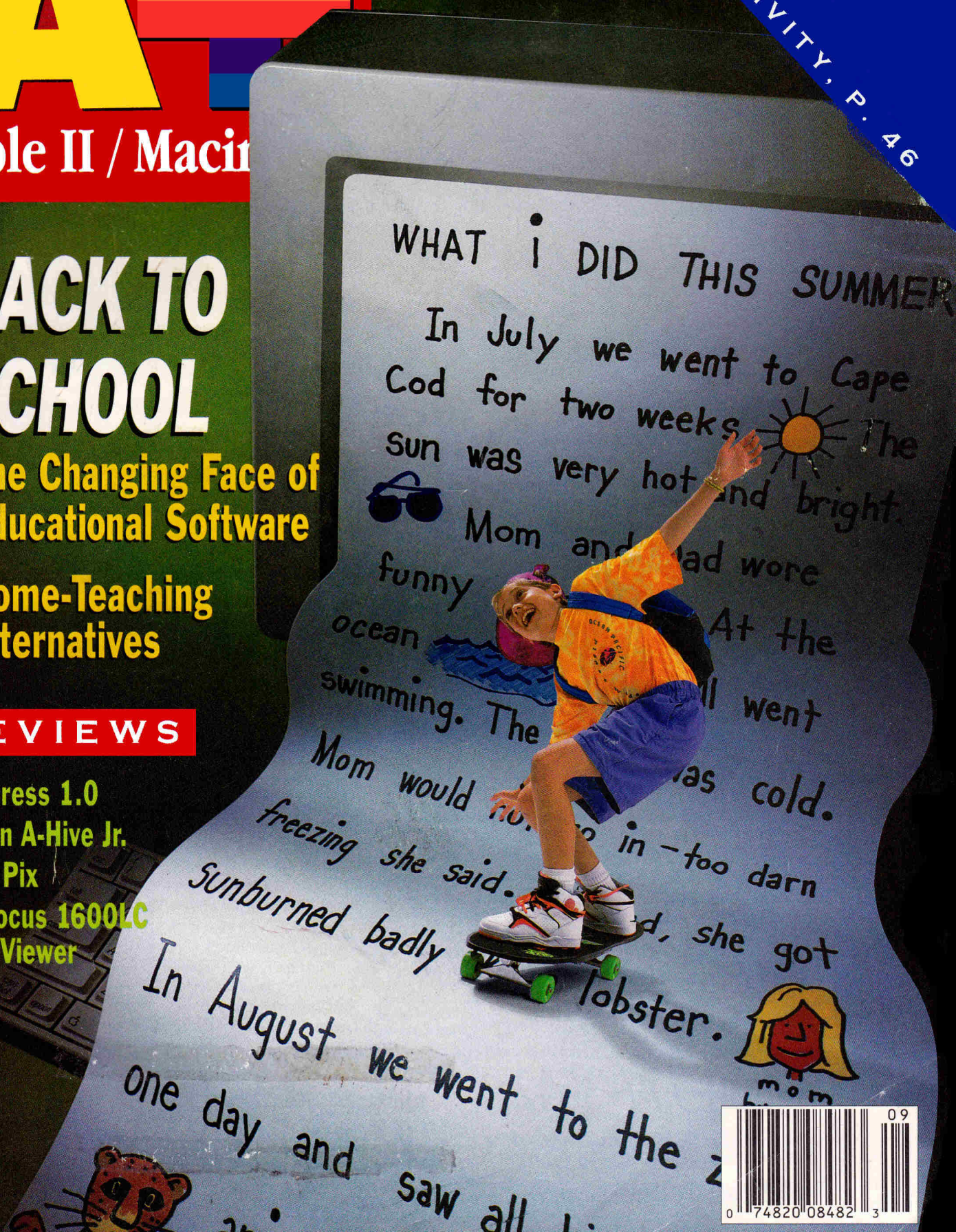

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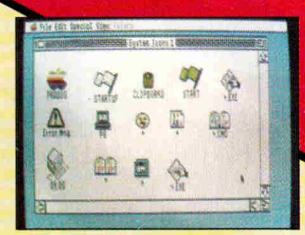

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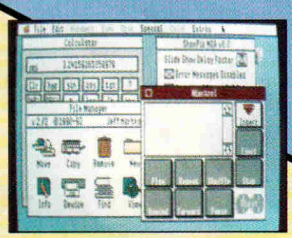

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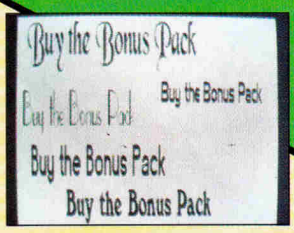

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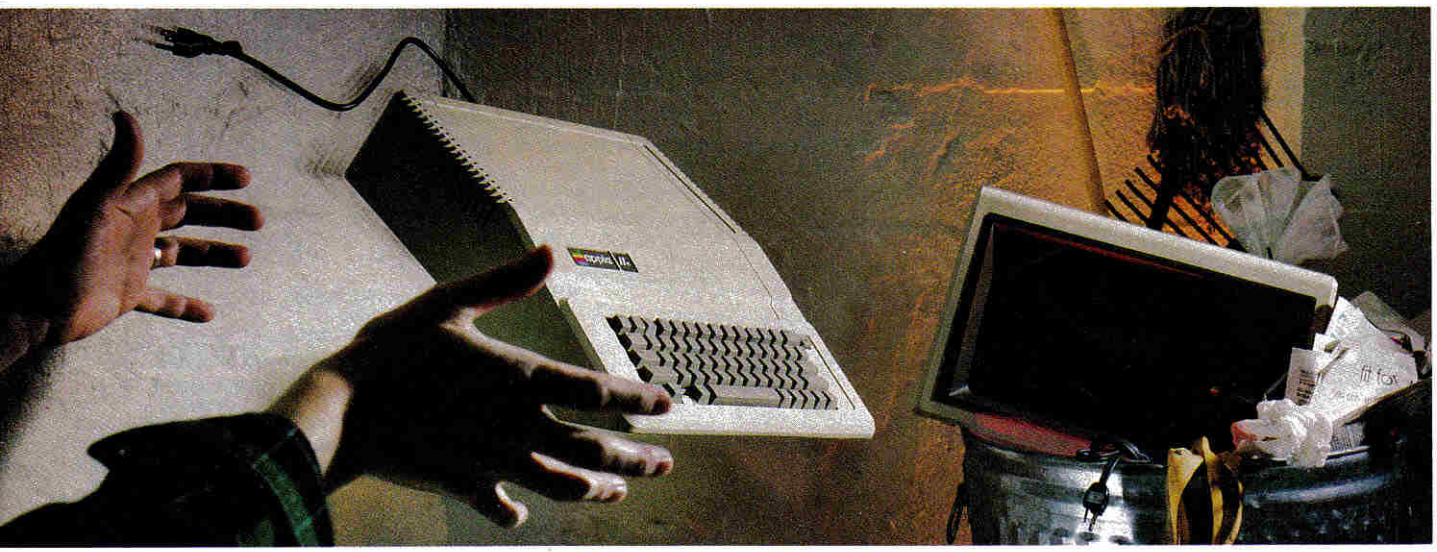

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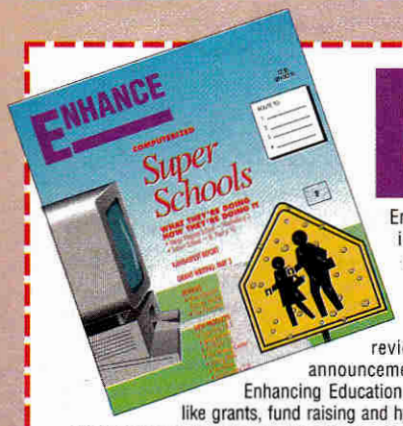

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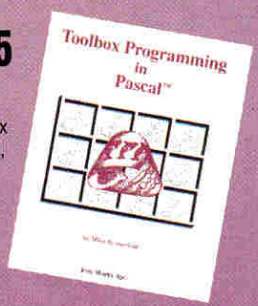

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inCider/A+ (ISSN #1054-6456), an IDG publication, is published monthly by A+ Publishing, a subsidiary of Macworld Communications (a division of IDG Communications), 80 Elm St., Peterborough, NH 03458. Phone: (603) 924-0100. Second-class postage paid at Peterborough, NH, and additional mailing offices. (Canadian second-class mail registration number 9590.) Subscription rates in U.S. are $27.97 for one year, $43 for two years. Foreign orders must be prepaid in U.S. funds drawn on a U.S. bank. One year only: Canada $37.97 (price includes GST, #126038405), Mexico $37.97, foreign surface mail $47.97, foreign air mail $82.97. Nationally distributed by International Circulation Distributors. **Postmaster**: Send address changes to *inCider/A+*, Subscription Services, P.O. Box 58618, Boulder, CO 80322-8618. (Send Canadian changes of address to *inCider/A+*, P.O. Box 1051, Fort Erie, Ontario 12A 5N8.)

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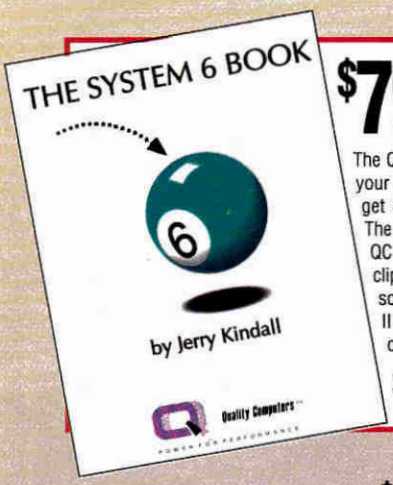

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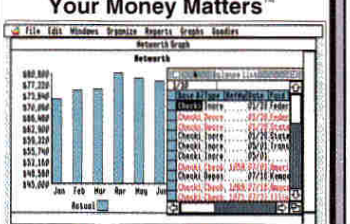

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SEPTEMBER

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FEATURES

Kids Turn On to Hi-Tech by Leslie Eiser 26
Today's kids are pretty sophisticated. Fortunately, software is staying one step ahead of them — new programs for both the Apple II and the Macintosh combine fun and learning in ways that keep children, parents, and teachers satisfied.

Home Room by Cynthia E. Field 32
In alternative classrooms and home-based schools across the country, Apple computers and a host of outstanding programs offer kids a wide range of individualized educational activities.

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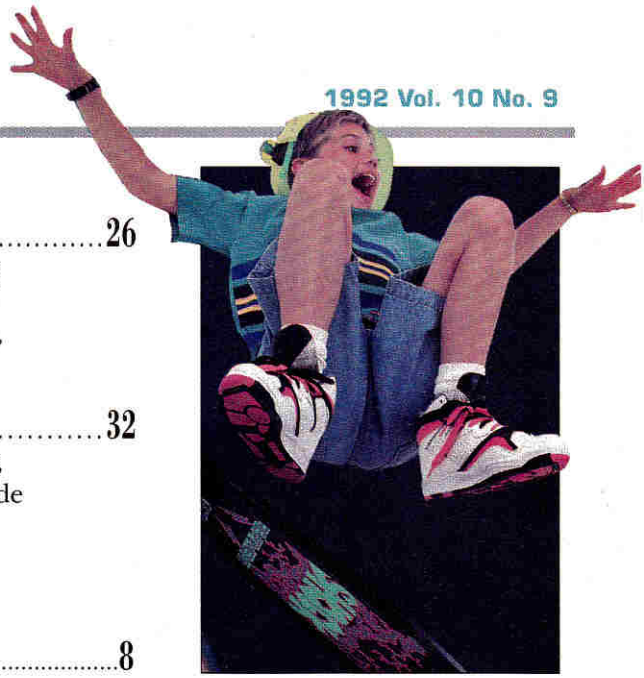
Telecommunications is rapidly erasing national boundaries.



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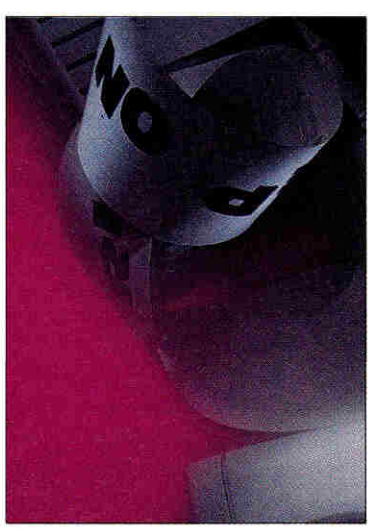

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Cover Photo * Ed Judice

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LETTERS

JUNE BLUES

I READ THE SOFTWARE RATINGS in your June 1992 "Apple II Report" and wished you'd printed the information on Microgram's **Fractal World** before I plunked down $14.95 for the program.

I work with gifted students, and have used several shareware programs that have more going for them than Fractal World. The interface is amateurish and outdated, and the fractal graphics are of low resolution and poor quality. I often show fractal graphics to math teachers who state that "Apple IIs aren't real computers." Fractal World, however, will remain on the shelf.

Charma Shiroky
1734 Murray
Wichita, KS 67212

COLOR COMMENTARY

YOU MAY NOT BELIEVE THIS, but my boss' hair turned completely gray when he saw that you misspelled his name (it's *Tom Weishaar*, not *Weisshar*) in your May 1992 article "Working the Nets" (p. 28). He blushed a light shade of pink when he read that you called him a celebrity, but saw yellow stars when he realized you were giving him celebrity status on CompuServe! He runs the Apple II RoundTables on GEnie.

GEnie isn't as cumbersome to navigate as some would have you believe. (I caught on quickly <grin>.) First, the *HHH* you have to type upon connection becomes second nature after a short time. If you space out and GEnie pouts, you can just hang up and try again. GEnie does use a direct-dial system exclusively, but because it has more local-access numbers than most other services, long-distance charges shouldn't be a problem for most people.

GEnie does use page numbers for navigation, but the keyword *A2* will take you to the Apple II RoundTable. And, remembering to type *Mac* to get to the Macintosh RoundTable is something that even a Mac user can remember. (I'm kidding, I'm kidding, I use Macs, too!)

While I'm at it, I'd like to add that Resource Central is also a source for HyperMover (Letters, May 1992, p. 9), and the sole source for HyperCard's v1.1 upgrade.

Ellen Rosenberg
Resource Central
Box 11250
Overland Park, KS 66207

My face is red over blowing Tom's favorite location, but I'm still not convinced of the user friendliness of GEnie's interface. Admittedly, area keywords exist, but e-mail, message posting, and downloading are still a bit hairy, especially for novices. You know you're a good piece up the proverbial river when a SIG (special-interest group) or RoundTable has a topic reserved for veterans to argue over the best way to tweak the command line. — *C.C.*

HOT FOR COOL DISKS

I'M ENJOYING OWEN LINZMAYER'S "Way Cool Mac" disk (January 1992, p. 30) very much and look forward to the new one ("Totally Radical Mac," June 1992, p. 34). As I'm one of the many people who doesn't have access to a user group or on-line service, I appreciate the opportunity to acquire such "utilities."

John R. Deschner
1427 South Pinecrest
Wichita, KS 67218

YO, DUDE. I'D TOTALLY LIKE TO be rad and way cool, too. Enclosed you'd possibly find my check in the amount of 10 big ones to cover this really awesome transformation. Like, thanks, man. I really mean it.

Andy Booth
P.O. Box 4731, Dundee Road
Pinehurst, NC 28374-4731

Glad to do my part to make the Mac world a cooler place. I've assembled even more fun programs in my upcoming Sybex book, tentatively titled Totally Rad Mac. *If you haven't ordered the first two Mac disks yet, they're still available for $5 each. Send check or money order (U.S. funds) to Owen Ink, 1830 Lawton St., San Francisco, CA 94122-3328.—O.W.L.*

CORRECTIONS

Roy Lovejoy's program **DeskPat**, mentioned in our "Totally Radical Mac" feature (June 1992, p. 34) is a $15 shareware program (not freeware, as stated in the "Product Information" box). Thanks to John Pivovarnick of Philadelphia, Pennsylvania, for pointing out our error.

The current version of **Astronomer GS**, reviewed in the July 1992 "Apple II Report" (p. 28), is not distributed by Absoft Corp. It's available as shareware for $34 from Larry D. Bell, 2537 Jefferson Street, Long Beach, CA 90810.

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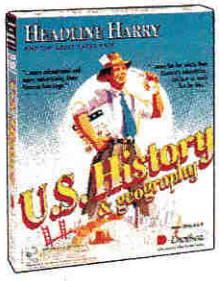

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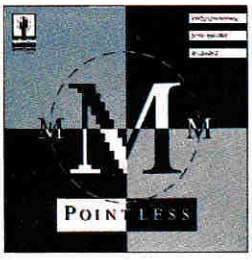

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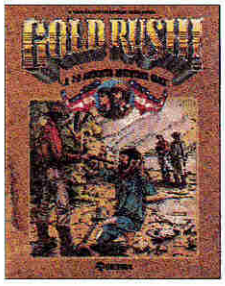

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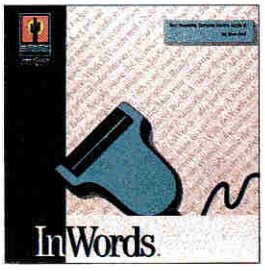

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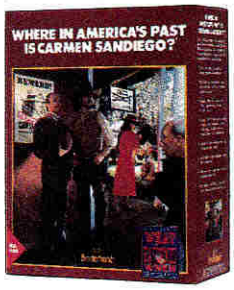

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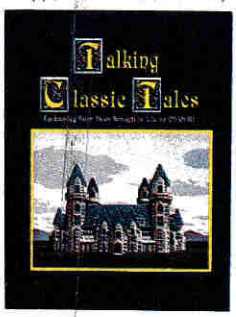

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Discis 10-Pack Library	MAC	CD	424.95
Grolier Electronic Encyclopedia	IBM/MAC	CD	239.95
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NEC Intersect CDR-36M CD-ROM Player	MAC		455.95
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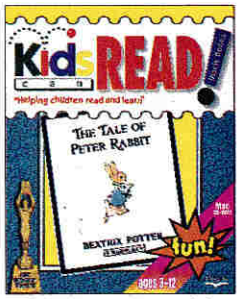

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The **Intelligent Tutor Self-Study Series for Math**, designed by educators, helps students and adults master all levels of math from grades 7 to 12.

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Practice and Review ($269.95) helps students build problem-solving skills with a comprehensive series of drill-and-practice exercises and diagnostic tests. Its seven modules correspond to Concepts' six parts, plus **SAT Math** ($69.95).

The series works with any 48K Apple II or any Mac with 1 megabyte of RAM and an 800K disk drive. For more information, contact Intelligent Software, 9609 Cypress Drive, Munster, IN 46321, (219) 923-6166. **— P.S.**

WORTHY SOFTWARE

An Apple IIc as a graduation present in 1986" started **Phil Shapiro** on a career in computers. "Not being able to afford the programs I wanted, I taught myself to program in Applesoft BASIC," he reports. "I sold some programs to a magazine and discovered that having people send you money for your creative work serves as an inducement to broaden and hone your creative skills."

Creativity didn't pay all the bills, so Shapiro found work teaching school. "I'd bring some of my own programs into the classroom to try them out on the kids," he recalls. "Kids are very honest. They'll tell you if your program needs improvement. They'll also give you useful suggestions."

Shapiro's students taught him something important: "I felt I could have a greater impact on children by devoting myself full time to creating and distributing educational software. So I quit teaching and started **Balloons Software** in August 1990. I saw a need for educational software that helps kids learn, but doesn't cost an arm and a leg. Schools have a fixed budget. You'd have to spend $20,000 to build a decent collection. A few schools do. But the vast majority have meager collections."

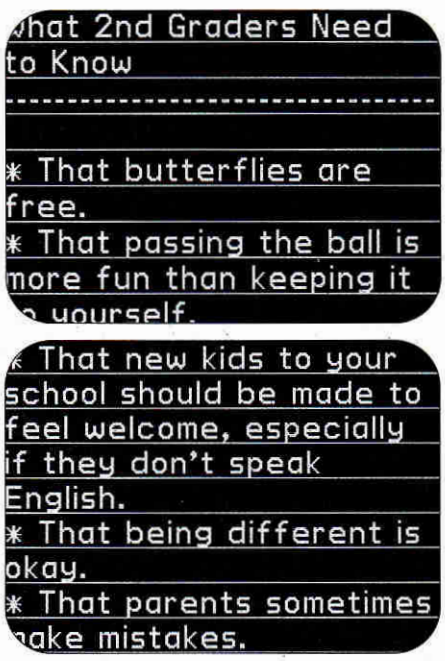
> "Schools need software that helps kids learn, but doesn't cost an arm and a leg."

To keep costs low, Balloons keeps its ideas simple. "Back in 1988," Shapiro explains, "I started experimenting with a program to display text in a large, proportionally spaced font. The result was **Large-Text Joyreader**. I didn't have the programming skill to transform it into a full-fledged creativity toolkit." Shapiro relates that **Bernie Benson**, a talented programmer, a member of the user group Washington Apple Pi, and a visually impaired person, "saw great potential in an Apple II toolkit to assist those who are unable to read regular screen text. I was more interested in the software as a generic educational product, but our interests and visions overlapped." Balloons would publish **Big Text Machine** as a "creativity toolkit."

Shapiro remembered where to find the smartest software critics. "In September 1991," he says, "we located six schools to help us beta-test. In exchange for a free site license, each school dedicated an Apple II to repeatedly display students' creative writing in the school library."

What else can you do with it? "To help show off BTM, I constructed a disk of sample text files," recalls Shapiro. "It included a couple of original children's stories I wrote. I never bothered sending them out to print publishers, since they reject 99 percent of unsolicited submissions. And that's a real shame, because there are talented people out there writing fiction and nonfiction for children. I'm hoping BTM will help get authors to release their writings as disk-based freeware. Did you know that Dr. Seuss' first book was rejected by 27 publishers?"

Phil Shapiro's plan to bring good cheap software to schools is finally gaining acceptance, too. **— P.S.**



BTM: Special needs meets creativity.

NEW RESOURCES

▲

SHARE AND SHARE ALIKE

The best low-cost software comes out of hiding in **The Mac Shareware 500**, by Ruffin Prevost and Rob Terrell. If you like the sound of inexpensive software of the highest quality, the book comes with three disks of the best, and every program mentioned in the book is featured in the **Mac Shareware 500 Library** on America Online. If you're not already on AOL, The Mac Shareware 500 even offers five free hours on line — all you need is a modem.

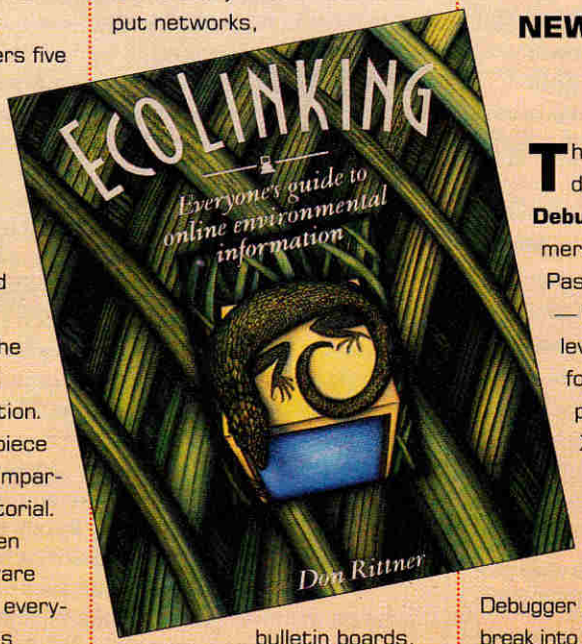
The Mac Shareware 500 is a complete consumer's guidebook, explaining the nature of shareware, where to find it, how to access it and download it, as well as the protocol of payment and methods of virus protection. The description of each piece of software includes an impartial rating and a brief tutorial.

You probably didn't even know some of this software existed — and you'll find everything from fun and games to work and learning. The suggested retail price is $39.95, but you may save that much the day you buy it. It's published by Ventana Press, P.O. Box 2468, Chapel Hill, NC 27515, (919) 942-0220. For more information circle number 350 on the Reader Service card.

▲ ◆ ■

ECO INFO

EcoLinking: Everyone's Guide to Online Environmental Information, by Don Rittner, encourages scientists, environmentalists, and concerned citizens to use computer technology to share ideas and research. EcoLinking is the story of how we can put networks,



bulletin boards, and on-line services to work to save the earth.

Offering step-by-step instructions on accessing the immense volume of academic, bibliographic, and scientific information found on global networks and commercial on-line services, the book focuses on how to go on line and what kinds of data you can retrieve. EcoLinking also explains how to use bibliographic retrieval services, CD-ROM databases, and electronic bulletin-board systems to conduct scientific and environmental research on line.

Of particular note are numerous case studies of citizens and activists who have used their personal computers to help them care for the global village. EcoLinking is inspiring as well as informative — a must for any science teacher with a computer and modem. The suggested retail price is $18.95; it's published by Peachpit Press, 2414 Sixth Street, Berkeley, CA 94710, (800) 283-9444. For more information circle number 351 on the Reader Service card.

NEW SOFTWARE

■

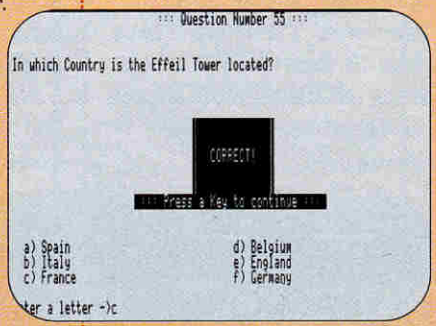
BUG KILLER

The Byte Works has designed **ORCA/Debugger** for programmers who use C and Pascal on the Apple IIGS — it's the only source-level debugger available for finding and fixing problems with CDEVs, XCMDs, 320-mode programs, and programs that run from the Finder.

Because ORCA/Debugger is an INIT file, it can break into almost any C or Pascal program, except from within an interrupt handler.

Like GSBug, the popular machine-level debugger from Apple, ORCA/Debugger has its own private text screen, so you can debug graphics and desktop programs without interfering with the desktop display. In fact, ORCA/Debugger works with GSBug; you can install both at the same time.

With ORCA/Debugger you can view memory or variables in any of 13 formats, set or clear break points while your program runs, see variables without typing their names, and change the value of a variable. The utility comes on a single 3.5-inch disk, with a 60-page manual containing a tutorial and examples, for $50 from the Byte Works, 4700 Irving Boulevard Northwest, Suite 207, Albuquerque, NM 87114, (505) 898-8183. Circle number 352 on the Reader Service card for more information.



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QUIZ ME, KATE

The Public Domain Exchange now means more than public-domain software — for the same low price of $5 each, PDE offers six **Quiz Disks**, each with scores of questions and answers. Topics include vocabulary, geography, synonyms, literature, film, and television. These are original programs written for PDE.

The games ask questions in multiple-choice format. You have three tries at the right answer; if you still can't get it, the computer fills it in.

Whether you use them in the classroom or as a trivia

game with friends, these fast-paced Quiz Disks will provide hours of fun.

Each disk is $5 plus shipping, from the Public Domain Exchange, 2076C Walsh Avenue, Santa Clara, CA 95050, (800) 331-8125, (408) 955-0292 in California. Circle 353 on the Reader Service card for information.

NEW PRODUCT FOCUS

HARDWARE/SOFTWARE

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

NEW GAMES

GET ORGANIZED

The Desktop Manager, a collection of Apple IIGS add-on utilities that work with both ProDOS and GS/OS applications, is now available from TMS Peripherals for less than $40.

You get a "notepad" word processor, appointment calendar, calculator, print manager, disk manager, telecommunications manager, screen saver, and more. Each application is only a keystroke away in any program.

Beagle Bros' TimeOut series for AppleWorks and the Finder do some of the same jobs. DM's strength, however, is that it works with any program that runs on the GS. It comes on a single 3.5-inch disk; a hard drive and expanded memory are recommended. Contact TMS Peripherals, 1120 Holland Drive, Suite 16, Boca Raton, FL 33487-2729, (407) 998-9958, or circle number 354 on the Reader Service card.

THE SWISS CONNECTION

Bright Software, based in Switzerland, has been working with Seven Hills to bring exciting new GS games to market worldwide.

Gate ($30) was our Editors' Choice last December (p. 88). You're held captive inside a castle and must battle your enemies and solve some tough puzzles to find an escape. It's full of brain teasers, action, animation, and lively stereo music and sound effects.

Space Fox (also $30) is an exciting arcade game with more than a megabyte of sound files; you're an ace pilot guiding a spaceship through nine levels of bad guys. Your mission is to destroy The Brain at level 10 — but you'll have to collect fuel, shields, and weapons first.

Within the U.S. contact Big Red Computer Club, 423 Norfolk Avenue, Norfolk, NE 68701, (402) 379-3361.

Outside the U.S., contact Seven Hills Software, 2310 Oxford Road, Tallahassee, FL 32304, (904) 575-0566, or circle 355 on the Reader Service card.

Blast your way through Space Fox.

SHAREWARE SOLUTIONS BY JOE KOHN

THE LAST WORD

In the Dark Ages before the Apple II, people composed letters, reports, and correspondence with a mechanical device called a typewriter. This obsolete contraption was loud and slow — and if a typist made a single mistake, he or she had to start all over again. It's no wonder that the word processor has become the most common application of the personal computer.

With a word processor, you can type much faster and correct mistakes on the spot. With sophisticated features like cut and paste, you can generate form letters easily, and, thanks to high-quality printers, anyone with a word-processing program can even become a desktop publisher.

Among early Apple II word processors, there was only one really viable choice: **AppleWriter** by Paul Lutus. It was a powerful program, but learning it required real dedication and mastering it even more. Lutus eventually released **FreeWriter**, an easier word-processing program based, in part, on AppleWriter. It didn't cost anything, but there were a couple of major deficiencies — the primary one being a lack of print capability.

Because it was copyrighted freeware, users could give the program away, but not sell it. Al Rogers, an educational consultant, acquired an early version of FreeWriter and decided to improve on it — and **FrEdWriter** was born. FRee EDucational WRITER is now in use in thousands of classrooms around the country, and has even been translated into Spanish. Version 5.0 still works on any Apple IIe with 64K, as well as on Apple II networks and on the Mac LC (with II Card installed). An estimated 60 percent of all students in California used FrEdWriter to learn word processing. It's still easy to operate, but it's got a lot of power and a lot of advanced features. One favorite option among teachers is "prompted writing" — nonprinting screen boxes enclosing individualized instructions from teacher to student. A teacher can easily create an essay exam on disk, for example, then use it in a creative-writing course, or wherever teacher input facilitates the writing process.

True to the original spirit of FreeWriter, FrEdWriter can be given away, but not sold. A nonprofit organization, the FredMail Foundation, distributes the program and supports it with additional disks of teaching materials. The Foundation may even be able to arrange for a FrEdWriter expert to visit a school (subject to geographic limitations) and show teachers how to use the program. But FrEdWriter isn't just for kids. It's a powerful program that can serve the beginning word-processing needs of any Apple II owner.

While there's only one IIe freeware word-processing program worth recommending, GS users who use System 5.0.4 or later have a wide choice of shareware in that genre. Some aren't as full featured as FrEdWriter, but most are even easier to use and can put beautiful-looking text on paper.

All of these GS-specific programs are mouse driven and employ the familiar desktop interface with pull-down menus. They all employ GS/OS' TextEdit toolset and can therefore use GS fonts in different styles and colors, and TrueType fonts if WestCode Software's Pointless utility is installed. All but one described here use the operating system's Print Manager feature to output text to any printer that works with GS/OS.

Big Edit Thing (BET), by Jim Murphy, is a $10 shareware new desk accessory (NDA), conveniently accessible from within any

standard GS/OS application, such as HyperCard IIGS, HyperStudio, Platinum Paint, and the Finder. BET offers three types of rulers and supports tabs. It can load ASCII text, source code, Teach material, and AppleWorks documents, and can save in any of those formats. There's a movable find-and-replace window, and a nifty automatic-save function. BET can use fonts of up to 72 points, and supports full, left, and right justification with a single click of the mouse.

☛ **GSXEdit**, a freeware program by Mark Cinelli, loads text, Teach, and source files and can save in those formats. Multiple text windows can be open at the same time, making cut and paste between documents easy. There's a built-in clock that displays the time in the menu bar; other utilities let you rename or delete files. Although it's not as full featured as certain other titles, GSXEdit's price sure can't be beat.

☛ **Revise ASCII Text** (RAT), a $10 shareware program by Bill Tudor, offers an extensive on-line help system accessible via pop-up menus. It also allows for multiple re-sizable windows open at the same time, and supports the Apple extended keyboard. RAT loads and saves ASCII text, and source and Teach documents. It includes four types of find and replace functions, and supports fonts of up to 72 points.

☛ **WriteAway**, a $10 program from Lane Roathe, may be the most fully featured shareware word processor. It allows simultaneous re-sizable and stackable text windows, and includes a special pull-down menu to allow easy access to all open windows. It provides for full, right, or left justification and also includes centering. Upon payment of the shareware fee, full access to the Preferences menu is available, which lets you set default pathnames for data files. WriteAway can load AppleWorks, text, or Teach files, and can save as Teach or text. An extensive Document Info option shows you how many words you have, as well as the number of type styles you're using in a document and the amount of RAM still available. You can set margins, tabs, and indentation from a pull-down menu.

☛ **WriteIt**, a shareware program by Chris Haun, carries no set fee. Although it offers the fewest number of features of any of the GS word-processing programs reviewed here, it's a new desk accessory smaller than 15K in size — installable on a startup disk even if you have only a single 3.5-inch drive. WriteIt doesn't support printing. It loads text and Teach files and can save in those formats. WriteIt is more a text-file reader than a word processor — it's particularly handy from the Finder or within HyperStudio or HyperCard IIGS — yet despite its lack of features, it's popular and dependable.

If you're a professional writer, you may want to invest in Claris Corporation's **AppleWorks Classic** or **AppleWorks GS**, both feature-laden programs with hefty price tags. But if you don't need sophisticated options, you might just find that one of these freeware or shareware programs meets all your word-processing needs — and, of course, any one of them beats that old-fashioned typewriter.

TO ACQUIRE FREDWRITER AND AN UNLIMITED SITE LICENSE, SEND $20 TO THE FREDMAIL FOUNDATION, P.O. BOX 243, BONITA, CA 91908. FOR A DISK CONTAINING THE GS WORD-PROCESSING PROGRAMS DISCUSSED HERE, SEND $5 (U.S. FUNDS ONLY) TO JOE KOHN, 166 ALPINE STREET, SAN RAFAEL, CA 94901. COST COVERS SHIPPING ONLY; YOU'RE RESPONSIBLE FOR SHAREWARE FEES WHERE APPLICABLE.

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1 Meg Chip Set	$44.00	1 Meg SIMM	$41.00

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REFURBISHED PRINTERS

ImageWriter II	$299.00	ImageWriter I	$189.00
C-Itoh Serial 8510	$119.00	ImageWriter I Wide	$189.00
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5.25 Cleaning disk	$1.00	3.5" Cleaning Disk	$2.50

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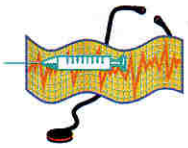


APPLE CLINIC

BAUD YOUR TIME

Sometimes patient experimentation is the only solution to the mystery of telecommunications.

BY CECIL FRETWELL

MODEM TROUBLES

I'M HAVING A PROBLEM CONNECTing a modem to my Apple IIGS. I've tried different cables, different telecommunications software, and many combinations of Hayes-compatible commands. The modem will make the call, but when the recipient answers, the software crashes while still showing *connect* in the status line. Sometimes it crashes with the garbage characters *f f* on screen. Any ideas?

Doug Berry
Amherst, MA

Second only to printers, getting modems to work with any piece of computer gear can be a big pain in the brain. For starters, switch all your modem settings back to the factory defaults. Your modem should work straight out of the box.

You state that your status line shows connect *after what you think is a crash. Are you sure it's a crash, though? When the modem on the other end of the communications line answers the phone, you should hear a "scream" or a warbling sound, more technically known as the* carrier signal *(unless you've turned off the modem speaker). It'll stop abruptly.*

*That doesn't mean a crash; you should be connected and be able to "talk" to the other computer. You can verify that by looking at your modem lights: If the device's OH (*off hook*) and CD (*carrier detect*) lights are on, you've connected successfully.*

Talk to the people you're trying to dial. To gain communication after the OH and CD lights come on, you may have to hit the return key several times.

Or if you're trying to dial into the popular bulletin-board system GEnie, you have to type the letters HHH *before the complete connection is made. You may see the garbage characters f f if you don't respond soon enough after dialing into GEnie.*

Those characters may also indicate the link is established, but at the wrong baud rate; that is, the speed of data transmission on one end isn't the same as the speed on the other end. Perhaps the answering modem can't detect your modem's speed.

For example, the answering modem may not support 2400 baud, or it may be hard wired to a speed other than 2400 baud — say, 1200 baud. The ultimate solution to your problem will depend on what kind of modem you're using and whom you're calling.

SELF-BOOTING DISK

I'D LIKE TO CREATE A SHORT Applesoft STARTUP program that would load and launch a binary file from my 5.25-inch disks. I want to make my disks self-booting so that I don't have to go into BASIC and "smart run" the files.

Chuck Orem
Benton City, WA

Writing a STARTUP program to launch a binary file is easy enough. Just add the line PRINT CHR$(4);"-MY.PROGRAM". *Including the hyphen character will EXEC, BRUN, or RUN the file MY.PROGRAM automatically.*

Creating a self-booting ProDOS disk is a bit of a trek. Under good old DOS 3.3, all you had to do was have a program in memory and type INIT HELLO, *and a few revolutions later you had a bootable disk that would start whatever program you named in the INIT command automatically.*

Under ProDOS, you need the System Utilities or the GS/OS Finder to format a disk. But even then, just plugging it into a drive will reward you with an UNABLE TO LOAD PRODOS *message. To make a disk self-booting you need three items:*

- **First, a file called PRODOS.** *This is the first file the boot process looks for, and without it the system hangs. Copy the file P8 from the GS'* SYSTEM *folder to your disk and rename the file* PRODOS. *If you have a IIe or a IIc, copy the PRODOS file from the operating-system disk.*
- **Second, a system file.** *Once the boot process finds PRODOS, it then looks for a system file, file type SYS, whose name ends in the characters* .SYSTEM. *It uses the first one it finds on disk. If you're going to work in Applesoft BASIC, copy BASIC.SYSTEM from the root directory of your operating-system disk.*
- **Third, a STARTUP file.** *After the system executes BASIC.SYSTEM, it searches for a file named STARTUP and tries to execute it. All you have to do is create such a file and include the branching line* PRINT CHR$(4); "-MY.PROGRAM", *and you'll have a self-booting ProDOS disk with a startup program.*

80-COLUMN SWITCH

I UNDERSTAND THAT TO SWITCH to the GS' 80-column mode, you have to issue the BASIC command *PRINT CHR$(4);"PR#3"* followed by *PRINT CHR$(18)*. Please explain.

Zachary Zebrowski
Windsor, MA

The command PRINT CHR$(4);"PR#3" *activates the 80-column card, zapping your display into 80 columns and presenting you with a solid, non-flashing rectangle for a cursor.*

With the 80-column card active, the command PRINT CHR$(17) *switches to 40 columns, and* PRINT CHR$(18) *returns to 80-column mode.*

Whether you're working in 40 or 80 columns, once you turn on the GS' 80-column card, you have access to a much more "intelligent" text display.

Before the 80-column card was introduced, Apple II text-programming options were limited. Basically, you could move the cursor up, down, right, and left. Activating the 80-column card gives you command controls such as PRINT CHR$(11), *which clears the screen from the current cursor position to the bottom.*

For details on the 80-column card and a complete listing of control characters, pick up a copy of the **Apple IIe Technical Reference Manual**, *$24.95 from Addison-Wesley Publishing Company, Trade Computer Books Division, 1 Jacob Way, Reading, MA 01867, (617) 944-3700.*

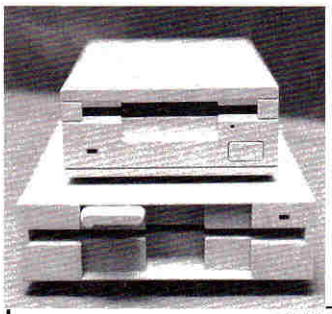
WHERE'S EPIC?

WHAT HAPPENED TO EPIC TECHnologies and its iron-clad five-year warranty? I'd like to talk to the company's technical-support staff because I'm having problems with my Epic Classic 2400 modem.

Martin Gruen
Barrington, NJ

Walt Roshon, "Herr Fixit" on America Online, still has parts and some old Epic modems, and offers low-cost repairs. Contact him by mail c/o DuPont Imaging Systems, Service and Support, 258 Chapman Road, Chopin Building, Newark, DE 19702. If you cover the shipping costs, Walt will provide a free repair estimate. He asks that you be as detailed as possible when you describe your problem, to save time and prevent any possible damage to his GS.

THIS MONTH WE BID FAREWELL TO ACE CLINIC SURGEON CECIL FRETWELL. FOR THE PAST TWO YEARS, CECIL HAS RESPONDED AT A MOMENT'S NOTICE TO APPLE EMERGENCY CALLS FROM READERS AND SOMETIMES FROM THE *INCIDER/A+* STAFF, AS WELL. THANKS, CECIL, FOR YOUR EFFORTS AND YOUR PATIENCE. NEXT ISSUE, LOOK FOR A BRAND-NEW *INCIDER/A+* CLINIC CHOCK FULL OF QUESTIONS, ANSWERS, AND HELPFUL HINTS ON APPLE II AND MACINTOSH HARDWARE AND SOFTWARE. ADDRESS YOUR CORRESPONDENCE TO APPLE CLINIC, *INCIDER/A+*, 80 ELM STREET, PETERBOROUGH, NH 03458. BECAUSE OF THE VOLUME OF LETTERS, MOST WON'T APPEAR IN PRINT, BUT WE'LL TRY TO RESPOND IF YOU ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE.



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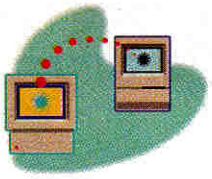

BRIDGING THE GAP

TAILOR-MADE TYPE

Dress up your GS documents — borrow an ensemble of classy-looking TrueType fonts from the nearest Mac.

By GREGG KEIZER

WHEN YOU GO OUT ON THE TOWN, you dress in your best. And when you work with paper, you better follow suit. Long gone are the days when you could squeak by with scratchy dot-matrix characters on the documents built with your computer. To keep up with the digital Joneses, to make a positive impression, you need attractive reports, form letters, and spreadsheets. And to get that you need good-looking type.

Fonts are the answer. Every computer equipped with a graphical user interface — from the Macintosh and the Apple IIGS to the ubiquitous PC — eats fonts for breakfast, lunch, and dinner.

Varied type provides the medium for your message. Straightlaced reports and letters? Try Times or Palatino. A casual approach? Head for a *sans-serif* typeface like Helvetica. Headlines and titles that shout? Go for Avant Garde.

Because you can never have too many fonts — though you can easily pack too many into one document — most appearance-savvy desktop publishers, writers, and number crunchers collect all they can, just in case they need one special typeface for that one special message. Fortunately, you can share fonts between machines, effectively doubling (and sometimes tripling) your available library of typefaces and styles.

Building a bridge between fonts is either no trouble at all or all the trouble you can handle, depending on what you start with and what you need in the end. Either way, you can move fonts from the Macintosh to the Apple IIGS, sometimes reverse the direction, and, if you're so inclined, even bring the PC into the picture.

TO THINE OWN SELF BE TRUETYPE

The easiest fonts to share are also the newest. TrueType fonts, a new standard pushed by Apple Computer and Microsoft Corporation, have made the transition to the Apple IIGS.

TrueType fonts are *outline* fonts, just as PostScript fonts are. That means that TrueType fonts are essentially mathematical descriptions of characters, not pixel-by-pixel pictures. Unlike PostScript, though, TrueType processes your request — the font, its size, and style — on the fly as it generates the outline and fills it in. That means you can print TrueType type on non-PostScript printers.

And because TrueType not only works with your printer, but also with your computer's display (again, unlike PostScript), you see sharp-edged characters, even in large sizes, on the monitor as well as on the printed page.

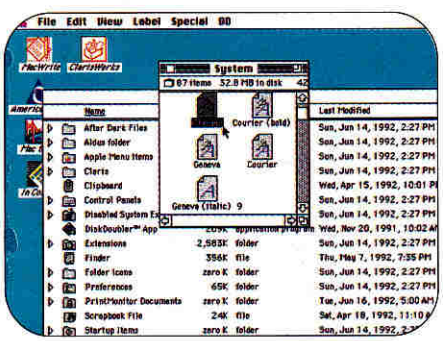

Figure 1. Macintosh TrueType fonts sport a distinctive icon.

Outline fonts edge out the familiar *bit-mapped* variety in several ways. First, outline-font files are much smaller than sometimes-behemoth bit-mapped font files.

Second, because every character is drawn from a mathematical model, you need only one file for each font, not a slew of bit-mapped font renderings in multiple sizes. To print to the ImageWriter II, for example, an Apple IIGS application demands renderings in both the screen size and one twice as large, effectively doubling the number of font files.

Third, outline fonts can display and print accurately in any point size, from 1 to 255 points. (A point is one-72nd of an inch.)

Finally, outline fonts, TrueType fonts in particular, are much more independent of both the computer and the printer. Not only is a TrueType Geneva font on a Macintosh essentially the same as a TrueType Geneva font on a PC running Windows, for instance, but TrueType can print to hundreds more printers, including dot-matrix, ink-jet, and low-cost laser models that don't include PostScript.

If you have an Apple IIGS and want your work to look great, not just good, you need a copy of WestCode's **Pointless**. Once installed in your GS' *System* folder, this INIT puts TrueType at your disposal. (See our review of Pointless in the July 1992 issue, p. 25, for details.)

Pointless makes it possible for 16-bit applications such as AppleWorks GS to both display and print fonts in any size, without a reduction in clarity, or the dreaded "jaggies."

More importantly, it lets those applications print sharp characters to almost any printer, even the lowly ImageWriter II and non-PostScript devices such as the HP DeskJet or LaserJet. (You still need the appropriate printer driver in your GS' *System* folder, though.) In some cases, the

results are as crisp as anything you'd get from an expensive PostScript laser printer.

Pointless comes with seven TrueType fonts, but any self-respecting desktop publisher won't stop there. You'll go looking for TrueType fonts on commercial collection disks, user-group compendia, and on-line services — and you'll find them. Still, the first place you should look for TrueType is as close as a nearby computer — a Macintosh computer.

BUILD A BRIDGE

Much of the time, all you have to do is move a TrueType font file from the Mac to the Apple IIGS. Pointless does the rest.

Start simple. GS/OS System 6's HFS FST (*hierarchical file-structure file-system translator*) lets you stick a Macintosh 400K or 800K floppy disk into the IIGS' 3.5-inch drive, then read from and write to that disk. It makes font transfers from Mac to GS and back a snap.

Head to the nearest System 7 Macintosh and open its *System* folder. Down the list is the *System* file. Double-click on its icon and in a moment you'll see names of all the fonts — both bit-mapped and TrueType — installed on that computer. You can spot the TrueType fonts by their peculiar icon (**Figure 1**).

Now copy a TrueType font file to a 400K or 800K floppy disk by pressing the option key and dragging the icon to the disk. You might want to start with Times, a classic *serif* font not included in Pointless' initial offerings.

Walk the Mac floppy to the GS and insert it into the drive. In a moment System 6's HFS FST reads the Mac disk and puts its icon on screen. Double-click to open the disk's window, then drag the Times TrueType font file to your GS' *System* folder.

The Mac's TrueType font may now be on the GS, but the computer won't recognize the file for what it is until you complete the process. Open the Control Panel and select Pointless by double-clicking on its icon (**Figure 2**). Here's where you add TrueType fonts to GS applications.

Click on *Add*, then locate the Times TrueType file in the subsequent *Get File* dialog box. Select it and press Return. You can check things out by heading back to the desktop and locating the file in the

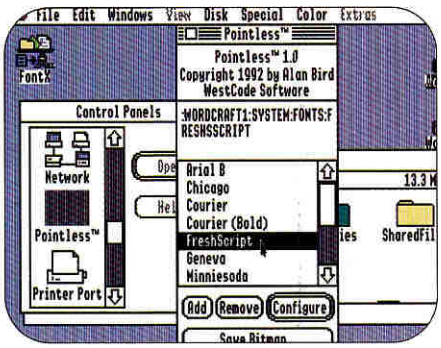

Figure 2. Select Pointless from the GS' Control Panel to translate Mac TrueType fonts.

System folder; *Times* now sports that distinctive TrueType icon.

The next time you launch AppleWorks GS (or any other 16-bit application that supports TrueType, such as Roger Wagner Publishing's HyperStudio GS), you'll see *Times* on the *Font* menu. Choose it and pick a font size and Pointless goes to work, churning out a font description and placing it in memory.

APPLES SHARE

If you're not using System 6 on the GS, you'll have to find another bridge from the Mac to the IIGS. Fortunately, there's more than one way to move TrueType.

One method that's even slicker than "sneakernet" and the HFS FST is an AppleTalk network. Assuming both the GS and Macintosh are linked with LocalTalk cabling, you can either move the font files physically or simply leave them on the Mac, then call them up with Pointless on the GS.

An AppleShare file server — a dedicated Macintosh running Apple's file-sharing software — can serve as a central depository for all your TrueType fonts. Any Macintosh running System 7 with *File Sharing* engaged serves the same purpose. Just leave the TrueType font files where they are, on the Macintosh. All you need to do is tell Pointless where to find its fonts.

Let's say the GS is linked to a Mac running System 7. Set up the Macintosh so that you're sharing a folder named *FontX*. As a security measure, you'll want to mark the folder's privileges so that it can't be changed by anyone except the Mac's owner (**Figure 3**).

Because Pointless can't open the Mac's *System* file, you need to use the Option/drag technique to duplicate the TrueType font files to the *FontX* folder. Copy the desired TrueType fonts to the Mac's *FontX* folder now.

Back on the GS, connect to the file-sharing Macintosh by accessing the *AppleTalk* icon in the Control Panel. When you've established the connection, open the *Pointless* Control Panel device, then use its *Add* option to open the *FontX* folder on the Mac (the GS sees the shared folder as an AppleShare volume) and activate as many fonts as you want. As long as the network connection stays open, Pointless will look to the *FontX* folder on the remote Mac for those TrueType fonts. If the network link is broken or, more likely, hasn't been activated, Pointless asks you to insert a disk. There's no disk, of course, but the message is enough to remind you to reactivate the network connection.

Using a Macintosh as a TrueType font-storage facility slows things down: Pointless takes time to compute the font's size and style, and making it fetch its data over a network adds several seconds to the process. But the advantages will often outweigh the delay. If the GS has no hard

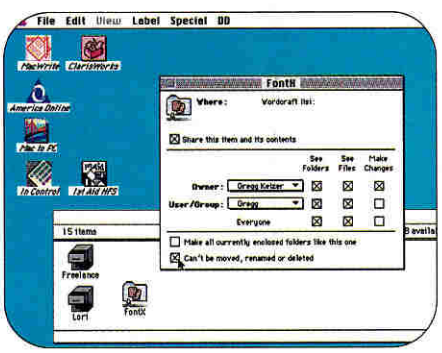

Figure 3. Setting privileges for the Macintosh's shared fonts folder under System 7.

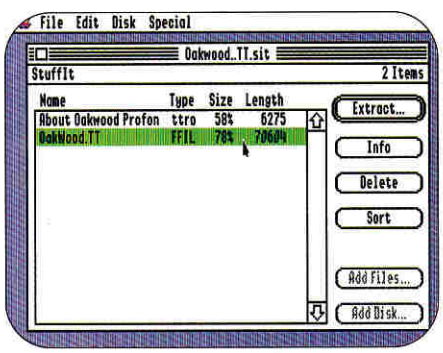

Figure 4. Using a GS to retrieve a Macintosh TrueType font file from an on-line service.

disk, for example, which is likely in a network environment, you don't have to worry about squeezing the TrueType font files onto a *System* floppy disk. Everything stays on the Mac's own hard-disk drive.

And sharing TrueType font files from one Macintosh with several GSes simplifies things immensely. Any changes to the font library are automatically global, so you don't have to worry about updating every GS' *System* disk each time you add or delete a font from the collection.

Remember to check the licensing agreement for the fonts you've purchased before using them in a network environment, or before sharing them in any way. Remember, too, that you need a copy of Pointless for each GS you use it on; Pointless site licenses are available from WestCode, the developer and publisher of Pointless.

FONTS FOR FREE (ALMOST)

Although professional TrueType fonts are available from a variety of sources (including WestCode), your appetite for fonts may well outpace your pocketbook. If that's the case, you can again turn to the Macintosh as a wellspring of resources, specifically on-line services and their collections of shareware and freeware fonts.

Head to America Online's *DTP* section, or CompuServe's *System* and *Vendor Forums*, where you'll find scores of shareware and freeware TrueType fonts. You can download them directly to your GS or to a Mac first.

You'll notice that most of the TrueType font filenames sport the extension *.sit*; this means that the file was compressed with **StuffIt**, a more-or-less standard archiving program used in Macintosh telecommunications. Go ahead and download the file to your GS. You'll take care of the compression in a moment.

Before you log off the on-line service, though, locate the freeware program **GS-ShrinkIt** and download that as well. (The newest version, 1.0.6, is your best bet, since it corrects some problems with non-archiving TrueType font files.)

When you've got both files on a GS disk, launch GS-ShrinkIt, then open the Macintosh archive file. You'll see a screen that shows the file(s) within the archive (**Figure 4**). Extract the file(s), drop the TrueType font into a convenient folder, then use Pointless' *Add* option to activate it. Run AppleWorks GS and you'll see your newest typeface on the *Font* menu.

FLIP THE SWITCH

PC resources are also open to Apple desktop publishers, thanks to a little creative translation. Just save a Windows TrueType file (identified by its *.TTF* filename extension) to a DOS-formatted disk on the PC, then stick that floppy into the Mac's SuperDrive. Run **Apple File Exchange** to transfer the font file to the Mac, or **DOS Mounter**, which displays DOS disks on the desktop.

Now run the $10 shareware program **TTConverter** to turn the Windows font into a format the Mac comprehends, for either System 6 or System 7. Once translated, you can drop the file into your Mac's *System* folder (7) or install it with *Font/DA Mover* (6). Once in Mac format, that TrueType font is also available to Pointless.

Here's another switch: Not only can you shift TrueType fonts from the Mac to the GS, but you can even send them from the GS back to the Mac. With System 6 on the GS, copy font files to a Mac 400K or 800K floppy, then sneakernet the disk to a Mac. And an AppleTalk network connection works just as well from GS to Mac as it does from Mac to GS.

When you move a TrueType font from GS to Macintosh, though, the Mac doesn't recognize the file without some help. You need to change the file so that its *type* and *creator* match those the Mac expects to find in every TrueType font file.

Find a Mac utility that can identify a file's creator and type designators; I use **1st Aid HFS**, part of Microcom's **911** disk- and file-recovery package. Select the TrueType font file and examine its creator and type. The former will be *pdos*, while the latter will probably be something that looks like *p>>*. Change the file's type to *tfil*, and its creator to *movr*, then designate the font as a *System* file. Now the Mac understands the file (even changes the file's icon to the TrueType design.) Drop the file into the Mac's *System* folder and it's available in any application.

PAYING THE PRICE

TrueType is a blessing, sure, but it doesn't come to the GS without a price. You have to buy a copy of Pointless, first of all. And not every downloaded Macintosh TrueType font will work with Pointless. Of the dozen or so Mac TrueType fonts I pulled from America Online, for instance, two either refused to decompress with GS-ShrinkIt or simply wouldn't work with Pointless. If you generally shun digital adventure, buy commercial TrueType fonts or purchase a disk of shareware/freeware fonts that have been Pointless tested.

For the lucky few GS owners who have PostScript laser printers connected to their computers, Pointless won't much matter. According to WestCode, the Apple LaserWriter driver included with the GS' system software can't take advantage of larger fonts, but forces the printer to use its built-in scalable PostScript fonts. WestCode is right; during testing for this column, numerous fonts that printed crisply in large sizes from the Macintosh produced substantial jaggies when sent to the same PostScript printer from the GS.

And what about users who don't have an Apple IIGS or can't afford to invest in Pointless and its TrueType technology? Are they left out in the fontless cold? Hardly — there are plenty of ways to share fonts between the Macintosh and the Apple II that don't depend on TrueType. We'll examine that bridge next month. Until then, have fun with fonts — lots and lots of fonts. ❑

WRITE TO CONTRIBUTING EDITOR GREGG KEIZER AT 4420 HILYARD STREET, EUGENE, OR 97405. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

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WHAT ARE THE EXPERTS SAYING?

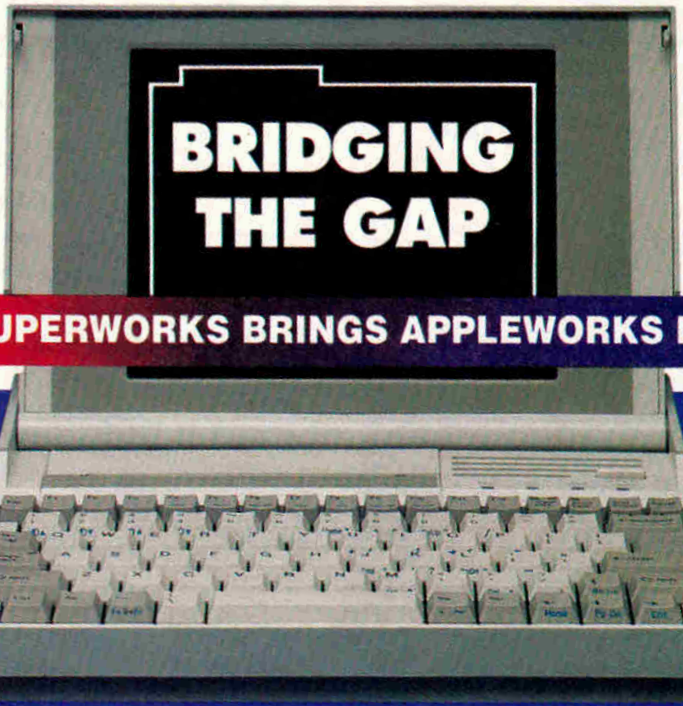
"MS-DOS APPLEWORKS" "inCider/A+ 8/91"

What do you say to an "MS-DOS clone" of Appleworks 3.0? Remarkable Technologies' SUPERWORKS ($199), has caused more than one double-take around here. SUPERWORKS functions like Appleworks on any IBM PC except that it's faster. If you use Appleworks and can train your fingers to find their way around an MS-DOS keyboard, you can use SUPERWORKS. It even incorporates some features for which Appleworks users pay extra.

★★★★ inCider Magazine, November 1991

Miami Herald/Craig Crossman 8/12/91

"Known as SUPERWORKS, this Appleworks clone does almost everything Appleworks does and more. If you know how to use Appleworks, you can use SUPERWORKS without picking up a manual. SUPERWORKS brings the functionality of Appleworks to the MS-DOS world while leaving behind many of its limitations."



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EXPRESS 1.0

Speed it up — print-spooling software caches your document and lets you get back to work fast.

You look *mahvelous*, dahling! Tell me, how long did it take you to get that way?" Fernando, Billy Crystal's slimy *Saturday Night Live* lounge lizard, would have had a field day with the Apple IIGS. Applications such as AppleWorks GS, GraphicWriter III, and Platinum Paint *do* make you look good in print. But printing any long document with these programs also means you might as well take a coffee break — your system is going to spend its time managing your printer instead of letting you manage your workload. Express, a new utility from Seven Hills Software, is a charmingly simple solution to the problem of taking back control of your computer.

To use Express, you have to meet three conditions. First, you must use standard GS/OS programs that conform to the desktop environment of pull-down menus and windows. ProDOS programs such as Publish It! and AppleWorks Classic that work on both the GS and the IIe or IIc can't benefit from Express. Second, your printer should be connected directly to your GS. This excludes any networked printer such as the LaserWriter, but includes Apple's ImageWriter or StyleWriter and the Hewlett-Packard DeskJet or LaserJet series. Third, because of the way Express works, you must use a hard drive.

★ ★ ★ ★ ★

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- $39.95

UNDER THE HOOD

Here's how Express works in a typical scenario. Let's say you've used AppleWorks GS' page-layout module to create a four-page exam. When you finish designing it, you issue the print command. Instead of sending the document directly to your printer, Express takes command and transfers it to a disk file. When Express finishes creating this file, you regain control of your computer. As you shift gears to work on a lesson plan or write a letter to Aunt Martha, Express "steals" some processor time and sends the exam file to your printer. This process is called *spooling*. Each time you print a new document, Express adds a new file to the end of the queue.

Note that Express doesn't speed up the total time it takes to print a file. In fact, because printing is a two-stage process, the total time is longer. What you do gain by using Express is the ability to work on other projects instead of waiting for your printer to spit out your latest opus.

Installing Express requires making a backup of the original disk and launching the *Install* icon. Using Express is completely transparent. It's a CDEV (*control-panel device*), a mini-program that's always

Photography • Larry Dunn

accessible from the *Apple* menu in a GS/OS program. The Express control panel displays names of files in the spool queue and how much of the current file has been printed. You can retain spool files after printing, too, so that you can reprint frequently used documents. You can also delay printing until a more convenient time. You can delete individual files before printing or turn off Express temporarily or permanently.

The Express package includes a single program disk and a well-written 23-page manual with index. The last few pages of the manual are devoted to questions and answers that solve typical problems you may run into when using Express.

NUMBERS, NUMBERS

The speed at which you regain control of your computer varies with your system software, print-quality setting, and the length and complexity of your document. In general, I found using Express meant I could get back to work 40 to 70 percent sooner.

I created a five-page document with the same text in both AppleWorks GS and EGOed, a text-editing desk accessory from *GS+* magazine. Without Express, under System Disk 5.0.4 and using standard print quality, this document took 9 minutes 2 seconds to print in AppleWorks GS and 8 minutes 37 seconds with EGOed. Using Express eliminated most differences between the printing rates of different programs as well as variances in hard-drive speeds; the real differences showed up between system-software versions. System 5.0.4 required about 3 minutes 5 seconds to spool the document, while System 6.0 needed an average of 3 and a half minutes.

When I switched to *fast* and *best* print qualities for the same five-page EGOed document, I found the savings less substantial: Express improved *fast* quality by roughly 47 percent, and *best* by about 37 percent. For simple one-page text and graphics documents with either version of the system software, the differences in times were negligible: Express cut downtime from about 1 minute 16 seconds to 20 seconds.

SOFTWARE ALERT

Several cautions should be noted here. For example, starting a ProDOS 8 program such as AppleWorks Classic or Publish It! while Express is working will make the spooler abandon printing. Some ill-behaved GS/OS

APPLE II REPORT

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Four sequenced activities with a friendly animated frog introduce children in kindergarten through second grade to letters and numbers on the computer keyboard. Youngsters learn to type single letters and characters, as well as simple letter/number patterns and words. A Teacher Options feature lets adults customize the exercises. Although this interactive program helps youngsters learn their way around a keyboard, there's no attempt to teach proper fingering position. In addition, the activities are so repetitive that kids will quickly tire of the software.

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Eight captivating activities teach youngsters in first through third grade all about dinosaurs and other prehistoric animals. A point-and-click user interface encourages children to match animals with names, decide whether to feed specific dinosaurs meat or plants, and make their own dinosaur world. Kids use a ruler to measure these giant creatures and a scale to weigh them; they dig up the bones of a Tyrannosaurus rex and reassemble its skeleton. There's even an electronic field guide that kids can use to access more information in the program's database. A simple word processor lets students write reports, too. And Learn About Dinosaurs doesn't forget the adults, either: A detailed Teacher's Guide with lesson plans provides pre- and post-computer suggestions. Learn About Dinosaurs is terrific because it combines in one package activities that encourage creativity while teaching science, prehistory, language arts, and math.

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LCSI/LEGO Dacta
555 Taylor Road
Enfield, CT 06083
(800) 527-8339

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- $136 expansion pack: Project Book, software (for site-license purchasers)
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LogoWriter Robotics combines all the wonderful features of LogoWriter (turtle shapes, graphics, colors, and word processing) with the robotics commands of LEGO TC Logo. You can run this ProDOS-based software from a hard disk or install it on a network (not possible with the earlier DOS 3.3 version of LEGO TC Logo). To use robotics features, however, you must also have a LogoWriter Robotics Building Set (with LEGO bricks, motors, lights, sensors, interface box, slot card, cables, and transformer). Build a merry-go-round or conveyor belt and direct your robot's movements from the computer. Have a turtle follow a road on screen, while a LEGO car travels the road on your floor. Printed instructions explain how to synchronize screen animations with the movements of actual LEGO constructions, and how to integrate writing projects with turtle graphics, Logo programming, and LEGO constructions. This robust product is an absolute must for teaching complex ideas in an enjoyable, non-threatening way (if your budget can make the stretch).

Continued on p. 22

programs can cause problems, as well. For instance, the Finder under System 5.0.4 will turn off the spooler until you launch another GS/OS program. (Under System 6.0 it works correctly, however.) In addition, with the spooler working in the background, you can expect the speed of your applications to slow noticeably, although not enough to be unusable.

It's now possible to put together an excellent GS/OS-based system for creating quality print documents quickly and conveniently. Adding to a rich array of word processors, desktop-publishing packages, and graphics applications, auxiliary programs now improve the look of fonts, create mathematical notation, manage files, and translate among graphics formats. Express can fill an important niche in your system by making you look simply "mahvelous" — without waiting for your printer.

Ron Berntson
Saskatoon, Saskatchewan, Canada

★ ★ ★ ★ ★

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Summer's over, and you'd figure that all the sleepers coming out of California (Hollywood, that is) would be but a distant memory. San Jose may be a long way from TinselTown, but Tulin's new A-Hive Jr. "floptical" drive — using lasers rather than magnets to store your data — promises to end the summer with a bang.

For 3.5-inch-disk jockeys, shuffling floppies may conjure up bad flashbacks of trying to load HyperCard IIgs with one drive and five disks. This time, when you pop in that fresh disk, you're loading up a show-stopping 21 megabytes. There's no fanfare, racing spotlights, or confetti — just lots of space, fast.

HOWDY, STRANGER

As with any really good sleeper hit, the A-Hive Jr. floptical drive is externally unassuming. It's about half again the size of a 3.5-inch floppy drive, platinum colored, with two Continued on p. 50

APPLE II REPORT Continued from p. 21

QUENTIN: QUENTIN'S NEIGHBORHOOD

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338 Commerce Drive
Fairfield, CT 06430
(800) 232-2224

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P.O. Box 392
Freeport, NY 11520
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REVIEW-IT ALGEBRA I PARTS 1 & 2

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Acton, MA 01720
(800) 421-2009

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— Carol S. Holzberg, Ph.D.

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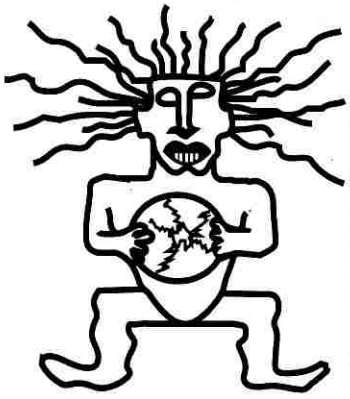

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Steven W. Disbrow, Publisher *GS+ Magazine, Mar/Apr '92*

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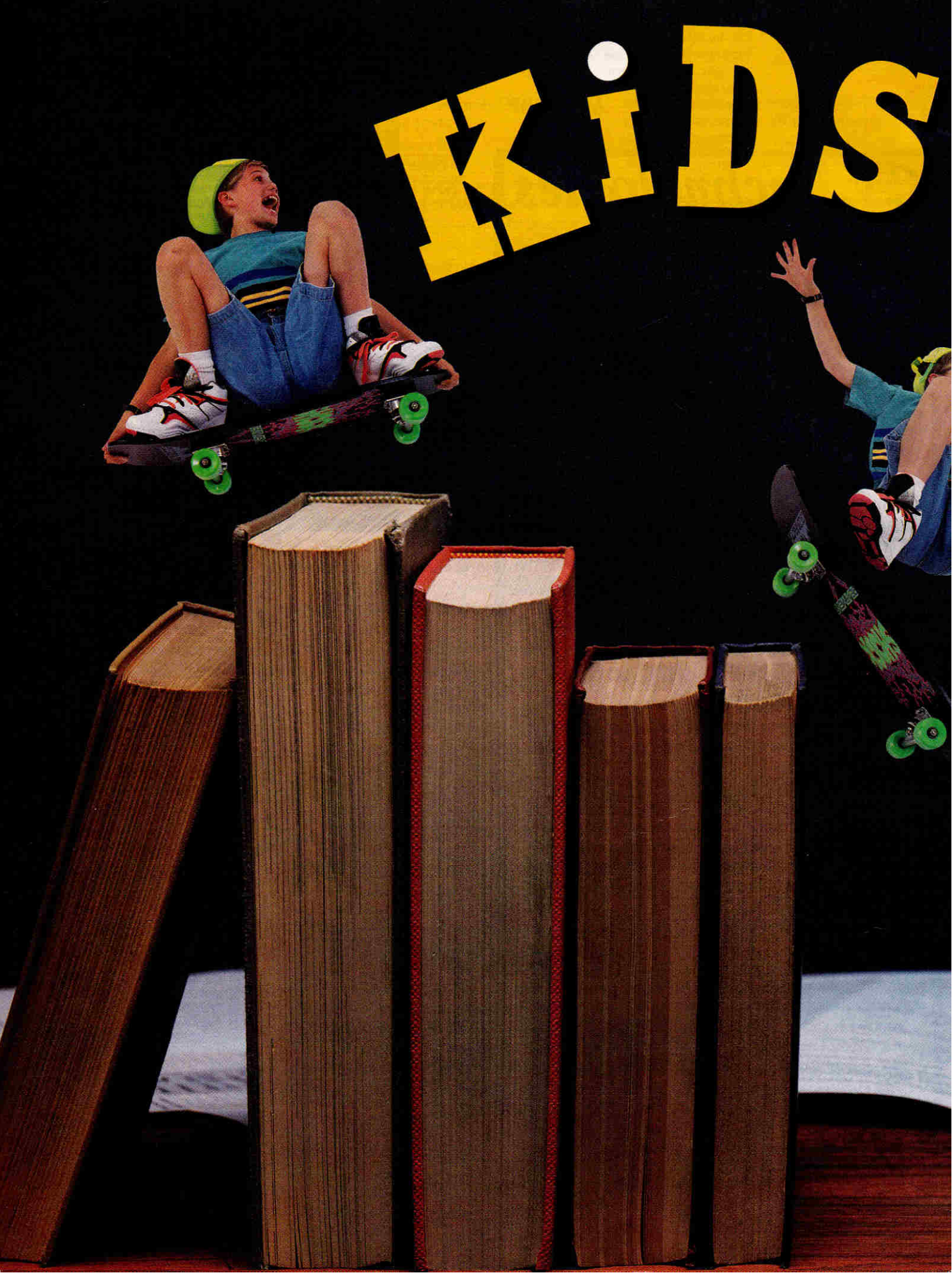

KiDs

turn oN to Hi-Tech

Today's kids are pretty sophisticated. Fortunately, software is staying one step ahead of them — new programs for both the Apple II and the Macintosh combine fun and learning in ways that keep children, parents, and teachers satisfied.

By LESLIE EISER

KIDS ARE NO FOOLS. They want what all computer users want — the adrenaline rush of the video arcade combined with the intellectual satisfaction of a valid educational experience. (Okay, kids probably wouldn't phrase it exactly that way.) But if you let a child choose among TV, Nintendo, and educational software, most youngsters won't even try a game if they know it's supposed to be teaching them something. Fortunately, though, it's getting tougher and tougher to distinguish between education and entertainment programs. Dozens of programs that combine fun and learning are available for both the Apple II and the Macintosh. Balancing fun and learning isn't easy, though, and only the best of the current crop will satisfy the discriminating users at your house — or in your classroom.

APPLE II BASICS

Even though software developers increasingly favor the Mac and MS-DOS machines, many continue to release new products to support the millions of Apple IIs in homes and schools. For example, explorations in science, math, and music are the hallmarks of Broderbund's THE TREEHOUSE, and MUPPET LABS, A FIELD TRIP INTO THE SEA, and A FIELD TRIP TO THE RAIN FOREST from Wings for Learning. The latter two titles take kids deep into little-known worlds; the first two offer a wide variety of educational

Photography • Ed Judice

Houghton Mifflin's ErgoMotion uses laser-disc video to teach basic physics concepts.

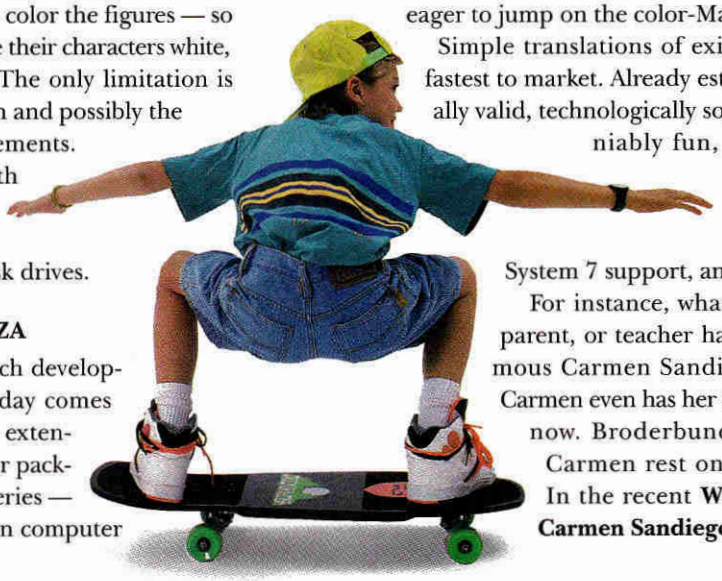
EcoVision's interactive technology lets students explore complex environmental problems.

activities, cleverly disguised as games starring a pair of friendly possums and members of the familiar Muppet team, respectively. Featuring attractive graphics, solid science, and carefully orchestrated play sequences, these programs represent some of the best software available for Apple IIs. Kids can play animal-matching games, compose music, practice basic leaf identification, and more.

Both The Treehouse and Muppet Labs run on minimum hardware — good news for those without the funds to finance a major upgrade. The sound effects in The Treehouse are particularly outstanding. Twenty different songs are available, each identified by a distinctive icon. Even the reward routines sound good.

From MECC comes **Storybook Weaver: World of Make-Believe**, a dynamite GS program for budding young authors — or even for hesitant older authors. It's designed specifically to encourage youngsters to write stories — there's even a required title page, complete with selectable borders. Each additional page may contain either graphics and text or just text. Kids can choose from 12 full-screen backgrounds, plus an enormous number of smaller images, including 40 different shelters, tons of nature objects, and almost 100 animals. Traditional human figures, including witches and wizards, share space with more-imaginary characters, such as giants, gnomes, and fairies.

Most importantly, kids can color the figures — so young story weavers can make their characters white, yellow, brown, even green. The only limitation is your youngster's imagination and possibly the program's hardware requirements. You'll need an Apple IIGS with a minimum of 1 megabyte of random-access memory (RAM), plus two 3.5-inch disk drives.



GS LASER EXTRAVAGANZA

The most exciting high-tech development for the Apple IIGS today comes from Houghton Mifflin. Its extensive set of laser-disc/computer packages in the **Science Vision** series — more like interactive TV than computer software — are exciting, innovative, and creative, one of the most-effective combinations of laser-disc and computer technology yet developed. Taking advantage of the capabilities of the Apple II Video Overlay Card, these programs combine sound, computer graphics, motion video, and solid educational content to challenge youngsters to explore scientific concepts at levels previously unavailable to them.

You have to see these products to appreciate them. **ErgoMotion**, for example, uses roller coasters and sports as common denominators to explore several basic physical concepts. By first designing a roller coaster, and then watching actual movie footage as the roller coaster is "tested," student scientists gain firsthand experience in the basic concepts of force, acceleration, and trajectory. In **EcoVision**, youngsters are ecology advisers, discovering on their own the complexity of today's environmental problems. The Science Vision programs aren't designed to prompt kids to find the "right" answers, but rather to expose them to interesting questions presented in an exciting format.

WHO'S BUYING WHAT?

Industry watchers who keep a close eye on the hardware-buying strategies of school boards are reporting an influx of color Macintoshes, most notably the relatively low-priced LC/LC II. As schools look to replace Apple IIs or to simply add to their computer labs, Apple is marketing the LC as its premier education computer.

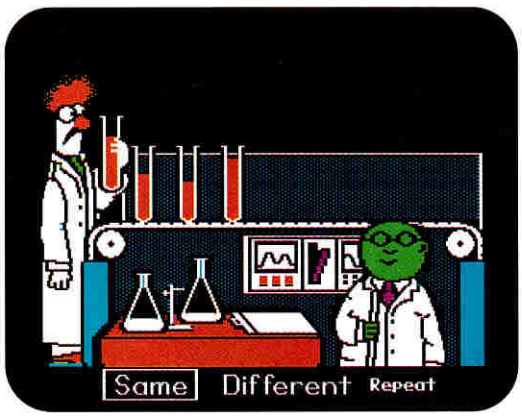
The large number of LCs sold to schools (and homes) has established a new market for education software. As the current flurry of conversions, upgrades, and new releases show, many Apple II and MS-DOS developers are eager to jump on the color-Mac bandwagon.

Simple translations of existing PC software are fastest to market. Already established as educationally valid, technologically sophisticated, and undeniably fun, these VGA MS-DOS products arrive on the Macintosh dressed up with additional color, System 7 support, and a friendly interface.

For instance, what computer-using kid, parent, or teacher hasn't heard of the infamous Carmen Sandiego? The mysterious Carmen even has her own television program now. Broderbund isn't content to let Carmen rest on her laurels, though. In the recent **Where in the World Is Carmen Sandiego? Deluxe Edition**, the

wily thieves of V.I.L.E., Carmen's gang of cutthroats and cut purses, lead young detectives on a merry chase. Accurate maps (using a variety of projection types), sophisticated and subtly contorted clues, an occasional speech by the boss, and incredible 256-color graphics images make this Carmen edition educationally valid as well as aesthetically appealing.

A Field Trip into the Sea, from Wings for Learning, helps Apple II users study the briny deep.

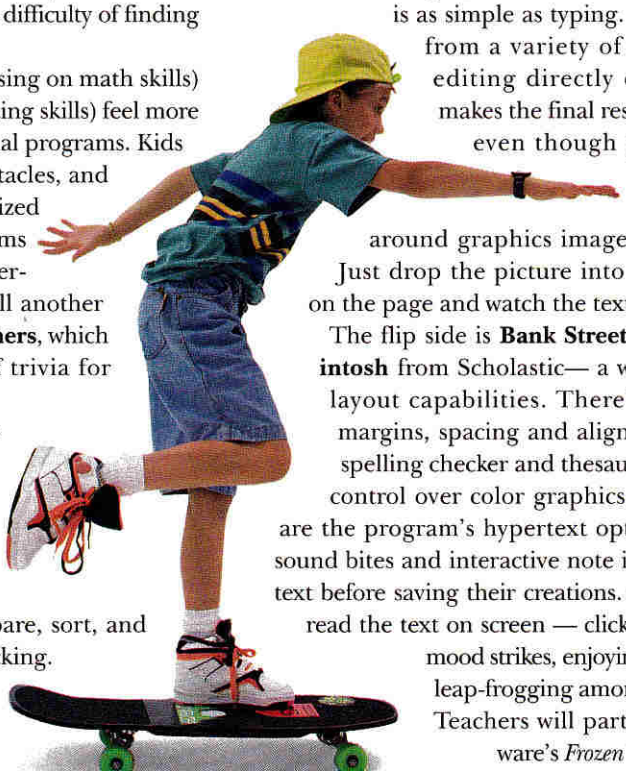


Familiar characters in Wings for Learning's Muppet Labs make science fun for youngsters.

For action and adventure, plus drill questions to reinforce learning, try Lawrence Productions' **Nigel's World**, in which kids travel the earth in a hunt for the perfect shot (camera shot, that is). As their ability to solve the geographical puzzles grows, so does the difficulty of finding each location.

Super Solvers OutNumbered! (focusing on math skills) and **Midnight Rescue** (developing reading skills) feel more like video-arcade games than educational programs. Kids dash around buildings, jump over obstacles, and solve problems at a furious pace. Organized by level and by difficulty, these programs will keep youngsters from 7 to 14 entertained (and challenged) for hours. Still another PC-to-Mac hit is MECC's **Super Munchers**, which relies on speed and a knowledge of trivia for its intellectual appeal.

Recently converted from Apple II to Macintosh is the outstanding **USA GeoGraph** from MECC, a sophisticated database tool containing a wealth of information about every U.S. state. Accessed either through maps, by state name, or by topic, students can compare, sort, and chart every statistic by pointing and clicking.

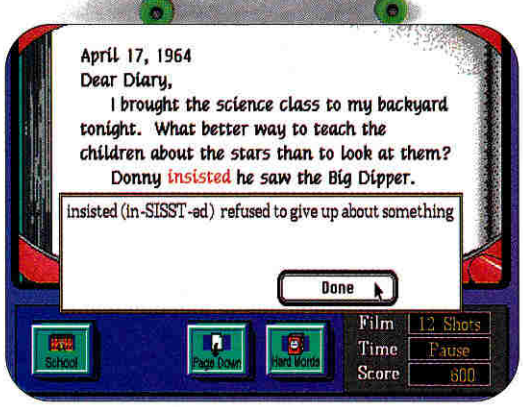


WRITE ON, MACDUFF

Writing can be frustrating as well as fun; it doesn't take a child psychologist to recognize that if kids enjoy writing, they'll want to write more. The good news for Mac users is that not one, not two, but three word processors designed with kids in mind are available for young scribes.

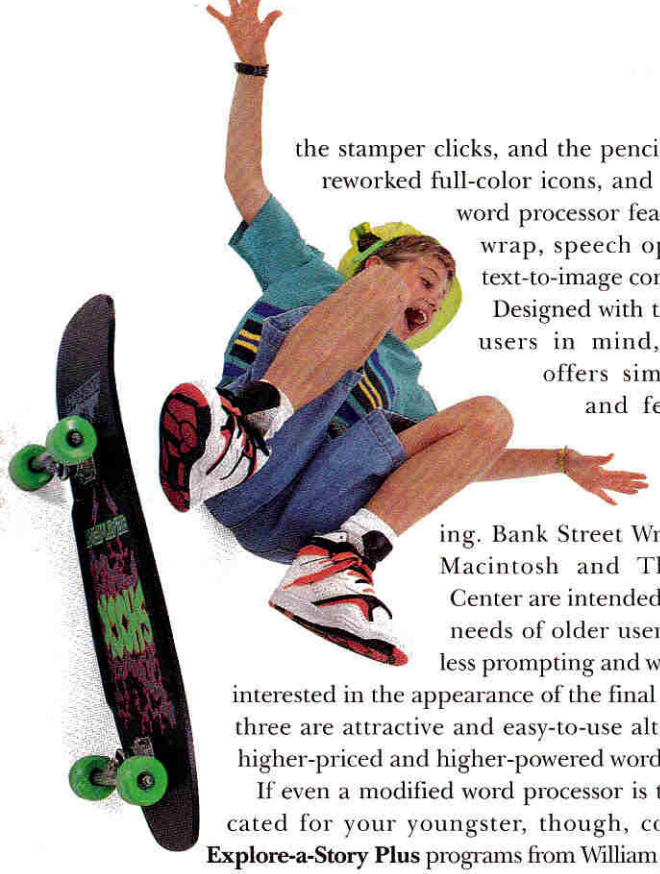
First on the block is **The Writing Center** from The Learning Company. More an interactive page-layout program that supports writing than a traditional word processor, The Writing Center comes with a spelling checker, icons, and 222 color pictures you can flip, crop, and size. The Writing Center is so easy to learn that putting out newsletters complete with headlines, graphics, borders, and multiple fonts is as simple as typing. Kids can import text from a variety of sources; you do all editing directly on the layout. This makes the final result easier to visualize, even though performance sometimes bogs down. Even word wrap around graphics images is done on the fly: Just drop the picture into the correct location on the page and watch the text flow around it.

The flip side is **Bank Street Writer for the Macintosh** from Scholastic— a writing program with layout capabilities. There's a ruler to control margins, spacing and alignment; an easy-to-use spelling checker and thesaurus; and rudimentary control over color graphics. Even more exciting are the program's hypertext options. Kids can place sound bites and interactive note icons anywhere in the text before saving their creations. Other users can then read the text on screen — clicking on buttons as the mood strikes, enjoying the sound effects, or leap-frogging among related documents. Teachers will particularly like the software's *Frozen Text* option, which lets you add instructions or directions kids can't modify or print.



The Learning Company's Midnight Rescue offers several levels of reading development.

KidWorks, from Davidson & Associates, is a fascinating example of how a change in platform can make an enormous difference in the appearance and attractiveness of a product. First released for MS-DOS machines, KidWorks was a bit awkward, but on the Macintosh it springs to life. This combination paint, writing, and speech program now offers art with sound effects (paint drips,



the stamper clicks, and the pencil scratches), reworked full-color icons, and a large-text word processor featuring word wrap, speech options, and text-to-image conversion.

Designed with the youngest users in mind, KidWorks offers simple menus and few choices, encouraging kids to begin writing. Bank Street Writer for the Macintosh and The Writing Center are intended to meet the needs of older users who need less prompting and who are more interested in the appearance of the final product. All three are attractive and easy-to-use alternatives to higher-priced and higher-powered word processors.

If even a modified word processor is too sophisticated for your youngster, though, consider the **Explore-a-Story Plus** programs from William K. Bradford. Designed more as story starters and as animated readers, the heart of this series is its collection of brilliantly colored graphics pages filled with user-controlled animated characters. Kids can add text to each part of the story, or create original work by assembling supplied pieces. The *Plus* in the title of the Macintosh version comes from the addition of a large-text word processor that supports word wrap. This feature lets kids create longer stories, complete with animated pictures and color graphics.

MULTIMEDIA WITH QUICKTIME

QuickTime, the new extension to the Mac's system software, lets you play video footage with no additional hardware — adding significantly to the sophistication of today's software. Because video and animation are memory intensive, QuickTime applications are ideal for CD-ROM; CD-ROM players haven't made much of an impact at home or in school yet, however, so most developers offer QuickTime products on floppy disk.

In **Operation Frog** from Scholastic, kids dissect a frog, then examine the pieces. Photographs and animated sequences explain and describe the various parts, but the really gory highlights are the QuickTime movies of frog lungs expanding and a frog heart beating.

Less realistic — more pure entertainment — are the QuickTime cartoons in the **Reading Magic Series** from Tom Snyder. Cartoon characters cavort across the screen as youngsters read the stories of **Flodd the Bad Guy** or **Jack and the Beanstalk**. On Macintoshes that support audio recording, such as the Classic II and the LC, you can even add sound bites. Parents can read the story once to make the recording, then let their youngsters play back the voice track at will.

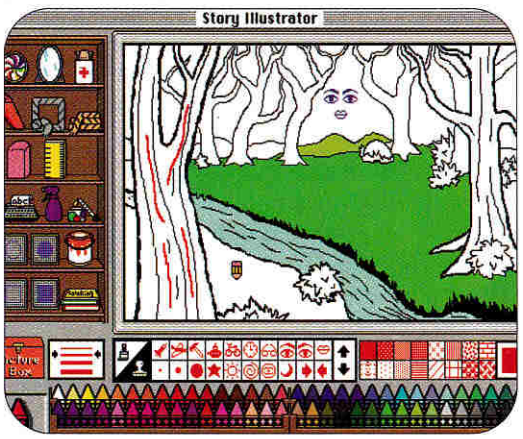
Even **Headline Harry and the Great Paper Race** from Davidson gets into the QuickTime act with live-action videos of locations across the United States and notable moments in history. Not yet released — but full of promise — is the **New Grolier's Encyclopedia**. Still CD-ROM based, this updated version includes QuickTime video footage among a host of other capabilities. Not only can students use automated search techniques to locate pictures and text on any particular subject, they'll be able to access original video footage as well.

ALL MAC AND NOTHING BUT

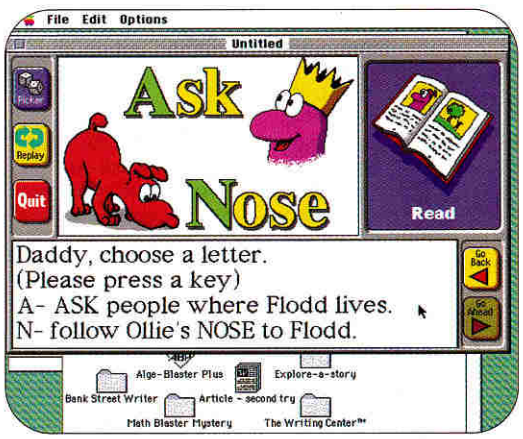
In addition to the converts, a number of new made-for-the-Mac programs are now hitting the "edutainment" market. In Broderbund's **Spelunx and the Caves of Mr. Seudo**, for example, youngsters explore a world filled with buttons to push and pull, games to play, and mysteries to solve. Spelunx is more game than teacher, more pal than instructor, yet it's surprisingly educational for a program with no particular stated purpose. Kids will gain an appreciation of the effect of height on the behavior of falling objects, for instance, and some knowledge of the behavior of gases when exposed to electricity. Spelunx offers no reward for learning, just the satisfaction of figuring out the hidden point behind every object found in the Caves of Mr. Seudo.

History-trivia buffs will find EarthQuest's **Time Treks** a delightful experience. Yes, it's a game, but the goal isn't to gain points — it's to gain understanding and knowledge.

You must begin by exploring the voluminous number of historical facts hidden in nooks and crannies throughout the program's *Archives* — only

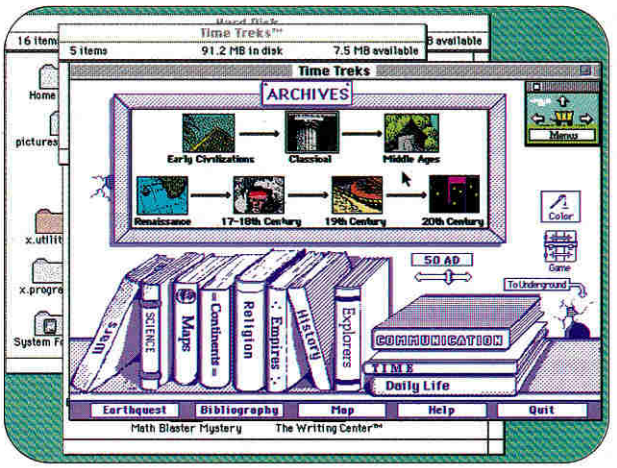


Davidson's KidWorks combines painting, writing, and speech with sound effects and simple menus.



Tom Snyder's Flodd the Bad Guy features QuickTime cartoons to help little ones learn to read.

Midnight Rescue grabs kids' attention with rapid-fire arcade challenges and entertaining obstacles.



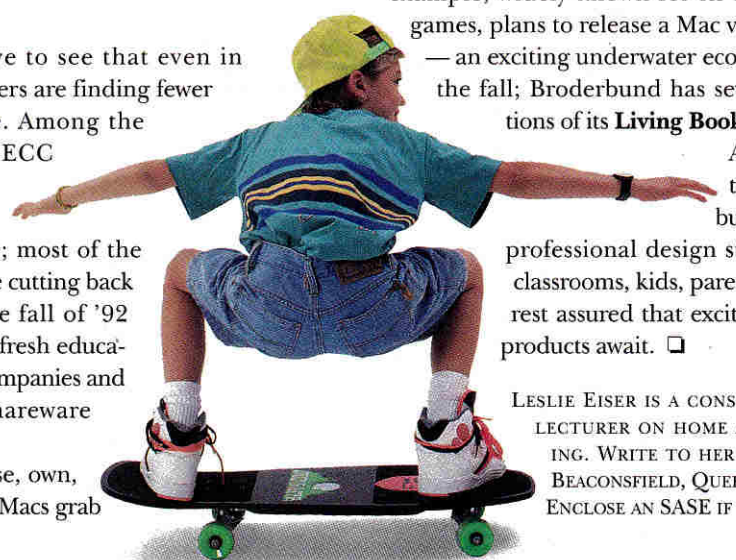
Earthquest's Time Treks takes kids on a whirlwind ride through history in a race to stop the tyrants of the future.

then do you stand a chance of getting past even level 1 and on into your time-travel and treasure-hunt adventure.

FUTURE SHOCK

It doesn't take a detective to see that even in education circles, Apple II users are finding fewer titles from which to choose. Among the major developers, only MECC plans to continue releasing significant numbers of new II programs in the near future; most of the other powerhouse vendors are cutting back to at least some extent. The fall of '92 should bring another crop of fresh educational software from smaller companies and an increasing number of shareware developers, however.

The news is better if you use, own, or plan to buy a Mac. As color Macs grab more and more market share, publishers are willing to put money into education projects. Sierra On-Line, for example, widely known for its MS-DOS adventure games, plans to release a Mac version of **Eco-Quest** — an exciting underwater ecology adventure — in the fall; Broderbund has several CD-ROM editions of its **Living Books** series in the works.



As Macs make the transition from the business office and the professional design studio to homes and classrooms, kids, parents, and teachers can rest assured that exciting new educational products await. ❑

LESLIE EISER IS A CONSULTANT, AUTHOR, AND LECTURER ON HOME AND SCHOOL COMPUTING. WRITE TO HER AT 7 BRETON WOODS, BEACONSFIELD, QUEBEC H9W 5A6, CANADA. ENCLOSE AN SASE IF YOU'D LIKE A REPLY.

PRODUCT INFORMATION

AstroVision
BioExplorer
Chemical Pursuits
EcoVision
ErgoMotion
TerraVision
Houghton Mifflin
1 Beacon St.
Boston, MA 02108
(617) 725-5000
$450 each
1.25MB Apple IIgs

Bank Street Writer for the Macintosh,
$129.95 school version
1MB Mac
Operation Frog,
$99.95 school version
1MB Mac b/w, 2MB color
Scholastic Software
2931 East McCarty St.
P.O. Box 7502
Jefferson City, MO 65102
(800) 541-5513

Explore-a-Story Plus:
Stone Soup
William K. Bradford Publishing Co.
310 School St.
Acton, MA 01720
(508) 263-6996
$75 school version
2MB color Mac

A Field Trip to the Rain Forest
A Field Trip into the Sea
$99 1MB b/w Mac
$99 2MB color Mac
$75 128K Apple II
Muppet Labs, $65
128K Apple II
Wings for Learning
1600 Green Hills Road
P.O. Box 660002
Scotts Valley, CA
95067-0002
(408) 438-5502

Flodd the Bad Guy
Jack and the Beanstalk
$44.95 each
Reading Magic Set,
$69.95 both programs
2MB Mac, 4MB System 7
Tom Snyder Productions
90 Sherman St.
Cambridge, MA 02140
(617) 876-4433

Headline Harry and the Great Paper Race
KidWorks
Davidson & Associates
19840 Pioneer Ave.
Torrance, CA 90509
(310) 793-0600
$59.95 each
3MB Mac, 4MB System 7

Nigel's World
Lawrence Productions
1800 South 35th St.
Galesburg, MI 49053
(616) 665-7075
$59.95 1MB Mac

Spelunx and the Caves of Mr. Seudo, $49.95
2MB Mac, 4MB System 7
The Treehouse,
$49.95 128K Apple II
Where in America's Past Is Carmen Sandiego?,
$59.95 128K Apple II
Where in the World Is Carmen Sandiego? Deluxe Edition,
$79.95 4MB color Mac
Broderbund Software
500 Redwood Blvd.
Novato, CA 94948-6121
(415) 382-4400

Storybook Weaver: World of Make-Believe,
$59 1MB Apple IIgs
Super Munchers,
$49.95 1MB Mac
USA GeoGraph
$59 768K Apple IIgs
$49.95 1MB b/w Mac, 2MB color Mac

MECC
6160 Summit Drive North
Minneapolis, MN 55430
(800) 685-6322

Super Solvers Midnight Rescue
Super Solvers OutNumbered!
$59.95 each 1MB Mac
The Writing Center,
$89.95 2MB Mac
The Learning Company
6493 Kaiser Drive
Fremont, CA 94555
(510) 792-2101

Time Treks
EarthQuest
125 University Ave.
Palo Alto, CA 94301
(800) 545-7677
$59.95 2MB Mac

Photography • Larry Dunn

HOME ROOM

In alternative classrooms and home-based schools across the country, Apple computers and a host of outstanding programs offer kids a wide range of tailor-made educational activities.

Some children *never* stay home from school — because for a growing number of elementary, junior-high, and high-school students, home *is* school. And, just as you're sure to find Apple computers in America's classrooms, you'll find IIs and Macs in home-school settings, as well.

The precise number of parent-educated children in this country is difficult to determine, but "Schooling Kids at Home," a 1990 *Time* magazine article, puts the estimate at more than a half-million. Although the exact figure isn't clear, one thing is: The home-schooling trend is on the rise. (For additional information, see the sidebar "Recommended Reading," our beginner's bibliography.)

Why do parents choose to teach their kids at home? According to Cheryl Gorder, author of *Home Schools: An Alternative*, a substantial number of families cite the absence of moral teaching in today's public schools. For some, home schooling means avoiding the negative

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

influences that can simultaneously distract children from learning and confuse them about the religious or ethical values they've absorbed at home. Although enrolling children in a private or parochial school is a reasonable solution for some people, others don't have alternative schools in their neighborhoods. Even when they do, tuition can be a budget breaker.

In addition, parents who travel a lot — whether for business or pleasure — find that home schooling can be one of the best ways to coordinate the family's nomadic lifestyle with their children's quest for knowledge. At the other end of the spectrum are ill or disabled homebound children, for whom joining a mainstream classroom may be physically impossible.

Then there are the so-called gifted kids, a category that probably encompasses all children once we cast aside academic prejudices and acknowledge that talent manifests itself in many different forms — not just in the ability to earn impressive grades in a structured setting. Is there any doubt that children who excel in athletic performance, musicianship, or the visual arts are gifted, too? Yet schools are often ill equipped to accommodate these kinds of learners.

ALL IN THE FAMILY

Whatever the reason for home schooling, parents quickly discover that this unique educational approach affords them the opportunity to design a tailor-made curriculum without sacrificing the three Rs. For example, 12-year-old Ben Rockmuller and his sister Emily Houk, who's 9, have never attended a formal school — yet their days are ripe with learning opportunities that grow from their own evolving interests. Each activity is enhanced by resources available in the Rockmuller-Houk home in East Chatham, New York. Those resources include Apple IIGS and Macintosh Classic computers.

Ben and Emily's father, Seth Rockmuller, describes his children's curriculum as "flowing out of family life. Schools tend to jerk you from subject to subject, but Ben and Emily are more independent in their learning. Ben's tremendously interested in city planning (thanks to **SimCity**), and he's captivated with San Francisco." Playing the game even inspired Ben to study earthquakes and geology. (Check the accompanying "Software Sampler" sidebar for a list of top-quality programs for your Mac or Apple II.)

Emily's a budding story writer. She enjoys dictating her work, which her dad then transcribes on the family's IIGS with the **AppleWorks 3.0** word processor. When Rockmuller confided that the family's looking for a good typing program, I recommended **Mavis Beacon Teaches Typing** for the GS. It provides age-appropriate lessons and gives immediate, positive feedback. There's even a car-racing game for "recreational" practice. When was the last time you could say that about a formal typing class?

The children supplement their education with **HyperStudio**, **MacDraw II**, **Microsoft Works**, **PaintWorks Gold**, and **Where in the World Is Carmen Sandiego?** (as well as other titles in the popular Carmen series). Ben and Emily prefer open-ended programs that let them explore on their own — or launch money-making enterprises in their spare time.

When I first spoke with Seth Rockmuller, Ben was still recuperating from the heavy demands of the Christmas cookie-baking business he started to raise extra holiday cash. He created flyers with **Microsoft Word** and distributed the advertisements to a dozen people. Business took off when one recipient made copies to give to her co-workers. Although Ben learned a lot about tracking sales, balancing his books, and measuring ingredients, he discovered a serious downside: "Ben doesn't like to bake anymore," his dad notes.

INDEPENDENT STUDY

On Cape Cod, Harvard Divinity School graduate student Lisa Boken and her 15-year-old son Zac use the family's Macintosh SE and programs such as **Quark Xpress** and **MacPaint** to enhance their at-home educational pursuits.

Boken began planning Zac's education as soon as he was born. By the time he reached school age, however, she didn't have enough money to afford private school. Zac went to public school, where "he loved being with the other kids," says Boken, "but he felt as though they were doing all the things we had already done at home." To complicate matters, Zac is creative and artistic. Isolated math problems stump him sometimes, but he excels at carpentry work and making Shaker-style boxes — two crafts that presuppose math skills.

When Boken first expressed a desire to teach Zac at home, she found local authorities "very adversarial." Requesting permission from public-school officials, Boken says, was "like asking Volkswagen if you can buy a Chrysler."

Boken persisted, and seven years ago co-founded Abbington Academy, an alternative school in Yarmouthport, Massachusetts, with another home-schooling mother, Barbara Hayes. Boken and Hayes met through ***Growing Without Schooling***, a home-schooling magazine published by Holt Associates. After considerable effort — including a good deal of *pro bono* legal work — Abbington Academy was approved as an alternative school in Massachusetts. It serves as the hub of a network of 20 home-schooling families who are committed to the school's philosophy: education for liberation.

Linda Zuern, a certified teacher, serves as Abbington's instruction coordinator. Zuern meets with families to set up individualized curricula that target each child's interests while addressing traditional academic subjects. Zuern writes each student's "curriculum contract" in September and his or her progress reports in

RECOMMENDED READING

"Home Schooling"
Alfie Kohn, The Atlantic
261(4):20, April 1988, p. 20

Home Schools: An Alternative
Cheryl Gorder, 1990
Blue Bird Publishing
Tempe, AZ
$11.95

How to Write a Low-Cost/No-Cost Curriculum for Your Home-School Child
Borg Hendrickson, 1990
Mountain Meadow Press
Kooskia, ID
$12.95

"I Teach My Kids at Home"
Linda Winkelreid-Dobson, Good Housekeeping
210(3):82, March 1990, p. 82

"Schooling Kids at Home"
Sam Allis, Time
136(17):84, October 22, 1990, p. 84

"When Schools Fail Children"
David Guterson, Harper's
281(1686):58, November 1990, p. 58

January and June. She also administers standardized tests as required by state law.

DIFFERENT STROKES

If you're interested in exploring home schooling further, first talk to your state and local education departments about legal demands and constraints so that you can make an informed decision. While home schooling is permitted by law, you're not completely free to do as you please. Curriculum requirements for home schools — indeed for public and private schools, too — vary from one state to another. In addition to reading, math, and writing, for example, you may have to include in your curriculum plan a unit on state history. Some requirements are surprisingly progressive. Borg Hendrickson, author of ***How to Write a Low-Cost/No-Cost Curriculum for Your Home-School Child***, notes that Pennsylvania students must, among other things, learn about the "humane treatment of wildlife."

Most states require parents to comply with additional regulations determined by local school systems. For instance, New Yorkers like the Rockmuller-Houk family must submit to their school superintendent a yearly plan, quarterly progress reports, and an annual assessment. Although home schooling is your legal right, local authories' legal responsibility is to see that your children get the education they deserve.

Note that home-school graduates don't usually receive a high-school diploma. If possessing that document is important, your child can earn a diploma by entering a conventional high school to complete his or her secondary education or by enrolling in a community college or correspondence school that offers a diploma program (such as the GED, or Graduate Equivalency Diploma). According to Seth Rockmuller, colleges and universities — including Harvard — accept qualified home schoolers.

When you're ready to take the next step, a variety of resources are available, whether you plan to design your own courses or follow a more standard curriculum. "Early on we used to plan [the day's activities] at the breakfast table," says Seth Rockmuller, who with his wife, Katharine Houk, founded the **Alliance for Parental Involvement in Education**, an organization they run from their home. The group, which held its first formal conference last October, fosters all levels of parental involvement — from setting up a home school to finding alternative schools to demystifying math education. (See "Home-Schooling Resources" and "State and Local Organizations" for additional information, courtesy of *Growing Without Schooling*. Contact Holt Associates for a more comprehensive listing of home-school groups.)

Parents who prefer a structured curriculum can purchase a year's worth of lesson plans by mail from organizations such as **Calvert School**, whose study courses are designed by certified teachers. Or consider developing an individualized plan with the help of Borg Hendrickson's book, mentioned above. This resource leaves no stone unturned, and includes a comprehensive glossary. Even parents who aren't professional educators will find the book easy to use.

SOFTWARE SAMPLER

AppleWorks 3.0,
$249 128K Apple II
MacDraw II, $199
1MB Mac, System 6.0
or later, hard-disk drive
or two 800K disk drives
MacDraw Pro 1.5, $399
2MB Mac, System 6.0.5
or later, 4MB System 7,
32-bit QuickDraw for color
MacPaint 2.0,
$125 512K Mac
Claris Corporation
5201 Patrick Henry Drive
Santa Clara, CA
95052-8168
(408) 727-8227

The Children's Writing & Publishing Center
The Learning Company
6493 Kaiser Drive
Fremont, CA 94555
(510) 792-2101
$59.95
128K Apple II

Color 'n' Canvas
Wings for Learning
1600 Green Hills Road
Scotts Valley, CA
95067-0002
(408) 438-5502
$99
1MB Apple IIgs

Earthquest
Explores Ecology
Time Treks
Earthquest
125 University Ave.
Palo Alto, CA 94301
(800) 545-7677
$59.95 each
$89.95 educator version
$269.95 lab pack (5)
2MB Mac, System 6.0.5
or later, hard-disk drive

Headline Harry and the Great Paper Race, $59.95
3MB Mac System 6.0.7
4MB Mac System 7
hard drive
Math Blaster Plus,
$49.95 128K Apple II
Talking Version 512K IIgs
Davidson & Associates
19840 Pioneer Ave.
Torrance, CA 90503
(310) 793-0600

Fraction Munchers,
$59 128K Apple II
Number Munchers
Word Munchers
$39.95 each
64K Apple II
Super Munchers,
$49.95 1MB Mac
The Oregon Trail,
$39.95 64K Apple II
MECC
6160 Summit Drive North
Minneapolis, MN
55430-4003
(612) 569-1500

The Geometer's Sketchpad
Key Curriculum Press
2512 Martin Luther
King Jr. Way
P.O. Box 2304
Berkeley, CA 94702
(510) 548-2304
$169.95
1MB Mac,
System 6.0 or later

HyperStudio 3.0
Roger Wagner Publishing
1050 Pioneer Way
Suite P
El Cajon, CA 92020
(619) 442-0522
$179.95
1MB Apple IIgs

Kid Pix, $59.95
1MB Mac System 6.0 b/w
2MB Mac System 6.0 color
2MB Mac System 7 b/w
4MB Mac System 7 color
System 6.0.7 or later for sound
The New Print Shop,
$49.95 128K Apple II
The Print Shop,
$59.95 1MB Mac
The Print Shop IIgs,
$59.95 512K Apple IIgs
Where in the World Is Carmen Sandiego?,
$39.95 128K Apple II
1MB Apple IIgs
Science Toolkit Master Module,
$49.95 each/3 modules
$209.95 lab pack (3 + guide)
64K Apple II
Broderbund Software
500 Redwood Blvd.
P.O. Box 6121
Novato, CA 94948-6121
(415) 382-4400

MacDraft
Innovative Data Design
2280 Bates Ave.
Suite A
Concord, CA 94520
(510) 680-6818
$399
1MB Mac (2MB recommended),
external disk drive
or hard drive,
System 6.0.2 or later

Mavis Beacon Teaches Typing,
$20 512K Apple IIgs
Music Studio 3-Pack,
$39 1.25MB Apple IIgs
PaintWorks Gold 3-Pack,
$39 1.25MB Apple IIgs
Big Red Computer Club
423 Norfolk Ave.
Norfolk, NE 68701
(402) 379-4680

Microsoft Word, $495
1MB Mac (2MB recommended)
System 6.0.2 or later
hard drive plus 1 800K drive
Microsoft Works, $249
768K Mac, System 6.0 or later
2 800K drives or hard drive
Microsoft Corp.
1 Microsoft Way
Redmond, WA 98052
(206) 882-8080

Quark Xpress 3.1
Quark, Inc.
1800 Grant St.
Denver, CO 80203
(303) 894-8888
$895
Macintosh Plus or higher,
hard drive recommended

SimAnt
SimCity
Maxis Software
2 Theatre Square, Suite 230
Orinda, CA 94563-3041
(415) 254-9700
$59.95 each
1MB Mac b/w, 2MB color
(hard drive) System 6.0.2
2MB Mac b/w, 2.5MB color
(hard drive) System 7

Whether you decide to go it alone or to educate your child at home under the auspices of a state-approved alternative school, you can rest assured there are thousands of parents who share your commitment to quality. Like most worthwhile endeavors, home schooling isn't easy. But then again, neither are the alternatives. ❑

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

HOME-SCHOOLING RESOURCES

Alliance for Parental Involvement in Education
P.O. Box 59
East Chatham, NY
12060-0059
(518) 392-6900
$2 Book and Resource Catalog, sample newsletter

Calvert School
Tuscany Road
Baltimore, MD 21210
(410) 243-6030

Holt Associates, Inc.
2269 Massachusetts Ave.
Cambridge, MA 02140
(617) 864-3100
$25/year (6 issues) "Growing Without Schooling" group subscription rates available

STATE AND LOCAL ORGANIZATIONS

ALABAMA
Alabama Home Educators
P.O. Box 16091
Mobile, AL 36116

ALASKA
Alaska Homeschool Association
P.O. Box 874075
Wasilla, AK 99687
(907) 373-7404

ARIZONA
Arizona Families for Home Education
639 East Kino Drive
Mesa, AZ 85203
(602) 964-7435

ARKANSAS
Arkansas Christian Home Education Association
P.O. Box 501
Little Rock, AR 72203
(501) 753-9164

CALIFORNIA
Community Education Gazette
P.O. Box 445
San Juan, CA 95960

COLORADO
Colorado Home Schooling Network
7490 West Apache
Sedalia, CO 80135
(303) 688-4136

CONNECTICUT
Connecticut Home Educators Association
63 Spindrift Lane
Guilford, CT 06437
(203) 457-1642

DELAWARE
Tri State Homeschoolers Association
P.O. Box 7193
Newark, DE 19714-7193

FLORIDA
Florida Association for Schools at Home
1000 Devil's Dip
Tallahassee, FL 32308
(904) 878-2793

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209 Cobb St.
Palmetto, GA 30268
(404) 463-3719

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Hawaii Homeschool Association
66960 Kuewa Drive
Waialua, HI 96791

IOWA
Iowa Families for Christian Education
RR3, Box 143
Missouri Valley, IA 51555

IDAHO
Home Educators of Idaho
3618 Pine Hill Drive
Coeur d'Alene, ID 83814
(208) 667-2778

ILLINOIS
HOUSE
c/o Mary Friedl
1331 Cleveland
Evanston, IL 60202

INDIANA
Southern Indiana Support Group
118 East Water St.
Princeton, IN 47670
(812) 385-4176

KANSAS
Wichita Teaching Parents
(316) 264-9063

KENTUCKY
Kentucky Home Education Association
P.O. Box 81
Winchester, KY
40392-0081

LOUISIANA
Louisiana Citizens for Home Education
3404 Van Buren
Baker, LA 70714
(504) 775-5472

MAINE
Maine Homeschool Association
P.O. Box 587
Unity, ME 04988-0587
(207) 777-1700

MARYLAND
Maryland Home Education Association
9085 Flamepool Way
Columbia, MD 21045
(301) 730-0073

MASSACHUSETTS
Mass. Home Learning Association
P.O. Box 1976
Lenox, MA 01240
(413) 637-2169

MICHIGAN
Learning Tree Resource Center
Box 80-B
South Superior Road RR1
Atlantic Mine, MI 49905
(906) 482-6393

MINNESOTA
Families Nurturing Lifelong Learners
2452 Southcrest Ave.
Maplewood, MN 55119

MISSISSIPPI
Home Educators of Central Mississippi
c/o McDonald
109 West Willow Court
Ridgeland, MS 39157
(601) 366-9218

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Families for Home Education
4400 Woods Road
Sibley, MO 64088

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P.O. Box 654
Helena, MT 59624-0654

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Lincoln, NE 68505
(402) 464-8551

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Las Vegas, NV 89126
(702) 870-9566

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Concord, NH 03302

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Jackson, NJ 08527
(201) 367-5012

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New Mexico Home Educators
P.O. Box 13383
Albuquerque, NM 87192

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Home Education Network of New York
275 Yarmouth Road
Rochester, NY 14610

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North Carolinians for Home Education
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Raleigh, NC 27601
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NORTH DAKOTA
North Dakota Home School Association
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Mandan, ND 58554
(701) 448-9193
(701) 448-2602

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Growing Together
c/o Nancy McKibben
1676 Trendril Court
Columbus, OH 43229

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Durant, OK 74702

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Parents Education Association
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Beaverton, OR 97075
(503) 645-3709

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Gibsonia, PA 15044

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Rhode Islanders for Constitutional Education
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Providence, RI 02903
(401) 861-9685

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Carolina Family School Association
3200 Fernandina Road
#103F
Columbia, SC
29210-5245

SOUTH DAKOTA
South Dakota Home School Association
8801 East 38th St.
Sioux Falls, SD 57103

TENNESSEE
Home Education Association of Tennessee (HEAT)
3677 Richbriar Court
Nashville, TN 37211

TEXAS
Home-Oriented Private Education for Texas
P.O. Box 43887
Austin, TX 78745-0018
(512) 280-4673

UTAH
Utah Home Education Association
1099 South 200 E
Farmington, UT 84054
(801) 488-3676

VERMONT
Life Is Valuable Education
RR2
Box 2898
St. Albans, VT 05478
(802) 527-1674

VIRGINIA
Home Educators Association of Virginia
P.O. Box 1810
Front Royal, VA
22630-1810
(703) 590-9048

WASHINGTON
Family Learning Organization
P.O. Box 7256
Spokane, WA
99207-0256
(509) 467-2552

WEST VIRGINIA
Alternatives in Education
Rt. 3 Box 305
Chloe, WV 25235
(304) 655-7232

WISCONSIN
Families in Schools at Home (FISH)
4639 Conestoga Trail
Cottage Grove, WI 53527

WYOMING
Wyoming Homeschoolers
Box 1386
Lyman, WY 82937
(307) 787-6728

Æ Update . . .

GS-Ram III Trade-in offer extended - Æ's popular GS-Ram III trade-in offer has been extended through November 30, 1992. The program allows IIGS owners to trade-in any manufacturers GS memory board and purchase a GS-Ram III with 2MB for only $139. GS-Ram III is Æ's newest memory board that is engineered to provide maximum efficiency and greater reliability. Because of its compact, economical design, GS-Ram III uses less than half the power of competing memory boards and produces less heat. Less heat translates into a longer life for your computer and peripherals. GS-Ram III is fully DMA compatible and is expandable to 6MB. It comes bundled with diagnostic software as well as Æ's versatile AW3 Expander software. For more details, call (214) 241-6060 ext. 1126.

ShadowLAN classroom version now available - Æ is now shipping a classroom version of their popular ShadowLAN software. It retails for only $299. ShadowLAN software for the Macintosh allows Macs on an AppleTalk or EtherTalk network to share each other's serial ports. Classrooms equipped with ShadowLAN can share a StyleWriter, Personal LaserPrinter, ImageWriter, modem, label printer or other serial devices. ShadowLAN allows every student on the network to use each serial device as if it were hooked directly into their computer thereby economizing the school's peripheral budget. The program accommodates up to 35 users and can be expanded in 5-user increments. ShadowLAN installs automatically and even provides Password Protection to prevent unauthorized access to any individual serial device.

TransWarp Classic gives you FX-Class performance - Æ's newest accelerator, TransWarp Classic, makes a stock Macintosh Classic from 4 - 11 times faster. It includes a Motorola 68030 processor ranging in speed from 16 MHz - 40 MHz and offers options for an FPU chip, 32K static RAM cache and virtual memory support. It installs easily by clipping over your existing CPU and Æ even includes a Mac tool kit to help you get inside your Classic. TransWarp Classic software installs on its own and provides a SANE patch called '882 Express to take full advantage of the optional math coprocessor chip. The retail price on TransWarp Classic ranges from $599 to $1699.

Æ announces Extended 80 Column Card *to* RamWorks III Trade-in - Now you can trade-in your extended 80 Column Card and purchase a RamWorks III with 512K for only $89. RamWorks III is the most popular selling IIe memory board of all time. It easily installs in your IIe's auxiliary slot to provide super sharp 80 column text capability and memory expansion up to 1MB using standard 256K or 64K chips. RamWorks III also offers an RGB option to add an inexpensive CGA monitor and 16 bit processor option for programmers. It comes with RamDrive and ProDrive disk emulator software as well as Æ's AW3 Expander software. The bundled software includes a self-diagnostic test and provides enhancements for all versions of AppleWorks including print buffer, file segmentation, auto-loading and time/date display. For more details, call (214) 241-6060 ext. 1126.

Æ's new ÆHD PlusDrive brings high density interface to your Macintosh Plus, SE and II. - The ÆHD PlusDrive formats, reads and writes high density (1.44MB) Macintosh disks as well as 800K disks. The drive also works with 720K and 1.44MB MS-DOS formatted disks using an MS-DOS transfer program. The PlusDrive is fully SuperDrive compatible but does not require the SWIM chip upgrade required by Apple's SuperDrive. Simply plug the PlusDrive into your disk drive port for easy installation (an external drive connector is available from Æ for the Mac II). The ÆHD PlusDrive retails for $449.

Æ releases low cost TransWarp LC - Æ is now offering a 25 MHz version of their popular LC accelerator. TransWarp LC 25 MHz has a $799 suggested retail price that includes a Motorola 68030 25 MHz processor and offers upgrade options for a faster processor or FPU math coprocessor chip. It installs easily and provides a SANE patch called '882 Express to take full advantage of the optional math coprocessor chip. TransWarp LC is fully LC and LC II compatible and is upgradeable to 50 MHz.

Product Give-Away! - Call Æ direct and register to win a free Seiko Datagraph 2001 wrist watch. This programmable watch includes several unique features and will be given away absolutely free to 20 lucky customers in August and 20 more in September. Call to register at (214) 241-6060 ext. WATCH. While you're on the line, ask about our *Education Direct Program* and our closeout specials.

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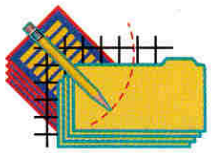

APPLEWORKS IN ACTION

HOME ECONOMICS 1

Buy or rent? Base your decision on accurate financial projections.

By RUTH K. WITKIN

TO BUY OR NOT TO BUY, THAT IS the question. In today's high-cost housing market, the dilemma of whether to purchase or to rent a place to live is almost as thorny as Hamlet's classic quandary. Many people get in over their heads because they don't take time to compare the costs of moving to a rented or purchased home.

One rule of thumb says that a family can afford a house that costs up to 1.7 times its annual gross income. But debt is a highly personal matter, and no pat formula can take into account the way you want to live and the trade-offs you're willing to make. What it can do, though, is serve as a guideline to help you avoid stretching your resources beyond a sensible limit.

Figure 1 shows the spreadsheet that lets you compare the difference between buying and renting. When you enter the cost of each option and your monthly gross income, the formulas produce the following facts:

- down-payment and mortgage amounts
- monthly, yearly, and total mortgage loan payments
- total closing, initial, fixed, and variable costs
- how much your down payment and security money (held in escrow for you) can earn if you decide to rent
- immediate cash outlay
- how much more one option costs than the other, on a monthly and yearly basis
- percentage of your monthly income spent on housing
- estimated tax savings if you decide to purchase a house
- estimated earnings on the down payment and closing costs, assuming you invest this money instead of buying a home
- percentage of your monthly income spent on housing after tax savings and investment earnings are considered

	A	B	C	D	E	
1		HOME PURCHASE VS RENT ANALYSIS				
2						
3	TO BUY?			TO RENT?		
4						
5	Price of Home	102,500.00	Cash Available to Invest		13,407.00	15
6	Down Payment (%)	10	Annual Interest Rate		10.25	
7	Down Payment Amount	10,250.00	Times Compounded Annually		365	
8	Mortgage Loan	92,250.00	Amount at End of Year 1		14,853.90	16
9	Annual Interest Rate (%)	13.75	Est Monthly Earnings On:			
10	Term in Years	30	Cash available in E5		120.58	17
11	Monthly Loan Payment	1,074.82	Rent security at 5%		6.67	18
12	Annual Loan Payment	12,897.80				
13	Total Loan Payment	386,933.87				
14						
15	Closing Costs:		Initial Costs:			
16	Lender's charges	4,227.00	Agent's fee (1 month)		800.00	19
17	Title search & fees	825.00	Security (2 months)		1,600.00	20
18	Legal fees	750.00	Painting		245.00	
19						
20	Total Closing Costs	5,802.00	Total Initial Costs		2,645.00	21
21						
22						
23	YEAR 1		YEAR 1			
24						
25	Fixed Monthly Costs:		Fixed Monthly Costs:			
26	Mortgage payment	1,074.82	Rent		800.00	
27	Property taxes	155.00	Air conditioner		7.00	
28	Homeowner's insurance	25.00	Cable TV		12.00	
29						
30	Total Fixed Costs	1,254.82	Total Fixed Costs		819.00	
31						
32	Variable Monthly Costs:		Variable Monthly Costs:			
33	Utilities & fuel	167.00	Utilities		75.00	
34	Maint-house & grounds	80.00	Parking		22.00	
35	Other	75.00	Other		0.00	
36						
37	Total Variable Costs	322.00	Total Variable Costs		97.00	
38						
39	Basic Monthly Costs	1,576.82	Basic Monthly Costs		916.00	22
40						
41						
42	HERE'S THE BOTTOM LINE...		Monthly Gross Income		4,800.00	
43						
44	Immediate Cash Outlay	16,052.00	Immediate Cash Outlay		2,645.00	23
45	Buy Is More Than Rent:		Rent Is More Than Buy:			
46	Monthly	660.82	Monthly		0.00	24
47	Annually	7,929.80	Annually		0.00	25
48	Buy as % of Gross Income	12	Rent as % of Gross Income		19%	26
49	Est Tax Savings, Monthly	344.35	Estimated Earnings		127.24	27
50	Adjusted Buy, % of Gross	14	Adjusted Rent, % of Gross		18%	28
51						

Figure 1. Completed purchase-versus-rent AppleWorks spreadsheet.

In this session, you'll enter the costs and formulas associated with home ownership (left column); next month you'll enter the costs and formulas associated with renting (right column).

MORTGAGE HUNTING

Let's say you decide to buy, and start looking around for financing. A lenders' yardstick says a family can spend 28 to 33 percent of its monthly gross income on a mortgage, property taxes, insurance, heat, utilities, and maintenance. Closing costs are estimated at a hefty 7 to 8 percent of the loan amount for a house or condominium and 3 to 5 percent for a cooperative.

All mortgages are not created equal, and terms and rates vary a lot from lender to lender. Shop around. Lenders must tell you, in writing and before you sign an agreement, the *finance charge* and the *annual percentage rate* (APR) on your loan.

The finance charge is the amount you pay in interest and for such costs as mortgage insurance and origination fees, called *points*. Each point is equal to 1 percent of the loan. If a lender charges a 3-point origination fee, for example, you pay an additional 3 percent of the mortgage amount.

This finance charge — interest, insurance, points, and so on — is then converted to APR, the relative cost of credit on a yearly basis. APR is your key to comparing costs, regardless of the amount of the loan or how long you have to repay it.

You could be making the biggest financial commitment of your life, so get a well-rounded education in mortgages before you take that final step.

GEARING UP

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

• **Horizontal lines.** In cell A2, type quotation marks to tell AppleWorks that it should treat the next character, an equal sign, as text. Then 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). Type **T** (for *To clipboard*) and hit Return to confirm *Rows*. Move the cursor up twice to highlight rows 3 and 2, and hit Return again. Now place the cursor on A21 and press OA-C. This time, type **F** (for *From clipboard*). Note that the lines below move to rows 22 and 24.

Now copy only the single line to the clipboard: Place the cursor on A23, press OA-C, type **T**, and hit Return twice. Place the cursor on A14, press OA-C, and type **F**.

Finish entering the long lines by copying the double line from row 2 or 22 to the clipboard the same way, then from the clipboard to rows 41 and 51.

• **Vertical line.** The vertical line in column C separates the two sides of the spreadsheet. The character that generates this line shares the backslash key to the right of the spacebar. Press OA-1 to jump the cursor to row 1, then move the cursor to C3. Now enter the line: Type quotation marks, type the vertical character, and press Return.

Next copy the character down column C: Leave your cursor on C3. Press OA-C and hit Return twice (to confirm *Within worksheet* and the *Source*). Move the cursor to C4 and type a period. Press OA-9 to jump to the bottom of the spreadsheet, then Up Arrow once to highlight through C50. Hit Return.

• **Column width.** Press OA-Left Arrow to skip to column A, then OA-L to access the *Layout* screen. Type **C** (for *Columns*) and press Return. Type **C** (for *Column width*), press OA-Right Arrow 15 times (to increase the width of column A from the default nine characters to 24), and hit Return again.

Now widen column B: Move the cursor to column B and press OA-L. Type **C**, press Return, and type **C** again. Press OA-Right Arrow three times (to increase the width to 12 characters) and hit Return again. In the same way, on your own, reduce column C to one character (press OA-Left Arrow eight times); increase column D to 25 characters (press OA-Right Arrow 16 times); and increase column E to 12 characters (press OA-Right Arrow three times).

```
=================A=================B======C==========D================E======
   1|                        HOME PURCHASE VS RENT ANALYSIS
   2|=============================================|=============================
   3|TO BUY?                                     |
   4|---------------------------------------------|-----------------------------
   5|Price of Home                      102500|
   6|Down Payment (%)                       10|
   7|Down Payment Amount                      |
   8|Mortgage Loan                            |
   9|Annual Interest Rate (%)             13.75|
  10|Term in Years                          30|
  11|Monthly Loan Payment                     |
  12|Annual Loan Payment                      |
  13|Total Loan Payment                       |
  14|---------------------------------------------|-----------------------------
  15|Closing Costs:                           |
  16| Lender's charges                    4227|
  17| Title search & fees                  825|
  18| Legal fees                           750|
  19|                                 ---------|
  20|  Total Closing Costs                    |
  21|                                         |
  22|=============================================|=============================
  23|YEAR 1                                   |
  24|---------------------------------------------|-----------------------------
  25|Fixed Monthly Costs:                     |
  26| Mortgage payment                        |
  27| Property taxes                       155|
  28| Homeowner's insurance                 25|
  29|                                 ---------|
  30|  Total Fixed Costs                      |
  31|                                         |
  32|Variable Monthly Costs:                  |
  33| Utilities & fuel                     167|
  34| Maint-house & grounds                 80|
  35| Other                                 75|
  36|                                 ---------|
  37|  Total Variable Costs                   |
  38|                                         |
  39|  Basic Monthly Costs                    |
  40|                                         |
  41|=============================================|=============================
  42|HERE'S THE BOTTOM LINE...                |
  43|                                         |
  44|Immediate Cash Outlay                    |
  45|Buy Is More Than Rent:                   |
  46| Monthly                                 |
  47| Annually                                |
  48|Buy as % of Gross Income                 |
  49|Est Tax Savings, Monthly                 |
  50|Adjusted Buy, % of Gross                 |
  51|=============================================================================
```

Figure 2. Entries in home-purchase section.

• **Entries.** Referring to **Figure 2**, enter labels and numbers. To save a keystroke after each entry except the last, don't press Return; just move to the location of the next entry. Indent one space for labels that fall under a general heading (such as *Lender's charges* in A16 under *Closing Costs* in A15); indent two spaces for totals (such as *Total Closing Costs* in A20 and *Basic Monthly Costs* in A39). To indent, type quotation marks and press the spacebar the proper number of times before typing.

• **Short lines.** In B19, type quotation marks, press the spacebar twice, type nine minus signs, and move the cursor to B29. Again, type quotation marks, press the spacebar twice, type nine equal signs, and press Return. Do the same in B36. (Enter each short line separately — you can't use the Clipboard to copy individual entries.)

• **Formats.** Set a standard value of *Commas* with two decimal places: Press OA-V and hit Return (to confirm *Value* format). Type **C** (for *Commas*), type **2** (for two decimal places), and hit Return. Change the two-decimal-place format in B6 (the down-payment percentage) back to no decimal places: Place the cursor on B6 and press OA-L. Press Return twice (to confirm *Entry* and *Value* format). Type **C** (for *Commas*) and hit Return to confirm **0** (zero) decimal places. Do the same in B10 (*Term in Years*).

Other numbers need percent signs: In B48 (*Buy as % of Gross Income*), press OA-L and press Return twice. Type **P** and press Return. Do the same in B50 (*Adjusted Buy as % of Gross Income*). Of course, the percent signs won't appear until there are values in these cells.

Now center the label in A3: Place the cursor on A3 and press OA-L. Press Return (to confirm *Entry*) and type **L** (for *Label* format). Type **C** (for *Center*). Center the label in A23 the same way. Now that you've finished the setup steps, press OA-S to store the spreadsheet on disk.

HOME-PURCHASE FORMULAS

Enter the home-purchase formulas in the highlighted cells shown in **Figure 1**. Place the cursor on the cell receiving the formula, type it, and press Return.

The SUM formulas in B19, B30, and B37 include the cell directly above the first number in the list and the cell directly below the list. That way, if you insert any rows between these points, AppleWorks will adjust the cell references in the formulas to include the new rows.

FORMULA 1: Home-Purchase Down-Payment Amount. Formula 1 multiplies the price of the home (B5) by the down-payment percentage (B6) and enters the down-payment amount in B7.

Cell location: B7

Formula: +B5*B6/100

Now protect Formula 1: Leave the cursor on B7, press OA-L, hit Return, and type **PN** (for *Protection Nothing*). Be sure to protect every other formula as soon as you create it.

FORMULA 2: Mortgage Loan. Formula 2 subtracts the down-payment amount (B7) from the price of the home (B5) and enters the amount of the mortgage loan in B8.

Cell location: B8

Formula: +B5–B7

Remember, protect each spreadsheet formula, including this one, as you create it.

FORMULA 3: Monthly Loan Payment. Formula 3 calculates the constant monthly payments for a fixed-rate mortgage based on annual interest rate (B9), term in years (B10), and loan amount (B8). Formula 3, which uses the PMT function available in AppleWorks 3.0, converts the term in years to months, and the annual interest rate to a monthly percentage.

Cell location: B11

Formula: @PMT(B9/1200,B10*12,–B8)

FORMULA 4: Annual Loan Payment. Formula 4 multiplies the monthly loan payment (B11) by 12 and enters the annual loan payment in B12.

Cell location: B12

Formula: 12*B11

FORMULA 5: Total Loan Payment. Formula 5 multiplies the annual loan payment (B12) by the term in years (B10) to produce the total loan payment in B13.

Cell location: B13

Formula: +B12*B10

FORMULA 6: Total Closing Costs. Formula 6 adds the lender's charges (B16), title search and fees (B17), and legal fees (B18) to give you total closing costs in B20.

Cell location: B20

Formula: @SUM(B19.B15)

First, protect Formula 6. Now copy it to a cell where it can add three other items (AppleWorks copies the protection, too): Press OA-C and hit Return twice. Move the cursor to B30 and hit Return again. AppleWorks highlights *B19* on the entry line at the bottom of the screen and asks whether B19 is a *No change* (absolute) or *Relative* cell reference in its new location. Both B19 and B15 are relative references, so press **R**. The result in B30 is *180.00*.

Formula 6 can also add the three items under *Variable Monthly Costs*: Leave your cursor on B20. Press OA-C and press Return twice. Move the cursor to B37, press Return, and press R.

FORMULA 7: Fixed Mortgage Payment. Formula 7 doesn't calculate anything; it just copies the monthly loan payment (B11) to the fixed-monthly mortgage-payment cell (B26).

Cell location: B26

Formula: +B11

The amount in B30 now matches **Figure 1**.

FORMULA 8: Basic Monthly Costs. Formula 8 adds the total fixed costs (B30) and total variable costs (B37) during the first year to get the basic monthly cost in B39.

Cell location: B39

Formula: +B30+B37

FORMULA 9: Immediate Cash Outlay. Formula 9 adds the down payment (B7) and total closing costs (B20) to determine the money you need immediately to buy a home (B44).

Cell location: B44

Formula: +B7+B20

FORMULA 10: Buy Is More than Rent, Monthly. Formula 10 calculates the dollar difference between buying and renting. The IF function produces one of two possible answers. The *Test* statement subtracts the basic monthly cost of renting (E39) from the basic monthly cost of buying (B39). If the difference is greater than zero (if buying costs more than renting), the *Then* statement enters the difference in B46. If buying costs less than or is equal to renting, the *Else* statement enters a zero.

Cell location: B46

Formula: @IF(B39–E39>0,B39–E39,0)

Cell E39 is empty, so for the time being the result in B46 is *1,576.82*, not the amount in **Figure 1**. When you enter the formulas in the rent section, the results of this formula and other formulas in the buy section will agree.

FORMULA 11: Buy Is More Than Rent, Annually. Formula 11 multiplies the monthly difference between buying and renting (B46) by 12 to give you the annual difference in B47.

Cell location: B47

Formula: 12*B46

Formula 11 refers to cell B46, so the amount it produces for now is *18,921.80*.

FORMULA 12: Buy as Percent of Gross Income. Formula 12 calculates the percentage of your gross income (E42) spent on the basic monthly costs of home ownership (B39) and enters the result in B48.

Cell location: B48

Formula: +B39/E42

Formula 12 has no gross income to work with yet, so it enters *ERROR*.

FORMULA 13: Estimated Tax Savings, Monthly. Formula 13 calculates the potential monthly tax savings derived by deducting property taxes and mortgage interest from your taxable income. During the first year, mortgage payments consist almost entirely of interest, which makes the monthly loan payment convenient to work with. Assuming a tax bracket of 28 percent, the formula calculates 28 percent of the monthly loan payment (B11) plus the property taxes (B27) and enters the result in B49.

Cell location: B49

Formula: .28*(B11+B27)

FORMULA 14: Adjusted Buy, Percent of Gross. Formula 14 calculates the percentage of gross income spent on a home purchase after tax savings (B50), so that you can gauge the tax savings' impact. The formula subtracts the estimated monthly tax savings (B49) from the basic monthly costs (B39) and divides the result by the monthly gross income (E42).

Cell location: B50

Formula: (B39–B49)/E42

Formula 14 has no gross income to work with yet, so it also enters *ERROR*. Now store the formulas on disk: Leave your cursor on B50 and press OA-S.

Now press OA-O (*Printer Options*). HOMEQUEST is 74 characters wide, so leave the standard ten characters per inch. You do have to adjust the margins, though. Type **LM** (*Left Margin*) and press Return. Now type **.3** and hit Return again. Next type **RM** (*Right Margin*) and hit Return. Type **.3** and hit Return again. Press OA-S to save to 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 @), and hit Return twice. The printer whirs, and there's the home-purchase section of the spreadsheet.

Next month, you'll enter information in the rental section, so that you can compare housing apples and oranges to determine which option suits your pocketbook's palate best. ❑

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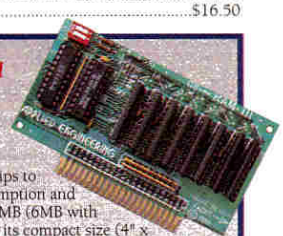

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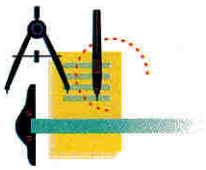

PRESS ROOM

CARD TRICKS

For personalized messages and greetings, Publish It! works DTP magic.

By CYNTHIA E. FIELD, Ph.D.

BRODERBUND'S **PRINT SHOP** HAS been around so long it's practically older than the rocks. Few would argue that this software classic laid the foundation for desktop publishing (DTP) as we know it today. But while The Print Shop in its many incarnations is easy to learn and convenient to use, the program lacks the nearly unlimited layout flexibility that characterized another (now discontinued) all-time favorite — **Print Magic** from Epyx.

From letters I receive, I can tell you that although Print Magic fans are chagrined at the loss of their favorite greeting-card program, they're an undeterred lot. At least one of them, Vivian Lynes, has found a way to coax Timeworks' **Publish It! 4** into serving as an extraordinarily capable substitute for creating stylish, personalized greeting cards.

HOT STUFF

In Lynes' words, "With thermography — or *embossing*, as it's still called in some quarters — a renewed interest in making greeting cards with Publish It! has arisen." (For thermography instructions and sources of materials, see "Hot Stuff," Press Room, January 1992, p. 56.)

Now retired, Lynes divides her time between homes in British Columbia and Arizona. "My Apple IIGS crosses the border twice a year as we change residences," she notes. In the States, Lynes is a member of the AZApple Club, a Phoenix-area Apple user group. She credits comember Pat Kern with inspiring her to develop and share the Publish It! card-making method we'll explore this month. Kern also helped carry out the project. Among other things, she electronically scanned some of the noncopyrighted clip art that Lynes incorporated into her samples, including the Christmas card in **Figure 1**.

Making greeting cards with Publish It! has always been possible, but never has it been this easy. Early versions of the program couldn't flip imported graphics vertically or horizontally, so you had to print half a card, then turn the paper around and reinsert it into the printer to do the other half. (For a description of this two-step method, see "Easter Parade," Press Room, March 1989, p. 71.) Now, thanks to Publish It! versions 3 and 4, designing a birthday card, say, then printing all four panels in one pass is a piece of cake. Here's how.

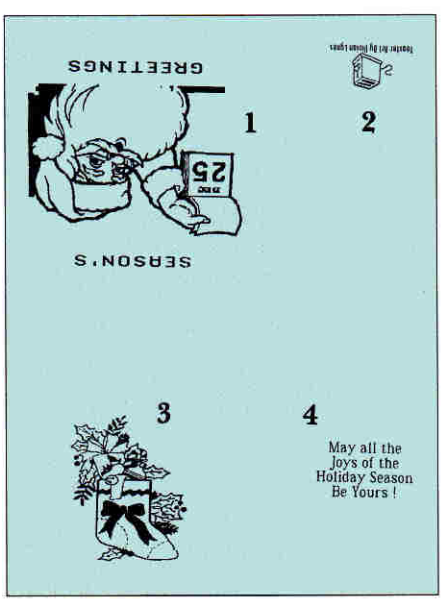

Figure 1. Callouts for Vivian Lynes' Christmas card. 1. Front, graphics flipped vertically and horizontally. 2. Back, "credits" flipped vertically and horizontally. 3. Inside left, graphics imported without flipping. 4. Inside right, text frame holding message.

Start up Publish It!, and press Open apple-4 (OA-4) to access *Size to Fit* mode (or pull down the *Special* menu). Pull down the *Page* menu and choose *Set Page Size*. Instead of the default 8-by-11-inch page size, select 8.5-by-11. Lynes says the resulting layout area represents a finished card accurately, making it easy to position text and graphics appropriately.

Select the line tool and draw a vertical guideline of any length. Make sure the line is selected — shows a square black handle at either end. (If an object doesn't have handles, select it by clicking on it with the pointer.) Press OA-M, or pull down the *Objects* menu and choose *Show Specifications*.

Enter the correct dimensions for the vertical line as listed in the accompanying **Table**. Be sure to click on the *Don't Print* check box before exiting the *Show Specifications* dialog box. That way, the guideline won't show when you print your greeting card. Draw a horizontal line with the line tool and establish its size and position.

The two lines divide the page visually into four quadrants, each representing a panel in your card-to-be. The upper-left quadrant is the front; the upper-right quadrant is the back; and the two lower quadrants are the inside left and inside right. Save this file as a template to use as a starting point whenever you create a new card design. (Lynes uses the filename **CARD.TEMPLATE**.) Then invent a unique filename for saving each completed card.

Any text or graphics you incorporate into the lower two quadrants will automatically be oriented properly when you fold the finished card. Objects in the upper quadrants, however, will be upside-down. Therefore, you'll have to flip those

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objects vertically in the template. To visualize it, take a blank piece of 8.5-by-11 paper and fold it as you would a greeting card: first the top half down over the bottom half, then the left side over the right side. The card should open at the right. Now draw a stick figure and some text on the front of the card. Open the card and doodle something on the two inside panels. On the rear panel print credits.

Unfold the sample card, and place the flattened paper so that the front panel is at the upper left. As you can see, the picture you sketched in this panel is upside-down. Any text you printed is both upside-down and backwards. Use this rough copy as a quick reference when creating your first few Publish It! 4 cards.

On your Apple II, select the graphics-frame tool and draw a box in the upper-left quadrant, or front panel, of your card. Pull down the *File* menu and choose an appropriate *Import Picture* option. Locate and choose the illustration you'd like to use in your card. When it appears in the cropping screen, press the **V** key to flip it vertically. Frame the now-upside-down picture with the cropping box, then press the Return key to place it. Although the illustration appears upside-down on the computer screen, it will look fine after you fold the finished card.

Graphics images are great, but most greeting cards also feature a message on the front. Publish It! 4 can't flip text, just double-hi-res graphics. But that's a mere inconvenience for people like Vivian Lynes. She creates greetings such as *Happy Birthday*, *Season's Greetings*, and *Congratulations!* in her favorite graphics program, **TimeOut Paint** from Beagle Bros (distributed by Quality Computers). This design software comes in the same package as **TimeOut SuperFonts**, an AppleWorks 3.0 enhancement that prints text in attractive typefaces and styles.

Broderbund's **Dazzle Draw** and other 8-bit Apple II paint programs will also work. Whatever software you choose, select its graphical-text tool. (It usually looks like an uppercase *A* or *T* in a paint program's tool palette.) Type a message such as **HAPPY BIRTHDAY** and save it in double-hi-res format.

When you import graphics messages into the upper-left or upper-right quadrant of your Publish It! card template, press **V** and then **H** in the cropping screen. These commands flip graphical text both vertically and horizontally, so that your card will read correctly after you fold it.

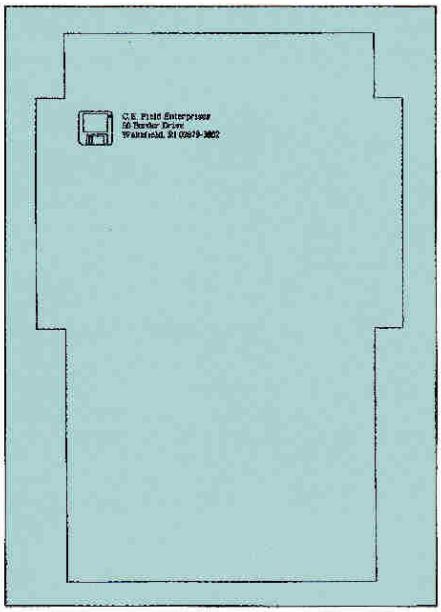

Figure 2. Greeting-card envelope template for Publish It!.

Life gets easier when you design the inside, because you don't have to flip illustrations or text. Moreover, you can add ordinary text to these panels by drawing text frames and using either Publish It!'s resident fonts or public-domain GS fonts.

AN INSIDE MATTER

How about some handmade envelopes to match your Publish It! greeting cards? All you need are a pair of scissors, a glue stick, and a template (**Figure 2**) I created a few years ago with Publish It! 2. (Later versions of the program work just as well.)

As you can see from the accompanying **Table**, the envelope is composed of seven objects — four text frames and three rectangles. The text frames make up the envelope's body (front and back), its left and right side flaps, and its top sealing flap. Use the text tool to draw the first text frame. If the object has no handles, select it with the pointer. Then press OA-M to pop open the object's *Show Specifications* dialog box, and enter the dimensions shown in the **Table**. Be sure to click on the *Frame Borders* check box. Continue this way until you've drawn all four text frames.

Parts of the text frames will constitute the periphery of your envelope, and you'll need them for cutting the envelope out. Other parts, however, aren't needed and will just become unsightly lines at the envelope folds — unless you do something to hide them. Fortunately, it's easy to cover these lines by creating three opaquing rectangles.

Select the filled-box tool, pull down the *Objects* menu, and choose *Set Pen Pattern*. Click on the white color swatch. Pull down the *Objects* menu again and select *Set Fill Pattern*. Click on the white color swatch.

Draw a rectangle of any size and, while its handles still show, press OA-M, or pull down the *Objects* menu and select *Show*

OBJECT	LEFT START	TOP START	WIDTH	HEIGHT	OTHER
CARD TEMPLATE					
Rules					
vertical	4.250	0.000	n/a	11.000	don't print
horizontal	0.000	5.500	8.500	n/a	don't print
ENVELOPE					
Text Frames					
body	1.254	1.912	5.554	8.750	frame borders
top flap	1.231	0.761	5.591	1.162	frame borders
left flap	0.725	1.965	0.500	4.125	frame borders
right flap	6.816	1.965	0.500	4.125	frame borders
Opaquing Rectangles					
top flap	1.255	1.795	5.543	0.273	white pen and
left flap	1.147	1.965	0.194	4.127	fill patterns for
right flap	6.716	1.969	0.187	4.123	all rectangles

Table. Specifications (in inches) for card and envelope templates; n/a = not applicable.

Specifications. Enter the specifications shown in the **Table**.

Use the text tool to create a text frame that begins about a quarter inch below the top sealing flap and about a quarter inch in from the left flap. Click the I-beam tool inside the text frame, select a typeface (*Font* menu), and type your return address. If you'd like to add an illustration, use the graphics-frame tool to reserve the area and then import your favorite clip art. Or make envelopes to match your cards by choosing and resizing the artwork you incorporated into the card's design.

For a personal touch, add an address-panel text frame and enter the recipient's name and address directly onto your computer-crafted envelope. Save each design with a unique filename. Print the envelope and use a paper cutter or scissors to snip it out. Place it on a flat work surface. Fold the body so that its bottom edge lines up evenly with the top edges of the two side flaps. Fold the flaps carefully toward the body and glue them.

Stockpiling greeting-card envelopes for later use is easy, too. Just print a copy of your finished design and photocopy it as many times as you like.

An envelope template has other practical uses, as well. Print a copy on paper, glue the whole page to a piece of thin cardboard, and use an X-Acto or other hobby knife to cut out the cardboard template. Whenever you want to create unique envelopes, trace the cardboard template onto gift wrap, old road maps, or other colorful paper.

FREE TO GOOD HOMES — AND SCHOOLS

This column is the last in our monthly Press Room series. You can continue to enjoy DTP activities, however, with **Publish It! Projects**, a series of disks I've donated to the public domain. They're compatible with Publish It! versions 2, 3, and 4. Each disk includes one or more templates with step-by-step instructions, ready-to-print samples, double-hi-res public-domain clip art, attractive Publish It! fonts, and tutorials, tips, and techniques.

Most of the templates on my Publish It! Projects disks have never appeared in Press Room. (This month's envelope template is an exception.) Among the projects I most enjoyed developing are name badges (Volume 2), "while you were out" forms (Volume 5), restuarant-style gift certificates and "no smoking" name tents (Volume 6), personalized memo pads and business cards (Volume 7), and 19-cent postcards (Business Pack 1).

Your local Apple II user group or favorite on-line service may offer the disks. If not, contact **Christella Enterprise** or **Moonlight Software**. (See the accompanying "Product Information" box for addresses.) I've donated complete sets of Publish It! Projects to these two libraries.

Thanks for spending time with us in Press Room, for sharing your template ideas, and for fostering the Apple II spirit. Upcoming issues of *inCider/A+* will continue to feature interesting productivity and desktop-publishing projects for a variety of programs — so stick around, and, meanwhile, keep those (homemade) cards and letters coming. ❑

CONTRIBUTING EDITOR CYNTHIA E. FIELD IS A FREE-LANCE JOURNALIST SPECIALIZING IN COMPUTER-RELATED TOPICS. WRITE TO HER AT 60 BORDER DRIVE, WAKEFIELD, RI 02879. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

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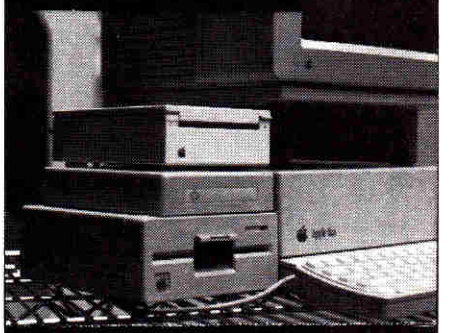

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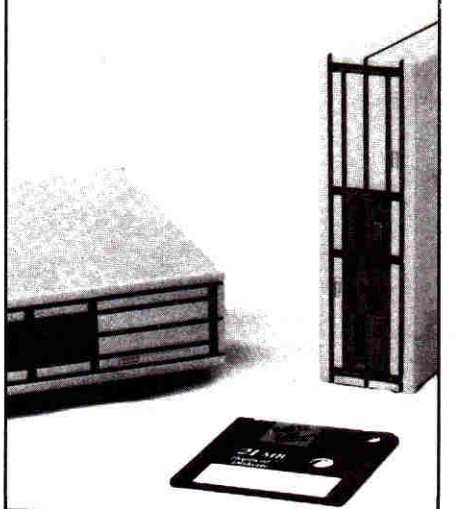

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HYPERACTIVITY

MAGNIFICENT OBSESSION

Get hooked on hypermedia — it's fun, it's educational, it's the ideal tool for home, school, and business presentations.

By DEAN ESMAY

LET'S FACE IT — HYPERMEDIA converts can be a royal pain in the neck. Read that again, because I mean it. There are people in this world (especially the computer press) who talk about hypermedia as if it's some kind of quasi-mystical state of higher electronic existence — the greatest technological advancement since the automobile. And they regard anyone who isn't already a devoted user as some kind of Neanderthal.

Meanwhile, there's a rumbling among the pagan hordes — and it's getting louder. A number of people out there are growing more and more hostile — they're saying they're sick of hypermedia being "shoved down [their] throats." In other words, it seems that a lot of hypermedia enthusiasts, having latched onto a good thing, have become so obsessed with the subject they're starting to get on other people's nerves.

So what's the real story? Is there any substance behind the hype? Hypermedia may well be the most ridiculously aggrandized phenomenon to hit the computer world in the last few years — but that doesn't mean it's not an important development in software technology. Hypermedia's significance lies in its adaptability: Simply put, it's a very practical tool, perfectly suited to a wide variety of projects for home, school, and small business. It can even be a platform for the enterprising software developer. In fact, there are very few people who *can't* find some use for hypermedia.

And here's the best-kept secret: It's a lot of fun. Anyone can use it — preschoolers, retired people looking for a hobby, and anyone in between. What we hope to do in HyperActivity is help you understand why hypermedia is enjoyable, educational, and useful all at the same time, while avoiding the kind of hype that makes the whole subject seem mysterious or overblown.

PUTTING IT ALL TOGETHER

Just what do we mean by *hypermedia*? Anything that communicates an idea can be considered a *medium* — art (visual images), books and magazines (the written word combined with images), radio (the spoken word), television (the spoken word combined with images), music, poetry, dance, even facial expressions.

The term *multimedia* suggests several types of media used separately, but all focusing on one particular topic. In your science classroom, for example, you might combine a film strip on photosynthesis with a lecture and discussion, a chapter in the textbook, and a hands-on experiment measuring sugar and oxygen production in live plants.

Hypermedia is a little different. To communicate information, it combines the features of several different types of media into one: text, sound, music, photos, computer painting and drawing, video, and animation all in one place. The other defining standard of this hybrid medium is *nonlinear access:* If a hypermedia creation is designed right, you can explore information in whatever direction you want.

For example, unlike reading a chapter in a book from beginning to end, or even searching through an index to find the sections you want, you can instead move about from place to place within a hypermedia presentation instantly. It doesn't present information in any strict order; rather, the computer offers you a multitude of possible paths and you decide the direction in which you want to explore.

For instance, let's say you're looking at a hypermedia presentation on Saudi Arabia. On screen you might see a map of that nation and a message saying *Tell me about the government*, another option saying *Tell me about the religion*, and a third saying *Tell me about the culture*. If you point to *Tell me about the religion*, you might hear a brief chant, accompanied by a picture of a mosque and a short essay on the customs and history of Islam in Saudi Arabia. Options on that screen might include *Tell me more about the origin of the religion*; *Now tell me about the government*; *Now tell me about the culture*; and maybe *Go back to the beginning*. Whatever branch you pick, that's where you go.

Early authoring software featured this type of branching exploration in text-only form, and we should note here that you can still use today's hypermedia programs to create text-only presentations if you like. *Hypertext* is a collection of screens showing standard written information, with certain words linked dynamically. It's hypermedia without the frills — a single "hyper medium," if you will.

For example, you might decide you want to read about Eleanor Roosevelt, so you point to her name on screen to call up an essay on her life. While you're reading, you see a reference to her husband, Franklin Roosevelt, in the middle of a paragraph. You decide you want to know more about him, so you point to his name, right there in the middle of the paragraph, and the program transports you instantly to a screen showing biographical infor-

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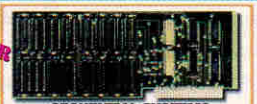

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mation for Franklin Roosevelt. And maybe in the middle of that biography you see a reference to the Great Depression, and that interests you, so you point to it and voilà — you're now reading about that era of American history.

Hypertext features nonlinear exploration, but it sticks to just one medium — text. The great strength of full-fledged hypermedia is its *immediacy* — its ability to let you explore a subject more directly and in greater depth through associated sounds and images as well as text, if you want to.

THE BASICS

While future installments of HyperActivity will feature hands-on projects for home, classroom, or office, let's begin this month by explaining the fundamental structure of a hypermedia presentation.

Each primary work screen, containing text, graphics, and options to call up sound or music, is called a *card*. Related cards, or screens, on a particular topic are put together in one single file, called a *stack*. Certain data is presented on one card, different information on another card, and so on, like a stack of cardboard index cards you'd flip through.

Navigation through this collection of cards, and any associated sound and graphics examples, is simple. If you've used other Macintosh or IIGS programs, you're already familiar with *buttons* — menu-style items you click on with your mouse to indicate choices such as *yes*, *no*, *save*, or *cancel*. In hypermedia files, clicking on buttons calls up sounds or graphics related to your card, or takes you to other cards in the same stack.

Looking back at our Saudi Arabia stack, the screen displaying the map of the country is one card, the screen showing information on religion is another card, the screen with cultural data is yet another card, and they're all in one file called a stack. You use buttons on the cards to move about within the stack. Easy enough, right?

TOOLS OF THE TRADE

So how do you get started? One way to take advantage of hypermedia is to boot up a stack created by another author (available either from a third-party company or in the public domain). It's just like running any kind of program — to use it you don't have to know anything about how it works. If you want, you can just think of such stacks as regular computer programs, the only difference being that you may need a hypermedia program to run them. It's that simple.

The real fun, though, comes in making your own stacks, or modifying stacks that are already out there. Most hypermedia authoring software is amazingly easy to use — even elementary-school kids can design coherent stacks.

In the Apple world, there are three primary hypermedia authoring systems — **HyperStudio** for the IIGS from Roger Wagner Publishing; Apple's **HyperCard**, in versions for the IIGS and the Macintosh; and the 8-bit program **Tutor-Tech** from Techware Corporation, for the IIe, IIc/IIc Plus, IIGS, and Macintosh LC/LC II (with Apple II Card installed).

Other programs on the market include Wings for Learning's **MediaText** for the Mac; Tracy Valleau's **Nexus** for the IIGS; Scholastic's **Super Story Tree** and **HyperScreen**, and **StoryWorks** from TI&IE, three 8-bit programs. Also available are the newcomers **LinksWare** (by Tracy Valleau) for the Mac and **Hypermedia Tools** for Apple II LogoWriter. Add-on products, such as Triad's **HyperStuff Collection** (graphics and sounds for HyperStudio or HyperCard IIGS) and Cheshire Grin's **Stack Enhancers** (authoring tools for Mac HyperCard), are also starting to make an appearance.

In upcoming columns, we'll address some of the differences among the three most common environments, but for the next few months we'll focus on HyperStudio. It's currently the easiest to use and most popular hypermedia program for Apple II systems, and most of the concepts underlying it carry over quite well to both HyperCard and Tutor-Tech.

In our next column we'll tackle the process of creating our first stack. Remember, almost anyone — student, parent, teacher, hobbyist, small-business owner — can get something out of hypermedia. We'll show you the basics, teach you some tricks, and help you tap into your own creativity. Our goal is to get more people interested in one of the most exciting applications of personal computers. But don't say we didn't warn you — once it grabs you, pilgrim, you'll be hooked. ❑

DEAN ESMAY IS THE EDITOR OF *STUDIO CITY*, A BIMONTHLY HYPERMEDIA MAGAZINE ON DISK, PUBLISHED BY RESOURCE CENTRAL. HE'S ALSO CHIEF SYSOP OF GENIE'S APPLE II ROUNDTABLES. WRITE TO HIM C/O *INCIDER/A+*, 80 ELM STREET, PETERBOROUGH, NH 03458.

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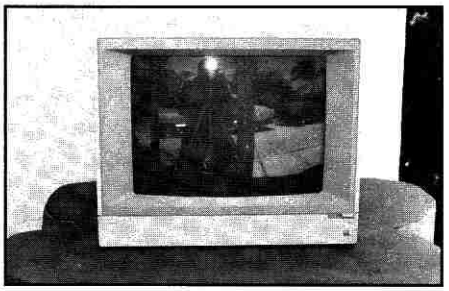

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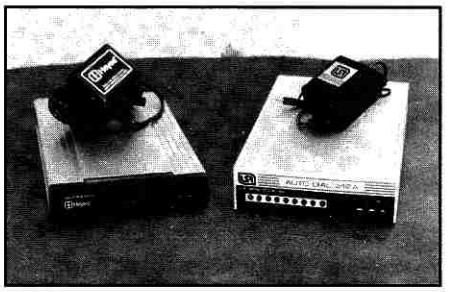

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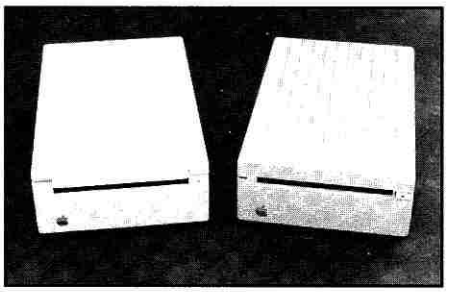

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standard SCSI ports on the back. The SCSI-ID selector is also on the back, a two-button clicking affair that in our tests responded predictably. The front panel looks like a standard floppy drive with an activity light-emitting diode (LED) and a manual-eject button. The fit and finish are acceptable, if utilitarian. A set of plug clips on one SCSI port refused to hold the cable snugly, and we're still looking for a green power LED that appeared in the manual's text but not on the case.

Typical of SCSI devices, the A-Hive Jr.'s installation was a breeze. If you want to include it in a SCSI chain, be sure you order the drive with its internal termination removed, or you'll be forced to put it at the end of the chain. Tulin seals the case with keyed screws rather than the standard Phillips-head variety to prevent user entry.

When used with an Apple IIGS, the Tulin drive requires a RamFast SCSI card and driver. Because of this, it hardly seemed fair to run this floptical through benchmarks made originally with an Apple II High Speed SCSI Card (see "Wanted: Hard Drives on the Run," July 1992, p. 40), so we went straight to Glen Bredon's ProSel-16 Disk Statistics to get a handle on how this beast performs.

The floptical drive was substantially slower than other hard drives we've tested on both linear and random reads, requiring 6 milliseconds per block for the first test and 68 milliseconds per block for the latter. This compares with roughly 1 to 2 milliseconds per block and 20 to 25 milliseconds per block for an average SCSI drive. The RamFast SCSI driver, however, is comparable to proprietary drivers from Zip Technologies and Applied Engineering. Thus, the required RamFast Card offsets some of the floptical's inherent torpidity. How much? Launching AppleWorks GS from the Finder under System 6 took about 20 to 30 percent longer than with a generic SCSI drive, and other operations (on both a Mac and a GS) showed a similar lag. The difference is hardly notable unless you're regularly spinning your drive for several minutes at a time.

Wash away any dreams you may have about bopping back and forth among your Apple IIGS, Mac, and IBM-PC with interchangeable high-density floppies. Even though the Tulin drive can read from and write to 21-megabyte, 1.44-megabyte, and 720K floppies, its low-level GS formatting is non-standard, and Mac formatting requires just the right driver. The Tulin manual is unequivocal when it tells you not to reformat your new high-density disks. If you want to initialize a disk, Tulin insists you use RamFast's *Partition* command on your GS, or the Mac formatting utility the company provides. Currently, 21-megabyte disks for this floptical are available only from Tulin, but they cost just $25. At that price, you can afford to put several hard drives on your desktop.

The aggressive pricing of these little storage bombs is your only hint as to the Tulin drive's potential. When it's up and running, it's easy to forget that you can pop in disk after disk and never run out of space. Pair this drive with an inexpensive 10- or 20-megabyte SCSI drive (as a base system disk) and you'll be the proud owner of a flexible, infinitely expandable system.

The Tulin floptical is perhaps the ideal add-on product for Mac owners with internal hard drives. We could say the same for Apple IIGS owners, but internal drives' proprietary interface cards may conflict with the RamFast card. That caveat aside, at $679, including disks, cables, and a top-notch SCSI card, Tulin's A-Hive Jr. floptical drive is a contender to watch for when the Oscars roll around.

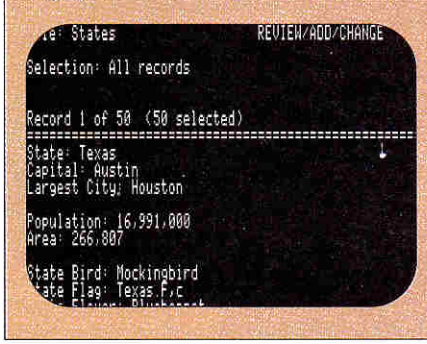
Cameron Crotty
Associate Editor

★ ★ ★ ★ ★

DB PIX

JEM Software
7578 Lamar Court
Arvada, CO 80003
(303) 422-4856

- AppleWorks 3.0 add-on utility
- adds graphics to database files
- requires AppleWorks 3.0
- $25



What's the use of a database file," Alice in AppleWorks might have wondered, "without pictures or conversations?" DB Pix can't make your database talk, but it will hang pictures on your computer's screen. It adds a simple Open apple-B command to AppleWorks to display a hi-res graphic on a separate screen, or a Print Shop graphic right on the database screen.

Place your cursor on a category containing the name of a Print Shop graphic; when you invoke the new command, it looks as though the picture is inserted, like a new category, into the text screen. Actually, that's the opposite of how DB Pix works: It takes a quick "snapshot" of the text screen, combines it with a Print Shop graphic, and displays the result just like any other double-hi-res picture. It's a nifty trick I'd never have caught onto if Randy Brandt, its author, hadn't revealed the secret.

Each kind of picture, double-hi-res and Print Shop, has its advantages. Double-hi-res lends itself to a catalog of images, because DB Pix can show a series of pictures one after the other, but not at the same time as database data. Print Shop format, at least on the database screen, is better suited to the combination of data and image.

For testing purposes, I created a quick-and-dirty database of the states of the Union. Then I just placed the cursor on *Alabama.f.c* and pressed Open apple-B, and the screen you see in the figure to the left appeared. To show the next screen, simply press the down-arrow key to move to the next record. I alphabetized the records in my file, but you can order them any way you prefer or select certain records. DB Pix works with selected records in the order in which they're arranged.

Note that the States database file has three graphics categories: *Print Shop Picture* (used here), *Color Picture*, and *State Flag*. The only limit on the number of pictures you can have in one record is AppleWorks' limit on the number of categories. To load a color picture, you must append a "c" to the file's name, as in *Texas.f.c*. To display a "negative," try *Texas.f.i*. You can also display inverse by hitting the spacebar while the picture's on screen.

PIX NITS

DB Pix works well and quickly from a hard disk or a RAM disk, but not without

INTRODUCING

TimeOut Grammar

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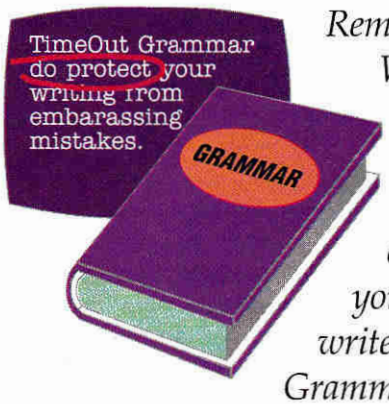

Remember when spelling checkers were considered inconvenient? Well... they were inconvenient. But now all word processors have built-in spell checking, and everyone uses them. It's the same with grammar checkers. Until now. New TimeOut Grammar adds built-in grammar checking to your AppleWorks word processing. 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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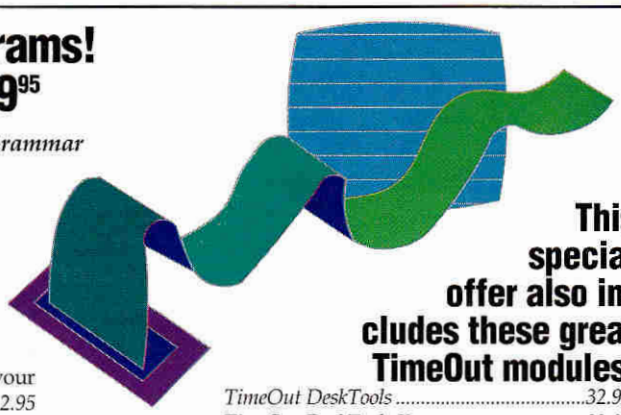

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some small reservations. One drawback is that you can't print or save a record with a picture, unless you have a program or hardware that can dump a screen to a disk file or printer. (I saved mine on a Mac LC, which creates pictures of Apple IIe screens effortlessly.)

Another quirk is that when you "escape" back to AppleWorks' *Review/Add/Change* screen, you're not looking at the database record of the picture you saw last — AppleWorks goes back to the screen where you started. You'll have to remember which record you wanted, and bring that screen up yourself. This limits your images' usefulness somewhat as a fast way to find a certain record in a file by eye.

You must also name your pictures in the database exactly as they are on disk. A program like Beagle Bros' Filemaster, which can create an AppleWorks database of the filenames on a disk, might come in handy here. Keep in mind that if you specify no pathname, DB Pix assumes that the pictures are in the same folder as the database file. But you can specify a pathname for each picture and keep it wherever you choose, as I did in the database's *State Flag* category.

I thought at first that finding interesting Print Shop or double-hi-res graphics would be a problem, but quick visits to America Online's software libraries and the *inCider/A+* special-products department proved me wrong. Programs such as Broderbund's Dazzle Draw and Baudville's 8/16 Paint, which you can use to create double-hi-res graphics, are still available, and impressed me with their power.

WHITHER PIX?

DB Pix's drawbacks are small when compared to what it does smoothly: bringing graphics to AppleWorks, unobtrusively. Like the best AppleWorks add-ons — such as JEM's PathFinder and Beagle Bros' TimeOut QuickSpell — once DB Pix has been installed, you'll never notice it's there. But will you wonder how you ever did without it?

One might turn Alice's question back at her and ask, "What's the use of a database with pictures?" I admit that when I first saw AppleWorks GS five years ago, I was speechless at the demonstration of its ability to incorporate Apple IIGS graphics into a database file. I remain dumb: I have yet to create a database with pictures. I use Claris' FileMaker Pro on the Macintosh, which also has the power to display pictures, but I never have.

You might do better to think of slide shows to which you might attach a database than databases that need pictures. For instance, it would be just busy work to add pictures of authors to *inCider/A+*'s database file of articles. But it might make sense to scan in a picture of each month's cover, and then create an issue database of articles and authors. Using DB Pix, an editor could then "flip through" all the back issues of *inCider/A+*, looking for a particular article, when all he or she knows is that it was in "the one with the telescope on the cover."

The human mind has an uncanny ability to recognize faces, magazine covers, constellations — just about anything visual. All but the biggest computers lack that ability. But computers, and database managers in particular, are better at finding data based on specific search categories than we are. Multimedia software such as DB Pix lets us do what we do well and computers do what they do well.

Paul Statt
Senior Editor

★ ★ ★ ★ ★

INFOCUS 1600LC PC VIEWER

InFocus Systems
7770 Southwest Mohawk Street
Tualatin, OR 97062
(800) 327-7231
(503) 692-4968

- 16-color LCD projection panel
- requires Apple IIGS or Macintosh II with 12-inch or 13-inch monitor
- $2695 1600LC color
- $1695 1600GS monochrome

Desktop monitors for the Macintosh come in many shapes and sizes — that is, unless you're trying to give a presentation. In that case, monitors come in exactly two sizes: itsy-bitsy and far too small. Spectacular charts and graphics fizzle in cramped quarters, and who wants to jostle for viewing position in front of a tiny computer screen?

Apple IIGS display options are even more limited. Compatible RGB or composite color monitors come only in the intimate — and illegible — 12-inch size. If you've ever tried to demonstrate a software program to a roomful of children from a single computer screen, you know that chaos usually erupts as everyone tries to vie for space next to the display. Youngsters miss half the presentation because screen objects are difficult to see.

Whether you're presenting in the boardroom or in the classroom, everyone must be able to see the show. You could hook up a 37-inch display — but it'll weigh in at 300 pounds, and, besides, who needs that expense? Liquid-crystal-display (LCD) projection panels provide a cheaper, lightweight alternative. These notebook-sized devices use light from a conventional overhead projector to cast an enlarged image from a computer monitor onto a wall screen. Many presenters and audiences prefer LCD-panel presentations over conventional overhead transparencies and slides, because the panels permit real-time interaction with the computer.

Deciding which LCD panel to purchase depends in part on your budget and your presentation needs. Your purse strings may make a monochrome decision for you, painting a picture in black and white. But if you can stretch the budget just a bit, InFocus Systems offers an affordable color alternative. The company sells a lightweight panel called the 1600LC PC Viewer, which projects up to 16 "real" colors onto a wall or screen.

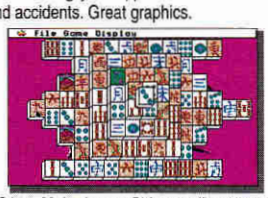
CONCABLETENATION

The 1600LC's scratch-resistant display area measures 8.2 by 6.2 inches. It features a resolution of 640 by 480 pixels and a 15:1 contrast ratio for crisp images. The device sits on a conventional low-wattage overhead projector, although model specifications claim it delivers fade-free presentations with overheads of up to 650 watts. It attaches to an Apple IIGS or a modular Macintosh (LC, LC II, IIx, IIcx, IIci, IIsi, or IIfx) color monitor via a Y-shaped cable. One arm connects to the computer's external-video port. The other attaches to the monitor's 15-pin video connector. The base of the Y-cable plugs into the LCD panel. You can also

Public Domain Software for only $3.50

IIGS GAMES

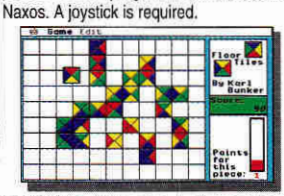
GS110 Milestones 2000: This game is based on an old French game. You have to play mileage cards to advance your own auto while stalling your opponent with flat tires and accidents. Great graphics.



GS165 Mah Jong: Chinese tile strategy game.

GS117 Star Trek Classic GS: A remake of one of the earliest computer games ever written. Fire your photon torpedoes and laser, do short range scans and use your warp drives to defeat Klingon and Romulan star ships.

GS103 & GS104 Cosmocade: On the first disk, you must Journey to Calibus in a fast-paced arcade style game. Disk two is called Naxos. A joystick is required.



GS157 Fun, Fun, Fun: A strategy game called Floortiles plus 19 other fun programs.

GS145 Sensei: A karate-style game by the FTA. Use a joystick to fight your way into a black belt.

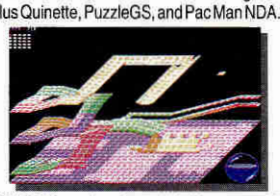
GS119 Columns 2.0: In this game which is similar to Tetris, you arrange falling blocks so that colors line up. Includes rock music background.

GS131 State-of-the-Art Games: This disk includes PlasmaLab 2, Xpurpose, Black Jack Tutor, From Beyond, FTA Plotting, Game Maker and Explorer GS.

GS129 Games, Games, Games: Cribbage, Rubik Cube, Poker Challenge, Solitaire NDA, Golden Bug, Elevators & Word Search.

GS118 Memory Card Game: Full color GS version of Concentration plus Wisconsin Rummy and Hearts.

GS137 Dr. Mario & Others: Tetris like game plus Quinette, PuzzleGS, and Pac Man NDA.



GS153 Bouncing 'Ferno: This game will remind you of Marble Madness as you attempt to bounce your way through a maze of ramps and elevated terraces. Brand new from the FTA.

GS30 Solitaire Card Games: Five different versions of solitaire including Casino, Slot Poker, Monte Carlo & Poker Solitaire.

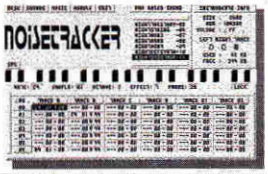
IIGS MUSIC

GS166 SoundSmith Jukebox: Plays both SoundSmith and NoiseTracker songs with an animated display.

SL01 MidiSynth™ Jukebox: This is the hottest music program available for the GS. Full orchestral sounds with unbelievable quality. You won't believe your ears.

SL02, SL03, SL04, SL05 & SL06: Six full disks of MidiSynth songs for the Jukebox program or System 6.0's synthLab disk.

GS53 SoundSmith: The best known music program for the IIGS will have you rocking.



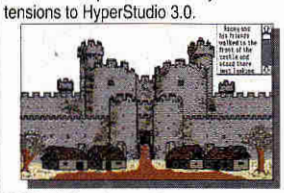
NT00 Noisetracker Version 1.0: An exceptionally fine music program from France.

NT02 thru NT17: Sixteen disks full of songs for use with Noisetracker.

HYPERSTUDIO

HS26 & HS27 Civil War Stack: Learn about the causes, the personalities and the history behind the U.S. Civil War. Great graphics.

HS48 Developer Pack: Write your own extensions to HyperStudio 3.0.



HS49 & HS50 Rocky Smith's Adventure - The Castle: A graphic adventure for use with 4th thru 6th grade students. In order to be successful in the adventure, the player must read, think and follow directions.

HS20 & HS21 Dinosaur Stack: Learn all about dinosaurs such as where they lived, their relative size and their diet.

HS45 Sound F/X: Digitized sound effects ready for use with HyperStudio. Beeps, drums, booms, barks, clangs and alarms.

HS18 & HS19 Washington D.C. Tour: Take your vacation in D.C. Visit the White House, the Pentagon and many other places.

HS09 Presidental Stack: Learn trivia about all the U.S. Presidents. Includes graphics.

HS08 HyperSpace: Two great stacks about the solar system and man's attempts to explore it. Sound effects and graphics.

ANIMATIONS

GS138 The Delta Demo: This program shows off the best of the IIGS.

GS135 Simple Animation Program: An animation workshop which you can use to design your own creations.

GS136 The SAP Wall: Based on Pink Floyd's "The Wall", this animation will rock you.

IIGS GRAPHICS

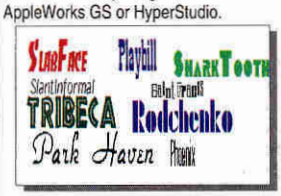
GS163 Political & Patriotic Print Shop GS Graphics: Eighty all-new graphics for P.S.

GS133 Religious Print Shop GS Graphics: Eighty color graphics for Print Shop.

GS07, GS08, GS29, GS35, GS77, GS78, GS100, GS106 & GS123 Graphics, Fonts and Borders for Print Shop GS: Nine completely different disks for use with Print Shop. Each disk contains at least 72 multi-color graphics and most have borders and fonts.

GS48 GIF Graphics: 75 colorful graphics in GIF format plus an all-new IIGS graphic utility program to view or convert them.

GS59, GS64, GS67, GS73, GS74, GS86, GS128 & GS132 Super Hi Res Clip Art: These 8 disks contain clip art converted from the Mac. They're great for use with AppleWorks GS or HyperStudio.



TF01 thru TF04: TrueType fonts for use with Pointless. Get rid of those "jaggies!"

GS148 DYA Exhibit A: A 3200-color slide show with 28 beautiful full-color graphics.

GS159 DreamVoir: View 3200-Color Pics.

GS96, GS116, GS125 & GS126 — 3200 Color Pictures: 4 disks full of the best 3200-color graphics.

IIGS UTILITIES

GS167 System 6.0 Desk Accessories: A collection of new and old DAs for System 6.0.

GS158 System 6.0 Special Effects: Spruce up your System 6.0 disks with these utilities.

GS120 Icon Mania: Everything you need to add new icons to the IIGS desktop. Two icon editors and hundreds of predrawn icons.

GS47 GS/OS Goodies: Our all-time best selling disk. This disk contains over 20 new desk accessories including ShowPic.

GS154 Gyrus Desktop Utilities: Everything a power user could want. Desk Accessories galore, including a calculator, a clock, a sound player, a Chinese Checkers game, Also an animated screen blanker, a SHR screen saver, a text file reader, utilities that load fonts & NDAs "on the fly". Much more!

GS151 Way Cool Jazz: Now you can jazz up your GS just like the experts do.

GS127 GS Productivity Pack: This disk contains two complete word processors, several desk accessories and El Macro.

IIe & IIc PROGRAMS

R07 AppleWorks Patcher: Fix up your AppleWorks 3.0 with these patches.

H73 CEEMAC: Kinetic art generator.

G46 Columns IIe: A Tetris-like game in which you rotate gems to match up columns.

G38 Arcade Games: Cu*bit, Night Crawler, Car Dodger, Slots and Avalanche.

G43 Flobynoid: Clone of Arkanoid.

G22 Public Domain Defender: Fly your space craft and shoot down aliens who are trying to kidnap humans from the ground.

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connect the panel to a "compact" Mac (Plus, SE, SE/30, Classic, or Classic II) with an internal video adapter. Cable connectors are clearly labeled, making setup a breeze.

This arrangement lets you face your audience as you work. You can view cursor movements and keyboard entries directly on the monitor screen as the projected image displays on a wall or wall screen. I tested the unit with an Apple IIGS. The portion of the cable that extends from panel to computer measures more than 5 feet. Unfortunately, the other branch measures less than a foot. This means the projection panel and its companion overhead projector must sit on a table right next to the computer monitor to accommodate simultaneous monitor and wall-screen display. If you're cramped for space, you'll have to limit projection to wall display.

COME GATHER 'ROUND, PEOPLE . . . .

The 1600LC panel lacks an on/off switch; it powers on automatically after you connect the supplied 12VDC transformer to a wall socket. Once a video connection is established, the panel captures a transparent image of the computer-screen display. Light from the base of the overhead radiates up through the transparent panel, reflecting the picture onto the projector's mirror and lens assembly. The image projects from the mirror onto a wall or large display screen.

A quiet, built-in cooling fan safeguards against picture distortion owing to concentrated heat build-up from the overhead projector. Viewing controls (a 10-function keypad) on the panel itself let you adjust images for optimum tint, vertical and horizontal positioning, 8- and 16-color palettes, tracking, and more. Some buttons have a dual function when activated along with the unit's shift key; mastering dual button action takes some time, though. The panel lacks brightness and contrast controls, and doesn't ship with a remote control that would let you fine-tune viewing adjustments from anywhere in the room.

The 1600LC can deliver a color range of 16 shades, thanks to InFocus' proprietary SaBRE technology. The unit projects a clear, sharp image, although you'll be disappointed if you expect display hues to map screen colors exactly. On a GS, for example, all colors have a distinctly pinkish cast. Blues and blacks have a purple tinge; orange and white look yellow. Text characters are very readable, though, and screen refresh is fast. Mouse response time is also quick, although a blurry trail appears on screen if you move the cursor too rapidly from one location to another. The ghost path sometimes makes tracking a moving cursor difficult.

The 1600LC provides a relatively affordable 16-color LCD projection system for Macs and GSes. While it can't match the color quality of a monitor, the unit does provide an alternative to the drab displays of monochrome panels. Although nearly $2700 seems like an awful lot of money for the color you get, this is one of the cheapest ways to get it if you need it. If you're sharing computer-generated video information with an audience, an InFocus panel will help you project your presentation in style. ❑

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

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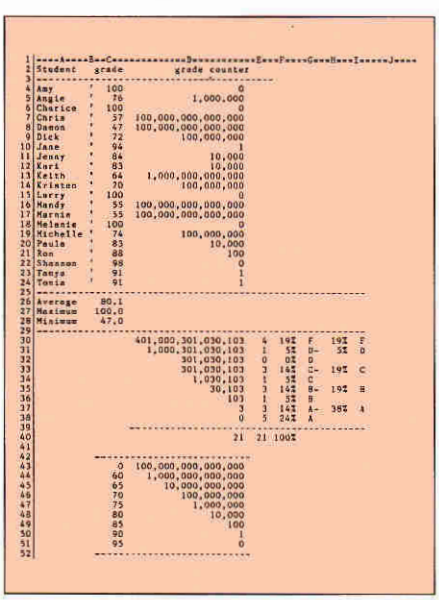
Edited by THE STAFF OF INCIDER/A+

I HAVE AN APPLE IIGS, AND I'VE been trying unsuccessfully to create a spreadsheet formula that would count the number of As, Bs, Cs, Ds, and Fs in a grade report. The grades correspond to consistent numerical parameters (for instance, 95 is always an A), but so far a tabulation algorithm has escaped me. Help!

Jim S. Wilson
Sardis, MS

Jim, we just happen to have a submission from ***Harold Shuckhart****, a teacher from Anoka, Minnesota, who had the same problem. Here's how he solved it.*

— eds.



	A	B	C	D	E	F	G	H	I	J
1										
2	Student	grade		grade counter						
3										
4	Amy	100		0						
5	Angie	76		1,000,000						
6	Cherice	100		0						
7	Chris	37	100,000,000,000,000							
8	Damon	47	100,000,000,000,000							
9	Dick	72		100,000,000						
10	Jane	94		1						
11	Jenny	84		10,000						
12	Kari	83		10,000						
13	Keith	64	1,000,000,000,000							
14	Kristen	70		100,000,000						
15	Larry	100		0						
16	Mandy	55	100,000,000,000,000							
17	Marnie	55	100,000,000,000,000							
18	Melanie	100		0						
19	Michelle	74		100,000,000						
20	Paula	83		10,000						
21	Ron	88		100						
22	Shannon	98		0						
23	Tanya	91		1						
24	Tonia	91		1						
25										
26	Average	80.1								
27	Maximum	100.0								
28	Minimum	47.0								
29										
30				401,000,301,030,103	4	19%	F	19%	F	
31				1,000,301,030,103	1	5%	D-	5%	D	
32				301,030,103	0	0%	D			
33				301,030,103	3	14%	C-	19%	C	
34				1,030,103	1	5%	C			
35				30,103	3	14%	B-	19%	B	
36				103	1	5%	B			
37				3	3	14%	A-	38%	A	
38				0	5	24%	A			
39										
40					21	21 100%				
41										
42										
43		0	100,000,000,000,000							
44		60	1,000,000,000,000							
45		65	10,000,000,000							
46		70	100,000,000							
47		75	1,000,000							
48		80	10,000							
49		85	100							
50		90	1							
51		95	0							
52										

Figure 1. Grade-distribution calculator.

As a teacher, I've found it useful to prepare a grade-distribution table, not only for my own benefit, but also for the benefit of my students: When students see how close they are to the next grade cutoff, they often work harder.

Although it's not difficult to add up the number of As, A minuses, and so on, I already use an AppleWorks spreadsheet for my grading, so it made sense to simply devise a process for counting those grades, as well.

I don't have any fancy macro packages, nor did I want to create a multicolumn monster of a spreadsheet. After some head scratching, I came up with a simple and interesting data-composition and extraction process that uses @LOOKUP to count class grades.

The heart of my scheme is the creation of a 16-digit *composite number* (CN), which you can see in cell D30 of **Figure 1** — the top layer of my entire grade spreadsheet. Each pair of digits in this number represents the number of scores in a particular grade range: The tens and ones places represent A minuses; the hundreds and thousands places represent Bs; the next two digits represent B minuses; and so on. Therefore, the CN *103* in cell D36, for instance, indicates one B and three A minuses. (We won't add in the number of As, for reasons I'll explain below.)

How do you translate grades into a composite number? As close friends of Claris' *AppleWorks Reference* manual know, *@LOOKUP(value, range)* searches successively through a range for the largest entry that's less than or equal to a particular value, and returns a corresponding value from an adjacent range.

Cells C43 through D51 of **Figure 1** are a LOOKUP table for the complete range of grades from A to F. If I call @LOOKUP (C21,C43 . . . 51), for example, AppleWorks takes Ron's score of 88 and returns a 100, which we know represents a B.

Sound confusing? It's more straightforward than it looks at first. The key to understanding a composite number is to forget its direct numeric value and visualize it as a series of counters or tally marks, if you will.

When I add 100 to the CN, for example, I'm not really adding "one hundred," I'm incrementing the number of Bs by one. The zeroes function here only as place holders. (See the accompanying sidebar, "The Numbers Racket," for a simple practice round.)

After you've translated all your students' scores, add them together to produce the single CN, which you see in cell D30 of **Figure 1**. All that remains is to extract the data and massage it into a comprehensible form. The first two digits of the composite number represent the number of Fs, so you

	D	E
29		
30	@SUM(D3...D25)	@INT(D30/D43)
31	+D30-(@INT(D30/D43)*D43)	@INT(D31/D44)
32	+D31-(@INT(D31/D44)*D44)	@INT(D32/D45)
33	+D32-(@INT(D32/D45)*D45)	@INT(D33/D46)
34	+D33-(@INT(D33/D46)*D46)	@INT(D34/D47)
35	+D34-(@INT(D34/D47)*D47)	@INT(D35/D48)
36	+D35-(@INT(D35/D48)*D48)	@INT(D36/D49)
37	+D36-(@INT(D36/D49)*D49)	@INT(D37/D50)
38	+D37-(@INT(D37/D50)*D50)	+D40-@SUM(E37...E30)
39		
40	@COUNT(D3...D25)	@SUM(E39...E25)

Figure 2. Data-extraction formulas.

can strip them out with *@INT(CN/100,000,000,000,000)*, put the result into E30, create a new composite number with *CN=CN-@INT(CN/100,000,000,000,000) * (1,000,000,000,000)*, and put that result into D31.

Figure 2 shows the formulas behind columns D and E in the data-extraction stage. As you can see, when you get down to the As in E38, you don't have to include

them in the CN, because they're the only grades left. This method avoids the errors AppleWorks introduces into any number more than 16 digits long.

After AppleWorks finishes the calculation, you'll see the breakdown of grades in cells E30 through E38 in **Figure 1**. From here, you can calculate what percentage of the total class each grade makes up.

If you're curious about how closely a class corresponds to the infamous "bell curve," this figure makes graphing your grade distribution easy.

Statistics classes can play with this spreadsheet, too, or if you're a science teacher doing plant-growth or genetics experiments, your new AppleWorks data-manipulation tool can help you crunch those results, as well. ❑

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THE NUMBERS RACKET

If you're having trouble understanding the mechanics of composite numbers, try this dry run with a pencil and a piece of paper.

At the top of the sheet, write **A=1**, **B=10**, **C=100**. Now write **ABCAABCCBA** in a vertical column. Start at the top of the column and transcribe the numbers that correspond to each letter, according to the table at the top of the page.

Add the numbers together, and you should come up with **334**. Because there were four As in the column, the rightmost digit of our composite number is a **4**. Because there were three Bs, the middle digit is a **3**, and because there were three Cs, the leftmost digit is also a **3**.

Try more columns with different ratios of As, Bs, and Cs, and watch the way the composite number changes. Just remember, because we're using only one digit for each category, we've got room to tally only nine occurrences before a counter reverts to zero and rolls a 1 over into the next digit.

— Cameron Crotty, Associate Editor

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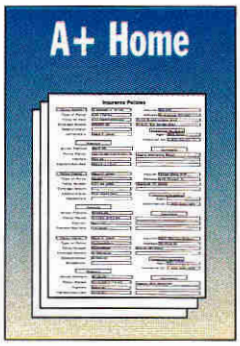

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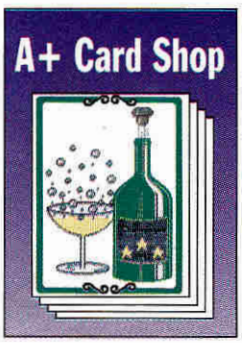

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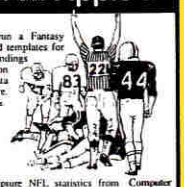

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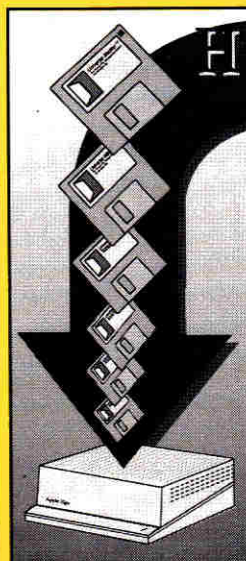

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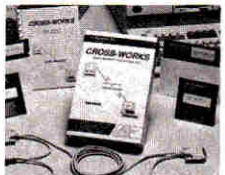

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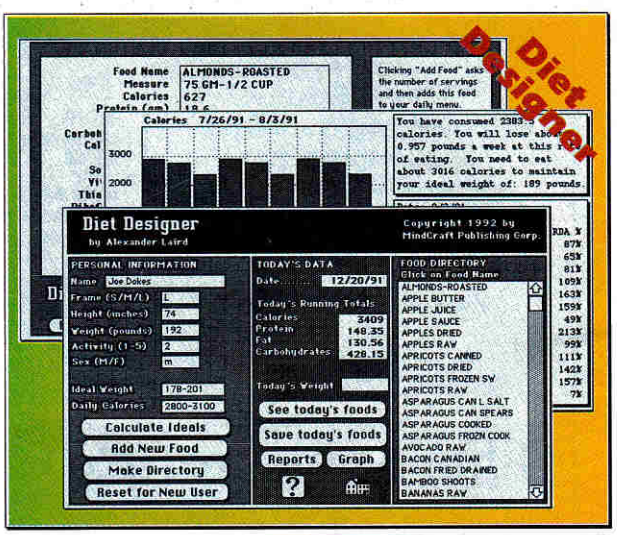

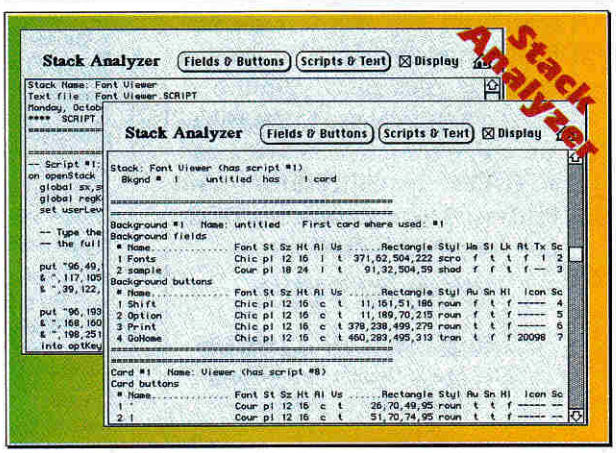

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LEARNING CURVE

Continued from p. 64

any number of countries. Your electronic invoices would initiate instantaneous fund transfers — and if you were careful, you could even schedule them to get favorable exchange rates. As we move into the Information Age, international borders are becoming little more than lines on a schoolchild's map.

TOKYO CALLING

What are the implications for concepts like "balance of trade"? Experts say that despite headlines to the contrary, the U.S. actually exports far more to Japan than that nation does to us. Our trade figures just don't show numbers associated with information transfers, such as television programming, which never make it to the customs agent's clipboard. It's hard to be a protectionist in the Information Age.

What does that mean for kids and for education? By the time our children graduate from school, telecommuting will let them live and work wherever they want. As cable-TV companies adopt fiber optics and bring bidirectional high-bandwidth telecommunication into homes (leaving traditional phone companies in the dust), workers will be able to both hear and see colleagues all over the world. Meetings in "virtual" conference rooms will be projected in 3D, with each participant dialing up from home. Language translation will be transparent, with inflection and tone adjusted automatically to the speaker's voice. Goods will be produced locally, according to specifications telecommunicated from afar.

None of these activities will come under the scrutiny of immigration or customs people. All of these activities are either feasible today, or will be in the next decade.

What are our schools doing to prepare students for this future? Not only do most school computers lack modems, most classrooms lack telephones. What's wrong with this picture? More to the point, what are we going to do about it? ❑

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As telecommunications erases national boundaries, the world opens to our children. Will they be ready?

Modern satellite communications has dropped the world into our laps — witness last year's "CNN war" in Iraq, when television showed us Scud and Patriot missile attacks as they were taking place. Similarly, modern telecommunications is making national borders, immigration control, and much of the Customs Service obsolete. Several years ago, after flying to Edmonton, Alberta, I was "detained" while going through immigration at the airport. I was visiting Canada to give a speech at an educational-computing conference, and the immigration agent asked about the materials I was bringing with me. When I told him, he informed me that I couldn't bring my presentation software into the country without a license, and that it would be confiscated.

By DAVID D. THORNBURG, Ph.D.

Well, I was tired at that point, and a bit testy. I gave my disks to the agent and said he could keep them — destroy them for all I cared. "But I thought you said you needed the disks for your talk," he responded.

"No problem," I shot back. "I'll stop at a local computer store, buy some blank disks, and upload my presentation from the U.S. via phone lines and a modem."

I soon found myself in a comfortable holding cell at the airport. About an hour later my passport and disks were returned, and I was told to go on my way. Apparently the Canadian economy would survive my incursion — this time.

I remembered this incident a few months back when my friend Ted McCain suffered a similar problem when coming to the U.S. to give a speech. Ted is the Canadian educational consultant who talks about "technological fusion" — a concept I described in last April's Learning Curve ("MTV Comes Home," p. 64). He encountered an overzealous U.S. immigration agent intent on protecting American educators from the rantings of Canadian futurists. The matter was cleared up eventually and Ted headed "south of the border" to give his presentation.

While discussing our respective problems in Toronto recently (I now know how to cross the border without incurring the wrath of bureaucrats), Ted pointed out that national boundaries in some ways are now obsolete and customs agents may soon be. Technology has made certain key aspects of border control impossible.

PARIS IN TWO HOURS

As part of an international multimedia conference, I recently made a two-hour presentation to a group of people in Paris. I didn't pack for the trip, and I didn't suffer jet lag. Instead, I drove to a local community college's TV station and uplinked my presentation to a satellite, which beamed it to other satellites and then to ground stations around the world. During the presentation, participants talked with me through voice links. (Video links will come soon.)

That's fine for speeches, you say, but what about other kinds of work? Here telecommunications offers even greater advantages. Many companies in California are exploring opportunities for employees to work at home at least part of the time. These home offices cut down on traffic congestion and pollution, and give people more time with their families. (See "Homecoming," Learning Curve, May and June 1992, p. 64.)

Now here's the kicker. If I can "telecommute" from home, what's to keep me from working outside the U.S.? Through Internet I can dial into most countries. Data transfer is unfazed by international boundaries. Immigration officers can't cut the wires at the border — we link by satellite. Payment is no problem — most of the world's money moves as data on the same networks that carry our e-mail.

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Continued on p. 63

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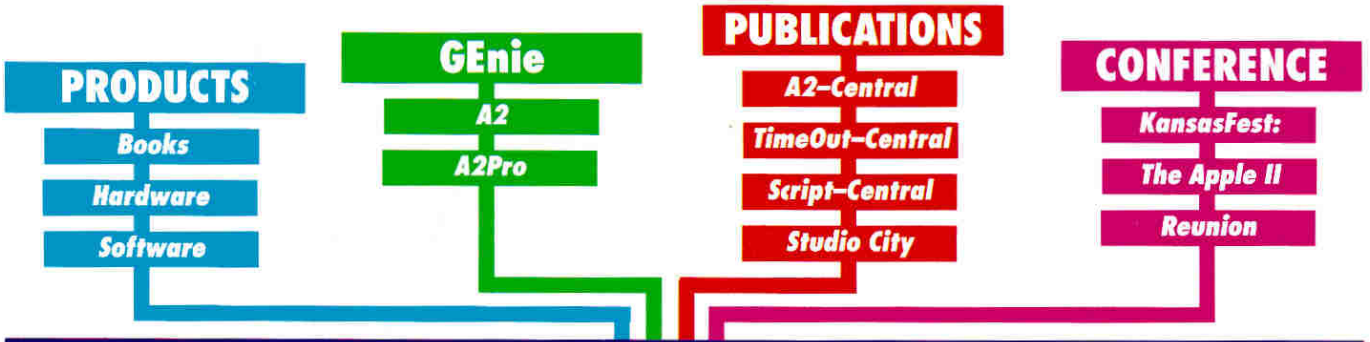

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