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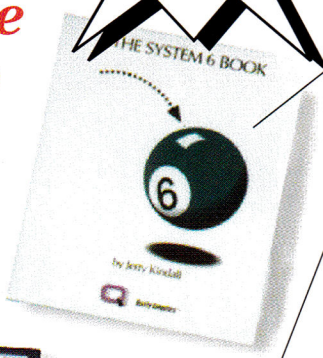

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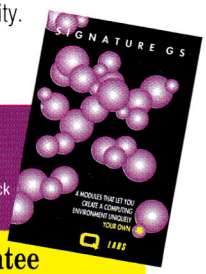

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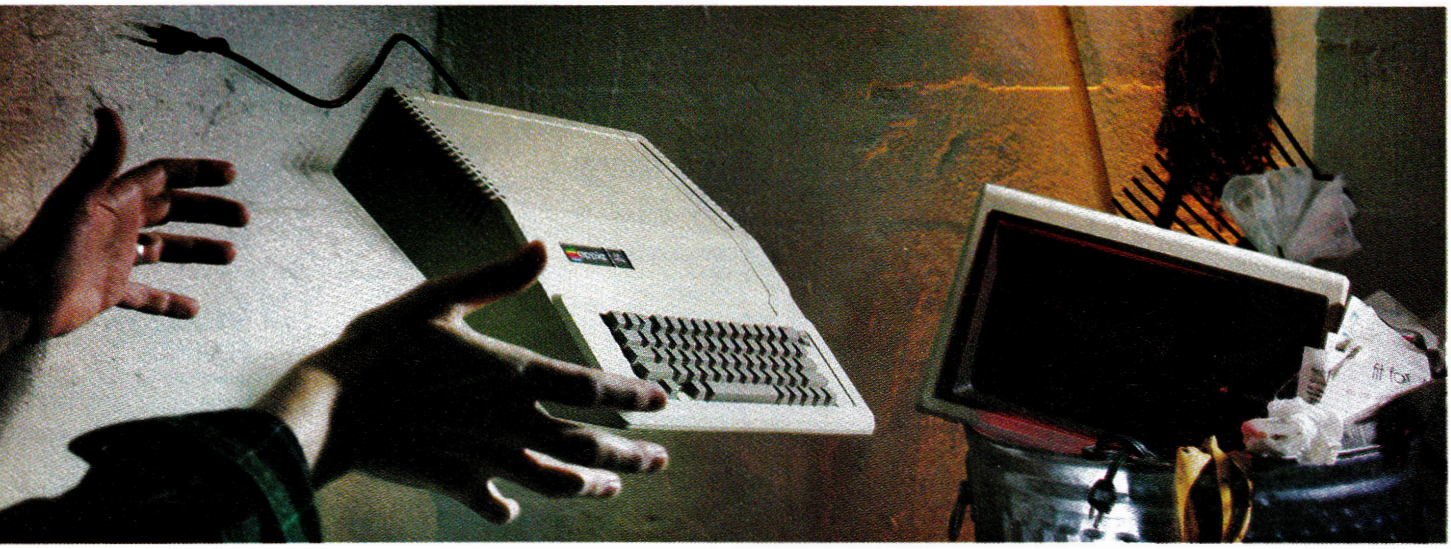

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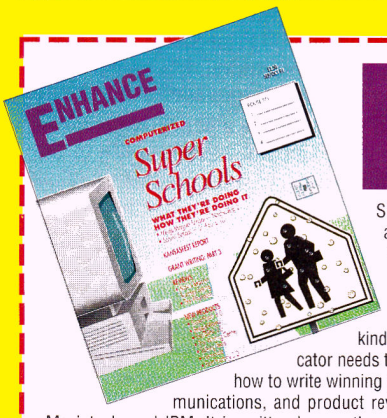

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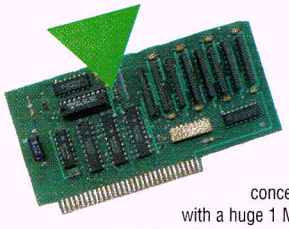

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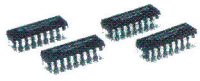

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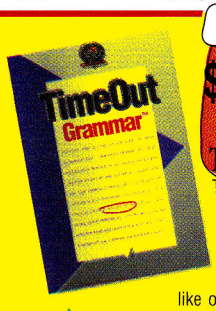

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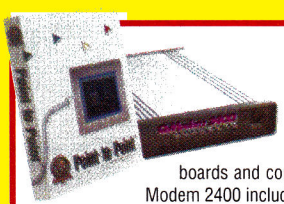

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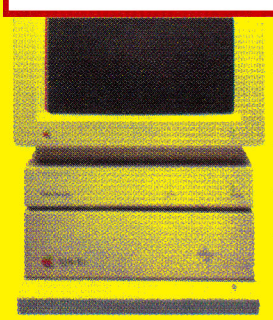

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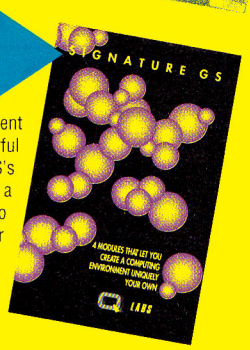

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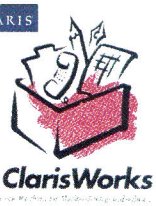

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JANUARY

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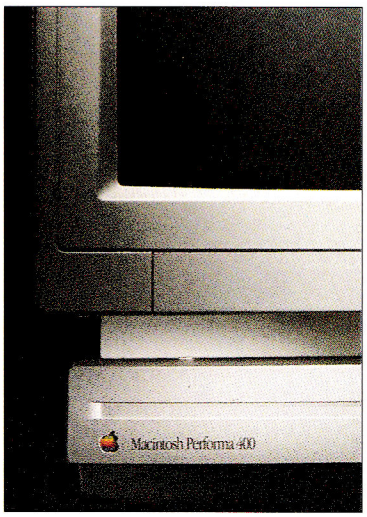
FEATURES

Soul of a New Machine by Paul Statt 26
In ten years of Apple watching, we've seen an extension of the handcrafted original designed for forever (the IIe), a sexy portable system (the IIc), a whole new look designed for one-stop shopping (the Mac), two computers in one case (the IIGS), a low-cost color Mac (the LC), and a brand-new Brand Central computer (the Performa). *inCider/A+* looks back at a decade of Apple evangelism — and ahead to a more-secular future.

Enriching System 6 by Joe Kohn 34
While Apple's new operating system provides the essential ingredients to make your GS a superpowered machine, you'll need more than the basic recipe to exploit its full potential. Our Shareware Solutions columnist looks at 30 low-cost extensions that can make System 6.0 a more-potent brew.



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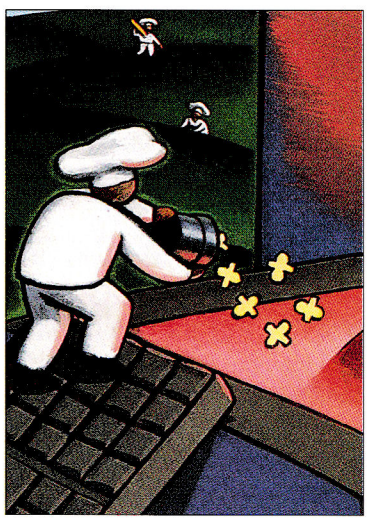

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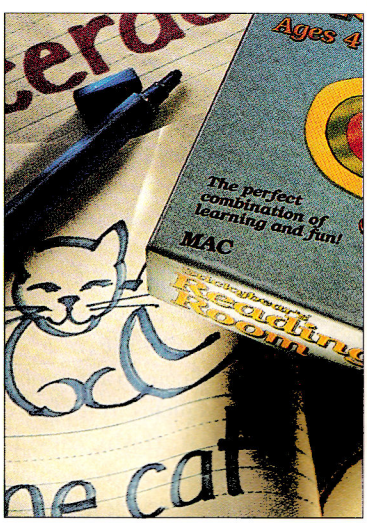
Pop in a platter and enter the brave new world of electronic publishing.



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LETTERS

IIGS FOR GROWNUPS, TOO

IN HIS RECENT COLUMN "THE Velveteen Apple" (Learning Curve, October 1992, p. 64), David Thornburg likens the Apple II to a child's well-loved, well-worn stuffed toy. In Thornburg's eyes, both seem of little use or relevance to the adult world, but they're nevertheless two of the precious treasures of our children's lives.

That's a sweet, sentimental view, but it doesn't admit that Apple IIs (especially the Apple IIGS, which Thornburg ignored in his essay) are used today by many adults and children alike, as effective tools for the improvement and enhancement of their lives.

If the Apple II is like a child's toy, I think it resembles a bicycle most. I, like most kids, couldn't wait to leave my bicycle behind and graduate to automobiles and other serious vehicles. But after driving my share of fast, flashy cars, I freely admit that bicycles go many places cars can't, and that bicycling is free of many of the costs and drawbacks we associate with more-adult conveyances.

Just like an old stuffed rabbit, a bicycle can put you in touch with your childhood. Unlike the rabbit, a bicycle can also satisfy your adult needs for transportation and recreation. The Apple II seems to be similarly valuable: It remains both a marvelous toy and a versatile tool that grows with you.

Many fans who grew up using Apple IIs are finally of an age to validate those claims on a daily basis. It seems ironic that some in the computer industry and the press dismiss the Apple II as a childish thing the adult should put away.

I think that Margery Williams' beloved Skin Horse would surely recognize those pooh-poohers as "people who don't understand."

Jim Merritt
Capitola, CA

KEIZER ON FONTS

AS A REGULAR READER OF *inCider/A+*, I was pleased to find Gregg Keizer's column on font translation ("In Search Of . . .," Bridging the Gap, October 1992, p. 22). He covered a topic I find interesting and in which I have some experience. Before the release of WestCode's Pointless, very few decent fonts were available for the Apple IIGS. Apple's font-translation program, FontMunger, was impossible to obtain. I struggled with this problem until Stephen Chick released his shareware program ResourceSpy, which can read Macintosh FONT suitcase files and extract them to Apple IIGS $C8 font format. As ResourceSpy doesn't work well with NFNTs or FONTs larger that 32K, I wrote FontHacker (a program I released later as freeware) to escape the limitations.

The thing that bothered me about Keizer's column was that he failed to credit the authors of the programs he cited. Sure, the programs are either shareware or freeware, but it still seems appropriate to give credit where credit is due. When I wrote FontHacker in 1991, I outlined the same basic instructions that Keizer promoted in his article. I also went to great lengths to make sure that every programmer was properly credited.

So, for your readers' edification: HFSLink was written by Scott Blackman. BitFont by Peter DiCamilla, FontScan by David Walker, and FontHacker by yours truly.

Don Aehl
Merrillville, IN

GREGG KEIZER'S BRIDGING THE Gap column in the October issue of *inCider/A+* gave some invaluable information about using fonts with both the IIGS and the Mac. But though the article mentioned the use of SuperFonts only in passing, those of us using 8-bit Apples aren't without the ability to use different fonts, as one might have thought after reading the article.

If you're lucky enough to have access to a laser printer, you can use 8-bit AppleWorks Classic (AW) with virtually any IIGS font. All you do is put on your working AW disk a copy of the configured SEG.ER file from Mike Paterno and Carl Martinoli, which contains all the code necessary to print AW on an HP-IIP or compatible laser printer.

Then, using the shareware package HPIIe.V1.1.SHK by John Majka, founder of Alliance International, download a IIGS font to your laser printer, set the proper characters per inch, and print your documents with the font (or fonts) of choice.

You can obtain the special SEG.ER and the HPIIe.V1.1.SHK files from America Online, other commercial BBSes, or the National AppleWorks Users Group.

With a little ingenuity and dedication, 8-bit Apples can do a lot more than some people think they can — using GS fonts is

just one more function that practically everyone, including the printer manufacturer, told me couldn't be done.

Howard R. Katz
Batavia, IL

APPLE II TRADE-IN

IN *INCIDER/A+* THIS SPRING I read a notice indicating that Apple Computer was accepting trade-in of Apple IIs for Mac LCs. My local dealers deny any knowledge of this exchange program. I asked our local hospital librarian to check with her Apple vendor contacts, but after an extensive search, she was unable to find any additional information on this offer. Can you help us? Thanks in advance for your assistance.

John Garrison, Ph.D.
Lynnfield, MA

Some sort of exchange program seems like a good idea, John, given Apple's "mission" to convert us all to the Mac. Apple Computer doesn't have such a program, however. From time to time local dealers may have special trade-in offers; keep in touch with the dealers in your area. — *eds.*

STORYBOOK LAUNCH

I PURCHASED A COPY OF STORYbook Weaver: World of Adventure after reading your February 1992 review of it (p. 27). The program is great; I'm glad I purchased it. There's an error in the review, however: The author states that "GS owners with hard-disk systems won't be able to launch Storybook from a previously installed Finder; you must use Storybook's own system disk for program launching." I have System 6.0 and had no such problem. I'd hate to see users with a hard disk and only one 3.5-inch drive pass this program up.

Linda Harding
Pittsburgh, PA

HARD-DISK RAILROADS

IN RESPONSE TO CUSTOMER concerns, and by special licensing arrangement with Glen Bredon, author of DOS Master, Abracadata now offers hard-disk-drive versions of Design Your Own Railroad and other products at no charge. This special arrangement lets customers return their original floppy disks to us with a request for the hard-disk-drive version, which we will send them by return mail, complete with instructions. (DOS Master isn't available through us without previous purchase of at least one program.)

As always, we continue to have timely and reasonable responses to our customers' needs. When they communicate with us, we do our best to set things right.

Mary Carol Smith
CEO
Abracadata
P.O. Box 2440
Eugene, OR 97402

INCIDER'S 10TH BIRTHDAY

THE WINDS OF TECHNOLOGical opportunity are blowing strongly now, and with them an optimism for the future that will make this decade one of the most exciting in the unfolding adventure of technology advancement.

International Data Group is proud to play a role in fostering this change by celebrating the tenth anniversary of *inCider/A+*. Hats off to the *inCider/A+* team for helping meet such a challenge and for doing it with such professionalism, excitement, and commitment.

Patrick J. McGovern
Chairman of the Board
International Data Group
Boston, MA

CONGRATULATIONS ON CELEbrating your tenth anniversary, *inCider/A+*. Apple computers have been and continue to be an important part of the education, home, and small-business markets, and you've done an outstanding job of covering those markets over the years.

We at *MacWorld* have enjoyed working with your highly talented staff and are looking forward to working more closely with you for the next ten years, covering all of the new and exciting innovations in Apple technologies. Best regards and best wishes for continued success.

James E. Martin
President, CEO, & Publisher
MacWorld Communications, Inc.
San Francisco, CA

HAPPY BIRTHDAY, *INCIDER/A+*! And thanks for sharing my enthusiasm for the Apple II.

Steve Wozniak
Apple Founder
Los Gatos, CA

CONGRATULATIONS ON YOUR tenth anniversary. It is quite an accomplishment, and you and your readers should be proud of it. Publications like *inCider/A+* certainly provide an invaluable service to the many members of the Apple user community. We thank you for your continued support and look forward to celebrating your 20th anniversary.

John Sculley
Chairman, CEO, & Chief Technology Officer
Apple Computer Inc.
Cupertino, CA

CORRECTION

A printing error appears in our review of **Script-Central** in the November 1992 issue (p. 25); the product's rating should be five stars.

UPDATES

Suggested retail prices for the software products **At Ease** and **Spectre**, mentioned in "Mac News: Trends to Track in '93" (December 1992, p. 42), are $55 and $59.95, respectively.

Bright Software's math program **GSymbolix** (reviewed in December 1992, p. 29) is now for sale directly in the U.S. Version 1.7, with new documentation and on-line help, is priced at 100 Swiss francs. (At press time, that was the equivalent of $134 American; student price was $95; school cost was $80. Because of fluctuating exchange rates, call for today's exact price.) For more information, contact Larry Schneider, P.O. Box 120, Exeter, NE 04435-0120, (207) 379-3181.

A FINE MECC

The latest products from Minnesota Educational Computing Corporation (MECC) build on the strengths of one of the leading producers of learning software in the U.S. Here's a sample from the education catalogue:

- **Freedom** (Apple II, $59). Simulates the Underground Railroad for students in grades 5 through 9. A realistic depiction of horrors faced by African Americans escaping slavery in 1830.
- **USA GeoGraph** (Apple IIGS, new for Mac, $69). Includes 1990 census data.
- **Dr. Livingstone, I Presume** (Apple II, $59). Play the role of reporter and explorer Henry Stanley and see 19th-century Africa as you learn problem-solving skills.
- **History Makers** (Apple II, $59). Extensive database of African, Asian, Hispanic, and Native American persons who shaped our country's past.
- **Easy Color Paint** (Mac, $69). A creative tool for students of all ages, now attractively priced.
- **The Geometric Golfer** (Mac, $69). The ball and holes are polygonal; students use transformational geometry to come in under par.
- **Fraction Munchers** (Apple II, $59, new for Mac, $69). Make a meal of fractional numbers, equivalent fractions, and expressions while eluding the evil Troggles.
- **Super Munchers** (Mac, $69). An all-time favorite now in color for Macs.

In MECC's new home catalogue, Mac users can find fun and learning: popular products such as **Easy Color Paint** and **USA Geograph**, as well as **SnapDragon** ($49.95) for early readers, **Storybook Weaver** ($69.95), a children's writing program, and **The Secret Island of Dr. Quandary** ($49.95), a stimulating adventure game. MECC also publishes multimedia hardware and software catalogues, as well. For information, contact MECC, 6160 Summit Drive North, Minneapolis, MN 55430-4003, (800) 685-MECC.

DYNAMIC DUO

The PowerBook was perhaps Apple's brightest idea, and Apple has sold lots of them. But the appeal of a portable computer, however sleek and sexy, is limited to those who already own a desktop model. Not many buyers make the PowerBook their main computer.

The Macintosh Duo System, announced this fall, has both the convenience of a laptop and the power of a desktop computer. "With the Duo System," says Randy Battat, vice president of Apple's portable-computing division, "customers get the best of both worlds."

The business end of the Duo System is a new PowerBook model that plugs into a special "dock" on the desktop. The **PowerBook Duo 230** has a 68030 processor that runs at 33 megahertz — faster than a IIci and just as fast as the new PowerBook 180. Like the 180, the Duo 230 comes with either an 80- or a 120-megabyte hard disk.

The **PowerBook Duo 210**, like the PowerBook 160 (also recently introduced) or the Macintosh IIci, runs at 25 megahertz and has an 80-megabyte hard disk. Both Duos come with 4 megabytes of RAM, expandable to 24 megabytes, and a back-lit liquid-crystal display supporting 16 levels of gray.

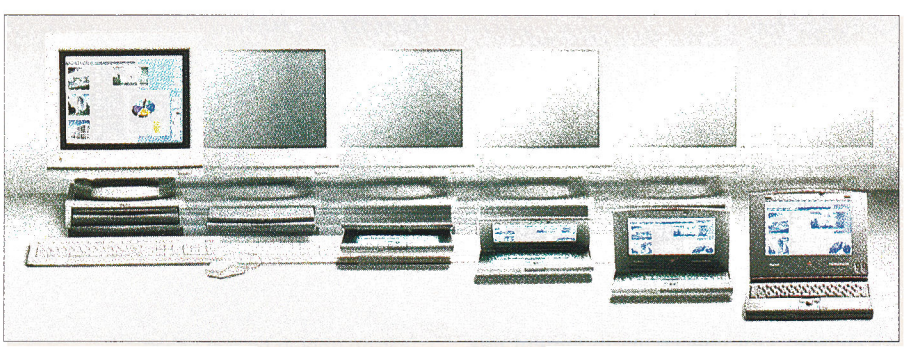
The portable PowerBook Duo weighs a mere 4.2 pounds and measures 1.4 inches thick. So, like its PowerBook brethren, the Duo is small — but is expected to be a big product at Apple: The company sold 400,000 PowerBooks in the machine's first year, accounting for a billion dollars in revenue.

The Duo differs from a plain PowerBook in its port configuration. A single serial port and an optional internal modem port join a new "docking port" — a 4-inch-long expansion port designed to fit snugly into the desktop station — on the back.

Apple has tried to make the docking process as simple as inserting a compact disc into a player. A motor pulls the PowerBook into the dock: The desktop station has a SCSI port to connect with hard drives and CD-ROM drives; slots for two NuBus expansion cards; an Apple Desktop Bus port for a keyboard, mouse, or trackball; and a video port that lets you attach any of a number of Apple's large color monitors.

The system is expensive; the dock carries a suggested retail price of $1079, and the Duo 210 and 230 are priced at $2249 and $2609, respectively. If the price ever comes down, the Duo System might make the "home computer" obsolete. With a dock at the office or at school, you won't need a separate computer for homework.

You can judge how important Apple thinks a new computer is by counting the number of third-party developers the company has cajoled into creating products for it. By that count, the Duo System should be a winner: Apple lists some 30 additions, ranging from a portable printer (**WriteMove II**, from GCC of Waltham, Massachusetts) to a cellular fax and modem (**Axcell**, from Applied Engineering of Dallas, Texas). **— P.S.**



Best of both worlds: Apple's PowerBook Duo, the portable you can park on your desktop.

NEW SOFTWARE

▲

THE WORKS

Microsoft Works was the original Macintosh integrated-software package — in 1986 it was the only way to combine word processing, database management, and spreadsheet calculation, as well as drawing and telecommunications, in a single program. Now the newest version, **Microsoft Works 3.0**, sports many new features, including more-powerful tools and a floating tool palette you can customize to work the way you do.

The word processor now lets you create notes, includes improved mail merge with the database module, and offers all kinds of new formatting. A notable improvement in the spreadsheet is the Quick Chart tool, which lets you create a chart from your data with a single click of the mouse. You can now add notes to cells, too. The database module offers new and better reporting options — among them, invoices, address books, and business envelopes. Avery mailing-label templates are included, too.

You can design anything from a business logo to a newsletter with the improved drawing program; it now supports 256 colors and intelligent column link-up. A neat new on-screen "meter" in the telecommunications module shows not just how long you've been connected, but how much it costs if you're using a commercial service.

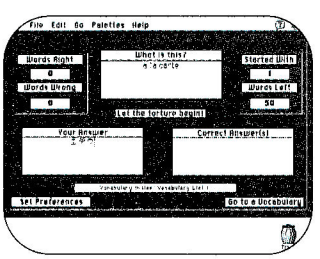
Microsoft Works 3.0 retails for $249 for all Macintoshes; upgrades from earlier versions and educational prices are also available. For details, call or write Microsoft, 1 Microsoft Way, Redmond, WA 98052-6399, (206) 882-8080, or circle number 350 on the Reader Service card for more information.

▲

GOOD HOUSEKEEPING

Innovative Utilities is a package that surely has something for everyone. Conflict Catcher should be a big draw; it identifies problems in your Mac resulting from incompatible INITs, extensions, or control-panel devices. Other Innovative Utilities include Memory Maxer, which lets you allot all your system's memory to a big application such as Adobe PhotoShop if it needs it; Color Coordinator switches your Mac's color mode when you switch applications — it's great for programs that require a certain number of hues; HotDA lets you open desk accessories or other Apple menu items from the keyboard; and Whiz-Bang Window Accelerator speeds up the endless opening and closing of desktop windows.

Innovative Utilities sells for $79.95, from Casady & Greene, 22734 Portola Drive, Salinas, CA 93908, (408) 484-9228. Circle number 351 on the Reader Service card for more information.



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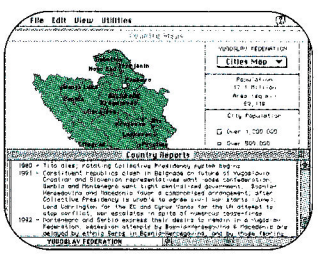
TURNING JAPANESE

If you're learning to speak Japanese, you may think that the title of HyperGlot's latest educational game, **Japanese Word Torture**, is redundant.

What makes Japanese difficult is that a native English speaker must learn every individual word, and there are no shortcuts to drill-and-practice.

Japanese Word Torture is the first program that lets you build your Japanese vocabulary interactively, by actually typing words in kana — without using Apple's KanjiTalk operating system. You can drill yourself on 2014 words, based on the Japanese Language Institute's list of essential words. Word Torture is also great for practicing Japanese word processing, in which text is usually entered in kana.

Japanese Word Torture for the Mac requires HyperCard, and sells for $49.95, from HyperGlot Software, P.O. Box 10746, Knoxville, TN 10746, (615) 558-8270. For more information, circle number 352 on the Reader Service card.



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BRAVE NEW WORLD

These days, as soon as an atlas is printed, it seems it's out of date. Broderbund's newest version of MacGlobe includes all the recent geopolitical changes and is available at a special price to schools.

MacGlobe 1.3 includes maps and data for 18 countries that didn't exist two years ago, most of them in the former Soviet Union and Yugoslavia. But that's not all that's new: MacGlobe users know that this program is more than maps, and version 1.3 lists new economic figures, along with cultural, political, ethnic, and religious information. MacGlobe now provides instant profiles of 208 countries and dependencies, with detailed maps, colorful graphics, and a wealth of demographic data and vital statistics. The program even shows each country's flag and plays its entire national anthem.

MacGlobe 1.3 carries a suggested retail price of $59.95 and takes up 2.5 megabytes on your hard drive. If you bought an earlier version in the last 25 days, the upgrade is free; otherwise it will cost $25 to obtain the latest version. A school edition costs $79.95 and includes a teacher's guide in addition to the user manual. A lab pack with teacher's guide and five sets of program disks is $159.95; a site license for up to 75 computers costs $750. Circle number 353 on the Reader Service card for more information, or contact Broderbund Software, 500 Redwood Boulevard, P.O. Box 6121, Novato, CA 94948-6121, (415) 382-4400.

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HELP FOR WORKS

Whether you use an old or a new version of Microsoft Works (see story, at far left), you can benefit from the helpful templates Paradigm

▲ MAC ◆ APPLE II ■ APPLE IIGS

has collected for travel, business, and home finance. HomeWorks, BizWorks, and TravelWorks for Macs provide instant word processing, database, and spreadsheet documents, as well as graphics and drawing samples, editable forms, clip art, and other handy tools.

HomeWorks includes templates for home finance, home recordkeeping, investments, and financial analysis; legal forms; some "kid stuff"; and other pictures. **BizWorks** takes on the tasks of cash-flow analysis, business planning, Small Business Association documents and data, organization charts, legal agreements and forms, non-disclosure forms, time management, and many other daily chores.

TravelWorks is a unique collection of templates for executives on the road. It includes a database of frequent-flier miles and a spreadsheet for tracking mileage; a database of information such as time zones, international phone codes, and currencies; and an advanced expense-report generator and sales-call controller.

Each template pack is priced at $59.95, from Paradigm Concepts, 8190E Mira Mesa Boulevard, San Diego, CA 92126, (800) 466-3957, or circle number 354 on the Reader Service card for more information.

▲

HERE'S THE WORD

With **Word Tales**, its latest CD-ROM for the Macintosh, Warner New Media hopes to begin a trend in educational software: self-directed exploration.

A beginning reader aged 4 to 7 needs no discouragement from educational software, and Word Tales offers none. Instead, Milo, a friendly creature from outer space, helpfully pronounces the word created on the computer screen. If the youngster spells the word illustrated on screen, he or she is rewarded with a chance to play an exciting arcade-style game and watch some clever animated characters in action. No punishment is exacted for wrong answers — nobody even says, "That's wrong."

Because Word Tales lets children learn at their own pace and involves no keyboard skills, adult supervision isn't required — and because no penalties are imposed on them, kids will enjoy playing and learning.

Word Tales sells for $59.99 on CD-ROM; the floppy-disk set, which requires 11 megabytes of free hard-disk space, is priced at $49.99. To order directly from Warner New Media, 3500 Olive Avenue, Burbank, CA 91505, call (800) 593-MEDIA.

For information call (818) 955-9999, or circle number 355 on the Reader Service card.

▲◆

WRITE ALL ABOUT IT

If you're using The Learning Company's Children's Writing and Publishing Center on your Apple II or The Writing Center on your Mac, but have run out of innovative ideas, try **All About Me**, templates designed to get those creative juices flowing.

Creative Pursuits has made All About Me an exciting way for children to learn about their everyday world. Twenty lessons promote writing across the curriculum by enhancing short stories, poetry, reports, and much more. In My Favorites, for instance, students draw on their personal experiences as they listen, speak, read, and write about their favorite things.

Students whose first language is Spanish can use a version of All About Me written totally in their native tongue.

All about Me requires The CWPC or The Writing Center. Suggested retail price is $49.95; you can purchase both the English and Spanish versions for only $84.95.

Creative Pursuits publishes a number of other products that support The Writing Center. **School Sports and Spirit** ($84.95), a new clip-art collection in color PICT format, is compatible with a number of Mac word processors. **Graphics for Holidays and Seasons** ($84.95) includes more than 100 professionally drawn EPS images for use in desktop publishing. Contact Creative Pursuits, 12151 La Casa Lane, Los Angeles, CA 90049, (310) 472-1179, or circle number 356 on the Reader Service card.

NEW PRODUCT FOCUS • HARDWARE/SOFTWARE •

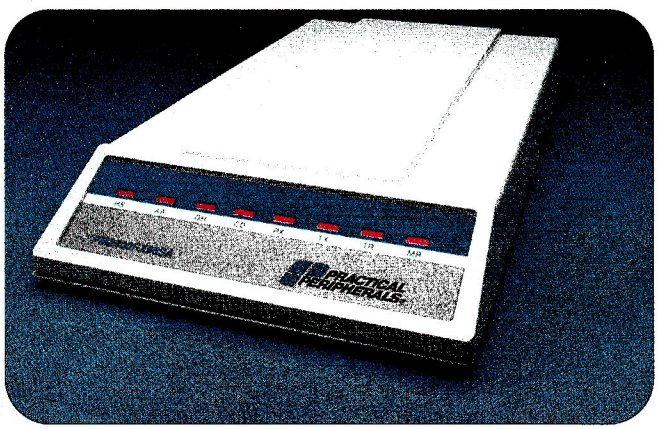
"Apple II" indicates an 8-bit product compatible with IIes, IIcs, IIc Pluses, and IIGses unless noted otherwise.

NEW HARDWARE

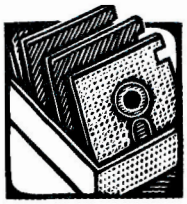
▲

FAX BACK

For the price of a modem, you can have a fax, too. Practical Peripherals' top of the line is the **PM14400FXSA**, combining a 14,400-bps data modem with a 9600-bps send-and-receive fax machine in one space-saving package. It sells for $579, including cables and **QuickLink II** communications software. You also get cables and software with Practical's economical **PM4200FX96SA**. It's a 2400-bps data modem and 9600-bps full fax for the price of a stand-alone modem: $179. Both modems come with a lifetime warranty, from Practical Peripherals, 375 Conejo Ridge Avenue, Thousand Oaks, CA 91361, (805) 497-4774. Circle 357 on the Reader Service card for more information.



Two in one: Practical's fax modems handle all your telecomm needs.



SHAREWARE SOLUTIONS
BY JOE KOHN

WORD PLAY

In early 1991, Kenrick Mock astounded the Apple IIGS community with his incredible Tetris-style game COLUMNS ($10 shareware), incorporating great music, stunning graphics, and challenging game play. In that popular title, you manipulate falling multicolored and multipatterned blocks in an effort to arrange three identical units sequentially in a horizontal, vertical, or diagonal fashion.

Mock, who wrote the code for Columns, seemed destined for GS greatness. Unfortunately, Mock's freeware construction set, **Simple Animation Program** (SAP), never gained the popularity it deserved. SAP gives nonprogrammers the tools to create complete animated movies with digitized sounds and SoundSmith soundtracks. SAP was just never accepted by the GS community, and only a handful of SAP freeware animations were distributed.

Mock was undaunted by response to SAP, and recently he and James Brookes, creator of Columns' graphics and music, teamed up again as Sound Barrier Systems to release three GS word games that should soon find their way into every GS-equipped classroom — and keep thousands of GS owners up past their bedtimes.

BoggleGS, LetterSlide, and VIAD are both fun and educational. The object's the same in all three: to create words from randomly generated blocks of letters. Your GS compares the words formed to a 16,000-word on-line dictionary while playing music and sound effects and displaying animations, graphics, and built-in instructions. Each title requires 1.25 megabytes of RAM and System 6.0.

• **BoggleGS** is loosely based on the board game of the same name. A colorful grid filled with random letters appears; the object of the game is to form words from any sequence of three or more adjacent letters, joined horizontally, vertically, or diagonally.

Each letter you use to form a word scores you one point. The game is timed; after three minutes the software shows you a list of acceptable words you've formed, then a list of all the words you could have formed.

The first few times you see the list of all possible words, you'll wonder how you could have missed so many obvious ones. After game play becomes second nature, you'll soon be spotting many more words in the grid and figuring out how to form words with five or more letters.

If you enjoy working crossword puzzles, you'll love BoggleGS. If you're a teacher or parent, you'll really appreciate the vocabulary-building skills your youngster will start to develop, and if you're a student, you'll actually have fun learning new words. BoggleGS is an instant classic.

• **LetterSlide** shares some similarities with both Scrabble and Sokoban (an old-time computer game). The stated goal is to collect jewels that will advance you to the next level.

Scattered throughout the play screen are blocks that contain letters; often, those blocks surround the jewels, making it hard to reach them. You can push the blocks of letters away, however, and as they form words of from three to nine letters, the blocks disappear. On some of LetterSlide's 99 levels, you'll find that the jewels are next to impossible to get at, until you've used all the letters you see. When things get difficult and the only letters remaining are Zs and Js and Qs, you may have to resort to using a bonus bomb, which will let you blast a block into oblivion.

LetterSlide is a lot more difficult than it sounds. Each level conceals immovable blocks, and sometimes when you're pushing them around, you'll inadvertently spell a word and find that your best-laid strategy has been defeated.

For long LetterSlide sessions, you can save a game in progress; for teachers and parents, there's an editor that lets you create mind-teasing levels with new words. LetterSlide, like Boggle, looks like another GS winner.

• **VIAD**, or Vocabulary in All Directions, includes elements of LetterSlide, but borrows more heavily from Columns. It's a Tetris-style game, with blocks falling from the top of the screen.

The blocks aren't multicolored, however, and your goal isn't to manipulate patterns; instead, each falling block displays a letter of the alphabet and you need to form words quickly from those little units. Mock and Brookes were joined in this project by Jake Buchholz, whose animated opening credits are as striking as any you'll ever see on a GS.

You can form words from horizontal or vertical letters, and even words spelled backwards earn points. Because VIAD is a fast-moving game, you'll sometimes spell a correct word by accident. That's an enormous benefit for vocabulary building, as all correct words appear in a large on-screen window. The software also saves all words to a file on disk, so that you can review them after a VIAD session.

You'll see many more falling Qs and Zs than vowels as you play. Luckily for you, you can earn bonus points that will let you change any falling letter to another. You'll need all the bonus points you can possibly get if you hope to top Mock's high score of 1300 points.

With these three word games,Kenrick Mock has accomplished as much as anyone to advance the use of the GS in schools, and has earned a place in the GS Shareware Solutions Hall of Fame.

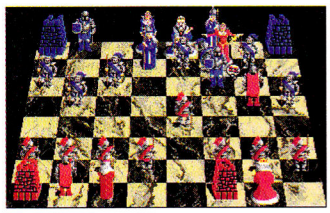
Kenrick Mock's games are available for downloading from **America Online** (for account information, contact 8619 Westwood Center Drive, Vienna, VA 22182, 800-827-6364), **CompuServe** (P.O. Box 20212, Columbus, OH 43220, 800-848-8199), **GEnie** (401 North Washington Street, Rockville, MD 20850, 800-638-9636), and **Internet** (available at many colleges and universities), and from Apple II user groups.

For GS users who don't own a modem or belong to a computer club, Mock is extending a special offer to readers of Shareware Solutions. For the shareware fee, paid in advance, Mock will send postpaid Columns ($10), SAP ($1), BoggleGS ($10), LetterSlide ($10), or VIAD ($10). Send your check or money order (U.S. funds only) to Kenrick Mock, 2300 Sycamore Lane, #18, Davis, CA 95616-5511.

SEND YOUR QUESTIONS, FAN MAIL, AND FREEWARE/SHAREWARE TO CONTRIBUTING EDITOR JOE KOHN, 166 ALPINE STREET, SAN RAFAEL, CA 94901. INCLUDE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

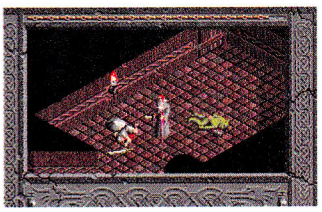
Exclusive Source for the Best IIGS Programs

Battle Chess™



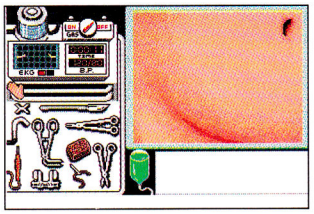
Battle Chess™: The most challenging game on earth comes to life in Battle Chess. An entire medieval world at war is reflected on the checkered field. Battle Chess not only captures the basic logic of chess it brings it to life with colorful, humorous, and dramatic 3-D animations. Watch with fascination as your pieces act out your moves. **Order product number IP50 for $25.**

The Immortal™



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

Life & Death™

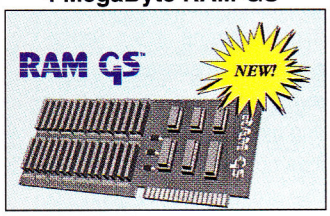


Life & Death™: You are the Surgeon! You make the diagnosis, then perform the needed surgery. The patient's life is in your hands as you perform an appendectomy. First incise the patient's abdomen using the McBurney technique. Retract the peritoneum and you're ready to remove the appendix. Not for the faint of heart. **Order product number SF52 for $20 or $15 for members.**

Gate™

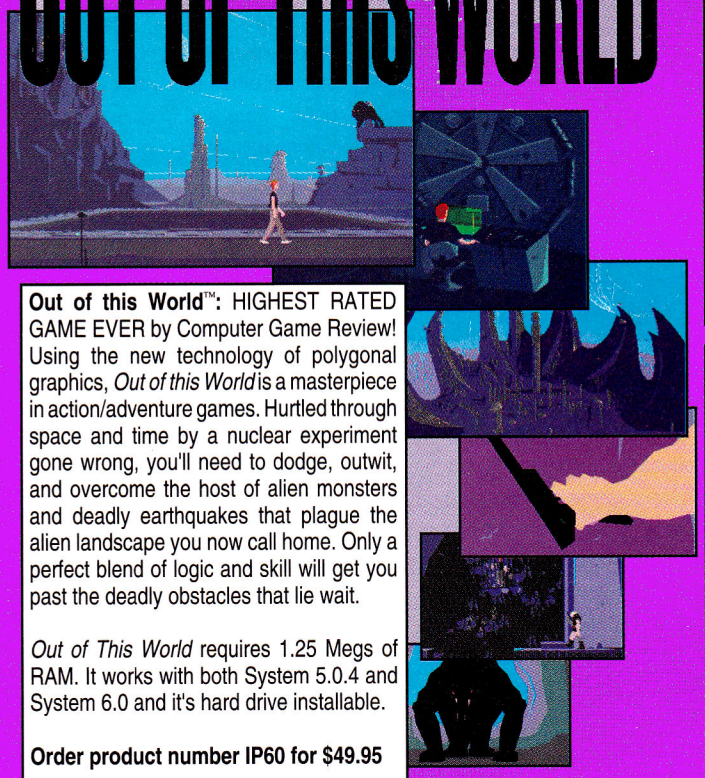
The Gate™: Fight your way through a castle riddled with mazes to save a bewitched kingdom. Battle against ghosts, magicians, snakes and other evil monsters. You'll need to use your head to solve the puzzles and your agility to conquer the action. Nintendo type action for the IIGS. It earned InCider's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

4 MegaByte RAM-GS™



Sequential Systems RAM-GS™: With memory expansion this cheap, there's no excuse for "Out of Memory" errors. RAM-GS is a low-cost, 4 Megabyte memory expansion for the IIGS. Easily installed, it is fully compatible with GS/OS, DMA and all software. Its multi-layer circuit design makes it run cool and draw less power. **Order product number SQ50 for only $140.**

OUT OF THIS WORLD

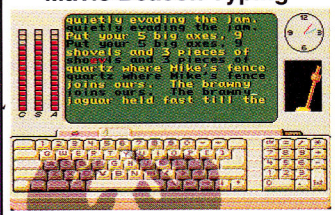


Out of this World™: HIGHEST RATED GAME EVER by Computer Game Review! Using the new technology of polygonal graphics, *Out of this World* is a masterpiece in action/adventure games. Hurtled through space and time by a nuclear experiment gone wrong, you'll need to dodge, outwit, and overcome the host of alien monsters and deadly earthquakes that plague the alien landscape you now call home. Only a perfect blend of logic and skill will get you past the deadly obstacles that lie wait.

Out of This World requires 1.25 Megs of RAM. It works with both System 5.0.4 and System 6.0 and it's hard drive installable.

Order product number IP60 for $49.95

Mavis Beacon Typing™



Mavis Beacon Teaches Typing™: Lessons are constructed from an enormous database. Features constantly updated information and never the same lesson twice. Focus on word/letter combinations and watch your improvement show on the performance charts. Includes a typing game to give you a break in the action. **Order SF53 for only $20 for non-members or $15 for members.**

Space Fox™

Space Fox™: Pilot your spacecraft through multiple levels while you're constantly under attack. Use your arsenal of weapons and your wits to destroy the attacking ships. Use your skills to strategically dock with your home base. Be a Space Fox and master the levels of the galaxy. This game is rated a WOW!! **Order product number SV70 for only $30.**

Music Studio 2.0™

Music Studio™: The premier music composition program, Music Studio 2.0 allows the user to compose, arrange and play their favorite music. Real time Midi input. Design your own instruments! Also included in the pack are additional instrument and Song disks for use with the program. **Order product number BR54 for only $39 for non-members or $34 for members.**

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Fast Service. Order by Fax (402) 379-3361
MasterCard or Visa Accepted

You don't have to be a member to order but member prices are from $2 to $10 less per title. You can become a member for only $19.95 and place your order at the same time to save Big Bucks. Plus you'll receive twelve issues of our great newsletter called Scarlett and our full catalog. School purchase orders accepted.

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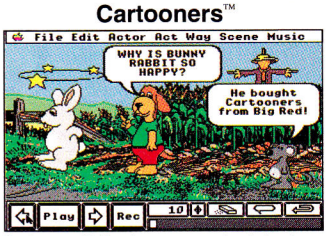
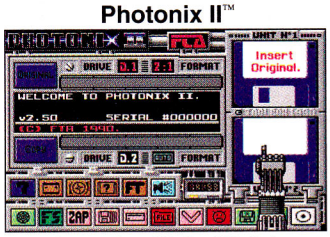
Cartooners™



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

Photonix II™



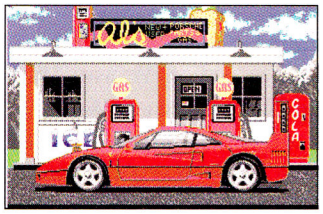
Photonix II™: In Speed We Trust! That's the motto of the FTA and in this fantastic disk duplication program, the FTA lives up to their motto. This program will copy a 3.5" disk in less than 30 seconds. It's by far the fastest disk copier that we've ever seen. Plus it has lots of other useful utilities. **Order product number FT72 for only $20 for non-members or $15 for members.**

System 6.0 IIGS™

System 6.0™: System 6 brings a new dimension of power, ease of use, and versatility to the Apple IIGS. This item includes six disks: Install, System Tools 1 & 2, Fonts, SystemDisk and synthLab, plus the official Apple *IIGS System 6 User's Reference.* This 400-page manual tells you all about System 6, including FSTs, Finder, Teach and Archiver. **Order product number SX52 for $39.**

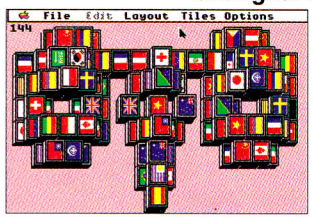
Exclusive Source for the Best IIGS Programs

The Duel: Test Drive II™



The Duel: Test Drive II™: Race the Ferrari F40 against the Porsche 959, the world's fastest production cars. You can also go against the clock, race through picturesque scenery and contend with road hazards (including the police). A joystick is recommended and 1 Megabyte is required. **Order product number FL73 for only $20 for non-members or $15 for members.**

Shanghai II: Dragon's Eye™



Shanghai II: Dragon's Eye™: The most captivating strategy game of all time just got better. Its based on the ancient game of Mah-Jongg. But *Shanghai II* gives you 8 beautifully detailed tile sets, over a dozen different layouts based on the Chinese zodiac, animated tilesets and over 100 sound effects. Several ways to play – Solitaire, Challenge & Tournament. Beyond all this there is the interactive version of the Dragon's Eye, a special challenge for superior Shanghai players. It's move against move, as one player seeks to complete the Dragon formation, the other to dismantle it. Go up against a friend or the computer. Brand new for your IIGS. Shanghai II: Dragon's Eye will beguile your days and nights, demand your concentration, and become your obsession. Surrender. **Order product number BR92 for $49.95.**

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Tunnels of Armageddon™

Tunnels of Armegeddon™: An arcade game by California Dreams that will leave you dizzy. Feel the G-Forces as you navigate through the tunnels. Use your blaster to clear out whatever gets in your way. Lavish detail. Great action. Unbelievable feeling of warp speed motion. A+/Incider gave it a 9 out of 10 rating! **Order product number CD53 for only $20 for non-members or $15 for members.**

Great Apple IIGS Programs

Title	Member's Price	Non-Member's Price
Mindscape		
Balance of Power 1990	$15	$20
Captain Blood	$15	$20
Deja Vu I: Nightmare	$10	$15
Deja Vu II: Lost in Las Vegas	$10	$15
Shadowgate	$10	$15
Electronic Arts		
Bard's Tale I	$15	$20
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Instant Music	$10	$15
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Keef the Thief	$15	$20
Skate or Die	$10	$15
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Neuromancer	$10	$15
Sierra On-Line		
Black Cauldron	$20	$25
King's Quest I, II, or III	$20	$25
King's Quest IV	$20	$25
Gold Rush	$20	$25
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Mixed Up Mother Goose	$15	$20
Police Quest	$20	$25
Space Quest I or II	$20	$25
Thexder	$15	$20
MicroIllusions		
Blackjack Academy	$20	$20
Fire Power	$20	$20
Accolade		
Hardball	$10	$15
Jack Nicklaus' Golf	$20	$25
Mean 18 Golf	$20	$24
Serve and Volley	$15	$20
4th & Inches	$15	$20
Michtron		
Airball	$20	$20

Title	Member's Price	Non-Member's Price
Software Toolworks		
Chessmaster 2100	$20	$20
Gin King/Cribbage King	$15	$20
Activision		
GBA Basketball	$20	$20
Hacker II	$20	$20
The Last Ninja	$20	$20
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Club Backgammon	$8	$10
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Vegas Gambler	$10	$15
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Gnarly Golf	$7	$9
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DreamGrafix	$69	$69
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Casady & Greene		
Crystal Quest	$20	$20
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SuperConvert	$26	$26
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WestCode Software		
Pointless	$55	$55

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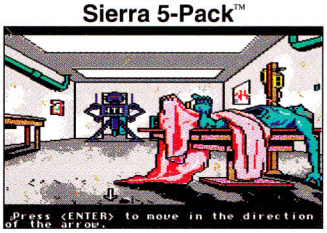
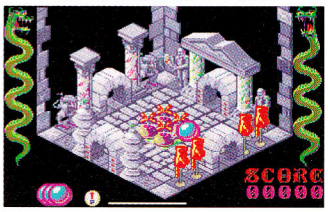
Xenocide™: An alien race has taken over a research outpost on a moon. Your job is to travel across the moon's surface in your hovercraft, then go into the undergound caverns and locate five explosive devices. Next get to the Bio-lab and place the bombs in the nuclear reactors to destroy the moon and the aliens. **Order product number MR50 for only $23 or $18 for members.**

Sierra 5-Pack™



Sierra 5-Pack™: Why not live a little. Go on a Quest with Sierra On-line. Bust drug dealers in **Police Quest.** Become an involuntary hero in **Space Quest II.** Save Rosella's father in **King's Quest IV.** Survive the terror of a "new" New York in **Manhunter.** Transform from robot to jet as you fly the skies in **Thexder.** Get all 5 programs for one great price! **Order number SL90 for $75 for non-members or $60 for members.**

Fun & Games 3-Pack™

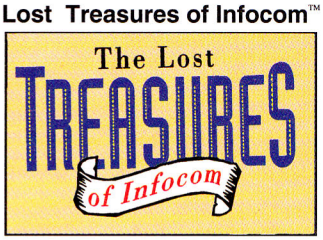


Fun & Games 3-Pack: Airball by Michtron is a blast. You need to maneuver a balloon through a maze of spikes and other sharp objects. **GBA Basketball** by Activision lets you take the court in two-on-two action. **Fire Power** by Microillusions is a tank battle game in which the object is to capture the other player's flag. To get all 3, **Order product number BR52 for only $44.**

Strategy 3-Pack™

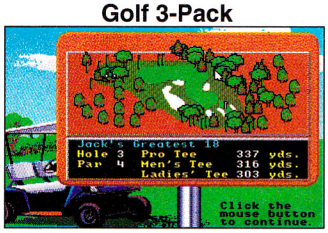
Strategy 3-Pack: Get 3 great programs for the price of just 1. **Gin King/Cribbage King** by Software Toolworks allows you to play two popular card games. **Chessmaster 2100** by Software Toolworks is the premier chess program for the Apple IIGS. **Blackjack Academy** by Microillusions will teach you the strategy behind this card game. **Order product number SF60 for only $32.**

Lost Treasures of Infocom™



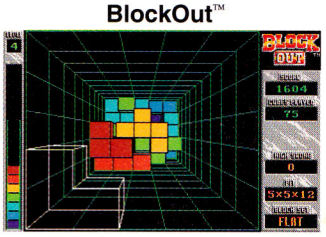
Lost Treasures of Infocom™: A compilation of 20 captivating games in one package including Zork, Planetfall, Deadline, Sorcerer, Spellbreaker, Infidel, Ballyhoo, Suspect, Witness and other classics. A fortune in Interactive Mystery, Fantasy and Science fiction Adventures. Now available in GS specific format with menus and GS/OS compatibility! **Order product number BR93 for $59.95.**

Golf 3-Pack

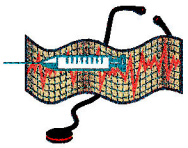


Golf 3-Pack: Enjoy the best in computer golf with these 3 favorites. Play championship golf and courses with true-to-life simulation in **Jack Nicklaus Championship Golf.** Go for the fun of it and watch the holes come alive with action and sound in the 3-D animated **Zany Golf.** Play **Gnarly Golf** and find yourself making putts where you never thought you'd be. **Order product number FL82 and get all three programs for only $35.**

BlockOut™



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



APPLE CLINIC

OFF TO A GOOD START

Clock, drive, font, and memory fixes keep your system running smoothly into the new year.

By CYNTHIA E. FIELD, Ph.D.

TIME MARCHES ON

I'VE BEEN WAITING EAGERLY FOR the patch of my prayers — the fix for my backdated TimeMaster ProDOS clock — but your patch ("A Stitch in Time," May 1992, p. 14) is for the ThunderClock.

A. Peter Blum
Rochester, NY

Here's "timelier" advice, Pete. According to David Hardaway, manager of the Apple II division at Applied Engineering (AE), any patch that supports the ThunderClock should also work with AE's ***TimeMaster H.O.*** *But resetting your clock card is even easier than you think — and no typing's required. Just use ProDOS version 2.0 or later, says Hardaway. (In fact, you wrote back to tell us you followed that advice — you installed ProDOS 2.0 on your hard disk, and your TimeMaster H.O. now lives up to its name.) Anyone needing the operating-system upgrade can purchase the latest version of* ***ProDOS*** *for $14 from Resource Central. (See "Clinic Referrals" for details.)*

SAFE DRIVING

WHY CAN'T I USE MY 3.5-INCH disk drive (which works fine with my IIc) with my IIGS? I don't remember what the message on screen is, but it sounds like an expensive fix. What exactly do I have to install? Where do I get it? How expensive is it? Once I do that, will the disk drive still work with the Apple IIc?

Thomas F. Boley
FPO Japan

If we're reading between the lines correctly, Thomas, your drive is a ***UniDisk 3.5****. Installing drivers — such as the UniDisk 3.5 driver you need — on a GS/OS System 6 start-up disk is easy and costs nothing but a few minutes' time. Just use the GS/OS* Installer's Customize *option.*

When you upgrade to System 6, you receive a disk labeled Install. *Insert that disk into a drive and double-click on the disk's icon when it appears on the desktop. Double-click on the* Installer *icon to launch the utility. When the* Apple IIGS Installer Easy Update *screen appears, click on the* Customize *button. Be sure the* Disk to Update *volume name in the upper left-hand corner of the* Customize *window matches that of your intended System startup disk. If not, click on the* Disk *button at the bottom-right corner of the screen until the appropriate volume name appears.*

Locate and select Drive: UniDisk 3.5 *in the scrolling directory to the left. Click on the* Install *button to add the driver to your startup disk. After a few seconds, you should (if all goes well) receive the reassuring reply:* "The installation script has been successfully executed." *If your startup disk is overstuffed and can't accommodate the UniDisk 3.5 driver, you may have to remove some unnecessary files first to make room. Dragging a few unnecessary items from the* Fonts *folder on the startup disk to the trash can should do the trick.*

Incidentally, Thomas, your UniDisk 3.5 drive will still work like a champ with your Apple IIc. The UniDisk 3.5 driver installation process doesn't affect the drive itself — only the GS' ability to see it for what it is. Just be sure to turn off both the GS and the IIc before swapping the drive.

If you haven't upgraded to ***System 6.0*** *yet (and we recommend you do so as soon as possible), it's available from a variety of sources, including the National AppleWorks Users Group, Quality Computers, and Resource Central.*

WELL, FONTSY THAT

I HAVE AN APPLE IIGS AND WOULD like to know where I can purchase a calligraphy font disk.

Leona Robinson
Philadelphia, PA

*The calligraphy font you need, Leona, is available free or at very low cost from public-domain libraries and on-line services. You can also order the National AppleWorks Users Group's calligraphy font disk (****GS Font Collection #3****) for just $8. NAUG provides what is perhaps the most complete, best-supported and updated GS (and TrueType) font library available. At press time, for example, a rare Hebrew font disk was added to NAUG's already impressive collection.*

Apple IIe and IIc users may want to keep in mind that so-called GS fonts are compatible with certain 8-bit programs such as ***Publish It! 4*** *and* ***AppleWorks 3.0*** *(with* ***TimeOut SuperFonts****), as well. Whatever program you use, you're on the right track, Leona. From experience we can tell you that the public-domain 24-point calligraphy font looks great on class-reunion name tags, among other things.*

ON THE MOVE

WHAT IS HYPERMOVER — A tool or an authoring system? Where do I get it? Is it for Macs or GSes?

Mollie Ann Matlaf
Oxnard, CA

HyperMover 1.1 *is one of the Apple IIGS' best-kept secrets, Mollie. This easy-to-use utility, written by HyperCard IIGS 1.1 author Darin Acquistapace, lets you convert hypermedia stacks from HyperCard IIGS to Macintosh HyperCard and vice versa. That means you can share your HyperCard IIGS stacks with*

Mac-using friends or expand your HyperCard IIGS library with converted Macintosh stacks.

We used HyperMover GS recently to "dismantle" a crime-awareness stack we designed with HyperCard IIGS. Then we used Macintosh HyperMover to "rebuild" the stack on our Mac LC.

Note that HyperMover doesn't translate any XCMDs (extended commands) you may have incorporated, but many home-grown stacks or classroom projects don't include these sophisticated features anyway.

If you're chomping at the bit to experience the power of HyperMover, you can download it from information services such as ***America Online****. (You'll need a modem and telecommunications software to go on line; the investment is well worth it.) Be sure to download both the Apple IIGS and Macintosh modules; together they make up the complete HyperMover system.*

Because on-line services typically compress these files — such "archives" require less storage space and less download time — make sure you have the appropriate "unpacking" utilities. You'll need ***ShrinkIt GS*** *for the Apple IIGS and* ***StuffIt Classic*** *(or* ***UnstuffIt****) for the Macintosh. All are available on line.*

It took us about an hour to download HyperMover 1.1 (and everything else we needed) to a Mac LC via a 1200-baud modem. The process set us back about $15 for non-prime-time connect fees and long-distance telephone charges. (With toll-free access to an on-line service, the overall cost should be significantly less.)

If you don't require immediate gratification, order HyperMover 1.1 from Resource Central for $15. The company will send you the ready-to-use Apple IIGS and Macintosh disks you need.

GS HANDIWORK

I'M TRYING TO LOCATE ONE OR more programs that would let me make graphs for cross-stitching. If the particular program that comes to mind is for an IBM PC, I'd like to hear about it anyway, because I'm considering purchasing an IBM clone.

Diane Hubbard
Morganton, NC

Why spring big bucks for a Big Blue system, Diane, when the Apple IIGS is all you need? Raptor's ***Craftmaster II*** *lets you create custom needlework designs on a 1.25-megabyte GS. A 64K Apple IIe/IIc version of* ***Craftmaster*** *is also available.*

G R A P E V I N E

PRINTER MUSINGS

✔ The $64,000 question for this moon cycle was about printers and the Apple II. Weeks of research and reams of testimonials gathered from around the world have been distilled down into these few words. The consensus? If you want high-quality print without paying a premium for the Apple logo (All Rights Reserved, Copyright, Registered Trademark, and so on), you should consider a Hewlett-Packard **DeskJet 500** or **500C** laser-quality thermal ink-jet printer, a Hewlett-Packard **LaserJet IIP+** laser model, or one of a dozen LaserJet IIP clones available from such companies as Epson, NEC, Okidata, and Panasonic.

✔ In numerous discussions held on America Online, CompuServe, GEnie, and Internet, we learned that to use any of these printers with any standard Apple IIGS program, you'll need the set of GS/OS printer drivers provided with Seven Hill's **Independence** or Vitesse's **Harmonie**. Both companies also carry a special serial cable you'll need, or you might want to choose a parallel interface card, which will drive the printer much faster. With Harmonie or Independence, you'll be able to print documents using any GS bit-mapped font. All these printer models are reported to work flawlessly with **Pointless**, WestCode's TrueType font-interpreter utility for the GS.

✔ Printing from text-based ProDOS 8 programs on a IIe/IIc or GS uses the printer's built-in fonts; just specify in your software's installation module what type of interface card or port you're using. To print from ProDOS 8 graphics-based programs, you might want to purchase an **Epson Emulation** cartridge for the DeskJet 500 or 500C. Several lower-cost laser clones, such as the Epson **Action Laser II** and the Brother **HL-4V**, come with Epson emulation already built in. If you use AppleWorks Classic, you'll want to set up a "custom printer" to take full advantage of your model's built-in features. If you subscribe to America Online, CompuServe, or GEnie, you can download text files that describe step by step exactly what printer codes you need to enter for the LaserJet IIP, IIP clones, and DeskJet.

✔ If you don't have access to one of the on-line networks, the National AppleWorks Users Group (P.O. Box 87453, Canton, MI 48187) offers a $6 **LaserJet Disk** for use with the IIP and its clones. For ease of use, just copy a file from that disk to your AppleWorks Classic disk, and you'll be printing in seconds. If you use a DeskJet 500, get **SuperPatch** for AppleWorks, $34.95 from Quality Computers (P.O. Box 665, St. Clair Shores, MI 48080), or read Dino Bagdadi's **Using the DeskJet 500 with AppleWorks**, $20 from Resource Central (P.O. Box 11250, Overland Park, KS 66207). It'll give you step-by-step instructions for connecting your DeskJet and using it with AppleWorks.

HELP FROM THIS WORLD

✔ If you're having a hard time completing the first level of Interplay's **Out of This World**, follow this exact sequence: When game play begins, you'll find yourself in a giant tank of water. Press your joystick up or use the up-arrow key to get out of the tank. Then run to your right; when you see the leeches, crouch down and kick all four of them. Then run as fast as you can to the left and jump on the vine. When the vine breaks, run as fast as you can to the right.

PLATINUM EGGS — BUT WHERE'S THE GOOSE?

✔ In a message posted on CompuServe, Doug Gruben informs us of several "Easter eggs." In **Platinum Paint**, hold down the open-apple, option, shift, and control keys simultaneously while selecting About Platinum Paint from the Apple pull-down menu. You'll be presented with a rather unique set of credits. In Dave Tribby's freeware **BlackJack Tutor 3.0**, hold down the shift and option keys while accessing About BlackJack Tutor from the Apple pull-down menu.

— Joe Kohn,
Contributing Editor

CONTACT JOE KOHN AT JOKO AMERICA ONLINE), 76702.565 (COMPUSERVE), J.KOHN (GENIE), 76702.565@COMPUSERVE.COM (INTERNET), OR JOKO@AOL.COM (INTERNET).

THANKS FOR THE MEMORY

APPLE SAYS YOU NEED A HARD drive to run HyperCard IIGS 1.1, but I run it successfully from a large RAM disk with FlashBoot. Maybe some other *inCider/A+* readers can benefit from this little "discovery."

John Albee
Davenport, IA

Way to go, John. We tested your tip with a 4-megabyte Apple IIGS, System 6.0, and one Apple 3.5 drive — a pretty bare-bones system if you overlook the pumped-up memory for a moment. (Stay tuned for late-breaking news about GS memory prices.)

To run ***HyperCard IIGS*** *without a hard drive, start up your GS with the GS/OS* System *disk. Pull down the* Apple *menu, select* Control Panels, *and click on the RAM-disk (*random-access memory*) icon — it looks like a diminutive green circuit board. Set the RAM disk to 2048K, a size that's sufficiently large to hold the contents of at least two 800K 3.5-inch disks.*

Insert the HyperCard IIGS Program *disk into the 3.5-inch drive. Drag the HyperCard IIGS program-disk icon to the RAM-disk icon. In a matter of minutes — and with surprisingly little disk swapping — HyperCard IIGS will take up temporary shelter in a folder on your RAM disk. If you'd like to have some HyperCard IIGS documentation available on line, copy the contents of the* Help *disk to your RAM disk, as well.*

Double-click on the desktop RAM-disk icon to open its window. Open the HyperCard IIGS *folder and double-click on the HyperCard IIGS icon to launch the program.*

It's easy to explore the ready-made stacks Apple provides with HyperCard IIGS — just insert one of Apple's stack disks into your 3.5-inch drive and open the appropriate file. On a single-drive GS you'll have to insert the System *disk occasionally, but your GS will prompt you when necessary.*

If you're designing custom stacks for your own personal or classroom use, you can store each new stack-in-progress on your RAM disk. HyperCard IIGS automatically saves most of the changes you make to a stack. This convenient safety net protects stackware authors from human error, brownouts, and power failures.

But a RAM disk's contents are volatile, *which means they're lost forever when the power goes out. If you're using a RAM disk for temporary stack storage, the auto-saving feature offers little comfort unless you save a copy of your stack to a physical disk from time to time — and especially before shutting down your GS.*

Okay, so dragging a copy of HyperCard IIGS to your RAM disk each time you use your GS is, well, a drag. You can save yourself the aggravation by investing $30 in Quality Computers' ***FlashBoot****. After you configure your RAM disk as described above, FlashBoot will save the setup on self-booting floppy disks.*

When you purchase a 4-megabyte ***Q-RAM GS*** *card from Quality Computers, you get FlashBoot free. The Q-RAM GS card uses SIMMs (*single in-line memory modules*) that are compatible with both the Mac and the GS — a sound investment in your computing future as well as in the here-and-now.*

If you're interested in short-term savings, Roger Wagner Publishing's fall catalogue features the economical 4-megabyte ***Apple IIGS RAM Card*** *for $149. The bottom line? For less than $150 you can pump up your GS with 4 "megs" and run HyperCard IIGS.*

The price of RAM has fallen so dramatically in recent years there's no time like the present for GS users to upgrade. We've already described how extra memory lets you run HyperCard IIGS (or other RAM-disk-compatible programs) without a hard-disk drive. But abundant RAM offers other advantages, as well.

For one thing, ***AppleWorks GS****' memory lapses become things of the past. Even many 8-bit productivity programs benefit from the added breathing space that 4 megabytes of memory provides.*

Install a RAM card in your GS (literally a snap to do) and you'll be ready to write your Great American Novel or design killer spreadsheets that would make even AppleWorks expert Ruth Witkin envious.

For a definitive look at Apple II memory considerations, be sure to check out Gregg Keizer's recent feature "Silicon Surgery," October 1992, p. 32.

APPLE CLINIC IS A FORUM FOR ANSWERING YOUR QUESTIONS ABOUT APPLE II AND MACINTOSH HARDWARE AND SOFTWARE. ADDRESS YOUR CORRESPONDENCE TO APPLE CLINIC, 80 ELM STREET, PETERBOROUGH, NH 03458, AND ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE. BECAUSE OF THE VOLUME OF LETTERS, HOWEVER, WE'RE UNABLE TO RESPOND TO ALL QUESTIONS INDIVIDUALLY.

CLINIC REFERRALS

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

Apple IIGS RAM Card
Roger Wagner Publishing
1050 Pioneer Way
Suite P
El Cajon, CA 92020
(800) 421-6526
(619) 442-0522
(619) 442-0525 fax
$149 4MB

AppleWorks GS 1.1, $299
AppleWorks 3.0, $249
HyperCard IIGS 1.1, $69
Claris Corporation
5201 Patrick Henry Drive
Santa Clara, CA 95052
(408) 727-8227

Craftmaster, $59.95
Craftmaster II, $99.95
Raptor, Inc.
P.O. Box 20756
Louisville, KY 40250
(502) 491-6828
(502) 895-5216 fax

FlashBoot, $29.95
GS/OS System 6, $29.95
includes **The System 6 Book**
by Jerry Kindall
Q-RAM GS, $219.95 4MB
TimeOut SuperFonts, $42.95
Quality Computers
20200 East Nine Mile Road
Box 665
St. Clair Shores, MI 48080-0665
(800) 443-6697
(313) 774-7200
(313) 774-2698 fax

GS Font Collection #3,
$6 plus $2 shipping
GS/OS System 6,
$25 plus $2 shipping
no manual
National AppleWorks
Users Group
NAUG
Box 87453
Canton, MI 48187
(313) 454-1115
(313) 454-1965 fax
$5 catalogue
$2 credit toward first order

GS/OS System 6, $39
includes **Apple IIGS System 6**
User's Reference
by Apple Computer
HyperMover 1.1, $15
ProDOS, $14
latest version available
Resource Central
P.O. Box 11250
Overland Park, KS 66207
(913) 469-6502
(913) 469-6507 fax

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Timeworks, Inc.
625 Academy Drive
Northbrook, IL 60062
(800) 323-7744 orders
(708) 559-1300
(708) 559-1399 fax
$149

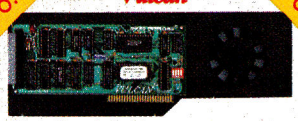
TimeMaster H.O.
Applied Engineering
P.O. Box 5100
Carrollton, TX 75011
(214) 241-6060
$99

Inventory Reduction

Vulcan

System 6.0!

80MB



The Cadillac of Apple hard drives, given a "5-star" rating by *InCider*. Vulcan comes complete with a heavy-duty power supply, 16-bit ultra-fast controller (GS), built-in CDA, pseudo-slotting, and support for GS/OS, ProDOS, DOS 3.3, Pascal 1.3 & CP/M.

— Up to 9 times faster at the same low price —

Vulcan 40MB $569
Vulcan 100MB $949
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MEMORY EXPANSION

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GS-Ram Plus 1MB (GS) $205
Special! RamWorks 1MB $175
RamFactor 1MB (IIe, II+) $264
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Z-Ram Ultra 3 1MB with clock (IIc) $299

SPECIAL! -- Used Apple 1MB memory boards with 256K installed. Great condition. 30 day warranty $39!

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256K Chips (bank) $24

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TransWarp GS w/32K Cache $285
TWGS 32K Cache (Make your TransWarp GS 22% faster!) $79
TransWarp (Original accelerator for II, II+ and IIe) $89

COMMUNICATIONS

DataLink 2400 bps (int.) $160
DL 2400 w/SendFAX! (GS) $199
DL/X 2400 w/MNP-5 & FAX $239
Zoom Pack — includes MX2400, ReadyLink & Cable ... $129

ADDITIONAL HARDWARE

Applied Engineering
Conserver Fan (GS) $77
TimeMaster HO (GS, IIe, II+) $79
IIe/II+ Power Supply $59.95
Parallel Pro $77
Special! Parallel Pro w/32K Buffer $119
Serial Pro $89

AE Disk Drives
New! 3.5" 1.6MB (GS) $237
3.5" 800K (GS, IIe, IIc+) $189
3.5" Controller Card (IIe, II+) $65
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5.25" Controller Card (IIe, II+) $55

KeyTronics
ADB Keyboard (PCT/GS) $139

Magnavox
CM135 Analog/Digital RGB Monitor (includes digital cable-IIe, GS) $299

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Battle Chess GS or Xenocide $31.95
New! Hover Blade GS $32.50
New! Secrets of Bharas GS $39.95
Tetris $24.95

Applied Engineering Upgrades
AppleWorks 3.0 Expander $15.00
New! Vulcan Gold-cache Upgrade $49.00

Applied Engineering 3.5" Drive

Finally, a low cost, fully compatible 3.5" 800K drive. Features high quality Sony drive, molded cable and daisy-chain port. Or, double your storage capacity with the AEHD 3.5" drive that includes all the features of the 800K drive, plus 1.6MB capacity!

AE 800K 3.5" Drive $189
Plus Drive (Mac Plus, SE) $299

New! PC Transporter "v2.05 " $15.00
New! ProDOS TimePatch $15.00

Beagle Bros.
Platinum Paint $58.95

Brøderbund
Bannermania $24.50
New! Printshop $29.95
Printshop GS $36.50

Central Point Software
Copy II+ "v9.1" $35.00

Claris
Appleworks 3.0 ..... $169.00
Appleworks GS $199.00

Glen Bredon
Prosel 16 v8.7 ..... $74.95

PC Globe
GeoQuiz GS, or Geo Puzzle IIe $29.95

Seiko
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SoftSpoken
Cross-Works 2.0 ..... $68.50

Timeworks
Special! Publish It! 4 ..... $89.95

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We are currently overstocked on several memory boards, hard drives, accelerators, modems and many other items. Call us for details!

Examples:

RamFactor Zero K....$39
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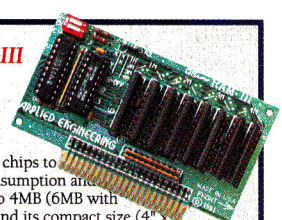
WestCode
New! Pointless GS $49.95

Ribbons
Value Pack (5 ribbons) $14.50
Value Pack (3 ribbons) $16.50

NEW!

GS-Ram III

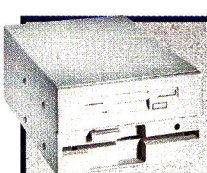


Applied Engineering's GS-Ram III uses the new low cost, high performance 1MB x 4 chips to ensure low power consumption and less heat. It expands to 4MB (6MB with AE's 2MB expander) and its compact size (4" x 2.5") leaves plenty of room for other peripherals.

GS-Ram III 1MB $139
GS-Ram III 2MB $189
GS-Ram III 3MB $249
GS-Ram III 4MB $299

Fax in Your School P.O.!
(214) 247-8151

PC TRANSPORTER CORNER



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PC Transporter $229
IIGS Kit $36
IIe/II+ Kit $29
MS DOS 4.01 ..... $85

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Combo 5.25" & 3.5" reads & writes 360K & 720K $289
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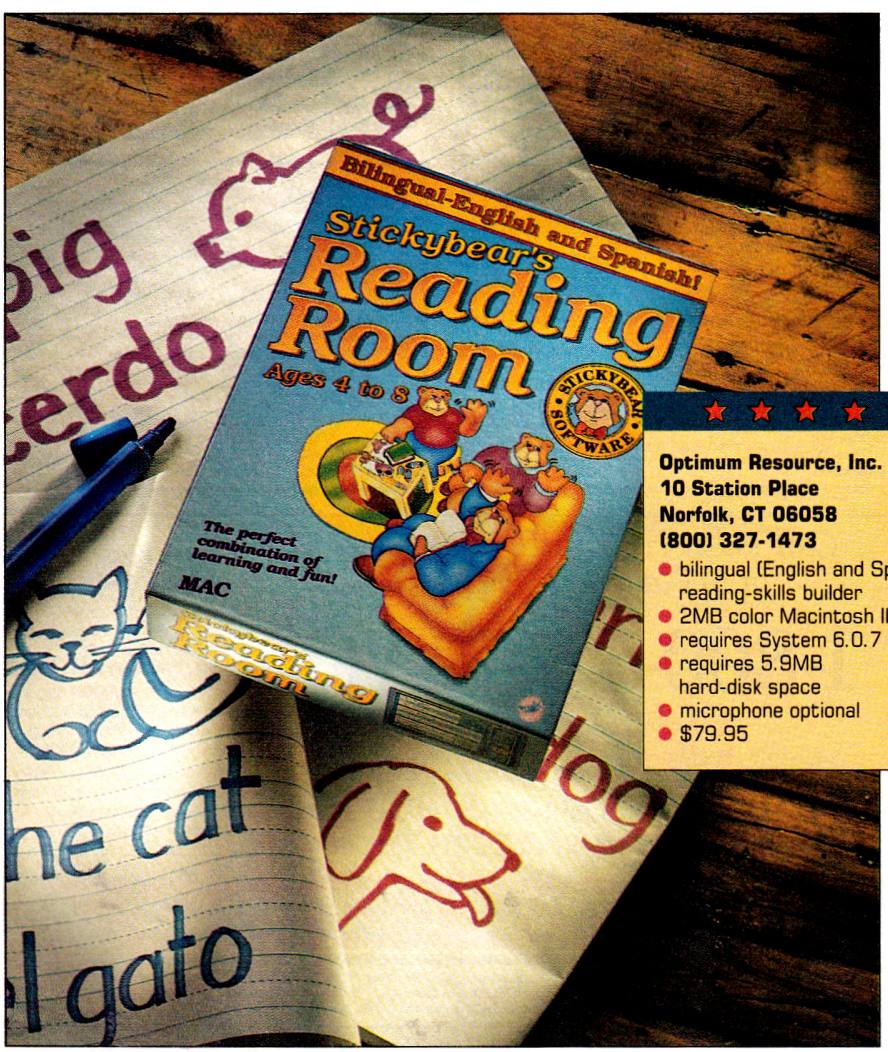
STICKYBEAR'S READING ROOM

Unearthing a product that outperforms its advertising is rare, but Stickybear's Reading Room is just such a gem. Optimum Resource promotes it as a reading-skills builder for ages 4 through 8, but Reading Room is just as effective for vocabulary development with 2- and 3-year-olds and for older children or adults practicing Spanish or English as a second language. Reading Room is also one of the few products offering a useful application for the Mac's microphone capabilities.



★ ★ ★ ★ ½

Optimum Resource, Inc.
10 Station Place
Norfolk, CT 06058
(800) 327-1473

- bilingual (English and Spanish) reading-skills builder
- 2MB color Macintosh II
- requires System 6.0.7 or later
- requires 5.9MB hard-disk space
- microphone optional
- $79.95

Upon booting, a menu appears, bearing Stickybear's characteristically plump graphics and bright sound. No matter which of four activities you choose, you can toggle speech or text between English and Spanish at any time and in any combination. For instance, the text can be in English while the speech is in Spanish, or vice versa. For foreign-language students this is a plum.

MIX AND MATCH

Among Reading Room's four activities is *Word Bop*, the program's shooting gallery of sorts. A cannon trundles back and forth at the behest of the arrow keys and fires by spacebar. The first hit on, say, a turtle transforms the little green fellow into the word *turtle* or *tortuga*, depending on whether text is set to English or Spanish. The announcer reads the word; bopping the little guy twice more pops him off screen and lets players aim for higher targets. *Word Bop* doesn't pretend to be a professional arcade game, and response time can be frustratingly slow. Nevertheless, it succeeds as entertainment. Even a 3-year-old can use the spacebar to shoot, and there are enough difficulty levels to challenge older players. More importantly, *Word Bop* helps build speaking vocabulary in young children, reading vocabulary in older children, and both in learners of a second language.

Word Match includes two randomly interspersed formats. Players may hear and see a command such as "Find the pumpkin," along with six picture options. Or a pumpkin picture may appear silently, along with six text options. Click on the right answer, and the picture comes alive or the announcer reads the matching text. Children find *Word Match* engaging, but it mixes two very different skill levels inappropriately. When listeners hear "Find the pumpkin," they only need to recognize the word "pumpkin" and click on its picture. On the other hand, when a student merely sees a picture of

Photography • Larry Dunn

the pumpkin, he or she must recall the word and then recognize or use phonetic clues to determine which of the six options spells *pumpkin*.

While the first task makes sense for toddlers learning a first language or beginning students of a second language, the second part is more realistically aimed at 5- or 6-year-olds learning a first language, or more-advanced second-language students.

Toddlers or less-experienced second-language learners have to skip over the more-difficult *Word Match* format each time it's generated randomly, and very young children may need an adult to help them find the advance icon.

Optimum Resource's program designers could easily revise Word Match and separate the two formats so that beginners can use the game. They could even delete the more-difficult format; its skills wouldn't be lost because they're duplicated in the next game, *Word Find*.

ON TO THE NEXT LEVEL

The last two activities, *Word Find* and *Sentence Builder*, are for more-advanced students.

Word Find asks learners to complete a sentence to match a picture. For instance, "The ____ dances with the sheep" appears above a cartoon of a cow and a sheep doing the two-step. If the student chooses the correct word, *cow*, from three options, the livestock begin hoofing it to musical accompaniment while the announcer reads the sentence.

Word Find develops the same skills as the difficult format in *Word Match*. In addition, it encourages readers to begin using contextual clues to fill in the blank.

I first saw a program like *Sentence Builder* at an educational-computing conference ten years ago. Two professors were demonstrating the result of a research project costing megabucks and requiring Control Data's megalithic PLATO system to run. A decade later, any Mac owner can afford *Sentence Builder* — with sound and recording capabilities never dreamed of by those PLATO pioneers.

Sentence Builder lets learners develop a sentence by choosing a subject, a verb phrase, and an object. The choices are presented in a text menu, with visual aids for the subject and object. When you click

FIRST IMPRESSIONS

PERFORMA 400

Apple Computer Inc.
20525 Mariani Ave.
Cupertino, CA 95014
(408) 996-1010

Never mind the hype that Apple's been blowing about a design "based on the Macintosh LC II." Physically, the only difference between the LC II and the Performa 400 is where you buy it and how much you pay. Package-wise — that's another story.

If Apple decided it had to repackage an LC II, at least it repackaged a well-equipped LC II. Like every LC II, the Performa 400 comes with 4 megabytes soldered onto the motherboard — just enough memory to run System 7 and another good-sized application. Unlike the standard LC II, Apple also includes 512K of VRAM, or video memory, which pumps the display up to 256 colors, plenty for most home uses. The Performa also comes standard with an 80-megabyte hard drive — a generous chunk of storage space. Also included are the standard serial, ADB (Apple Desktop Bus), and floppy ports, plus a single processor-direct slot (PDS) that will accept anything that you can plug into an LC II, including a IIe Emulation Card.

The biggest change doesn't have anything to do with the CPU. Performa 400 (and 600) buyers can choose between two monitors, the Performa Display or the Performa Display Plus, but those accustomed to the usual high-resolution Mac screens are in for a disappointment. While Apple still lists the monitors as RGB, they're actually VGA-style monitors of the sort that the PC clone world has been using for years. What's the difference? A somewhat larger dot pitch (distance between pixels), hence a fuzzier display. On the other hand, both Performa Displays feature a 14-inch tube, a size that commands a hefty sum if you're looking at a traditional Mac monitor. Again, the 14-inch screen is larger than both the LC II's "standard" 13-inch AppleColor High-Resolution RGB Monitor and the more reasonably priced 12-inch RGB Display. For most people, savings will overshadow less-than-crisp visuals.

Apple preloads the Performa line with System 7.0.1P/7.1P and At Ease — a kinder, gentler Finder. According to Apple, the idea is to provide the power of System 7, while protecting casual users from information overload. Click on an icon and the Performa runs the corresponding application. Along the way, it automatically hides the Finder and whatever background applications you may be running.

Each Performa is sold with an integrated package — GreatWorks (Symantec), ClarisWorks (Claris), or Microsoft Works (Microsoft). Other amenities range from the sensible (an easy hard-drive backup program) to the frilly (256-color desktop patterns).

Buying a Performa requires two decisions. The first is "Do I want a Mac-style computer or do I want a PC clone?" In the past, buying a Mac was a serious strain on the wallet. Performas have no set suggested retail price, but the 400's averaging $1200, roughly. You're still paying a premium, but this Mac enters the realm of affordability.

Your second decision is "Do I want this Mac-style computer?" Depending on your needs, the answer is a tentative yes. The 400's biggest drawback is slow speed. Go try one out and if you like it, buy it. If you're tearing your hair out after a minute and a half, hold out for a 600.

Two final points. First, if you can, wait for one of those famous post-Christmas sales. Second, immediately buy two 1-megabyte SIMMs (single in-line memory modules) to pump up your RAM to 6 megabytes. You can expand more later if you feel the need, but this 2-megabyte upgrade should cost you only about $80. You'll breathe a lot easier with some extra elbow room.

The folks at Apple have been chasing the elusive "home computer" market for more than ten years now — maybe this time they got it right.

— Cameron Crotty, inCider/A+ staff

on a choice in each category, the program reads the sentence and dramatizes it before your very eyes. It's fun because students can create silly sentences like "The hippopotamus jumped over the bed."

For young children with adult assistance, *Sentence Builder* can help teach opposites such as *race* and *walk* or *in front of* and *behind*. For beginning readers it encourages contextual, comprehension, and inference skills. For second-language students it provides various activity levels, depending on the combination of English and Spanish text and speech used.

If the microphone option is on, the computer asks learners to read their creations aloud; then it plays the recording back to back with the announcer's version for comparison. This method is superb for refining a foreign accent or for practicing reading.

According to the documentation, learners should be able to print sentences during the *Sentence Builder* activity, too; I found, however, that you can in fact print only after returning to the main menu.

POP QUIZ

Reading Room provides a scoring system and recordkeeping options. While fine for home use, the recordkeeping system is inadequate for classrooms. The first three activities in Reading Room include a test mode and a play mode. In test mode, the program keeps records of the number and percentage of successful tries. Teachers must access or print each student's record individually.

Although the mixed skill levels in *Word Match* disappointed me, Reading Room remains the only product I might buy for 3-year-olds and expect them to use at 15 — if they can slide into the computer chair in front of their parents. My only question is: When are the French and German versions appearing?

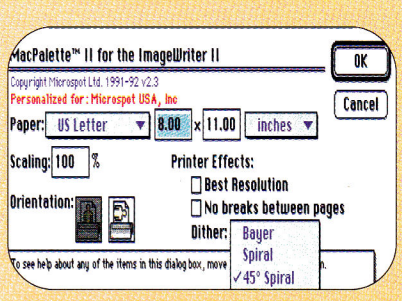
Jeanne Dietsch
Peterborough, NH

★ ★ ★ ★ ★

MACPALETTE II 2.2

Microspot
20421 Stevens Creek Boulevard
Suite 240
Cupertino, CA 95014
(800) 622-7568
(408) 253-2000
(408) 253-2055 fax

- color printer driver
- 1MB Mac LC/LC II, SE/30, or II
- requires ImageWriter II
- $69
- $249 AppleTalk version
- demo disk free



APPLE II REPORT

MUST BUY!
FORGET IT
WORTH A SECOND LOOK

ALPHABET FUN: BIG AND LITTLE LETTERS

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

- new reading package
- 48K Apple II
- $39.95

Three colorful game-like activities (Fun on Ice, Sea Pals, and Cat Nap) use animated pictures of familiar animals to teach beginning readers (grades pre-K through 2) alphabet skills. Youngsters learn to recognize and identify alphabet letters, arrange letters in proper sequence, and match lowercase characters with their uppercase equivalents. Entertaining audiovisual rewards motivate play. Special teacher options let you customize activities. This is a fun way to build pre-reading skill.

THE BRAIN & NERVOUS SYSTEM

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

- new science package
- 48K Apple II
- $39.95

Sure, you know the ankle bone is connected to the leg bone, but do you know how human body systems work? How about the human brain — the biggest mystery of all? In this animated multiactivity package, three tutorials and three games teach students in grades 4 through 8 about the structure and function of the human brain — and it's guaranteed they'll be fascinated. Dr. Micro and his trusty robot companion show kids how the brain works and how it controls the body's nervous system, reflexes, and senses. Tutorials use colorful graphics and sounds to introduce important concepts and pique kids' interest. Follow-up questions test how much students have learned. This package makes a great supplement to an in-class unit on the human body.

DATA AND DECISIONS BAR GRAPHER

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

- new math package
- 128K Apple II
- $89 Teacher Kit, $17 Group Kit (4 students)

Traditional math packages build competence by having kids practice newly introduced concepts through routine drills. In Data and Decisions (part of Wings' Journey in Mathematics series), kids learn to do math by making decisions about situations they're likely to encounter every day. The package consists of several activities requiring youngsters to gather information about taste, sugar content, and cost of breakfast cereals. Bar Grapher software (only one element in the overall package) shows kids how to organize and display their research findings in tables and graphs. This is a great collection of resources, teaching materials, lesson plans, and student activities that'll make kids think about math in exciting new ways.

Before the introduction of the Macintosh LC some two years ago, *color* was nowhere to be found in the average Mac user's lexicon. To no one's surprise, Apple's first affordable color Mac has been a big hit, particularly in K-12 education. Whether you're designing handouts, enjoying a little R&R, or creating original art with PixelPaint, color adds a seductive dimension to virtually any computing task.

But the wrench in the color-computing works has always been the ImageWriter II's ineffective rendering of screen colors on paper. Although it's one of the least-expensive color-capable printers and has long enjoyed special status as a standard Apple output device, the ImageWriter II doesn't exactly shine where color's concerned. Even a casual comparison between the screen version of a landscape painting, say, and its ImageWriter II counterpart reveals a rip-your-eyes-out quality loss. Gone are the crisp, brilliant colors you see on screen. Worse, colors on paper very often don't even match what you see on screen. Turquoise and teal, it seems, are matters of opinion to an ImageWriter II.

Just as the LC changed the way you look at the Macintosh, MacPalette II may change the way you look at your printer. Depending on the program you use to design color documents, the quality of the printouts you generate with a four-color ribbon and MacPalette II will amaze you. Even if you've upgraded to a laser printer for most of your work, MacPalette II provides reason enough to bring your ImageWriter II out of retirement.

COLOR US IMPRESSED

Microspot's MacPalette II supports both color graphics and color text, and, acccording to the publisher, the product is fully compatible with Adobe Type Manager, TrueType, and System 7.0. Any program that can mimic more than a quarter-million colors on a nine-pin dot-matrix printer must be difficult to install, a bear to use, or prohibitively expensive, right? No, no, and no.

Just insert the MacPalette II disk into your Mac's floppy drive and drag the icon into the *System* folder. MacPalette II will be ready and waiting each time you start up your computer. When you want to print a color (or gray-scale) document on the ImageWriter II, pull down the *Apple* menu, open the *Chooser*, ignore the original ImageWriter II icon, and select the newly installed MacPalette II icon instead.

MacPalette II generates its own *Page Setup* and *Print* dialogs. As usual, you access these pop-ups from the *File* menu. Unusual, however, is the on-line help each dialog provides. When you drag the mouse over an option, a plain-English annotation appears in a shadow box at the bottom of the dialog. It's the first time we've seen *Font Substitution* so clearly defined, for instance.

DILEMMA II: MAKING CHOICES IN DIFFICULT REAL-LIFE SITUATIONS

Educational Activities, Inc.
P.O. Box 392
Freeport, NY 11520
(800) 645-3739, (516) 223-4666

- new reading program
- 48K Apple II
- $159 4 units with back-ups, $49.95/unit

Dilemma II is designed to strengthen the reading and comprehension skills of teenagers and young adults who read at grade levels 2 through 5. The package contains four units, each with four high-interest, illustrated stories about real-life situations. Stories focus on typical problems, such as peer pressure, drunk driving, drugs in sports, and so on. Readers make decisions that affect story outcome, but choices are neither "right" nor "wrong." Follow-up questions test comprehension and vocabulary. An on-line dictionary contains definitions of difficult words. Dilemma II contains a wonderful assortment of thought-provoking contemporary readings with reproducible activity worksheets to sharpen reading skills.

LETTER RECOGNITION SKILLBUILDER SERIES

Edmark Corporation
6727 185th Avenue NE
Redmond, WA 98073-3218
(800) 426-0856, (206) 861-8200

- new prereading skill builder
- 128K Apple II
- requires color monitor, Echo speech processor
- $129.95 6-disk bundle

This package is designed for students with developmental, cognitive, or motor learning disabilities. Three interactive lessons (Learning the Letters, Begins with ABC, and Reading Primer) teach early-language and pre-reading skills. Youngsters learn letter recognition and match upper- and lowercase characters and words with a beginning or ending letter. The disk provides practice with more than 75 words (some with colorful graphics). Kids can hear letters and words spoken if the computer has an Echo speech processor installed. This software works with a keyboard, TouchWindow touch screen, or single-switch input device. It's expensive, but well conceived.

PROBABILITY LEVELS I & II

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

- new math package
- 64K Apple II
- $60 each, $90 bundle

These software packages develop better understanding of "probability" theory (prediction of events whose outcomes are uncertain). They're designed for high academic achievers in middle school and high school who have already completed a first course in algebra. Both programs contain interactive tutorials that introduce basic concepts and methods, with practice drills to reinforce lessons taught. Students learn about the significance of probability, solve problems, and receive feedback, progress reports, and opportunities for additional practice. On Level I, youngsters work with independent and complementary events. Level II continues with more-advanced topics and verbal problems. Teachers will find these packages useful as supplements to in-class instruction.

— Carol S. Holzberg, Ph.D.

MacPalette II replicates screen colors by *dithering*, or mixing, pixels (*picture elements*) representing the eight primary colors: black, white, red, blue, green, cyan, magenta, and yellow. An ImageWriter II ordinarily supports only these eight colors, but MacPalette II's *Best Match* feature uses a large, scattered color dither that can create a visual impression of 250,000 or more different hues.

During our tests, *Best Match* worked well with programs such as PixelPaint, Publish It! Easy, and Dreams. Each of these programs provides the artist, desktop publisher, or designer with a large paint palette from which to select colors.

We were simply awed by the full-color printouts MacPalette II created from sample professional artwork provided with PixelPaint 2.1, a program that in itself doesn't support color printing on the ImageWriter II.

MacPalette II provides three printing options; print speed and color quality are indirectly proportional. The *Best Match* option, for instance, requires the longest printing time, especially when documents sport dozens of different colors.

You know how long it takes to print documents in mediocre color, so it should come as no surprise that printing complex, full-color documents also takes time — as long as 22 minutes for some of the two dozen or more pictures we printed. The results are well worth the wait, though, particularly if you use a top-quality ribbon. This is no time to economize with cheap ribbons and flimsy paper.

Because no dithering calculations are required, MacPalette II's *Small* (or *Fastest*) option may be the best choice for documents featuring only the eight primary colors described above. For example, we used *Small* successfully to generate a good-looking color printout of a MacWrite II document in which we incorporated spot color in subhead text. We also used *Small* to print a gray-scale image of a MacPaint scan of Roseanne "O, Say Can You Seeeeee" Barr. (You can print gray-scale images with either a color or a black ribbon.)

MacPalette II's *Medium* (or *Faster*) option seems to work best with programs such as FileMaker Pro that offer intermediately sized paint palettes. To borrow a real-estate phrase, MacPalette II's highest and best use would seem to be with graphics programs featuring 256-color or larger paint palettes. It's fair to say that the more you demand from MacPalette II, the better it performs.

PROOF'S IN THE PRINTING

MacPalette II uses Color QuickDraw routines (programming instructions) to do its thing and is therefore incompatible with programs that support only PostScript devices. Microspot explains that while Adobe Illustrator is a PostScript-only product, an alternative program, Aldus Freehand, supports both color PostScript and color QuickDraw output. This kind of flexibility lets an illustrator use MacPalette II to generate color drafts on an ImageWriter II and final output on a service bureau's color PostScript device, for instance.

We weren't able to experiment with every graphics program known to man — or Macintosh. But Easy Color Paint 2.0 was the only program tested that used its own built-in ImageWriter II driver to generate color printouts superior to those generated by MacPalette II.

Whether you're talking about TVs, newspapers, or personal computers, color is where it's at in the '90s. The burgeoning popularity of the Mac LC probably underscores that point. But color's no longer something to enjoy only when you peer into your Mac's display.

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

SPACE FOX

Seven Hills Software
2310 Oxford Road
Tallahassee, FL 32304-3930
(904) 576-9415

- arcade-style space shoot-'em-up
- 1MB Apple IIgs
- requires System 5.0.4 or later
- $30

Once in a while, if you keep your eyes open, a game comes along that somehow manages to combine the best of the old with the excitement of the new.

That's what Space Fox is. Created by the Swiss programming team Bright Software, Space Fox is quite similar in many ways to a number of the first generation of fast-action, outer-space shoot-'em-up arcade games that were so popular ten years ago — but oh, what a difference a decade of development makes.

LAUNCH PAD

It wears its heritage well: Space Fox combines elements from such arcade classics as Space Invaders, Defender, and Galaxian, yet has of course been updated to take advantage of the GS' superior graphics and musical capabilities. If you liked playing those old arcade games, you should revel in Space Fox.

The game is supplied on two non-copy-protected, non-bootable disks; one contains the game, while the other includes ten SoundSmith-generated songs that serve as the soundtrack.

You'll need to launch Space Fox from System 5.0.4 or later, yet it's not included in the package. Although Space Fox works just fine on a GS with only one 3.5-inch drive, two drives or a hard disk cuts down on the amount of disk swapping.

WARP ONE

As the game begins, you'll find yourself peacefully piloting your small space vessel at warp speed across an animated star field, but within seconds you'll fall under attack from wave after wave of incoming alien starships.

Unfortunately, you'll also soon discover that your ship is only barely adequate when it comes to both offensive and defensive maneuvers.

You'll be able to squeeze off only one slow shot at a time; while dodging the vastly superior enemy armada, you'll need to make every shot count. Although your vessel is equipped with shields, if you depend on them too much you'll deplete them quickly. It's a good thing you've got five lives — you'll need them.

As you proceed, you'll come across lots of bonus objects that can increase your odds in the battle against the incoming hordes of

Continued on p. 48

Æ Update . . .

Performa Peripherals - Æ recently announced support for Apple's new Performa computer line. The announcement outlined 14 different products for the Performa 200, 400 and 600 computers. The products include the Floptical Drive, ShadowLAN Software, DataLink II Express, 3.5" Drives, TransWarp accelerators, FastMath co-processors and power supplies. For a complete list of Performa compatible products call (214) 241-6060, ext 2862.

Æ's new Floptical Drive is now shipping - The Floptical drive is a SCSI 3.5" HD drive that will format, read and write 800k, 1.44MB and 21MB storage media. It will connect to any Macintosh with a SCSI connector and any Apple IIGS with either the RamFast or Apple's High Speed SCSI card. PC Transporter owners can also use the Floptical drive for 800K, 1.44MB or 21MB of MS-DOS storage. The Æ Floptical Drive is exceptionally useful for backups, archives and transferring very large files. Users can back up a 40MB hard drive on only two Floptical disks in just seven to eight minutes. The drive includes a dual SCSI connector which enables easy inclusion anywhere on the SCSI chain. The Macintosh version includes Insignia Solution's AccessPC allowing your Mac to format, read and write MS-DOS disks.

The Applied Engineering drive, including SCSI cable and one 21MB Floptical disk retails for $512 making it the most cost effective storage system available for Macintosh and IIGS owners. Æ's retail price for the 21MB Floptical disks is $24. LRO Computers, based in Woodstock IL, is now shipping the Floptical drives for the IIGS with either Apple's High Speed controller software or the RamFast ROM upgrade. Call 1-800-ASK-4LRO for more IIGS Floptical information.

Special Educational Networking Software Offer - Æ is now offering a special trial offer for ShadowLAN. ShadowLAN allows Macs on an AppleTalk or EtherTalk network to share each other's serial ports. Classrooms equipped with ShadowLAN can share a StyleWriter, Personal Laser Printer, 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 making the best use of the school's peripherals. 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.

The Educational Trial price is only $19, for a fully functional 5-user version of ShadowLAN. ShadowLAN Classroom Version retails for $299. User's who try the 5-user version of ShadowLAN and want to upgrade to 35-user Classroom Version will receive a $19 credit toward the purchase price. For more information on this limited time offer, call (214) 241-6060, ext 2862.

Axcell provides Cellular Communication from your computer - Æ is now shipping a revolutionary communication device called Axcell. Axcell allows a IIGS or Macintosh computer equipped with a modem to connect with a cellular phone and have full modem functionality using cellular lines. It allows computer users on-the-go to take full advantage of today's cellular technology advances. Axcell is a small, light-weight box that is about the size of a pager. It includes a 9v battery for power and 2-color LEDs to monitor your transmission. Axcell includes a standard RJ-11 phone jack, and is compatible with several models of portable and mobile cellular phones. For more information, call (214) 241-6060, ext 2862.

Price Reductions - Æ has lowered the price on several of their Apple II and Macintosh products. For example, the DataLink II Express modem with V.42bis is now only $215; TransWarp LC 25 MHz accelerator is only $513 and TransWarp Classic 16 MHz is only $412. To get a current price list for all Æ products, please call (214)241-6060, ext 1123.

Inventory Reduction Specials - For a limited time, Æ is offering special pricing on RamFactor memory expansion boards. The RamFactor with zero K is only $39 (limited quantities). RamFactor was voted "All Time Favorite Memory Board" by A+ Magazine. It is expandable in 256K increments up to 1MB and offers a piggy-back expansion board that allows for additional expansion up to 5MB. RamFactor is compatible with the Apple II+, IIe and IIGS, and includes Æ's AW3.0 expander and diagnostic software.

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APPLIED ENGINEERING®
The Apple enhancement experts since 1979.
A Division of Æ Research Corporation
(214) 241-6060

POWER
Macintosh Performa 400

Photography • Larry Dunn

HAPPY BIRTHDAY 10th INCIDER/A+ 1983-1993

SOUL OF A NEW MACHINE

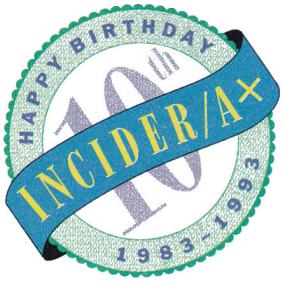
INCIDER/A+ LOOKS BACK AT A DECADE OF APPLE EVANGELISM — AND AHEAD TO A MORE-SECULAR FUTURE.

SOMETIME BETWEEN THE FALL OF 1982 and the spring of 1983, President Ronald Reagan somehow transformed the worst of times — 10 percent unemployment and an attempt on his life — into the best of times, and began to look as though he might be president forever.

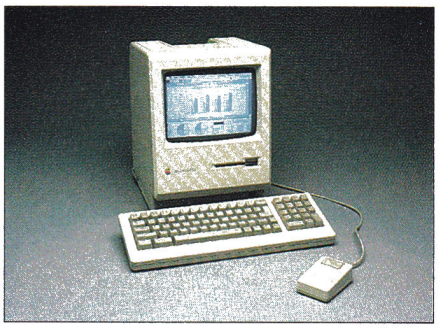
Apple Computer had been an enchanting success story in a time of failure, too, with its Apple I (1976) and Apple II (1977) computers. While Reagan worked his magic with the economy, Apple conjured up the spirit of a "computer for the rest of us" that still haunts Apple ten years after. The incantation "Apple II Forever" still entrances some users.

That same autumn of 1982 in Peterborough, New Hampshire, a group of Apple II fanatics and publishing amateurs created a new magazine, cleverly named *inCider*, for people like themselves: lay-people who believed in Apple II forever. It looked back then as though the Apple II just might *be* forever. But Apple got in the way of that dream, as becomes apparent when we reread in these ten years of *inCider* of the saga of Apple's quest for that mystical "computer for the rest of us."

By PAUL STATT • SENIOR EDITOR



The original Apple I — solid, dependable, expandable — a developer's delight.



The Macintosh Plus, from Apple's early days of evangelism.

IN THE BEGINNING . . .

The cover of the first issue of *inCider* in January 1983 illustrated a TRS-80 miraculously transformed into an Apple II Plus. But the cover blurbs hinted at prophecy: "Lisa . . . January '83? Super II . . . '83? Mac . . . ?" We got the dates right for the next Apple II and Apple's first graphical user interface, but we didn't know when to expect the Macintosh, and had no idea how important it would be.

The Super II turned out to be the Apple IIe. *inCider* was more-or-less born with the IIe, because that was the first "computer for the rest of us." Apple manufactured millions, not thousands, of IIes, and each embodied the best attributes of personal computers. Previously, Steve Jobs and Steve Wozniak had handcrafted Apple Is and IIs in Jobs' garage. So the Apple II was a computer you might put together yourself: long-lasting, solid, unbreakable, expandable. It was built to be the only computer you'd ever need: It wouldn't break, and you could add peripherals to it as they became available.

And plenty of peripherals did appear, nearly overnight. That's because the Apple II was the original "open system." (Interesting that Apple is no longer considered an "open systems" manufacturer.) Apple gave everybody who bought a II enough information to build one, program it, and add their own interfaces, if they had the inclination. Even the II's internal language (the system monitor) was open to view. That made it relatively easy to glorify a II with extra equipment and new programs, and just about every early buyer became a software developer or hardware manufacturer.

Birth of a notion: Apple cofounders Steve Jobs and Steve Wozniak developed their new machine and handcrafted the early models in Jobs' garage.

The Apple II became the center of a third-party market that grew exponentially: Each computer Apple sold resulted in the buyer creating a new use for it. Each new application attracted scores of new users, who began the cycle over again. Apple wasn't a computer company selling computers: It was the center of a movement of evangelists who spread the word and proselytized among the unbelievers — all because the Apple II was an open system.

What did *inCider* think of the IIe? In our review we noted that "Apple's newly found consumer awareness is based on economics. The novice computer user is responsible for an increasingly large percentage of the market . . . . What need does the novice have for an unfriendly machine?" It's an interesting question, and one that could be asked — in 1993 — of the Macintosh Performa line (photograph, p. 26). The tension between the consumer's needs and the engineer's hopes was to dog Apple for the next ten years, and continues today.

APPLE SEEKS SALVATION

Apple was already having trouble deciding which way it wanted to travel. The trouble wasn't the ill-fated Apple III (1980), or the Lisa (1983), Apple's first attempt at a "desktop interface." The trouble was that Apple couldn't make up its mind whether to sell lots of computers, easy to use and at a low price, or the best computer it could make — the engineer's dream. Before we tell you what we said about the Mac, listen to Steve Jobs, interviewed for our March 1984 cover story on the new Macintosh: "I think this is our best shot at getting a computer into the hands of millions of people who normally wouldn't buy one. If this doesn't work, we don't know what else to do."

The Mac didn't work then, at least not immediately, so Jobs and Apple had to create a new kind of product marketing, which they indeed called *evangelism*. The religious metaphor was no mistake; Apple needed to grow a community of believers for the Mac like the community of Apple II enthusiasts they'd come to take for granted. Religion would get software and hardware developers to create their wares on the *faith* that Apple would sell lots of Macs. And religion would help early Macintosh owners *suffer* with a slow machine that had no software.

The differences, however, are obvious: The Macintosh made an institution out of computer religion; the Apple II had fostered genuine religious feeling. The Apple II gospel spread among individual believers, meeting in small groups, writing software and building hardware for each other. But getting the Macintosh — or any of Apple's successive "consumer computers" — into the hands of those millions who didn't know they needed computers was to become a religious obsession with Apple, one that would continue to conflict with its secular obsession with technology.

Here's what *inCider* observed in April 1984: "The Macintosh is the best hardware value in the history (short though it may be) of the personal-computer industry. It is a machine which will appeal to those masses of people who have neither the time nor the inclination to embark upon the long learning process required to master the intricacies of the present generation of personal computers . . . . The Macintosh should establish itself as the next standard in personal computers." In other words, the Mac was "the computer for the rest of us."

Why, if we liked it then, did we ignore the Mac until the introduction of the LC in 1989? In August 1984 we explained our decision. The editorial said simply, "Be True to Your II." Beyond the jingoism we offered some hard facts: "The II can do it all. Not only do Apple IIs do many things, they seldom break down." We waxed cold-hearted: "From a software company's point of view, writing programs for the Apple II makes sense. There is an installed base of happy loyal users numbering in the millions and growing daily." We were right then, but today we'd be lying if we said Apple II users are happy, or number in the millions, or that their number is increasing. We did the right thing at the time. Apple introduced another computer in 1984 designed to work like a II, yet be as easy to own as a Mac.

II THE END

In 1984 Apple spoke its version of a fateful and probably regrettable "Read my lips: no new taxes" promise when it sponsored an "Apple II Forever" festival and introduced the Apple IIc. (At the time, the company named it the *Apple //c*. At various times over the past ten years, Apple has used *Apple][*, *Apple //*, and *Apple II* as the name of its first computer.)

Guess what we said about the Apple IIc? You bet: In July we wrote, "It is the first computer that Apple has targeted specifically as 'a computer for the home.' " The IIc was Apple's first "department-store computer." Folk singer Judy Collins, for instance, whom we interviewed in March 1986, bought her Apple IIc at Bloomingdale's in Manhattan.

Once again *inCider* mistakenly believed Apple's promise that this was to be the computer for everybody. We were wrong about the IIc, and Apple would try again and again to create a home computer.

Born at about the same time as the IIc was AppleWorks, arguably the most-popular integrated word processor, spreadsheet, and database program ever; we reviewed it in the same issue as the Apple IIc (July 1984). Today Apple ships integrated software — ClarisWorks (or another integrated package) — right along with its latest consumer machine, the Performa. In 1984 you had to buy AppleWorks separately — and most customers did. So, in 1984, Apple first made the decision to combine an all-in-one machine with all-in-one software. It was great for the buyer — even Judy Collins bought AppleWorks with her IIc at Bloomie's — but bad for creating a third-party industry around the machine.

Apple learned that if the customer gets what he or she wants on the day the computer goes home, it's bad for third-party business. So if you bought a Macintosh in the first hundred days after its introduction, you got MacWrite and MacPaint for nothing, but since the 101st day Mac owners have been paying. That good idea of giving the happy buyer everything needed at the time of purchase has always conflicted with the equally good idea of having a large group of developers creating software and hardware, and an enthusiastic community of vendors and buyers.

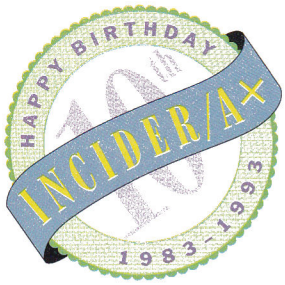
THE II'S LAST DAYS

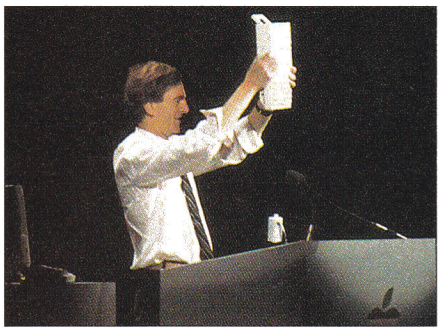
Apple's next II would never amass a solid base of third-party software support. The Apple IIGS was a technical *tour de force*, integrating an Apple IIe on a single chip, supporting two kinds of video, sporting a synthesizer chip, and running almost all the old Apple II software. It was too bad that for so long Apple II software was the only kind of software the GS could run. No evangelists spread the Good News about the Apple IIGS. As a result, even now a great many GSes are being used in schools as fast IIes.

In a sudden fit of reluctance — or was it misplaced honesty? — Apple chose not to tell the world that the Apple IIGS, introduced in 1986, was the perfect home computer. We noted that it was a perfect computer for homes with kids in school, but Apple vice-president and resident wit Jean-Louis Gassée insisted, "We should not try to artificially constrain this product by positioning it as an educational computer or a home computer. It could be an interesting small-business type of computer." Gassée called it the "Zen theory of marketing": Build a great computer, toss it in the air, and see who buys it. Sad to say, not enough buyers rushed to catch and save the GS.

The Apple IIGS looks like a Mac and works like a II. It's a "first" among Apple computers in many ways: the first color computer to have an "Apple interface" (that is, the Mac-style desktop), the first computer other than a Mac or another 68000-based machine to use it, the first to use the Apple Desktop Bus (ADB) keyboard and mouse, the first to include a sound synthesizer, the first Apple-interface computer with expansion slots, the first Apple with video overlay of computer graphics. Its similarity to the Mac meant that the Apple IIGS could have been a bridge between Apple II and Mac, but it wasn't. Its structural failure was that it only *looked* like a Mac: It couldn't run Mac software. Apple's evangelists failed to encourage the growing number of Mac software developers to write GS programs, and the GS

inCider's original cover — January 1983 — heralding an era of speculation and change in the Apple market.





John Sculley introduces the IIc: Apple's first try at "deparment store" marketing.

GS: Looks like a Mac, works like a II. A technical tour de force, yet slow to catch on.

faithful lost hope. The Apple IIGS was, in some ways, the first of the next generation of Macintoshes, including the Mac II, that expanded the Macintosh line's potential. But the GS' primary flaw turned out to be that it was more II than Macintosh.

THE II RESURRECTED

The appropriately named Mac II, which *inCider* didn't cover, turned out to be a cross between the modular Mac and the expandable II. It brought color and slots to the Mac, to name only two of many debts the Mac II owes the Apple II. The new Mac generation couldn't run Apple II software, at least not until 1989, but that flaw wasn't fatal.

In December 1990 *inCider/A+* introduced the Mac LC, Apple's low-cost color Mac and the first expandable model not called a II. We counted the similarities between the Mac LC and the Apple IIGS: Both could run older Apple II software; both were color machines; they cost about the same. Either machine, it seemed, might be a bridge; either could be the answer to the riddle "What do you get when you cross a Mac and an Apple II?"

The LC was eerily familiar to anyone who knew the IIGS. It just cost a little less and had the power of Apple marketing behind it. Apple sold LCs faster than any new computer since the IIe; three-fourths of them went out with a IIe Emulation Card installed. These words of an Apple representative talking about the LC sounded explicitly familiar: Apple wanted "to reach more people with these computers — people who never owned a computer before."

That wasn't to be the last time we'd hear Apple trying to convert the heathen. In 1992, Apple decided to try the Bloomingdale's approach to selling again. Will the Performa be Apple's last "department store" computer? "Research suggests," according to the press release, "more than half the families in our target market have not yet found a computer solution compelling enough to meet their needs at home . . . . With the needs of those families in mind we developed the Macintosh Performa. Performa simplifies both the purchase decision and the buying process." That's not an echo: You've been hearing the same line for ten years now: "This is the computer for the rest of us. This is it." It isn't. You can count on Apple to keep trying until it gets it right, but it won't. "The novice user is responsible for an increasingly large percentage of the market": That will probably be as true in the year 2003 as it was in 1983.

The new Performa 400: a repackaged Mac LC II and the centerpiece of Apple's current round of home-computer marketing.

THE PROPHECY

The Performa isn't forever — no appliance is. Expect as many new machines from Apple in the next ten years as we saw in the last. We've seen an extension of the handcrafted Apple designed for forever (the IIe), a sexy portable Apple II (the IIc), a whole new look in computers designed for one-stop shopping (the Mac), two computers in one case (the IIGS), a low-cost color Mac (the LC), and a brand-new Brand Central computer (the Performa). That's five abrupt changes in direction — counting only the successes, not the misguided Apple III, Lisa, Apple IIc Plus, and Mac Portable.

Apple's changing, you're changing, we're changing. Apple's next computer may not be compatible with the Apple II Plus — it may not be compatible with the Performa 400. Is the fact that Apple introduced five radically different machines in ten years a good reason to dig in your heels and keep only the oldest one?

The '80s are good and over now — George Bush is (or was) no Ronald Reagan. The good times didn't last forever, and neither did the Apple II. The *inCider* decade that began in 1983 has closed, and with it the era of "religious computing." We can get on with the serious business of enjoying our computers. As this is written in October 1992, Apple's newest is the Performa 400. Buy a 400 and a $200 IIe card, and you can play the games that were advertised in the first issue of *inCider* back in '83 — Choplifter, for instance. That's pretty close to forever for the II, but wouldn't you rather play a networked simulation of a tank battle of the future with real-time 3-D color graphics? Isn't Spectre more fun?

Don't forget the future just because you remember the past. Try the latest Macintosh, with the latest system software; run the latest applications and play the latest games with the latest joystick. You'll see that ten years really *do* make a difference. Amen. ❑

PAUL STATT IS SENIOR EDITOR OF *INCIDER/A+* AND HAS BEEN WITH ITS STAFF NEARLY EIGHT OF THE MAGAZINE'S LAST TEN YEARS.

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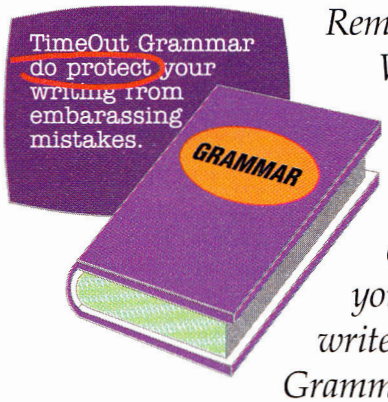

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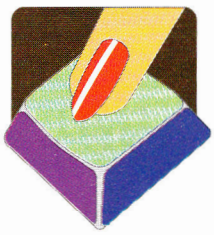

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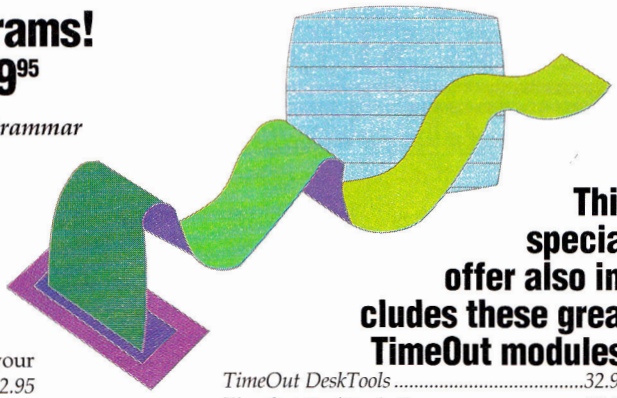

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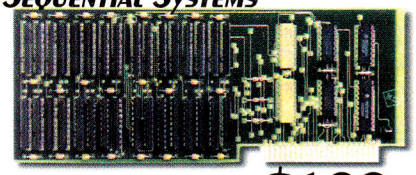
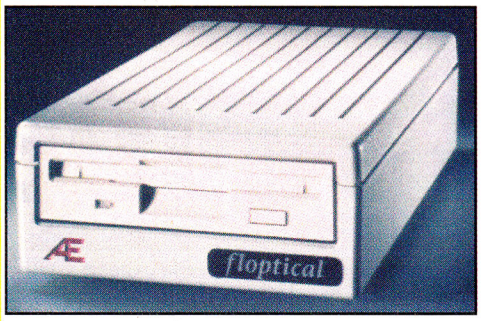


RAM GS 4MB $139

The 21 megabyte Floptical Drive

by Applied Engineering for Apple IIGS & Macintosh



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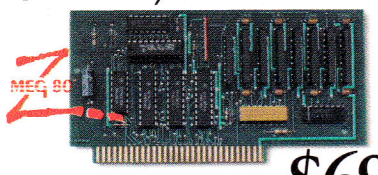

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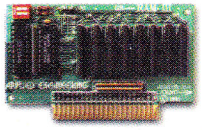

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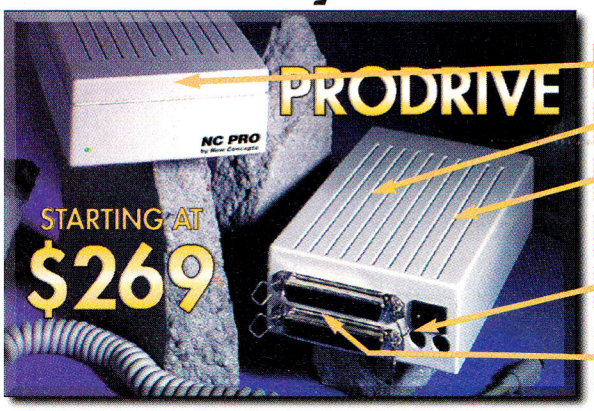

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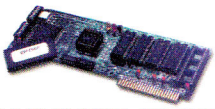

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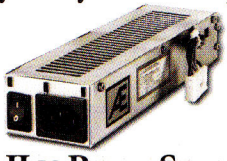

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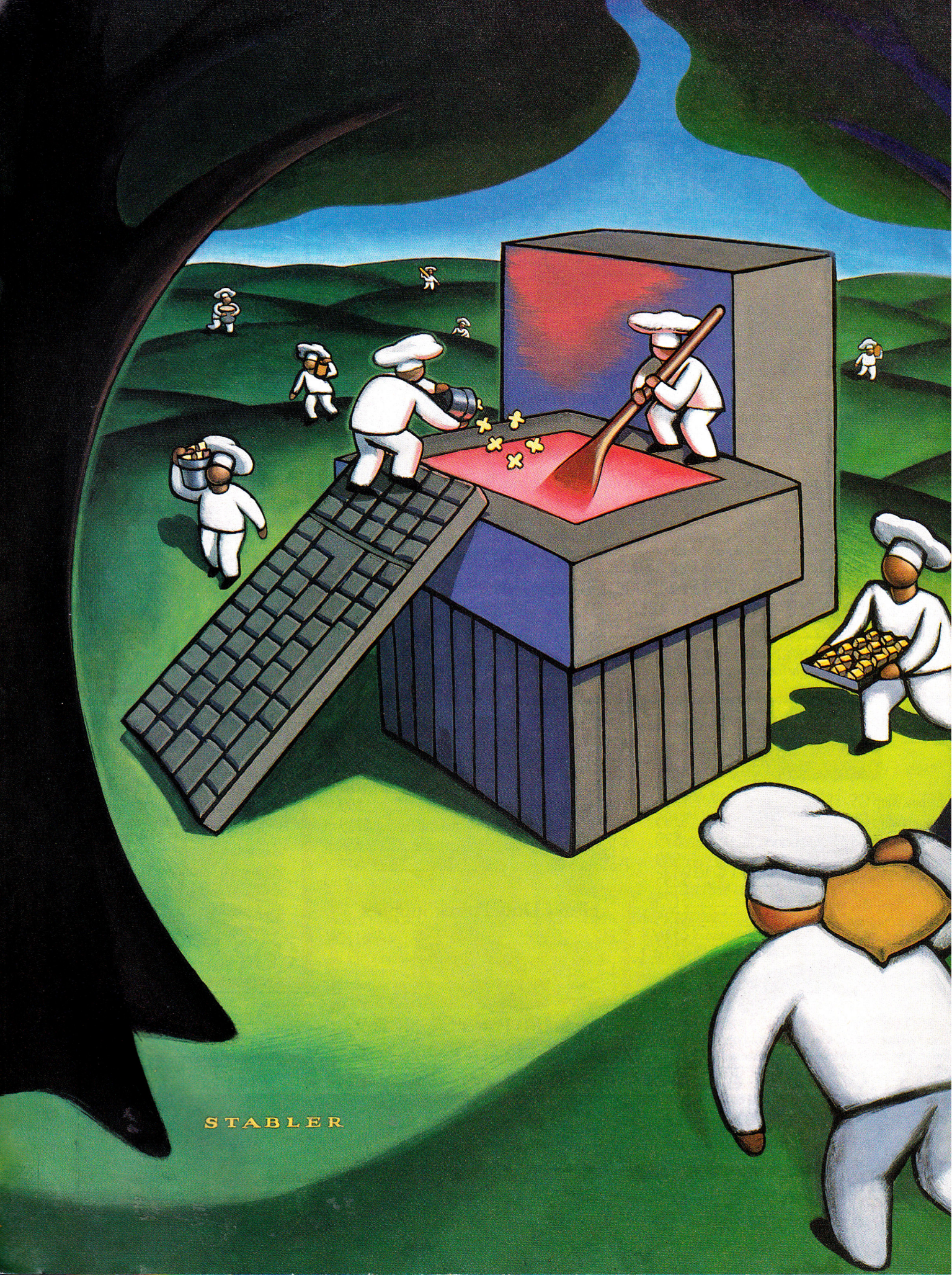
STABLER

Apple provides the basic recipe for a superpowered GS, but you'll need extra ingredients to exploit it to the max. Our Shareware Solutions columnist looks at 30 low-cost utilities that can make your machine's operating system a more potent brew.

Enriching System 6

By JOE KOHN * CONTRIBUTING EDITOR

ARE YOU USING YOUR APPLE IIGS for all it's worth? If you haven't moved up to System 6.0 yet, do it now: With a slew of new Finder functions, music tools, multimedia controls, and file-handling utilities to play with, you're in for a treat. (See "Smooth Operator," July 1992, p. 34.) And if you read "Way Cool GS" (January 1992, p. 36), you know there are lots of other goodies in store for a few dollars more: collections of sound effects and graphics that make your system laugh, cry, snore, melt, scream, and sprout grass, among other weird and wonderful things.

But that's just frosting on the cake — lots of flavor, not much substance. Let's get practical here — let's look at some features and utilities that are still fun, but emphasize use: Simply put, your GS can now do things it never could before.

Apple Computer has promised to improve System 6.0 soon: Among other enhancements, System 6.0.1 will support Ethertalk networks and sport a more easily managed Finder. An MS-DOS file-system translator (FST) that will let System 6 read from and write to MS-DOS disks for IBM PCs as easily as Mac or GS disks is even a possibility. But while you're waiting, there's plenty you can do for System 6.0 right now.

LET'S DO LAUNCH

Your GS may be up to date with System 6.0 and maybe has a snazzier interface, too, but it's far from the cutting edge if you're not pulling down *Finder extensions* from the *Extras* menu.

Finder extensions — a.k.a. *Finder extras* — are a new type of file, never seen before System 6.0. (They're not the same thing as Macintosh extensions, which include many types of utilities, such as FSTs and communications tools.) Apple served up only one Finder extension in the initial release of System 6.0: a *Create Server Alias* option for network

Illustration • Barton Stabler

users; it takes your *Chooser* control panel out of the loop when you want to log onto an AppleTalk file server. Since then, however, GS programmers have been coming up with plenty of other handy extensions, and they're just about the most exciting modifications you can make to System 6.0. Some operate like "mini-applications" run directly from the *Extras* pull-down menu; others simply add neat new functions to the Finder, such as the ability to listen to sound files without running an application. Just plug in the disk; when the list of filenames appears on the Finder, double-click on your selection to play it.

The first task that comes to mind for a Finder extension is running applications. And that's just what **QuickLaunch**, freeware by Steve Stephenson and Seven Hills Software, does: It lets you create a customized list of the GS/OS or ProDOS 8 programs you use most often and then launch them from the Finder's *Extras* menu. You can also assign a keyboard command to each program entry — for example, the Open apple-1 key combination to launch AppleWorks Classic, Open apple-2 for AppleWorks GS, and so on.

Other Finder extensions offer various productivity boosts. Jupiter Systems, for example, offers three neat utilities. **Teach Reader**, a $10 shareware program, lets you double-click on text documents in ASCII or Teach format and display them instantly in a large window on the Finder desktop. (Teach is System 6.0's built-in mini word processor.) **Finder Sounder**, by Mike Fleming, is a freeware utility that lets you simply double-click to listen to digitized rSound files — those new audio files played by System 6.0's *Sound* control panel, which lets you assign sound effects to various system "events," such as inserting a disk or booting the Finder. No sound player is required. **Finder View 3.0**, by Brian Clark, is a $10 shareware extension that lets you double-click on any GS graphic's filename to display that image. Select all the graphics in a folder, and you can watch them in a slide show.

Two of Chris McKinsey's $10 shareware Finder extensions let you display or play back just about any kind of data file. **Eye** displays all current super-hi-res graphics files, including PaintWorks-style animations and 3200 color graphics, plus all characters in any Apple IIGS font file. It can also display AppleWorks, AppleWorks GS, and Teach word-processing documents. **Ear** lets you play SynthLab musical sequences, SoundSmith songs, ASIF instrument files, rSound files, and HyperStudio sounds from the Finder simply by double-clicking.

Richard Wifall's **DeskTracker**, a $10 shareware utility, lets you listen to SoundSmith songs, played either forward or backward. **SynthINIT** is Mike Nuzzi's freeware extension that plays SynthLab songs. Paul Benson has created a $3 application program, **rSounder**, that lets you convert digitized sound files from raw binary format to rSound format, giving you an easy way to incorporate all your old sound files into System 6.0's *Sound* control panel.

Bill Tudor's **InitMaster** Finder extension, an invaluable $10 shareware utility, lets you to toggle all your various desk accessories, INIT files, fonts, drivers, and other Finder extensions on and off.

One System 6.0 add-on that enhances the power of any Finder extension is a $10 shareware title by Robert Hill. With barebones System 6.0, you can access extensions only from the Finder, not from an application. Now along comes **FextNDA** (*new desk accessory*), which lets you use Finder extensions from within any GS/OS program. That means you can access and activate music-playback Finder extensions, for example, to add soundtracks to games — or read documentation files stored on disk while trying to figure out how to use some new shareware gem you've just downloaded. You can view a graphics slide while using a paint program or listen to digitized effects while using the *Sound* control panel. The possibilities are endless.

ASSEMBLE YOUR TOOLS

In addition to brand-new Finder extensions, let's not forget good old-fashioned desk accessories and application programs. There are plenty of them out there to help you make your system more productive.

For instance, longtime Apple II users will fall in love with John MacLean's $10 shareware utility **DOS 3.3 Launcher**. This new GS/OS desktop-based program lets you copy many of your older single- and double-sided DOS 3.3 disks and binary files to your new hard drive; you can launch those disks or files right from the Finder by double-clicking on their icons, and return to the Finder when you're finished using those disks. Running DOS 3.3 software on a GS has long been a stumbling block, as the vast majority of hard drives for that system just aren't compatible with the older operating system. Now thanks to Launcher, any hard drive can be DOS 3.3 compatible.

Two new utilities for System 6.0 from shareware author Karl Bunker are particularly noteworthy. **Quit-To** ($10), a classic desk accessory (CDA), lets you exit a program and run any other application automatically, without returning to the Finder first; you simply set up a list of the programs you use most often and choose the one you want to run next from that list. **File-a-Trix** ($10), another CDA, gives you several additional utilities you can access from within other programs. If you've ever used AppleWorks GS and needed to format a 3.5-inch disk before saving your

RESOURCES

Shareware is software that is distributed at no cost so that you have a chance to try it before paying for it. If you use and enjoy a shareware program, you must send payment to its author.

Most of the freeware and shareware titles mentioned here are readily available from Apple user groups and from **America Online** (8619 Westwood Center Drive, Vienna, VA 22182, 800-827-6364), **CompuServe** (P.O. Box 20212, Columbus, OH 43220, 800-848-8199), and **GEnie** (401 North Washington Street, Rockville, MD 20850, 800-638-9636), as well as from commercial purveyors of public-domain software and shareware, such as **Big Red Computer Club** (423 Norfolk Avenue, Norfolk, NE 68701, 402-379-4680) and **Public Domain Exchange** (2078C Walsh Avenue, Santa Clara, CA 95050, 408-496-0624, 408-496-6439, 800-331-8125). If you don't have access to one of those resources, send a stamped, self-addressed envelope for more information to Joe Kohn, 166 Alpine Street, San Rafael, CA 94901. — **J.K.**

work, for example, File-a-Trix can do it. It can also catalog disks; copy, delete, lock, and unlock files; create new folders; and display text and AppleWorks word-processing documents. File-a-Trix works from within all GS/OS and ProDOS 8-based programs.

Dale Martinson's freeware **Calendar NDA** displays a perpetual monthly calendar on the desktop. Al Velella's freeware **KeyFind NDA** displays all 255 characters in any GS font file. Jay Krell's freeware **FontSel** control panel displays font names in their corresponding typefaces on the *Font* pull-down menu found in all GS word-processing programs. Joe Schober's freeware **Folder Jump** steers your navigation through layers of folders — just click on a small icon to call up System 6.0's standard *Get File* dialog box. Jeff Tarr's $5 shareware **Error Codes CDA** shows you what those cryptic ProDOS and GS/OS error messages mean. Eric D. Shepard's freeware **LotsaTools** loads all major GS/OS toolsets into memory from your system disk, saving you a few seconds here and there — you avoid having to call them up from disk as needed. Dave Leffler's freeware NDA **ShowMe** (an updated version of ShowPic) is an efficient, easy-to-use graphics-conversion utility — and now supports more formats than ever before.

But one picture you *won't* want to see on your screen is the burned-in image of the Finder or any other program you left on inadvertently when you abandoned your GS for two weeks' vacation. To prevent that you need a *screen blanker*, a utility that's activated after a defined period of keyboard inactivity. One freeware CDA, **Blank Screen** (author unknown), lets you activate a blank screen manually while using any GS/OS or ProDOS-8 program. For automated screen saving, consider Q Labs' commercial product **Signature GS**, with its beautiful animated displays, or Bill Tudor's freeware **Finder Blanker**, which turns on after five minutes and blackens the Finder's desktop screen. Also available is Robert Claney's $15 shareware program **UltraBlank**, which works with any GS/OS or ProDOS 8 program; after a user-defined period of one to 30 minutes of computer inactivity, it kicks in and displays an animated bouncing ball. Watch Fourth of July fireworks with Jim Maricondo's shareware **Twilight II** (updated significantly from its predecessor to offer still more graphics options), or see your desktop buried in a blizzard of snow when you haven't touched a key for a while.

Bill Tudor's diverse collection of extraordinary programs includes **Keyboard Extender**, a freeware product that provides programmable function keys for the Apple Extended Keyboard, and **BRAM Checker**, a freeware utility that scans for changes in your GS' battery RAM, which contains simple items such as the date keeper and your screen preferences. It's a likely spot for a virus to reside; BRAM Checker can restore correct settings if it finds any variations from the norm. Tudor's **Icon Application Checker**, a $10 shareware application, analyzes all the items in your *Icon* folder and alerts you to potential conflicts among them. If you're unfamiliar with how icons work, this little program can serve as a primer.

By now we've accumulated a heavy load of utilities and accessories. Want to watch the parade? At startup, System 6.0 displays on screen the icons associated with Finder extensions and control panels, but it can show only a single line as it boots. With Robert Claney's freeware **Scroll Icon**, up to three lines of multicolored icons cover the lower portion of the screen. Once GS/OS has loaded, you can access desk accessories, Finder extensions, and control panels in the usual way.

PACKAGE DEALS

Many of the best of Bill Tudor's System 6.0 shareware utilities are now available commercially in Quality Computers' **Six-Pack** package ($29.95). If you're still unsure about how icons, desk accessories, Finder extensions, and other System 6.0 goodies can help you, take a look at this platter of utilities that includes "a little bit of everything."

Alarm Clock, for example, displays a digital timepiece on the GS menu bar. *SuperDataPath* lets you tell the Finder where your data files are. *HotKeys* lets you launch your favorite programs directly from the GS' numeric keypad.

Catalog saves a disk catalog's contents to a file on disk. *File Peeker* shows you the contents of text, Teach, picture, sound, and icon files and documents. *Workset* lets you double-click on one small icon to tell AppleWorks GS, for example, to launch and load multiple documents. (It works with any GS application.)

Crypt lets you encrypt all your sensitive personal files, and *MoreInfo* provides,

GSes JUST WANNA HAVE FUN

GS programmers haven't forgotten how to have fun, and not everything available to jazz up System 6 is designed to make your computer work more efficiently.

Mike Nuzzi's freeware **Ooow.Init** wins the award for least useful, but most fun, utility. Once installed, whenever you double-click on a file from the Finder desktop, you'll hear the sound of a gunshot, followed by a voice going "oooooow." Then whatever icon you clicked on will actually fall off the Finder desktop.

Paul Gauthier's freeware program **Custom.GS.OS** has been updated so that you can customize the welcome message displayed in the thermometer bar as GS/OS loads.

Quadomino is a freeware NDA by Bryan Clair that will let you play a game of Tetris from the Finder desktop or while using any GS/OS application program.

Mouse Odometer, a freeware NDA by Paul Meyers, determines how far your mouse has traveled, expressed in inches, feet, centimeters, or miles.

Dave Leffler's freeware **DeskColor** control panel lets you change the background color of the Finder's desktop.

Desktop.Pic (author unknown) lets you display a 640-mode super-hi-res graphic on your desktop, replacing the periwinkle blue color.

And, of course, many classic "Way Cool GS" utilities still work just fine under System 6.0. If you want to see your screen melt before your eyes, install Guy T. Rice's **Meltdown II**, or if you want a pair of eyes following your mouse around the screen, just install **EyesNDA**.

Jake Hoelter's **AckNDA** still displays Bill the Cat, and **SculleyNDA** still displays a little graphic of Apple's CEO swinging at the end of a rope. Jeff Erickson's **GrassNDA** still shows vegetation sprouting from the bottom of your screen, and Roby Sherman's **HavokNDA** still creates some very weird special desktop effects. **— J.K.**

SOUP TO NUTS

System 6.0 adds new printer drivers, support for Macintosh disks, a completely redesigned Finder, and new music and multimedia tools, as well as countless smaller and larger changes. It's big. If you have a stock GS (1.125 megabytes of RAM) and a 3.5-inch disk drive, you can add only a few of them at a time. But if you have at least 2 megabytes of RAM and a hard-disk drive, you can install and use as many System 6.0 goodies as you can squeeze onto your hard disk.

There are five kinds of goodies your system software will enjoy: Finder extensions, control panels, INITs, and two kinds of desk accessories. Here's a brief rundown on all the ingredients you'll need for Apple's alphabet soup.

Desk accessories come in two varieties: classic (CDAs) and new (NDAs). Desk accessories are small programs you call up and access from within larger application programs.

You access CDAs by holding down three keys simultaneously — open apple, control, and escape — from the Finder and from within most GS/OS and ProDOS 8-based programs, such as AppleWorks Classic, ProTerm, AppleWorks GS, and HyperStudio. They work with any application that runs on your GS. You access NDAs from the Apple pull-down menu displayed on the Finder screen, and from most GS/OS application programs, such as AppleWorks GS, HyperCard IIgs, HyperStudio, and Platinum Paint. NDAs run only under GS/OS-based software. Both CDAs and NDAs work with older versions of GS system software.

INITs (initialization programs) load when you boot your system and insert themselves into the system software. They may improve on standard functions or add new ones, such as screen capture and virus protection.

Control panels (formerly known as Control Panel devices, or CDEVs) are similar to INITs in that they mesh directly with the system software when you boot your machine. One important difference, though, is that they include user-adjustable parameters (such as speed or desktop pattern). Access these utilities from the Control Panels sublist under the Apple menu.

Finder extensions are a type of file new to System 6.0. Think of them as mini-applications you run by pulling down the Extras menu on the Finder's desktop. Extensions work only in the Finder, unless you're using FextNDA. (See the accompanying story.)

Programs that enhance your GS system fall into several categories, but they all must fall into your startup disk's (usually your hard disk's) System folder on your GS desktop. Each type of modification program has its special place in the System folder: Desk accessories belong in the Desk.Accs folder; INIT (initialization) files go into the System.Setup folder; control panels go into the CDEVs folder. Just drag filenames into the appropriate folders and reboot to load these utilities.

To install a Finder extension, drag its icon into the System.Setup folder; you can keep your System.Setup folder neat by creating a separate FinderExtras folder within it if you like. Reboot; once you've installed your first Finder extension, an Extras menu appears on the menu bar.

There's actually an easier way to handle these file-management details now. After the release of System 6.0, Apple Computer gave us a freeware present: **INIT Restarter** (IR). Written by Matt Deatherage of Apple's Developer Technical Support department, IR is a Finder extension that lets you install classic and new desk accessories, initialization files, device drivers, and even Finder extensions temporarily just by double-clicking on their names from the Finder. (You don't have to reboot to install.) Your system won't have to load additions into memory at startup, absorbing available RAM; you can keep them on disk and call them up as needed. This neat-and-easy arrangement not only lets a GS with less memory enjoy the fun of DAs and extensions, it also eliminates potential problems posed by conflicts among system additions.

If you're new to the GS or just want to read an overview of Apple's latest operating system for the II, consider the excellent 150-page **System 6 Book**, by Quality Computers' Jerry Kindall. It provides information on all aspects of System 6.0, both old and new. It defines related technical terms and offers a wide selection of hints and tips. **— J.K./C.C.**

among other things, the ability to lock and unlock files right from the Finder's *Extras* menu.

Of course, if you want a completely cool System 6 GS, make sure you have the be-all and end-all of integrated utility programs: George Wilde's $20 shareware **UtilityWorks**. It's a stand-alone application — the ultimate utility, because it does just about everything. It includes a GS icon editor, a file editor, a block editor, and a resource editor. It can back up and restore your hard drive, and display just about any type of file, including text, super-hi-res graphics, WordPerfect documents, and AppleWorks and AppleWorks GS word-processing documents. There's even a built-in word processor if you want to edit any of those documents. You can display GIF graphics, fonts, icons, Print Shop GS graphics, and Applesoft BASIC programs. UtilityWorks does it all.

Whether you buy one utility or a collection, you'll be taking your GS places no one thought possible. Not only does System 6.0 deliver innovative ways to use your computer, it sports lots of nooks and crannies where you can stash new features and functions that Apple never even dreamed of.

And the enhancements profiled here are just a start: Thanks to the ingenuity of dedicated GS programmers, there's very little your Apple II can't do. ❑

CONTRIBUTING EDITOR JOE KOHN IS THE AUTHOR OF OUR MONTHLY SHAREWARE SOLUTIONS COLUMN. WRITE TO HIM C/O *INCIDER/A+*, 80 ELM STREET, PETERBOROUGH, NH 03458. ENCLOSE AN SASE IF YOU'D LIKE A PERSONAL REPLY.

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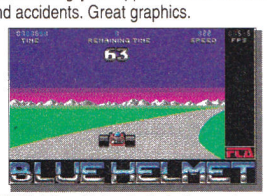
IIGS GAMES

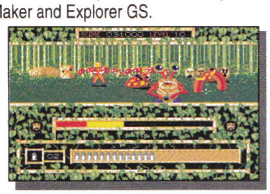
GS110 Milestones 2000: This game is based on an old French game. You have to play mileage cards to advance your own auto while stalling your opponent with flat tires and accidents. Great graphics.



GS169 Blue Helmet: A fast-paced road race game by the FTA.

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. Requires 2 3.5" drives or a hard drive.

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



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.

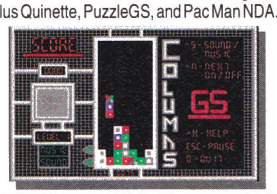
GS145 Sensei: A karate game by the FTA. Use a joystick to fight and win a black belt.

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

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.

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.



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.

GS172 IIGS Games: Five strategy games with full-color graphics and sound effects including Space Arrow, Shove It, and MoonStriker.

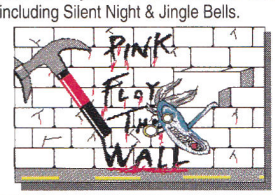
IIGS MUSIC

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 & SL07: Seven 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.

GS102 SoundSmith Christmas Carols: A disk full of your favorite Christmas music including Silent Night & Jingle Bells.



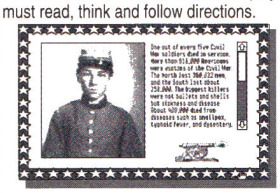
GS136 The SAP Wall: Based on Pink Floyd's "The Wall", this animation will rock you.

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

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.



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.

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.

IIGS GRAPHICS

GS100 Holiday Print Shop GS Graphics: Eighty full-color graphics for P.S.

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

GS07, GS08, GS29, GS35, GS77, GS78, GS106, GS123 & GS163 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.

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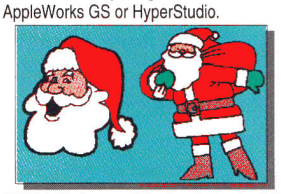
GS59, GS64, GS67, GS73, GS74, GS86, GS128 & GS132 Super Hi Res Clip Art: These 8 disks contain clip art converted from the Mac. They're great for use with AppleWorks GS or HyperStudio.



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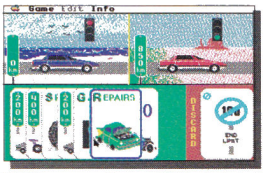

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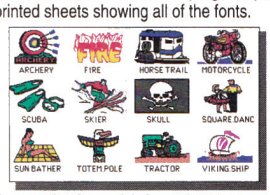

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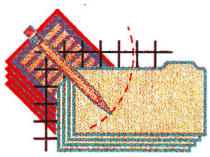

APPLEWORKS IN ACTION

LEND A HAND

An AppleWorks loan spreadsheet can make you a winner in the personal-finance game.

BY RUTH K. WITKIN

EVEN IF YOU'RE A WHIZ AT budgeting and your savings account's on the rise, there are times when it makes good sense to borrow money — to buy a car or a home, for example, or to allow for business expansion. Most loans are *amortized*, which means they call for equal, periodic payments of principal and interest in amounts sufficient to retire the debt at maturity. Amortizing lets you repay the loan gradually instead of having it fall due all at once.

STARTING FROM SCRATCH

This month's spreadsheet makes it easy to play "what if" with the variety of factors that affect loan payments. When you enter the loan amount, interest rate, length of term, payments per year, *balloon* payment (a larger final payment, if any), and current payment number, the formulas calculate your periodic payments instantly.

But that's not all. Still another section of the spreadsheet summarizes your regular, annual, and total loan payments and shows total interest paid and periodic interest rate. Even if you've had only limited experience with spreadsheets, this powerful loan calculator is bound to make you a smart borrower.

Start by loading the AppleWorks program and creating a new spreadsheet file named **QLOAN**. Referring to **Figure 1**, set up the spreadsheet as follows:

Long horizontal lines. In A2, type quotation marks and hold down the equal-sign key long enough to fill B2. Next, move the cursor to A11, type quotation marks, and hold down the minus-sign key long enough to fill B11. Finally, move the cursor to A25, type quotation marks, hold down the equal-sign key long enough to fill B25, and press Return.

Column width. Leave the cursor on A25 and press Open apple-L (OA-L). Type **C** (for *Columns*) and press Return. Now type **C** (for *Column width*), press OA-right arrow 29 times (to increase the width of column A from nine characters to 38 characters), and hit the return key again. Next, move the cursor to column B and press OA-L. Type **C** and press Return. Type **C** again, press OA-right arrow six times (to increase the width of column B to 15 characters), and hit Return again.

```
=====================A=========================B=======
  1|                QUICK LOAN CALCULATOR
  2|=====================================================
  3|>>> YOUR INPUT
  4|Loan Amount                                   40000
  5|Annual Interest Rate                          .092
  6|Term in Years                                     3
  7|Regular Payments per Year                        12
  8|Balloon Payment at End                         4000
  9|Current Payment Number                           5
 10|
 11|-----------------------------------------------------
 12|>>> THE RESULTS
 13|Current Status of Loan:
 14| Principal Paid
 15| Interest Paid
 16| Principal Remaining
 17|
 18|Loan Summary:
 19| Interest Rate per Payment
 20| Amount of Regular Payment
 21| Annual Loan Payment
 22| Total Loan Payment
 23| Total Interest Payment
 24|
 25|=====================================================
```

Figure 1. Labels and numbers in AppleWorks quick loan-calculator spreadsheet.

Entries. Referring to **Figure 1**, enter labels and numbers. Don't press Return after typing each entry. Instead, move the cursor to the next cell needing an entry; that will enter the last item you typed and save an extra keystroke (pressing Return) each time. Press Return only after you type the last entry. Here's more:

- To center the spreadsheet title in A1 (*QUICK LOAN CALCULATOR*), type quotation marks and press the spacebar 16 times before typing the title.
- To get those eye-catching labels in cell A3 (>>> *YOUR INPUT*) and cell A12 (>>> *THE RESULTS*), type quotation marks, hit the greater-than key three times, and press the spacebar once before typing the words.
- To indent the labels in A14 through A16 and A19 through A23, type quotation marks and press the spacebar once before typing the text.

Formats. As you can see in **Figure 2**, all numbers in the *RESULTS* section (except *Interest Rate per Payment* in B19) are going to be dollar amounts with two decimal places, so make it the standard value: Press OA-V, press Return, type **D2** (for *Dollars, two decimals*), and press Return again.

Now override this standard value in the *INPUT* section cells: First, show the loan amount in dollars with no decimal places: Place the cursor on B4, press OA-L, and hit Return twice to confirm *Entry* and *Value* format. Type **D**, and hit Return to confirm *0* (zero) decimals. Do the same for the balloon payment in B8.

Next, show the annual interest rate as a percentage with two decimal places: Place the cursor on B5, press OA-L and hit Return twice. Type **P2** (for *Percent, two*

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THE PLAN

Can we do both? We have already started. Part 1 of our plan began this year–to make Enhance a respected educational journal, concentrating on all areas of educational technology–and we have succeeded. Enhance's circulation doubled in 1992 as teachers at all levels, from all parts of the country, using all kinds of computers found something useful in Enhance.

Part 2 is just beginning–the launching of our Apple II-only magazine, II Alive. II Alive will give exclusive coverage to the Apple II–new products, reviews, AppleWorks, technical tips, multimedia, and of course, education. II Alive will be all Apple II. All the time. No compromise. II Alive will also come with our Apple II Buying Guide. With your paid subscription to II Alive (which is only $19.95 for six issues) you will get our exclusive video, "The Apple II–Making the Magic Last Forever," a $30 value–FREE! Your satisfaction is guaranteed–cancel any time.

We see II Alive as a tremendous shot in the arm for the Apple II community. We want to reach over 100,000 Apple II users with the good news–there is, once again, a high-quality Apple II-only magazine. We believe the Apple II deserves a professional, exclusive publication. We hope you do, too. Sign up for II Alive today! Tell a friend!

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OTHER NEW STUFF

We released more products for the Apple II this year than anyone else including the TimeOut Grammar, Platinum Paint 2.0, Q-RAM IIe, Q-Modem, Six Pack, FlashBoot, Switch Hitter, and the System 6 Bonus Pack. 1992 also marked the year that we started up our own in-house video studio complete with state-of-the-art equipment and technicians. Our first two videos covered the Q Drive and System 6. And we have a lot more planned. On top of all of this we added a brand new phone system, and a super-powerful order-taking/accounting/shipping computer system.

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Joe Gleason
President

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decimals), and hit Return. Follow the same procedure to give B19 *Percent* format with **2** decimal places.

Next, we'll give the term and regular payments per year *Commas* format with no decimal places. (Clearly, these numbers will never be large enough to need commas; this formatting makes sure all numbers in column B align with a smooth right edge.) With the cursor on B6, press OA-L and type **B** (for *Block*). Move the cursor to B7 and hit Return twice. Type **C** (for *Commas*), and hit Return.

As the final step in this section, give the current payment number in cell B9 the *Commas*/no decimals format, too.

Your spreadsheet should now look like the one in **Figure 2**, but with the number cells in the *RESULTS* section empty. Press OA-S to store the spreadsheet on disk.

```
=====================A=========================B=======
 1|                QUICK LOAN CALCULATOR
 2|=====================================================
 3|>>> YOUR INPUT
 4|Loan Amount                                  $40,000
 5|Annual Interest Rate                            9.20%
 6|Term in Years                                      3
 7|Regular Payments per Year                          12
 8|Balloon Payment at End                        $4,000
 9|Current Payment Number                             5
10|
11|-----------------------------------------------------
12|>>> THE RESULTS
13|Current Status of Loan:
14| Principal Paid                             $4,428.10  1
15| Interest Paid                              $1,465.95  2
16| Principal Remaining                       $35,571.90  3
17|
18|Loan Summary:
19| Interest Rate per Payment                       .77% 4
20| Amount of Regular Payment                  $1,178.81  5
21| Annual Loan Payment                       $14,145.73  6
22| Total Loan Payment                        $46,437.19  7
23| Total Interest Payment                     $6,437.19  8
24|
25|=====================================================
```

Figure 2. Completed spreadsheet with sample entries. Highlighted areas indicate formula locations.

YOUR MONEY'S WORTH

Now enter the formulas in the locations shown in the highlighted areas in **Figure 2**. Place the cursor on the cell receiving the formula, create the formula, and press Return. (Results will disagree with **Figure 2** until you enter most of the formulas.)

FORMULA 1: Principal Paid. Formula 1 calculates principal paid as of the latest payment. The formula treats the current payment number in B9 as the term, and reduces the loan amount by the payment in B20. It calculates its place in time by raising the result of its calculations exponentially to the current payment number. Some of the cells Formula 1 needs to perform its calculations are empty, so AppleWorks drops the statement *ERROR* into B14. *ERROR* will remain until you enter the rest of the formulas.

Cell location: B14

Formula: +B4–(B4–(B20*(1–(1/(1+B19)^B9)/B19))/(1/(1+B19)^B9))

FORMULA 2: Interest Paid. Formula 2 calculates interest paid as of the latest payment. It subtracts principal paid in B14 from the result of multiplying the regular payment in B20 by the current payment number in B9. AppleWorks displays *ERROR* in B15 because Formula 2 refers to the formula in B14 generating ERROR.

Cell location: B15

Formula: +B20*B9–B14

FORMULA 3: Principal Remaining. Formula 3 calculates principal remaining as of the latest payment. It subtracts principal paid in B14 from the loan amount in B4 and enters the result — still another *ERROR* — in B15.

Cell location: B16

Formula: +B4–B14

FORMULA 4: Interest Rate per Payment. Formula 4 in our AppleWorks spreadsheet divides annual interest rate in B5 by payments per year in B7 and enters the result — *.77%* — in B19. Now that they have something more to work with, the formulas in B14, B15, and B16 no longer display *ERROR* — only some inaccurate numbers that AppleWorks will soon recalculate correctly.

Cell location: B19

Formula: +B5/B7

FORMULA 5: Amount of Regular Payment. Formula 5 calculates equal payments including principal and interest during the life of the loan, taking into account any balloon payment in B8, which reduces the payment amount during the term of the loan, and the number of payments per year in B7. This AppleWorks spreadsheet formula uses typical amortization elements — loan amount in B4, interest rate in B19, and term in B6 — to derive the repayment amount in B20. Even better, Formula 5 makes the other AppleWorks formulas recalculate so that your results now agree with **Figure 2**. Press OA-S to store everything on disk.

Cell location: B20

Formula: +B4–(B8*(1/(1+B19)^(B6*B7)))/((1–(1/(1+B19)^(B6*B7))/B19))

FORMULA 6: Annual Loan Payment. Formula 6 multiplies the regular payment in B20 by the payments per year in B7, and enters the annual loan payment in B21.

Cell location: B21

Formula: +B20*B7

FORMULA 7: Total Loan Payment. Formula 7 multiplies the annual loan payment in B21 by the term in B6, adds any balloon payment you might arrange for in B8, then enters the total loan payment in B22.

Cell location: B22

Formula: +B21*B6+B8

FORMULA 8: Total Interest Payment. Formula 8 subtracts the loan amount in cell B4 from the total loan payment in B22, and enters the total interest payment in cell B23.

Cell location: B23

Formula: +B22–B4

ROLL THE PRESSES

With formulas as intricate as these, it makes good sense to protect them from change of any kind, so leave the cursor on B23 and press OA-L. Type **B** (for *Block*) and move the cursor up to B13. Press Return and type **PN** (for *Protection Nothing*).

Time to print, so set your margins. QLOAN is 53 characters wide and prints at the standard ten characters per inch. Press OA-O to bring up the *Printer Options* screen. Type **LM** (for *Left Margin*) and press Return. Type **1.3** and hit Return again. Next, type **RM** (for *Right Margin*) and hit Return. Type **1.4** and hit the return one more time.

You can now see the *Char per line (est)* AppleWorks has calculated: *53*, the same character width as this spreadsheet. Press OA-S to store these settings on disk and return the spreadsheet to the screen.

Now turn on your printer. Press OA-P and press Return to confirm *All*. Confirm the printer (or type a printer number,

then Return). Type today's date (or, if you have a computer clock, type @ — the "at" sign), and hit Return twice. The printer whirs and here's your quick loan spreadsheet.

MAKE IT YOUR OWN

When you're ready to use the spreadsheet, overtype the current numbers in B4 through B9 with your numbers. Cell B5 carries a *Percent* format, so type the interest rate as a decimal — for example, **.092** for 9.20 percent. Remember, certain cells have a nonstandard format that's erased if you blank out the cell contents, so enter a zero instead of blanking. For example, if you don't have a balloon payment, enter a zero in B8.

Because of the sequence of formulas down the column, press OA-K to recalculate any change you make, even if AppleWorks has already calculated once.

This template is so versatile it can handle any loan amount and any balloon payment at any interest rate for any term with any number of payments per year — yearly (one payment), monthly (12 payments), weekly (52 payments), or daily (365 payments). It hits a home run with anything you pitch.

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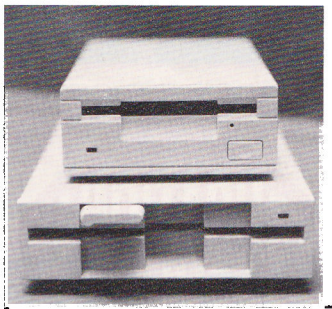
RUTH WITKIN IS THE CREATOR OF THE *SUCCESS WITH APPLEWORKS* TEMPLATE SERIES AND *RUTH WITKIN'S MONEY MANAGER* (A+ PUBLISHING). SHE'S ALSO THE AUTHOR OF *THE BEST BOOK OF APPLEWORKS* AND *PERSONAL MONEY MANAGEMENT WITH APPLEWORKS*. WRITE TO HER C/O *INCIDER/A+*, 80 ELM STREET, PETERBOROUGH, NH 03458.



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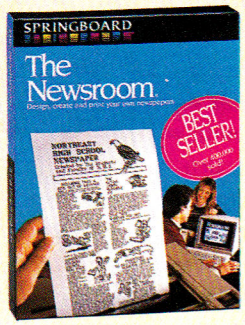

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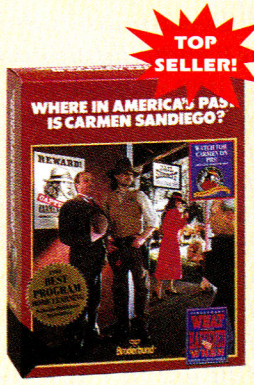

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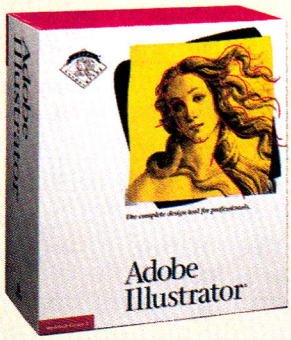

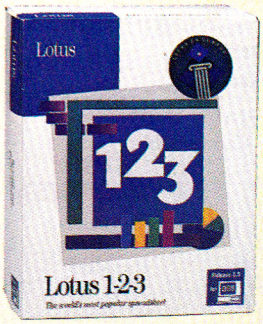

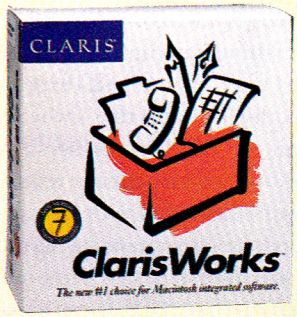

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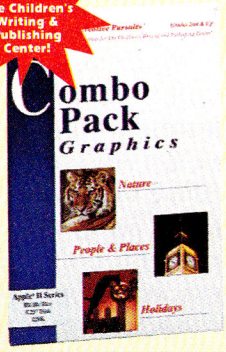

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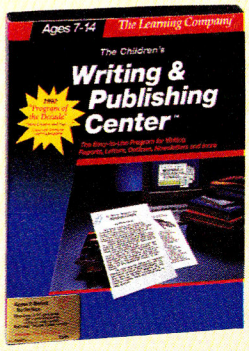

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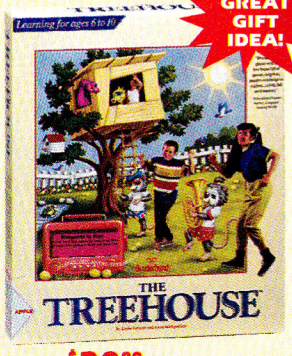

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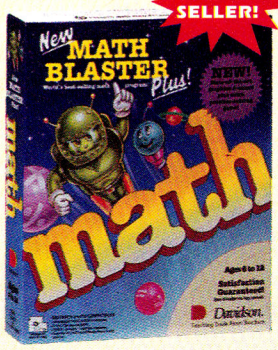

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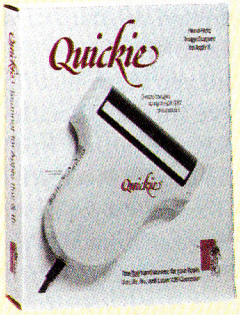

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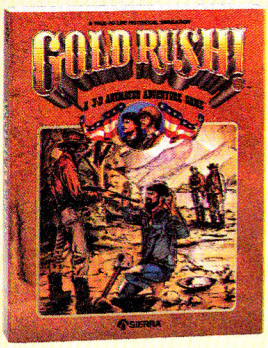

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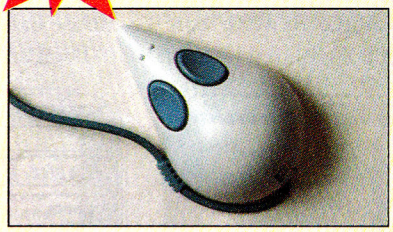

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HyperActivity

Wake-Up Call

HyperStudio's "auto-activate" buttons bring your stack to life.

By DEAN ESMAY

WHETHER YOU'RE LOOKING FOR the security of knowing your lights will turn on and off at regular intervals while you're away from home or for the convenience of brewing that first cup of coffee in the morning before you're even awake, automatic timers are one of those "neat toys" we take for granted in the Electronic Age. Taking a cue from "real life," HyperStudio gets into the act, too, with some nifty little screen objects known as *auto-activate buttons*.

As we've seen in previous columns, buttons are where most of the real hypermedia action is: They move you from card to card, play sounds, display graphics and animations, and much more. (For details, see "Who's Who," October 1992, p. 48; "Picture This," November 1992, p. 50; and "Over and Under," December 1992, p. 57.) Auto-activate buttons are no exception — they can perform any standard button function. The difference is that an auto-activate button "clicks itself" after you move to whatever card it's on, often after some specified delay.

Let's emphasize the timing aspect of that statement: An auto-activate button starts working only when you reach the card that contains it. If you've put an auto-activate button on the third card of your stack, for example, it doesn't perform its function until you reach that third card. And if you've further specified a ten-second delay, the button won't go off until ten seconds after you reach the third card — and then only if you're still on that card. If you move on to another card before the button has a chance to activate, then whatever it was set to do won't happen.

So what's the point? *Smooth design*: Auto-activate buttons can make the difference between a stack that's only a simple set of cards with buttons to push and a more-dynamic application that catches your audience's eye.

ON THE BUTTON

Here's a simple example. As we've seen, it's common (though not required) to start a stack with a title screen — stating the name of the stack and maybe the name of the author, along with some brief operating instructions, perhaps. One way to link a title card to the rest of your stack is to include a button the user must click to move on. Another is to show the title card when the user boots up the stack, then have it move automatically to the next card after giving the user a few seconds to see the title.

Let's concentrate on the latter option. Let's say you're doing a stack describing a selection of books in a particular category, for example. Your first card should show some basic information, with perhaps a picture of a book, and then let you move on to the main part of the stack. To set it up, start by pulling down the *File* menu and opening a new stack. Then pull down the *Apple* menu, select *Preferences*, and click on the *Auto-Activate Buttons On* option (**Figure 1**). Then save your stack-in-progress to ensure that whenever this stack is loaded HyperStudio remembers that you wanted auto-activate buttons to work.

Now from the *File* menu load an appropriate background for the first card. For this stack, choose a clip from HyperStudio's accompanying HS.ART disk. (If you need to isolate the image, choose the marquée from the *Tools* menu and draw a box around the extraneous material; choose *Cut* from the *Edit* menu to delete it. Then select the editing tool again to

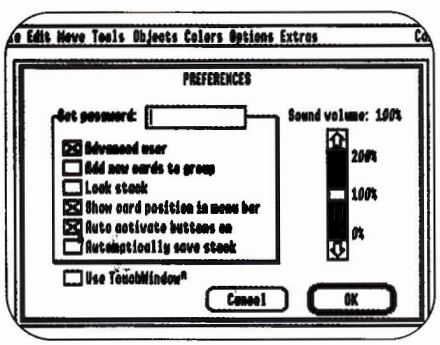

Figure 1. Turning on a stack's auto-activate buttons.

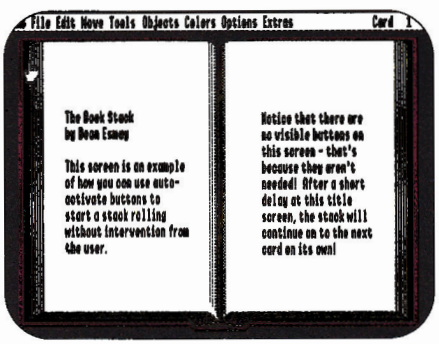

Figure 2. Adding a background and text field to title card.

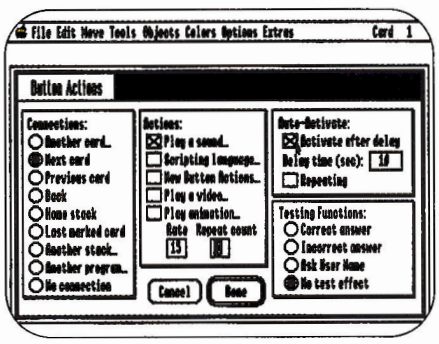

Figure 3. Designating auto activation as a button action.

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- **Studio City**, Resource Central, P.O. Box 11250, Overland Park, KS 66207, (913) 469-6502. Bimonthly disk-based magazine (two 3.5-inch disks) with stacks, clip art, clip sounds, and add-on software (such as new button actions), plus news, tutorials, editorials, tips, and so on. $48 per year, back issues available.
- **America Online**, 8619 Westwood Center Drive, Vienna, VA 22128, (800) 827-6364.
- **GEnie**, 401 North Washington Street, Rockville, MD 20850, (800) 638-9636.

Get yourself a modem and a subscription to a commercial on-line service and start dialing. You'll find collections of stacks and other related files, plus a link to HyperStudio experts and enthusiasts. If you're serious about computing, it's the best investment you'll ever make. — **D.E.**

continue.) From the *Objects* menu create a text field, set options from the *Text Appearance* submenu, and type in the basic information you want to convey (**Figure 2**).

To create your auto-activate button, choose *Add a Button* from the *Objects* menu; then from the *Button Appearance* submenu, choose one of the invisible types. (Auto-activate buttons can be any size or shape, but the most common practice is to make them invisible.) From the *Button Actions* submenu, click on the *Next card* connection and perhaps *Play a sound*, as well.

Now click on *Activate after delay* (**Figure 3**), then on the *Delay time* box, and type in a number. The default is 10 seconds, but you can specify anything from zero (which means it activates instantly) up to 9999 (more than two and a half hours).

You can place an auto-activate button anywhere on screen; in this case let's just put it in the middle of the card. With the edit tool active (*Tools* menu), point to it, hold down the mouse button, and drag that little graphic into position. (You can view it anytime by just pressing the option and command keys simultaneously, as in **Figure 4**, but under normal circumstances it will be invisible, as you designated.) Now whenever anyone boots the stack, it will show the first card automatically and move, by itself, to the second card. (It will play a sound at the same time if you chose that option, as well.) Be sure to make use of this versatile feature whenever you can to add pizzazz to your stacks.

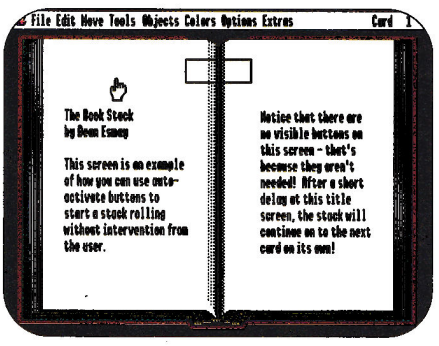

Figure 4. Press command and option keys to view invisible auto-activate buttons.

LOOKING AHEAD

January's the ideal time to plan new ventures, right? Turning our attention to various Macintosh authoring systems in the year ahead, we'll be offering a number of additional hypermedia projects.

Some exciting and innovative products will be coming our way over the course of the next several months, too: According to Roger Wagner Publishing, a color-Mac version of HyperStudio is nearing completion, and rumor has it that a new edition of HyperCard is in the works at Claris. I look forward to working with you again in the near future. ❑

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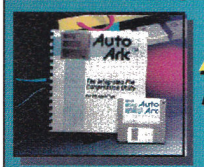

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Continued from p. 24

alien spaceships. Some of the bonus objects will add to your fuel capacity, some will enhance shield capacity, some will add new weapons to your arsenal, and some will make your old weapons more proficient, faster, and deadlier.

To benefit from those bonus objects, you'll need to fly over them while constantly dodging incoming unfriendly fire. Space Fox is unforgiving; make one mistake and your ship will explode.

You may lose quite a few ships trying to steer toward those bonuses, yet with their added capabilities, you'll never stop trying.

STAYING POWER

There are a total of ten levels, each progressively more difficult. You'll be able to clear each level by systematically zapping everything you see. On the lower levels, you can take enemy spacecraft out of action with a single well-aimed shot.

Word to the wise: Watch out for those meteor storms on the second level; even Captain Kirk would have a hard time navigating through them.

On the upper levels (which you may not get to for months), you'll encounter enemies that need ten shots to kill off. Some of those enemy spacecraft are even equipped with radar, and will hunt you down and get you with just a single bolt; many times you won't even see it coming.

WARP TWO

As you clear a level, you'll have an opportunity to dock at a space station. Although it takes a lot of practice, if you can maneuver your ship successfully into the docking bay, your shields will be recharged and you'll enter the next level with all the added firepower you've gained from bonus objects. One false move, and your spaceship will explode.

As each new level starts, you'll notice immediately that your adversaries have become more ferocious and still deadlier. You'll need all the help you can get, so you better become proficient at docking at the space station.

Escalation's the name of the game here — just as your enemies gain firepower, so do you. Bonus objects yield extra shots; they make your big guns faster and can provide you with new weapons — radar-controlled equivalents of smart bombs. If you're able to collect five bonuses on a level, you'll be granted an additional life.

TO EACH HIS OWN

As much fun as Space Fox is for veteran space cadets, it's really just an updated Defender. If you didn't particularly enjoy blasting aliens way back when, you probably won't now.

But if you were addicted to that first generation of outer-space, fast-action arcade shoot-'em-ups, then ready and steady your trigger finger — there's a lot you're going to love about Space Fox.

Joe Kohn
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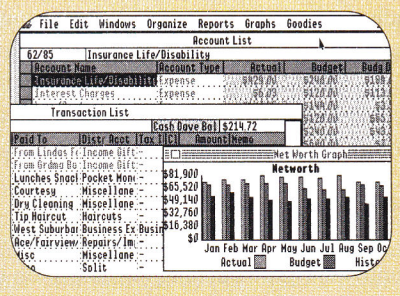

I was skeptical at first. Why bother with a computerized system to track income and expenses, when there are so many of the latter and so little of the former?

Financial software seems like overkill for someone (like me) who keeps tax receipts in a box. I save when I can, spend when I have to, and dream of winning lotteries and sweepstakes I never bother to enter. When it comes to the bottom line, no program has to tell me that my budget is stretched to the limit or that I need to curb spending if I want to save more.

But maybe you're different. Could you use help tracking your investments, planning your retirement, or minimizing those nagging tax-preparation headaches every April?

Your Money Matters is a powerful financial package for the Apple IIGS, designed to record income and expenses, calculate assets, and tally liabilities. You can also use it to print checks (complete with payee addresses), track 255 tax-related items such as interest, salary, and mortgage payments, and record investment information.

While Your Money Matters (YMM) has only two basic files (the program itself, plus personal data files you create), the package ships on four floppy disks. In addition to the main application, you get a bare-bones version of the new GS operating system (GS/OS 6.0), plus several GS desk accessories and shareware applications (extraneous matter, we thought, but fun nonetheless).

You don't need any "bonus" utilities or games to run YMM. You don't even need a hard disk — YMM will run from a single 3.5-inch disk, leaving room for a data file with 3000 transactions and 200 accounts. If you plan to build large data files, consider running the program from a hard disk and with more memory than the suggested minimum.

MONEY MAKES THE WORLD GO AROUND

You begin by creating a new data file with its own list of accounts. You have to start from scratch, but the program comes with a list of 59 predefined general accounts for home, business, and tax purposes. You can define additional accounts or account types as you need them.

YMM keeps running totals of dollars received or spent for each account "type." For example, if you define an account type as "business expenses" and keep separate accounts for individual items, such as supplies, equipment, dues, continuing education, and so on, YMM tracks total expenditures for all "business expenses" accounts.

The program reserves separate data windows for accounts, monthly account details, transactions, recurring transactions, balancing accounts, and more. Each of these windows looks like a spreadsheet with multiple rows and columns. You can sort data (in ascending or descending order) for single or multiple data fields. Other YMM windows provide form-like

templates to record budget and investment details, plus account names and addresses.

YMM can split transactions to distribute them to two or more accounts. That means, for example, that while YMM lets you record your paycheck as a total (before deductions), it also can track amounts withheld for various deductions. Similarly, the program lets you split a check used to pay a credit-card account into its component expense accounts.

YMM offers suggestions for recording cash transactions on a daily basis so that you know exactly how and where you spend your money. It tracks the value of individual investments (as long as you set up an asset account for each one).

In addition, a *Tax Identifier* window lets you record deductions and taxable income. Because you're the one who creates accounts for deductions, you can make sure they're organized according to the same categories used on IRS forms.

Several YMM report options generate printouts or screen copy of your transactions, recurring records, accounts, investments, account addresses, payee addresses, and more.

FORK OVER THE DOUGH

Without the careful work that went into the manual and the interface, YMM could have quickly become a bewildering maze of figures, windows, and graphs. But although the program is advanced enough to satisfy most power users, it's also intuitive enough not to frighten off novice accountants.

Sophisticated financial packages like Your Money Matters give you control of your bottom line. By analyzing assets and liabilities and tracking income and expenses, they show how you spend your money. They help you prepare a budget, balance a checkbook, and compare current income or expenses against last year's totals.

Overall, Your Money Matters offers all the advantages of tight organization in a computational package. And in these difficult financial times, the more organized you are the better (particularly if you're applying for a loan). If you've got the time, you might want to "spend" it here.

Carol S. Holzberg, Ph.D.
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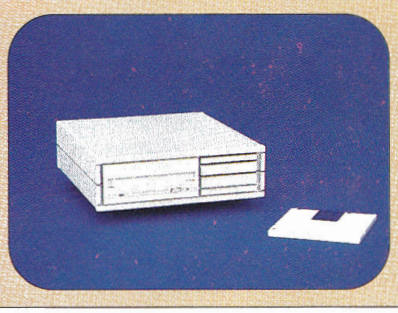

It's a truism in the computer industry that if you see something you like, wait a couple months and it'll become smaller, faster, better, or obsolete. Occasionally, a technology comes along that offers completely unique features, but carries drawbacks that offset its advantages almost completely. Using lasers instead of magnets to store your data — whether in the form of a CD-ROM drive or a rewritable optical drive — offers immense data capacity, but demands a hefty cover charge both in dollars and speed. Rewritable optical drives have been available for the Macintosh for some time, but Tulin Technology recently began shipping a drive that you can also use with your Apple IIGS — and the world of data storage may never be the same.

To create this beast, Tulin wraps a standard A-Hive case around a Ricoh mechanism. The resulting package is surprisingly small, about half again as wide as a 3.5-inch drive and about the same height. Fit and finish are adequate, if utilitarian. The drive is louder than a standard hard drive, but not annoyingly so. (The fan is a trifle noisy.) The in-use light is clearly visible, and the SCSI number switch is the two-button "rolling" kind — infinitely simpler than DIP switches. Tulin has fallen into one increasingly prevalent bad habit among drive makers: The optical drive has only one SCSI port, requiring a clunky external "SCSI-tee" device to create the extra port. That's no problem if you're using only one SCSI device, but if you stick the Tulin Optical in the middle of a SCSI chain, the resulting creaky connections look and feel like a Rube Goldberg solution. One final hardware note: the Tulin Optical isn't internally terminated and requires an external termination plug. We've tested many SCSI drives and have never found a drive as finicky as this one about the absence of an external terminator.

Installation of the requisite software on either a Mac or an Apple IIGS is a snap. You can either drop the driver into the appropriate system folder or use the installer included. Once we were up and running, the Tulin drive performed like a champ. Tulin claims an average 42-millisecond access speed — two to four times slower than an average hard drive, but fast enough not to be a hindrance, especially on a slower Mac or an Apple IIGS. In timing comparisons (see "Wanted: Hard Drives on the Run," July 1992, p. 40), the Tulin Optical finished either in the middle of the pack or just a few seconds behind the slowest competitor (not including the Apple 3.5-inch drive). The drive we tested couldn't be used as a boot drive, but Tulin reports that all drives now ship with an improved ROM to fix that problem.

The Tulin Optical requires an Apple High Speed SCSI Card on the GS — apparently CV Technologies' RAMFast SCSI card isn't up to the job, and the company has no plans for a ROM upgrade. That, plus the hefty price tag, means that Apple IIGS owners should consider carefully whether they want to invest in such specialized technology. Rewritable optical cartridges have capacity and durability advantages, but when you can pick up a 120-megabyte external SCSI for under $500, optical drives become an expensive luxury.

For Mac owners who've decided that they want an optical drive, the question is "Do you want this one?" Tulin's drive isn't the fastest or the largest, but it's one of the cheapest, and Tulin has a reputation of making solid, reliable products. If you've decided to buy a rewritable optical drive, Tulin's offering deserves your attention. ❑

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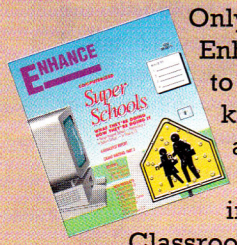

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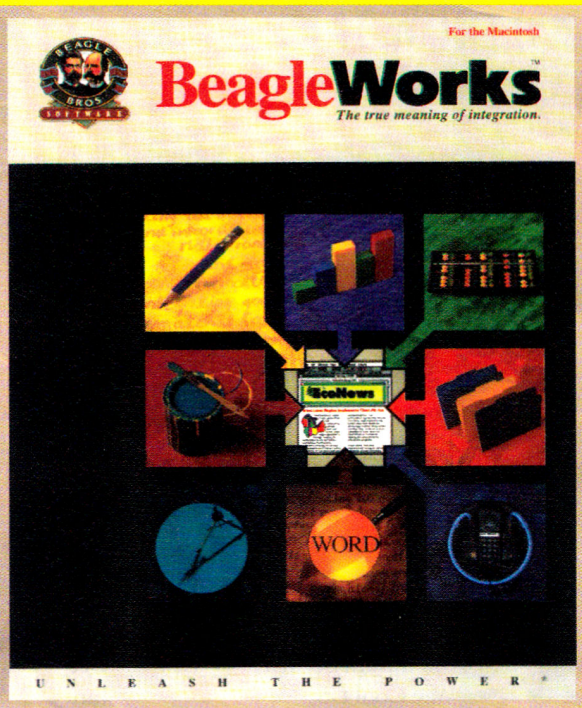

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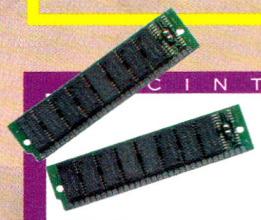

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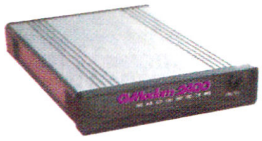

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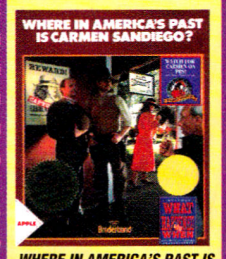

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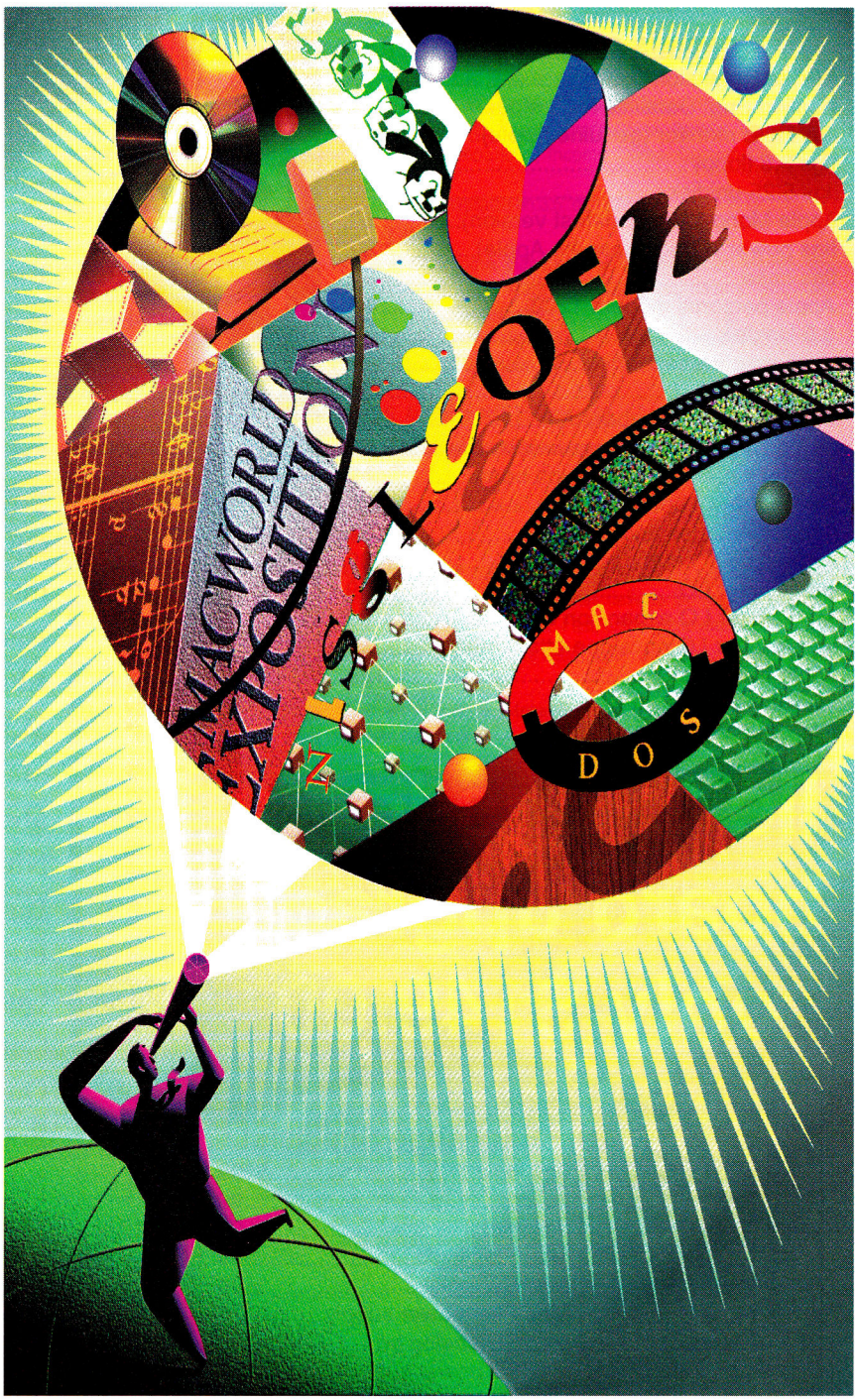

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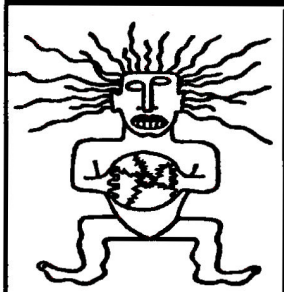

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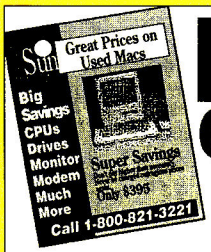

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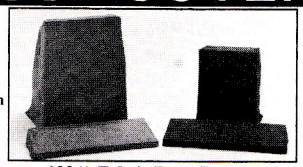

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Continued from p. 64

tions slow to catch on in our classrooms? In the world of education, as in the world of Apple computing, change produces turbulence. One of the niftiest insights I've had in a long time comes from *Managing as a Performing Art*, a book by Peter Vaill, a professor at Harvard University. Vaill credits one of his students with the observation that the metaphor for our age is "permanent white-water rafting." A generation or two ago, it was mountain climbing: If you tried hard enough and overcame the obstacles in your path, you could "climb the ladder" of success and, from a position of comparative calm, gaze at the world unfolding around you.

That paradigm died in the '50s, but we've been too locked into it to see the changes taking place around us. Frank Ogden, the Vancouver-based futurist, notes that "in times of panic, chaos, or rapid change, the bizarre rapidly becomes acceptable." But we don't handle the bizarre very well, so many of us cling tightly to our mountain-climbing gear as our raft hurtles through the rapids.

The kinds of breakthroughs in educational materials we've been talking about have come from Optical Data and other companies already familiar with digital media — not Harcourt Brace Jovanovich or any other educational book publisher. Like the encyclopedia salesman I saw on my trip to Illinois, many mainstream book people will be hanging onto their quill pens until they're pried from their cold, dead fingers.

Over the past three and a half years, change has been a consistent theme of this column. Now as *inCider/A+* looks ahead to the next decade, Learning Curve will no longer appear. I'll continue to explore the world of educational technology, of course, and to write about it; I hope that we'll meet again here in the near future.

FOR BBS BIBLIOPHILES

Parents, students, and teachers who haven't invested in CD-ROM yet can still enjoy another recent development in electronic publishing. If there's an IBM PC among your computer resources, consider joining Houston-based Advantage International's **Paperless Readers Club**, a unique new on-line service. For a one-time charge of $24.95 you get the Advantage Reader software and four paperless books of your choice. After that, you can call Advantage International's electronic bulletin board (713-977-1719) to download new titles. The books are charged to your credit card.

Advantage released its first paperless book, Sir Arthur Conan Doyle's The Hound of the Baskervilles, in 1991. The company offers 52 titles currently, including science fiction, literary classics, westerns, Shakespeare, and all-time favorites such as Tarzan of the Apes, by Edgar Rice Burroughs.

While the Advantage software is currently MS-DOS only, the growing popularity of electronic publishing across all platforms may encourage the company to branch out into the Macintosh and Apple II markets in the near future. **— D.T.**

Thank you for your commitment to helping our schools meet the needs of all students. Change is frightening at first — yet if we embrace technological advancement, we can begin to transform education in a way that will preserve the joy of learning. The development of each individual as an active, lifelong learner is essential for our survival. Technology is a tool that serves not only students' needs, but the needs of the people who make that magic happen — you, the parents and teachers. ❑

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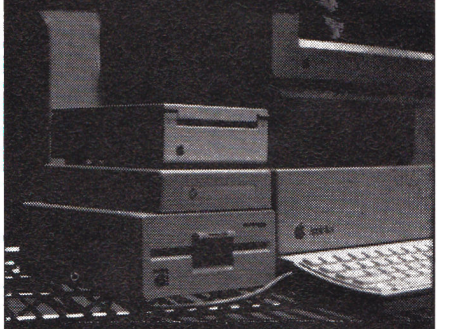

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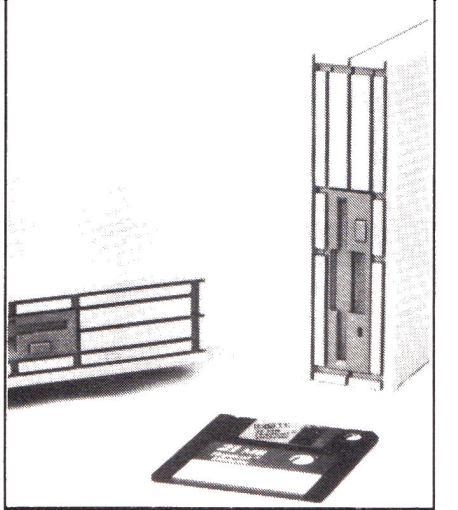

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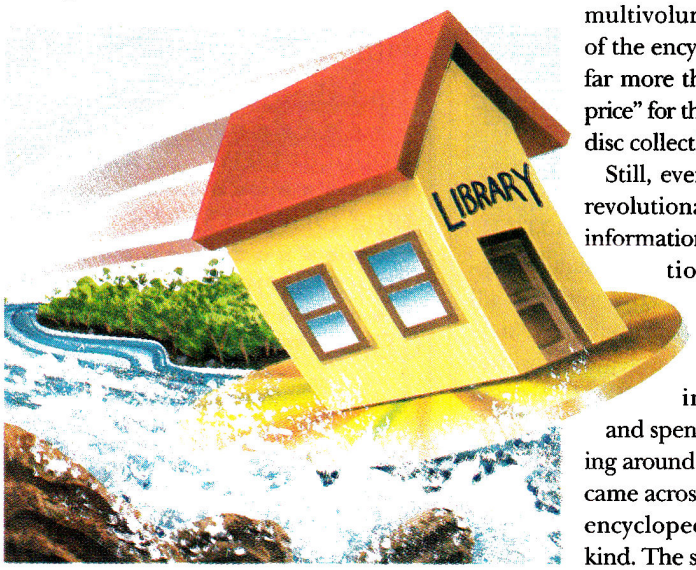
DEEP IN THE STACKS

Pop in a platter and immerse yourself in the brave new world of electronic publishing.

I'm in the middle of Ira Levin's recent novel *Sliver*. I can't say I'm *reading* it, exactly — sometimes I read, sometimes I listen, sometimes I do both at the same time. *Sliver* is one of the "electronic books" I pop into the new **DD-10EX Data Discman** multimedia CD-ROM (*compact-disc read-only memory*) player from Sony. This pocket-sized unit weighs about the same as a single hardback book and comes with the *Grolier Electronic Encyclopedia*, Passport's *World Travel Translator*, and the Levin thriller on disc. The multivolume printed version of the encyclopedia alone costs far more than the $450 "street price" for the Data Discman (and disc collection).



By DAVID D. THORNBURG, Ph.D.

Still, even in the face of this revolutionary development in information distribution, traditionalists are trying hard to hang on. I attended an education conference in Illinois last year and spent some time wandering around the exhibits, where I came across a booth displaying encyclopedias — the printed kind. The salesman argued that his offerings were far more practical than electronic versions. "After all," he said, "do you really want students reading information from a computer screen?" Well, now that you ask, yes, I do — especially if it speeds their search time by several orders of magnitude.

Electronic book players like the Discman aren't toys. They facilitate information access in ways that are virtually impossible in the world of traditional print: You can search for words anywhere on disc, not just in entry headings, making a focused browse through a disc encyclopedia or anthology far more productive than a similar stint with the paper version. And if the disc's interface is hypermedia-based, complementary sound, video, and animation files are instantly available at the click of a mouse button on a highlighted word or picture. That means that even simple learning games and stories on disc, such as Broderbund's **Just Grandma and Me**, or educational titles for older kids and adults, such as Warner's **String Quartet**, have simply no equivalent in print.

The *read only* part of *CD-ROM*, then, is something of a misnomer. And the old but lingering misconception that compact discs — and laser videodiscs as well — are just another passive system of information delivery has been soundly debunked in the last couple of years. With your CD or videodisc player connected to your computer and the right software tools in hand, you can create interactive applications from the reference material stored on disc.

The Voyager Company, for example, markets a product called **CD AudioStack**, a Macintosh package that lets you select music and voice segments from a compact disc, incorporate them into your own HyperCard stacks, and control their presentation on cue. A similar product, **Voyager VideoStack**, gives you frame-by-frame control over still and moving images on laser disc. Still other Voyager videodisc titles, including **The Great Quake of '89** and **Regard for the Planet**, come with predesigned companion HyperCard stacks on floppy disk. These optional programs turn video clips into a database of images you can sort, view, and explore in your own way.

Optical Data Corporation, creators of the **Windows on Science** series of laser videodiscs, markets a **Curriculum Publishing Kit** — a CD-ROM containing materials with which educators can design their own science courses from scratch. Through a series of HyperCard stacks and PageMaker documents, teams of teachers can build a curriculum, including personalized variations of existing lessons and activities, around their specific needs, and ultimately print what amounts to a customized science text, coordinated with segments from the Windows videodiscs.

So with all this convenience and creativity going for them, why are electronic publica-

Continued on p. 63

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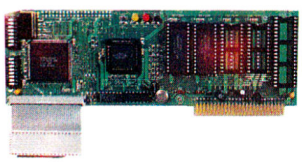

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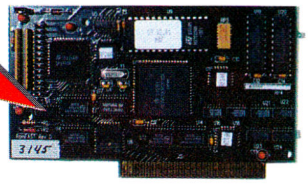

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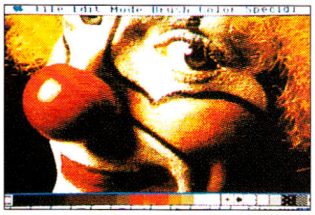

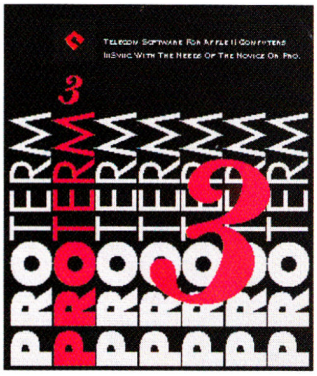

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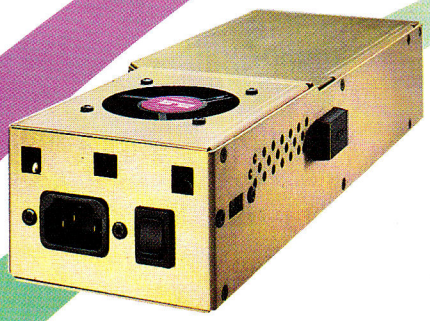

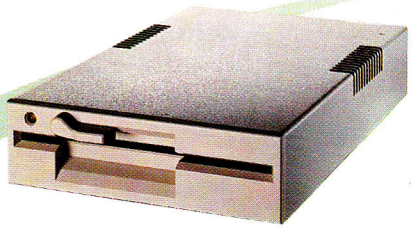

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